

Chapter Six

The Making of Core Consciousness

THE BIRTH OF CONSCIOUSNESS

How do we ever begin to be conscious? Specifically, how do we ever have a sense of self in the act of knowing? We begin with a first trick. The trick consists of constructing an account of what happens within the organism when the organism interacts with an object, be it actually perceived or recalled, be it within body boundaries (e.g., pain) or outside of them (e.g., a landscape). This account is a simple narrative without words. It does have characters (the organism, the object). It unfolds in time. And it has a beginning, a middle, and an end. The beginning corresponds to the initial state of the organism. The middle is the arrival of the object. The end is made up of reactions that result in a modified state of the organism.

We become conscious, then, when our organisms internally construct and internally exhibit a specific kind of wordless knowledge—that our organism has been changed by an object—and when such

knowledge occurs along with the salient internal exhibit of an object. The simplest form in which this knowledge emerges is the feeling of knowing, and the enigma before us is summed up in the following question: By what sleight of hand is such knowledge gathered, and why does the knowledge first arise in the form of a feeling?

The specific answer I deduced is presented in the following hypothesis: *core consciousness occurs when the brain's representation devices generate an imaged, nonverbal account of how the organism's own state is affected by the organism's processing of an object, and when this process enhances the image of the causative object, thus placing it saliently in a spatial and temporal context.* The hypothesis outlines two component mechanisms: the generation of the imaged nonverbal account of the object-organism relationship—which is the source of the sense of self in the act of knowing—and the enhancement of the images of an object. As far as the sense-of-self component is concerned, the hypothesis is grounded on the following premises:

1. Consciousness depends on the internal construction and exhibition of new knowledge concerning an interaction between that organism and an object.
2. The organism, as a unit, is mapped in the organism's brain, within structures that regulate the organism's life and signal its internal states continuously; the object is also mapped within the brain, in the sensory and motor structures activated by the interaction of the organism with the object; both organism and object are mapped as neural patterns, in first-order maps; all of these neural patterns can become images.
3. The sensorimotor maps pertaining to the object cause changes in the maps pertaining to the organism.
4. The changes described in 3 can be re-represented in yet other maps (second-order maps) which thus represent the relationship of object and organism.
5. The neural patterns transiently formed in second-order maps can become mental images, no less so than the neural patterns in first-order maps.

6. Because of the body-related nature of both organism maps and second-order maps, the mental images that describe the relationship are feelings.

I note, again, that the focus of our inquiry here is not the matter of how neural patterns in any map become mental patterns or images—that is the *first* problem of consciousness as outlined in chapter 1. We are focusing on the *second* problem of consciousness, the problem of self.

As far as the brain is concerned, the organism in the hypothesis is represented by the proto-self. The key aspects of the organism addressed in the account are those I indicated as provided in the proto-self: the state of the internal milieu, viscera, vestibular system, and musculoskeletal frame. The account describes the relationship between the changing proto-self and the sensorimotor maps of the object that causes those changes. In short: As the brain forms images of an object—such as a face, a melody, a toothache, the memory of an event—and as the images of the object *affect* the state of the organism, yet another level of brain structure creates a swift nonverbal account of the events that are taking place in the varied brain regions activated as a consequence of the object-organism interaction. The mapping of the object-related consequences occurs in first-order neural maps representing proto-self and object; the account of the *causal relationship* between object and organism can only be captured in second-order neural maps. Looking back, with the license of metaphor, one might say that the swift, second-order nonverbal account narrates a story: *that of the organism caught in the act of representing its own changing state as it goes about representing something else*. But the astonishing fact is that the knowable entity of the catcher has just been created in the narrative of the catching process.

This plot is incessantly repeated for every object the brain represents, and it does not matter whether the object is present and interacting with the organism or is being brought back from past memory. It also makes no difference what the object really is. In healthy individuals, as long as the brain is awake, the machines of image making and consciousness are “on,” and we are not manipulating our mental

state by doing something like meditation, it is not possible to run out of “actual” objects or “thought” objects, and it is thus not possible to run out of the abundant commodity called core consciousness. There are just too many objects, actual or recalled, and often there is more than one object at about the same time. The same imaged plot is supplied in abundance to the flowing process we call thought.¹

The wordless narrative I propose is based on neural patterns which become images, images being the same fundamental currency in which the description of the consciousness-causing object is also carried out. Most importantly, the images that constitute this narrative are incorporated in the stream of thoughts. The images in the consciousness narrative flow like shadows along with the images of the object for which they are providing an unwitting, unsolicited comment. To come back to the metaphor of movie-in-the-brain, they are *within* the movie. There is no external spectator.²

Now let me conclude my presentation of how I think core consciousness arises, by addressing the second component in the hypothesis. The process which generates the first component—the imaged nonverbal account of the relationship between object and organism—has two clear consequences. One consequence, already presented, is the subtle image of knowing, the feeling essence of our sense of self; the other is the enhancement of the image of the causative object, which dominates core consciousness. Attention is driven to focus on an object and the result is saliency of the images of that object in mind. The object is *set out* from less-fortunate objects—selected as a particular *occasion* in both the Jamesian and Whiteheadian senses. It becomes *fact*, following the preceding events which lead to its becoming, and it is part of a relationship with the organism to which all this is happening.

You Are the Music while the Music Lasts: The Transient Core Self

You know that you are conscious, you feel that you are in the act of knowing, because the subtle imaged account that is now flowing in the stream of your organism’s thoughts exhibits the knowledge that your proto-self has been changed by an object that has just become

salient in the mind. You know you exist because the narrative exhibits you as protagonist in the act of knowing. You rise above the sea level of knowing, transiently but incessantly, as a *felt* core self, renewed again and again, thanks to anything that comes from outside the brain into its sensory machinery or anything that comes from the brain's memory stores toward sensory, motor, or autonomic recall. You know it is *you* seeing because the story depicts a character—you—doing the seeing. The first basis for the conscious *you* is a feeling which arises in the re-representation of the *nonconscious proto-self in the process of being modified* within an account which establishes the cause of the modification. The first trick behind consciousness is the creation of this account, and its first result is the feeling of knowing.

Knowing springs to life in the story, it inheres in the newly constructed neural pattern that constitutes the nonverbal account. You hardly notice the storytelling because the images that dominate the mental display are those of the things of which you are now conscious—the objects you see or hear—rather than those that swiftly constitute the feeling of you in the act of knowing. Sometimes all you notice is the whisper of a subsequent verbal translation of a related inference of the account: Yes, it is me seeing or hearing or touching. But, faint as it may be, half guessed as the hint often is, when the storytelling is suspended by neurological disease, your consciousness is suspended as well and the difference is monumental.³

T. S. Eliot might as well have been thinking of the process I just described when he wrote, in the *Four Quartets*, of “music heard so deeply that it is not heard at all,” and when he said “you are the music while the music lasts.” He was at least thinking of the fleeting moment in which a deep knowledge can emerge—a union, or incarnation, as he called it.

Beyond the Transient Core Self: The Autobiographical Self

Something does last after the music is gone, however; some residue does remain after many ephemeral emergences of core self. In complex organisms such as ours, equipped with vast memory capacities,

the fleeting moments of knowledge in which we discover our existence are facts that can be committed to memory, be properly categorized, and be related to other memories that pertain both to the past and to the anticipated future. The consequence of that complex learning operation is the development of autobiographical memory, an aggregate of dispositional records of who we have been physically and of who we have usually been behaviorally, along with records of who we plan to be in the future. We can enlarge this aggregate memory and refashion it as we go through a lifetime. When certain personal records are made explicit in reconstructed images, as needed, in smaller or greater quantities, they become the *autobiographical self*. The real marvel, as I see it, is that autobiographical memory is architecturally connected, neurally and cognitively speaking, to the nonconscious proto-self and to the emergent and conscious core self of each lived instant. This connection forms a bridge between the ongoing process of core consciousness, condemned to sisyphal transiency, and a progressively larger array of established, rock-solid memories pertaining to unique historical facts and consistent characteristics of an individual. In other words, the body-based, dynamic-range stability of the nonconscious proto-self, which is reconstructed live at each instant, and the conscious core self, which emerges from it in the second-order nonverbal account when an object modifies it, are enriched by the accompanying display of memorized and invariant facts—for instance, where you were born, and to whom; critical events in your autobiography; what you like and dislike; your name; and so on. Although the basis for the autobiographical self is stable and invariant, its scope changes continuously as a result of experience. The display of autobiographical self is thus more open to refashioning than the core self, which is reproduced time and again in essentially the same form across a lifetime.

Unlike the core self, which inheres as a protagonist of the primordial account, and unlike the proto-self, which is a current representation of the state of the organism, the autobiographical self is based on a concept in the true cognitive and neurobiological sense of the term.

Table 6.1. Kinds of Self

AUTOBIOGRAPHICAL SELF: The autobiographical self is based on autobiographical memory which is constituted by implicit memories of multiple instances of individual experience of the past and of the anticipated future. The invariant aspects of an individual's biography form the basis for autobiographical memory. Autobiographical memory grows continuously with life experience but can be partly remodeled to reflect new experiences. Sets of memories which describe identity and person can be reactivated as a neural pattern and made explicit as images whenever needed. Each reactivated memory operates as a "something-to-be-known" and generates its own pulse of core consciousness. The result is the autobiographical self of which we are conscious.

CORE SELF: The core self inheres in the second-order nonverbal account that occurs whenever an object modifies the proto-self. The core self can be triggered by any object. The mechanism of production of core self undergoes minimal changes across a lifetime. We are conscious of the core self.

CONSCIOUSNESS

PROTO-SELF: The proto-self is an interconnected and temporarily coherent collection of neural patterns which represent the state of the organism, moment by moment, at multiple levels of the brain. We are *not* conscious of the proto-self.

The concept exists in the form of dispositional, implicit memories contained in certain interconnected brain networks, and many of these implicit memories can be made explicit at any time, simultaneously.⁴ Their activation in image form constitutes a backdrop to each moment of a healthy mental life, usually unattended, often just hinted and half guessed, just like the core self and like knowing, and yet there, ready to be made more central if the need arises to confirm that we are who we are. That is the material we use when we describe our personality or the individual characteristics of another person's mode of being. More about this in the next chapter when we discuss

Table 6.2. Distinguishing Core Self from Autobiographical Self

CORE SELF

The transient protagonist of consciousness, generated for any object that provokes the core-consciousness mechanism. Because of the permanent availability of provoking objects, it is continuously generated and thus appears continuous in time.

The mechanism of core self requires the presence of proto-self. The biological essence of the core self is the representation in a second-order map of the proto-self being modified.

AUTOBIOGRAPHICAL SELF

Based on permanent but dispositional records of core-self experiences. Those records can be activated as neural patterns and turned into explicit images. The records are partially modifiable with further experience.

The autobiographical self requires the presence of a core self to begin its gradual development.

The autobiographical self also requires the mechanism of core consciousness so that activation of its memories can generate core consciousness.

extended consciousness and the mechanisms behind identity and personhood.

In a developmental perspective, I expect that in the early stages of our being, there is little more than reiterated states of core self. As experience accrues, however, autobiographical memory grows and the autobiographical self can be deployed. The milestones that have been identified in child development are possibly a result of the uneven expansion of autobiographical memory and the uneven deployment of the autobiographical self.⁵

Regardless of how well autobiographical memory grows and how robust the autobiographical self becomes, it should be clear that they require a continued supply of core consciousness for them to be of any consequence to their owner organism. The contents of the autobiographical self can only be known when there is a fresh construction of

core self and knowing for each of those contents to be known. A patient in the throes of an epileptic automatism has not destroyed her autobiographical memory and yet cannot access its contents. When the seizure ends and core consciousness returns, the bridge is reestablished and the autobiographical self can be called up as needed. In other words, although the contents of the autobiographical self pertain to the individual in a most unique way, they depend on the gift of core consciousness to come alive just as any other something-to-be-known. A bit unfair, perhaps, but that is how it must be.

ASSEMBLING CORE CONSCIOUSNESS

I see core consciousness as created in pulses, each pulse triggered by each object that we interact with or that we recall. Let's say that a consciousness pulse begins at the instant just before a new object triggers the process of changing the proto-self and terminates when a new object begins triggering its own set of changes. The proto-self modified by the first object then becomes the *inaugural* proto-self for the new object. A new pulse of core consciousness begins.

The continuity of consciousness is based on the steady generation of consciousness pulses which correspond to the endless processing of myriad objects, whose interaction, actual or recalled constantly, modifies the proto-self. The continuity of consciousness comes from the abundant flow of nonverbal narratives of core consciousness.

It is probable that more than one narrative is created simultaneously. This is because more than one object can be engaged at about the same time, although not many can be engaged simultaneously, and more than one object can thus induce a modification in the state of the proto-self. When we talk about a "stream of consciousness," a metaphor that suggests a single track and a single sequence of thoughts, the part of the stream that carries consciousness is likely to arise not in just one object but in several. Moreover, it is also probable that each object interaction generates more than one narrative, since several brain levels can be involved. Again, such a situation seems beneficial because it would pro-

duce an overabundance of core consciousness and ensure the continuity of the state of "knowing." I shall say some more on the issue of multiple generators of core consciousness in the pages ahead.

THE NEED FOR A SECOND-ORDER NEURAL PATTERN

Telling the story of the changes caused on the inaugural proto-self by the organism's interaction with any object requires its own process and its own neural base. In the simplest terms, I would say that beyond the many neural structures in which the causative object and the proto-self changes are separately represented, there is at least one other structure which *re-represents* both proto-self and object in their temporal relationship and can thus represent what is actually happening to the organism: *proto-self at the inaugural instant; object coming into sensory representation; changing of inaugural proto-self into proto-self modified by object*. I suspect, however, that there are several structures in the human brain with the ability to generate a second-order neural pattern which re-represents first-order occurrences. The second-order neural pattern which subtends the nonverbal imaged account of the organism-object relationship is probably based on intricate cross-signaling among several "second-order" structures. The likelihood is low that one brain region holds *the* supreme second-order neural pattern.

The main characteristics of the second-order structures whose interaction generates the second-order map are as follows: A second-order structure must (1) be able to receive signals via axon pathways signals from sites involved in representing the proto-self *and* from sites that can potentially represent an object; (2) be able to generate a neural pattern that "describes," in a temporally ordered manner, the events occurring in the first-order maps; (3) be able, directly or indirectly, to introduce the image resulting from the neural pattern in the overall flow of images we call thought; and (4) be able, directly or indirectly, to signal back to the structures processing the object so that the object image can be enhanced.

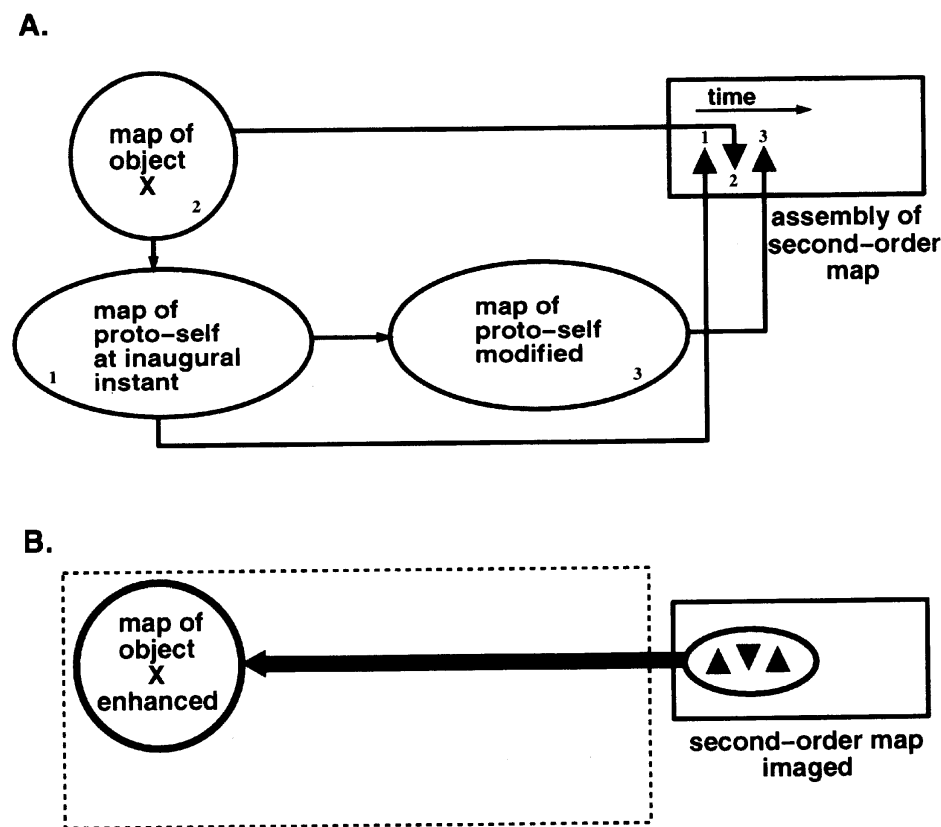


Figure 6.1. A. Components of the second-order neural pattern assembled in temporal sequence in second-order structure. B. Second-order map image arises and map of object becomes enhanced.

A sketch of this general idea is presented in figure 6.1. A second-order structure receives a succession of signals related to an unfolding event that occurs at different brain sites—the forming of the image of object X; the state of the proto-self as the image of X begins to be formed; the changes in the proto-self caused by processing X. This succession of re-representations constitutes a neural pattern that becomes, directly or indirectly, the basis for an image—the image of a relationship between object X and the proto-self changed by X. Let me stress, again, that this is a simplification of the idea. In all likelihood, because there are several second-order structures, the neural

pattern and the image of the relationship will result from the cross-signaling among those second-order structures. Also note that, as we saw earlier, the process of core consciousness is not confined to generating this imaged account. The presence of the account pattern in a second-order neural pattern has important consequences: it influences the neural maps of the object by modulating their activity and thus enhances the saliency of those patterns for a brief period.

Where Is the Second-Order Neural Pattern?

It is important to consider the possible anatomical sources for the second-order pattern. My best guess is that the second-order neural pattern arises transiently out of interactions among a select few regions. It is not to be found within a single brain region—some sort of phrenologically conceived consciousness center—but neither is it everywhere or anywhere. The fact that the second-order neural pattern is implemented in more than one site may sound surprising at first, but it should not. I believe it conforms to a general brain rule rather than to an exception. Consider, for instance, what happens with movement. Imagine yourself in a room when a friend enters and wishes to borrow a book. You get up and walk over, picking up the book as you do, and begin talking; your friend says something amusing; you begin laughing. You are producing movements with your whole body, as you rise and begin your trajectory, and as a certain posture is being adopted for that purpose; your legs are moving and so is your right arm; so are parts of your speech apparatus; so are the muscles in your face, rib cage, and diaphragm as you laugh. As in the analogy of behavior as orchestral performance, there are half a dozen *separate* motor generators, each doing its part, some under voluntary control (the ones that help you pick up the book), others not (the ones that control body posture or laughter). All of them, however, are beautifully coordinated in time and space so that your movements are smoothly performed and appear generated by a single source and by a single will. We have few clues as to how and where this astonishing

smoothing and blending occurs. No doubt it all occurs with the help of a slew of brain stem, cerebellar, and basal ganglia circuits, interacting by cross-signaling. Precisely how is not clear, of course.

Now transfer the above conditions to my conception of core consciousness. Here, too, I am suggesting that there are multiple consciousness generators, at several brain levels, and yet the process appears smooth, concerned with one knower and one object. It is reasonable to assume that under normal circumstances several second-order maps relative to different aspects of the processing of an object would be created in parallel, roughly within the same time interval.

Core consciousness for that object would result from a composite of second-order maps, an integrated neural pattern which would give rise to the imaged account I proposed earlier and also lead to the enhancement of the object. I do not know how the fusing, blending, and smoothing are achieved, but it is important to note that the mystery is not particular to consciousness; it pertains to other functions such as motion. Perhaps when we solve the latter, we also solve the former.

There are several brain structures capable of receiving converging signals from varied sources and thus seemingly capable of second-order mapping. In the context of the hypothesis, the second-order structures I have in mind must achieve a specific conjoining of signals from "whole-organism maps" and "object maps." Respecting such demands relative to the source of the signals to be conjoined eliminates several candidates, e.g., higher-order cortices in the parietal and temporal regions, the hippocampus, and the cerebellum, whose roles fall under first-order mapping. Moreover, the second-order structures required by the hypothesis must be capable of exerting an influence on first-order maps so that enhancement and coherence of object images can occur. Once this other demand is also taken into account, the real contenders for second-order structure are the superior colliculi (the twin hill-like structures in the back part of the midbrain known as the tectum); the entire region of the cingulate cortex; the thalamus; and some prefrontal cortices. I suspect that all of these contenders play a

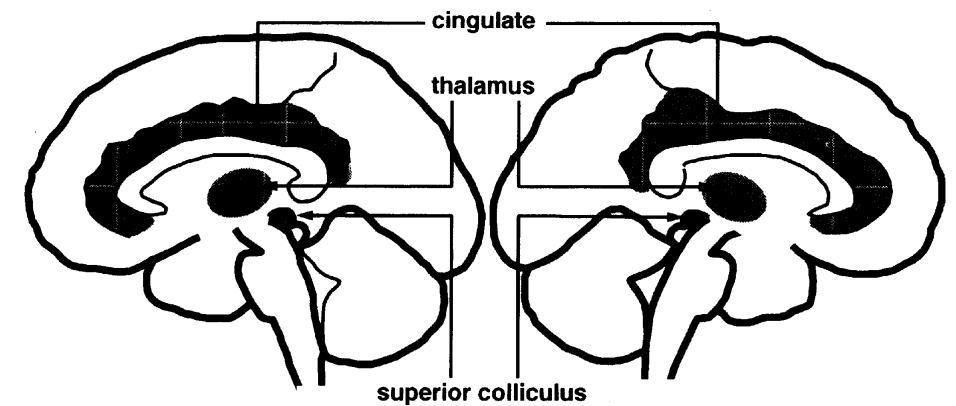


Figure 6.2. Location of the main second-order map structures, mentioned in the hypothesis.

role in consciousness; that none of them acts alone; and that the scope of their contributions is varied. For example, I doubt the superior colliculi are especially important in human consciousness, and I suspect the prefrontal cortices probably participate only in extended consciousness. Figure 6.2 gives a rough idea of where these structures are.

The notion of interaction among such structures is critical to the hypothesis. For example, as regards core consciousness, I believe that both superior colliculi and cingulate cortices independently assemble a second-order map. Yet, the second-order neural pattern I envision in my hypothesis as the basis for our feeling of knowing is supraregional. It would result from the ensemble playing of the superior colliculi and the cingulate under the coordination of the thalamus, and it is sensible to assume that the cingulate and thalamic components would have the lion's share in the ensemble.

The subsequent influence of second-order neural patterns on the enhancement of the object image is achieved by several means, including thalamocortical modulation and the activation of acetylcholine and monoamine nuclei in the basal forebrain and brain stem, all of which subsequently affect cortical processing. It is interesting to note that the second-order structures I propose would indeed have the means to exert such influences.

The list of neuroanatomical devices required to implement consciousness is thus growing but remains mercifully circumscribed. The list includes the select number of structures needed to implement the proto-self (some brain-stem nuclei, the hypothalamus and basal fore-brain, some somatosensory cortices) as well as the structures enumerated here as possible second-order mapping sites. In chapter 8 I consider how plausible the involvement of all these structures may be in the making of consciousness.

THE IMAGES OF KNOWING

The first use for the imaged account of the organism-object relationship is to inform the organism of what it is doing, or put in different words, to answer a question that was never posed by the organism: What is happening? What is the relation between images of things and this body? The feeling of knowing is the beginning of the answer. I have already outlined the consequences of acquiring such unsolicited knowledge: it is the beginning of the freedom to *comprehend* a situation, the beginning of the eventual chance to plan responses that differ from the Duchampian “ready-mades” provided by nature.

As I suggested, however, there is an immediate secondary use for the process that leads to the imaged account. When the properly equipped brain of a wakeful organism generates core consciousness, the first result is *more* wakefulness—note that some wakefulness was available already and was necessary to start the ball rolling. The second result is *more-focused* attention to the causative object—again, some attention was available already. Both results are achieved by means of enhancing the first-order maps which represent the object.

To some degree, the message implied in the conscious state is: “Focused attention must be paid to X.” Consciousness results in *enhanced* wakefulness and *focused* attention, both of which improve image processing for certain contents and can thus help optimize immediate and planned responses. The organism’s engagement with an object

intensifies its ability to process that object sensorily and also increases the opportunity to be engaged by other objects—the organism gets ready for more encounters and for more-detailed interactions. The overall result is greater alertness, sharper focus, higher quality of image processing.

Beyond providing a feeling of knowing and an enhancement of the object, the images of knowing, assisted by memory and reasoning, form the basis for simple nonverbal inferences which strengthen the process of core consciousness. These inferences reveal, for instance, the close linkage between the regulation of life and the processing of images which is implicit in the sense of individual perspective. Ownership is hidden, as it were, within the sense of perspective, ready to be made clear when the following inference can be made: if these images have the perspective of this body I now feel, then these images are in my body—they are mine. As for the sense of action, it is contained in the fact that certain images are tightly associated with certain options for motor response. Therein our sense of agency—these images are mine and I can act on the object that caused them.

CONSCIOUSNESS FROM PERCEIVED OBJECTS AND RECALLED PAST PERCEPTIONS

When objects appear in mind not because they are immediately present in our surroundings but because we recall them from memory, their images also cause core consciousness. The reason for this has to do with the fact that we store in memory not just aspects of an object’s physical structure—the potential to reconstruct its form, or color, or sound, or typical motion, or smell, or what have you—but also aspects of our organism’s motor involvement in the process of apprehending such relevant aspects: our emotional reactions to an object; our broader physical and mental state at the time of apprehending the object. As a consequence, recall of an object and deployment of its image in mind is accompanied by the reconstruction of at least some of the images which represent those pertinent aspects. Reconstructing

that collection of organism accommodations for the object you recall generates a situation similar to the one that occurs when you perceive an external object directly.⁶

The net result is that as you think about an object, reconstructing part of the accommodations required to perceive it in the past as well as the emotive responses to it in the past is enough to change the proto-self in much the same manner that I have described for when an external object confronts you directly. The immediate source of the object of which you become conscious is different, in actual perception or recall, but the consciousness of apprehending something is the same, whether perceived or recalled. This is why curarized patients, who are unable to produce actual somatomotor postural adjustments in order to perceive an object, are still mentally aware of objects brought to their stationary sensory devices. In all likelihood, even the plans for future perceptuo-motor accommodations are effective modifiers of the proto-self and thus originators of second-order accounts. If both the actions themselves as well as the plans for actions can be the source of second-order maps, then core consciousness can arise even earlier since plans for movement necessarily occur before movements, just as the responses that eventually cause emotions occur before those emotions are enacted.

Because our brain has the possibility of representing, in somatosensory maps, both plans of action and actions themselves, and because such plans can be made available to second-order maps, the brain would have available a double mechanism for constructing the primordial narratives of consciousness.

THE NONVERBAL NATURE OF CORE CONSCIOUSNESS

Let me make clear what I mean by making a narrative or telling a story. The terms are so connected to language that I must ask you again not to think of them in terms of words. I do not mean narrative or story in the sense of putting together words or signs in phrases and sentences. I do mean telling a narrative or story in the sense of creat-

ing a nonlanguage map of logically related events. Better to think of film (although the film medium does not give the perfect idea, either) or of mime—Jean-Louis Barrault miming the story of the watch theft in *Les Enfants du Paradis*. A line from a poem by John Ashbery captures the idea: “This is the tune but there are no words, the words are only speculation (from the Latin *speculum*).”⁷

In the case of humans the second-order nonverbal narrative of consciousness can be converted into language immediately. One might call it the third-order. In addition to the story that signifies the act of knowing and attributes it to the newly minted core self, the human brain also generates an automatic verbal version of the story. I have no way of stopping that verbal translation, neither do you. Whatever plays in the nonverbal tracks of our minds is rapidly translated in words and sentences. That is in the nature of the human, language creature. This uninhabitable verbal translation, the fact that knowing and core self *also* become verbally present in our minds by the time we usually focus on them, is probably the source of the notion that consciousness might be explainable by language alone. It has been thought that consciousness occurred when, and only when, language commented on the mental situation for us. As indicated earlier, the view of consciousness required by this notion suggests that only humans with substantial mastery of the language instrument would have conscious states. Nonlanguage animals and human babies would be just out of luck, forever unconscious.

The language explanation of consciousness is improbable and we need to go behind the mask of language to find a more plausible alternative. Curiously, the very nature of language argues against it having a primary role in consciousness. Words and sentences denote entities, actions, events, and relationships. Words and sentences translate concepts, and concepts consist of the nonlanguage idea of what things, actions, events, and relationships are. Of necessity, concepts precede words and sentences in both the evolution of the species and the daily experience of each and every one of us. The words and sentences of healthy and sane humans do not come out of nowhere,

cannot be the de novo translation of nothing before them. So when my mind says “I” or “me,” it is translating, easily and effortlessly, the nonlanguage concept of the organism that is mine, of the self that is mine. If a perpetually activated construct of core self were not in place, the mind could not possibly translate it as “I,” or as “me,” or as whatever literary paraphrase it might apply, in whatever language it might know. The core self must be in place for its translation into a suitable word to occur.

One could argue, in fact, that the consistent content of the *verbal* narrative of consciousness—regardless of the vagaries of its form—permits one to deduce the presence of the equally consistent *nonverbal, imaged* narrative that I am proposing as the foundation of consciousness.

The narrative of the state of the proto-self being changed by the interaction with an object must first occur in its nonlanguage form if it is ever to be translated by suitable words. In the sentence “I see a car coming,” the word *see* stands for a particular act of perceptual possession perpetrated by my organism and involving my self. And the word *see* is there, properly moored to the word *I*, to translate the wordless play unfolding in my mind.

Now let me say that my views could be questioned along the following lines. What if the wordless play of core consciousness, the nonverbal narrative of knowing, occurs below the level of consciousness and only the verbal translation provides evidence that it occurs at all? Core consciousness would emerge only at the time of verbal translation and not before, during the nonverbal phase of the storytelling. The view I find less plausible would be brought back but with a small twist: the mechanisms I outlined to describe the actors and events in the act of knowing would remain, but the possibility that the nonverbal narrative alone would give us access to knowing would be denied.

This alternative view would be interesting, but I am not ready to endorse it. The main reason not to do so comes from the need to rely on language and on its powers in order to have consciousness. To begin with, although verbal translations cannot be inhibited, they are

often not attended, and they are performed under considerable literary license—the creative mind translates mental events in a large variety of ways rather than in a stereotypical manner. Moreover, the creative “languaged” mind is prone to indulge in fiction. Perhaps the most important revelation in human split-brain research is precisely this: that the left cerebral hemisphere of humans is prone to fabricating verbal narratives that do not necessarily accord with the truth.⁸

I find it unlikely that consciousness would depend on the vagaries of verbal translation and on the unpredictable level of focused attention paid to it. If consciousness depends on verbal translations for its existence, chances are one would have varying kinds of consciousness, some truthful, some not; varied levels and intensity of consciousness, some effective, some not; and, worst of all, lapses of consciousness. Yet this is not what happens in healthy and sane humans. The primordial story of self and knowing is told with consistency. Your degree of *focused attention* to an object does vary, but your level of general consciousness does not drop below threshold when you are distracted from an object and focus on another—you do not become stuporous and it does not look like you are having a seizure; you are just conscious of other things rather than conscious of nothing. The threshold of consciousness is met when you wake up, and after that, consciousness stays on until it is turned off. When you run out of words and sentences, you do not fall asleep: you just listen and watch.

I believe the imaged, nonverbal narrative of core consciousness is swift, that its unexamined details have eluded us for a long time, that the narrative is barely explicit, so half hinted that its expression is almost like the emanation of a belief. But some aspects of the narrative filter into our minds to create the beginning of the knowing mind and the beginnings of the self. Those aspects, captured in the feeling of self and knowing, are the first above the sea level of consciousness and precede the corresponding verbal translation.

Requiring consciousness to depend on the presence of language leaves no room for core consciousness as I have outlined here. Consciousness, according to the language-dependency hypothesis, follows

language mastery and thus cannot occur in organisms that lack that mastery. When Julian Jaynes presents his engaging thesis about the evolution of consciousness, he is referring to consciousness post-language, not to core consciousness as I described it. When thinkers as diverse as Daniel Dennett, Humberto Maturana, and Francisco Varela speak about consciousness, they usually refer to consciousness as a postlanguage phenomenon. They are speaking, as I see it, about the higher reaches of extended consciousness as it occurs now, at this stage in biological evolution.⁹ I have no problem with their proposals, but I wish to make clear that, in my proposal, extended consciousness rides on top of the foundational core consciousness which we and other species have long had and continue to have.

THE NATURALNESS OF WORDLESS STORYTELLING

Wordless storytelling is natural. The imagetic representation of sequences of brain events, which occurs in brains simpler than ours, is the stuff of which stories are made. A natural preverbal occurrence of storytelling may well be the reason why we ended up creating drama and eventually books, and why a good part of humanity is currently hooked on movie theaters and television screens. Movies are the closest external representation of the prevailing storytelling that goes on in our minds. What goes on within each shot, the different framing of a subject that the movement of the camera can accomplish, what goes on in the transition of shots achieved by editing, and what goes on in the narrative constructed by a particular juxtaposition of shots is comparable in some respects to what is going on in the mind, thanks to the machinery in charge of making visual and auditory images, and to devices such as the many levels of attention and working memory.

Be that as it may, the marvel is to think that the very first brains that constructed the story of consciousness were answering questions that no living being had yet posed: Who is making these images that have just been happening? Who owns these images? “*Who’s there?*,” as in the

stirring first line of *Hamlet*, a play that so powerfully epitomizes the bewilderment of humans regarding the origins of their condition.¹⁰ The answers had to come first, by which I mean that the organism had to construct first the kind of knowledge that looks like answers. The organism had to be able to produce that primordial knowledge, unsolicited, so that a process of knowing could be founded.

The entire construction of knowledge, from simple to complex, from nonverbal imagetic to verbal literary, depends on the ability to map what happens over time, *inside* our organism, *around* our organism, *to* and *with* our organism, one thing followed by another thing, causing another thing, endlessly.

Telling stories, in the sense of registering what happens in the form of brain maps, is probably a brain obsession and probably begins relatively early both in terms of evolution and in terms of the complexity of the neural structures required to create narratives. Telling stories precedes language, since it is, in fact, a condition for language, and it is based not just in the cerebral cortex but elsewhere in the brain and in the right hemisphere as well as the left.¹¹

Philosophers often puzzle about the problem of so-called “intentionality,” the intriguing fact that mental contents are “about” things outside the mind. I believe that the mind’s pervasive “aboutness” is rooted in the brain’s storytelling attitude. The brain inherently represents the structures and states of the organism, and in the course of regulating the organism as it is mandated to do, the brain naturally weaves wordless stories about what happens to an organism immersed in an environment.

ONE LAST WORD ON THE HOMUNCULUS

A comment on the infamous homunculus solution for the problem of self, and on why it failed, is in order at this point. The disqualified homunculus solution consisted of postulating that a part of the brain, “the knower part,” possessed the knowledge needed to interpret the images formed in that brain. The images were presented to the

