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Can We Hack the Religious Mind?

*The Interaction of Material Reality with
Ultimate Reality in the Human Self*

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Mapping the dimensions of our humanness in this way is not just an end in itself, but a prelude to a more radical inquiry: whether these deep structures of our humanness, as we have come to understand them, can guide us in our efforts to figure out the underlying deep structure of the universe—that we may symbolize using a word like 'God.'

—JAMES ASHBROOK AND CAROL ALBRIGHT,
THE HUMANIZING BRAIN

CAN WE HACK THE religious mind? Can we hack any mind? Just what is mind? What is the interactive relationship between our mind, our mind's activity, our body, and our physical relationship to the world in which we are embedded? Can one's intent to serve God actually restructure the brain so as to serve this intended purpose? To develop answers to such questions we must appeal to a cognitional theory.

In this position paper I provide the foundation and framework for the cognitional theory with which I work when addressing issues regarding human nature, selfhood, reason, and free will. Here I describe the cognitional architecture of human consciousness structured in consonance with contemporary neuroscience, phenomenology of consciousness, material engagement theory, and theological epistemology. Specifically, I attempt

to construct a coherent cognitional edifice while borrowing bricks from the work of Stanislas Dehaene and Walter Freeman in neuroscience, Dan Zahavi and the Husserlian tradition in phenomenology, and in theology Nancey Murphy along with Bernard Lonergan, S.J. In brief, I hypothesize that human consciousness is structured like a pyramid; and I wish to map the mental traffic that travels within the pyramid from the material base to the ethereal top and back down again.

This cognitional theory is important in two respects. First, it clarifies the complex scaffolding of human experience, thereby encouraging parallels to if not dependence on the non-linear dynamics of quantum physical activity within the brain. Given the current debate within neuroscience between the localizers, who search for local brain regions which correlate (if not cause) corresponding mental states, and the globalizers, who search for whole-part or top-down brain processing, I plan to draw more from the globalizers.¹ I rely on what I elsewhere describe as epigenetic or emergent *holism*, according to which the whole influences the parts. This non-reductionist assumption permits us to acknowledge that the person as a whole can, to some degree, influence through whole-part and top-down causation the activity of his or her body, brain included.

Second, this cognitional theory clarifies a misleading impression growing in the cognitive sciences as a byproduct to recent advances in neuroscience. The byproduct is a tendency to reduce conscious operations to preconscious or subconscious determinants.² Dehaene, for example, startles us by declaring that in everyday activity we fail to realize just how much of our activity is guided by "an unconscious automatic pilot. We constantly overestimate the power of our consciousness in making decisions—but,

1. Let's distinguish whole-part from top-down processing, then distinguish top-down from bottom-up processing. Whole-part causation reflects boundary conditions or initial conditions that shape internal activities. A cookie mold, for example, sets the boundary conditions for the dough that will become a baked cookie of a predetermined shape. Downward or top-down causation results when a higher-level dimension (mind, for example) acts on a lower-level dimension (body or even brain, for example). When the mind determines it's time to lift one's arm, up goes the arm. The mind determines top-down, so to speak, what the arm does. These two kinds of causality do not fit neatly into the category of efficient causation presupposed in methodological naturalism.

Neurotheologian Michael Spezio distinguishes top-down from bottom-up processing. "Top-down processes are those that formed during evolution or learning and that link stimulus processing to context, whereas bottom-up processes are those that depend primarily or wholly on basic stimulus properties, ignoring context. . . . Top-down processing is either explicit (conscious) or implicit (unconscious), controlled or automatic. Bottom-up processing is generally unconscious and automatic" (Spezio, "The Cognitive Sciences," 287).

2. I will employ the terms *preconscious* and *subconscious* interchangeably.

in truth, our capacity for conscious control is limited."³ Many of today's neuroscientists so emphasize how the brain is on automatic pilot that the higher levels of consciousness drift to the margins if not off stage. Rightly or wrongly, one gets the impression that conscious activity is superfluous, because the unconscious brain takes charge of everything. I judge this to be misleading.⁴ I would like to avoid beginning with a reductionist assumption as much as I would like to avoid the localization assumption. The entire scaffolding that builds on what is preconscious to structure consciousness belongs to this cognitional theory; and reducing the latter to the former is, in my judgment, premature.

Therefore, as a backdrop for other more specific studies, I offer a model of human cognition that places the automatic pilot within a more comprehensive framework that includes conscious mental processes. My conceptual model then opens the door of plausibility for studying the effect that symbolic and abstract thinking can have on both conscious and pre-conscious processes. More. Symbolic and abstract thinking—even thinking about God—can have an effect on the world around us. Quite specifically, I wish to examine how an individual's concept of ultimate reality (the divine) heuristically affects his or her sense of meaning in life and interpretations within experience; and this in turn leads to world altering activity. I surmise that the abstract idea of God remains in constant tension with resonant symbolic meanings while it restructures our conscious access to perception, restructures our world of meaning, and this in turn interacts with the material and social world through reciprocal activity.

One's abstract idea of God may derive from two sources. The first source is inter-subjectivity—that is, from the symbolic or linguistic life-world within which an individual consciousness swims. In short, whether each of us believes or doubts what we have been taught about the divine, what we have been taught directs the paths our thoughts follow. The second source is individual transcendental experience. This is an experience of what lies beyond both symbolic speech and abstract thinking. Yet, this experience conditions and re-orientes both our symbolic and abstract thinking about reality, especially ultimate reality. The transcendental experience may affect our semantic and conceptual awareness like global brain activity affects its local regions.

Finally, the interaction we enjoy with God can be characterized as love. We love God. More importantly, we feel and we know that God loves us. From the top down our consciousness becomes restructured by this

3. Dehaene, *Consciousness and the Brain*, 47.

4. Peters, "Resurrection of the Very Embodied Soul," 305–26.

emanating field of love; and the world around us is affected by our loving action. This is not a delusion, I contend. It is real, just as real as antecedent physical causation is real.

Up and Down the Pyramid of Consciousness

We begin with human consciousness and the idea of God at work in that consciousness. When evolutionary virologist Martinez Hewlett asks, "What does it mean to be human?" the first thing he mentions is this: we are "self-conscious and self-reflective creatures."⁵ What undergirds and supports this consciousness? Let's try on a conceptual model, namely, the Transamerica Tower.

The Transamerica Tower is shaped like a pyramid. At 853 feet high with 48 floors, it is the tallest of San Francisco's skyscrapers. With the Transamerica Tower as a visual simile, I contend that the architecture of human consciousness is similarly structured. At street level the building's occupants interact with their material environment just as each of us individually receives sense perceptions from the world around us (the hyletic or sensory level). By the time we rise above the four-story base to the fifth floor, we are engaged in *conscious access*, namely, selection and filtering of preconscious sense experience so that our consciousness can organize and manage what we are sensing. The brain is constantly processing a manifold of sense perceptions but selectively uploading only some percepts to conscious awareness. Only some first-floor interaction with the outside world takes the escalator to fifth floor of consciousness.

By the time we reach the 27th floor—originally the observation deck—we are engaged in symbolic discourse, both internal reflection and semantic meaning shared with our wider culture. Finally, when we reach the aluminum-paneled spire at the tower's top, we have arrived at reasoning and the abstract idea. Although the pinnacle of cognition—the abstract idea—is found at the very top, it is utterly dependent on our foundational interaction with the physical world—experienced through sense perception, conscious access, and symbolic discourse—for its content. The elevator does not speed directly upward from street level to the abstract idea; rather, it stops at each floor for a recursive rendezvous with as yet unidentified neuronal networks before proceeding upward.

5. Hewlett, "What Does It Mean to Be Human?," 147-54.



4. Abstract Idea, Knowledge

3. Symbolic Discourse

2. Conscious Access

1. Sensory Interaction

The Transamerica Tower © Ted Peters

One of my concerns as a theologian has to do with the abstract idea of God, an idea arrested by the reasoning mind from the symbolic level of linguistic discourse. We recognize that symbolic discourse as well as the highest level of abstract reasoning are dependent on the prior levels of pre-consciousness and consciousness. Even though an abstract idea lodging at the top of the pyramid is dependent on what is below; we still would like to ask whether that abstract idea can, in turn, influence what happens below. Does the stairway lead down as well as up? As I have mentioned, I surmise that the abstract idea of God remains in constant tension with resonant symbolic meanings while it restructures our conscious access to perception and restructures our world of meaning. In short, our abstract idea of God exerts a hermeneutical influence, so to speak, on new perceptual input as it rises from street level to the pinnacle.

The Pyramid's Foundation: Perception and Conscious Access

Please notice that I do not place the unqualified term *experience* at the foundational level of the cognitional pyramid. This is because human experience is always interpreted experience, even at the preconscious level prior to our conscious access to it. Raw sensory data are immediately processed, selected, organized, and packaged according to meaningful patterns. When we rise to the level of consciousness, symbolic language, and abstract reasoning, we rise as well to more complex and subtle mechanisms of interpretation. Human subjectivity is interpretation from bottom to top, and back down again.

Because each human person is being-in-the-world (*in-der-Welt-Sein*), to borrow a phrase from Martin Heidegger, I place perceptual interaction at

this most fundamental level.⁶ What neuroscientists are telling us is that only a fraction of our perceptual interaction with the world becomes admitted to consciousness. What occupies researchers such as Dehaene is the fascinating question of consciousness-access: just how does fundamental perception get filtered and selected and organized for conscious awareness? I follow Dehaene as he climbs the stairs from street level to the fifth floor.⁷

When our seeing and hearing climb the stairs toward consciousness we get an interpreted experience. "What we experience as a conscious visual scene is a highly processed image, quite different from the raw input that we receive from the eyes."⁸ Yet, this interpretive operation, according to Dehaene, is still preconscious. "Behind the scenes, our brain acts as a clever sleuth that ponders all the separate pieces of sensory information we receive, weighs them according to their reliability, and binds them into a coherent whole. Subjectively, it does not feel like any of it is reconstructed."⁹ Or, to say it another way, "all perceiving is a selecting and organizing."¹⁰ We do not need full consciousness for interpretive movement to begin to select and organize our raw experience of being-in-the-world.¹¹ The interpretive

6. Neurobiologist Walter Freeman contends that each human brain is unique; nevertheless, already in the womb each brain is engaged with its environment, "growing from the genetically determined groundwork by the grasping for available sensory input from within and outside its own body" (Kaku, "The Future of the Mind," 52).

7. Although I follow Dehaene here, physicist Michio Kaku draws a parallel picture by distinguishing two levels of consciousness. "While Level I consciousness uses sensations to create a model of our physical location in space, Level II consciousness creates a model of our place in society" (Kaku, *The Future of the Mind*, 52). What Kaku emphasizes is the mental employment of modeling produced by as yet unidentified neuronal feedback loops. He attempts to explain self-awareness with his modeling model: "Self-awareness is creating a model of the world and simulating the future in which you appear" (ibid., 57).

8. Dehaene, *Consciousness and the Brain*, 60.

9. Ibid.

10. Lonergan, *Method in Theology*, 61.

11. In the Kantian philosophical tradition time and space were dubbed a priori categories that the mind superimposes on perceptions to organize them. Might these a priori categories be gifts of the brain to consciousness? Recent neuronal studies suggest that time and space are produced by the hippocampus to measure movement and location. "The activity of different neurons reflected integration over time and distance to varying extents, with most neurons strongly influenced by both factors and some significantly influenced by only time or distance. Thus, hippocampal neuronal networks captured both the organization of time and distance in a situation where these dimensions dominated an ongoing experience" (Kraus, "Hippocampal Time Cells," 1090). This makes the hippocampus our "resident search engine, which allows us to navigate in mental space when recalling memories or planning future actions" (Buzsáki, *Time, Space, and Memory*, 568). What seems to be happening in contemporary brain research is an increased reliance upon preconscious brain management of the parameters which

process starts from the first floor and ascends all the way to the top. Or, to repeat, human experience is always interpreted experience.

One of the melodies repeatedly sung by today's neuroscientific chorus is this: the brain-as-automatic-pilot has taken care of matters even before we become aware of it. I find this tune catchy, to be sure. But, I ask: is this the whole song? No. I forecast that future brain researchers will eventually wend their way further up the pyramid's staircases toward linguistic symbolism and abstract reasoning. As they near the top, will the brain's song then become a multi-movement cantata? Or, to approach our basic surmise once again, will symbolic and abstract thinking have a supervening or downward effect on this interpretive process, even at the preconscious level?

Archaeologists imbibing material engagement theory provide support for the primordially of material interaction and symbolic interpretation. Material Engagement Theory (MET) focuses "on the dense reciprocal causation and on the inseparable affective linkages that characterize the ontological compound of cognition and material culture."¹² The focus here is on the role of the material world—physical environments, objects, homes, tools, weapons—as it influences and is influenced by the symbolic domain of human consciousness. This applies to groups as well as individuals. Or, to reverse it, individual consciousness is largely structured by interaction with the more inclusive cultural consciousness. This symbolized structure, in turn, influences the meaning of human interaction with the material world. "While it can be said that material culture is actively involved in the adaptive strategies of groups, it is now clear that the explanation of those strategies and the way in which material culture is involved in them depend on internally generated symbolic schemes."¹³

By referencing the convergence of phenomenology with MET my point is this: the interaction of the human person with the material environment is mediated by symbolic thinking. As our physical perceptions rise up into awareness they are filtered, configured, and ordered by the symbolic world within which we live.

structure consciousness. Curiously, neurogenesis—the generation of new neural cells—contributes to forgetting; because time memories are associated with the cells being replaced by new ones. "Neurogenesis leads to degradation or forgetting of established memories" (Akers et al., *Hippocampal Neurogenesis*, 598). The brain is responsible for those "senior moments" with which we are familiar.

12. Malafouris, *How Things Shape the Mind*, 248.

13. Hodder, *Symbols in Action*, 186.

The Pyramid's Superstructure: Symbolic Discourse and Abstract Thinking

Symbols are multivalent. They emit multiple levels of meaning. Although I do not exhaustively equate language and symbolic discourse, many symbols are linguistic constructions and most of ordinary language is multivalent as well. We are born into a language, a language that may be centuries if not millennia in the making. We inherit meanings that pre-date us, meanings we may not even be aware of but which influence the world of meaning within which we daily live. German hermeneutical philosopher Hans-Georg Gadamer spoke of the work of our inherited language as *Wirkungsgeschichte*, the effect that past history embedded in our language has on structuring today's consciousness.¹⁴ French hermeneutical philosopher Paul Ricoeur observed that we are born into a linguistic world imbued with symbolic meaning, and symbolic meaning makes abstract thought possible. "The symbol gives rise to thought."¹⁵ We do not own our own symbolic meaning. We share it intersubjectively with our contemporaries and with our ancestors. Language and symbol provide the stream of historically conditioned consciousness within which we swim and within which our own subjectivity takes form.

The pursuit of human reasoning requires abstracting concepts from the more primordial linguistic experience, assigning them univocal meaning, and then placing them in rational relationships with one another. Language in general and symbolic speech in particular carry multiple meanings, whereas abstract thought needs to focus on one and only one meaning for each term. Whereas symbolic speech is equivocal, abstract thought attempts to be univocal. The multivalent symbol gives rise to abstract thought; but abstract thought carries thinking beyond the textured meanings of the symbol. In time, an abstract concept can reenter the flowing stream of language and pick up multiple meanings once again, becoming a new symbol in its own right.

Language, according to evolutionary anthropologist Terrence Deacon, is "a mode of communication based upon symbolic reference (the way words refer to things) and involving combinatorial rules that comprise a system for representing synthetic logical relationships among these symbols."¹⁶ Language is by no means a mere epiphenomenon to human consciousness. It is a force in its own right, an evolutionary force. "Language must be viewed as

14. Gadamer, *Truth and Method*.

15. Ricoeur, *The Symbolism of Evil*, 237.

16. Deacon, *The Symbolic Species*, 41.

its own prime mover. It is the author of a co-evolved complex of adaptations arrayed around a single core semiotic innovation that was initially extremely difficult to acquire. Subsequent brain evolution was a response to this selection pressure and progressively made this symbolic threshold ever easier to cross. This has in turn opened the door for the evolution of ever greater language complexity.¹⁷ This complexity includes multivalency, the dynamic of language to become richly symbolic and generate new meaning.¹⁸

Multivalency may be due either to multiple references or to feelings associated with a symbol. "A symbol is an image of a real or imaginary object that evokes a feeling or is evoked by a feeling," contends Jesuit theologian Bernard Lonergan.¹⁹ Symbolic discourse is pre-logical (not irrational, but pre-logical). Lonergan recognizes this, but he is less than fully clear on an important point I wish to make, namely, univocity (a single univocal meaning) is an abstraction from symbolic discourse. Symbolic discourse is not a distortion of univocal discourse; rather, symbolic discourse provides a sea of multiple meanings within which univocity appears as an island.

Here is Lonergan's way of describing the situation: "Symbols obey the laws not of logic but of image and feeling . . . For univocity [the symbol] substitutes a wealth of multiple meanings . . . It does not bow to the principle of excluded middle but admits the *coincidentia oppositorum*, of love and hate, of courage and fear, and so on. It does not negate but overcomes what it rejects by heaping up all that is opposite to it. . . . The symbol, then, has the power of recognizing and expressing what logical discourse abhors: the existence of internal tensions, incompatibilities, conflicts, struggles, destructions"²⁰ (Lonergan, 1972, 66). What Lonergan contends is that symbolic speech messes up abstract ideas by adding unnecessary additional meanings. But, this is just backwards. What actually happens—and this is the important point I wish to make—is that we inherit a language with multiple meanings and, from within this reservoir of meanings, we single out only those we wish to assign to our abstract idea. Symbolic meaning gives rise to abstract thought, to

17. Ibid., 44.

18. Deacon belongs to the semiotics school of Charles Sanders Pierce, which tends to conflate rational rules with ordinary linguistic symbols. To fully understand the multivalency of symbolic discourse, we must turn to the continental hermeneutical philosophers such as Paul Ricoeur. "Unlike a comparison that we *look at* from the outside, symbol is the very movement of the primary meaning that makes us share in the latent meaning and thereby assimilates us to the symbolized, without our being able intellectually to dominate the similarity. This is the sense in which the symbol "gives": it gives because it is a primary intentionality, that gives the second meaning," Ricoeur, *The Conflict of Interpretations*, 290.

19. Lonergan, *Method in Theology*, 64.

20. Ibid., 66.

be sure; but abstract thought goes beyond symbolic equivocality to univocity. More. When abstract thinking posits a univocal proposition, the multiple meanings embedded within the linguistic reservoir remain co-present, providing contextual meaning for the univocal propositions.

For example, a linguistic *symbol* for God such as "Father" is multivalent. It can mean many things. However, an *abstract idea* of God the Father such as we find in monotheistic theology is intended to correspond to a single precisely formulated idea, such as Saint Anselm positing that God is that than which nothing greater can be conceived (*id quo maius cogitari nequit*). For Saint Anselm to posit this particular definition of God requires a level of specificity that excludes competing ideas about God. Many of the symbolic connotations of the word *Father*—God as a loving parent or God as a patriarchal despot—are shaved off when rendering a considered judgment such as this: God is that than which nothing greater can be conceived. In sum, linguistic or symbolic discourse provides an ocean of meanings at multiple levels (equivocality), within which we find an occasional island of rational or abstract concepts with only a single designated meaning (univocity).

To review: we as individuals do not invent our own language. Nor do we invent our own symbols. We inherit them. Oh, yes, we can witness changes in language along with the emergence of new symbolic configurations over time; but both the continuity and change in linguistic and related meaning inheres in our relationships, in our interactions with the culture enveloping us. Linguistic meaning belongs to the group, to intersubjectivity. "Meaning is embodied or carried in human intersubjectivity."²¹ Even though we earlier placed our relationship to the world around us at the pyramid's ground level of perception, at the intersubjective level of semantic meaning our very consciousness is influenced significantly by what we share with others. We think first like the group talks; then we turn inward toward individuated thinking.

What Lonergan rightly understands is that symbolic meaning is holistic; it orients a person's entire existence at a pre-objectified yet comprehensive level. "It is through symbols that mind and body, mind and heart, heart and body communicate. In that communication symbols have their proper meaning. It is an elemental meaning, not yet objectified."²² Might this holistic model of symbolic meaning point the way to a corresponding holistic model for comprehending brain activity? If we follow the localizers among the neuroscientists, the answer would be negative. If we follow the

21. Ibid., 57.

22. Ibid.

globalizers, the answer might be affirmative. More research is required to confirm this hypothesis.

The Explanatory Gap

I acknowledge that neuroscience and related enterprises are relatively new on the scientific landscape; and it is difficult to know how far the horizon of inquiry will stretch. Yet, I applaud the search for material explanations of what seem to be mental, psychological, and spiritual dimensions of human experience. Nevertheless, I ask a cautionary question: can we encourage such scientific progress without falling into eliminative reductionism, without exhaustively reducing conscious experience to unconscious brain processes?²³ This is where the explanatory gap—sometimes called the 'hard problem'—enters in.

A widely recognized *explanatory gap* exists in this field, a gap between what we experience subjectively in consciousness and materialist attempts to explain this experience. Theologian William Grassie identifies the hard problem.

Our physical descriptions of the way the brain works at the level of neurons, brain anatomy, and neurological processes bear no resemblance to our subjective experience as people with brains having complex mental and emotional states. Nor is there any neurological definition of consciousness as such. We have no device that can measure presence or absence of consciousness.²⁴

This is a hard problem, "for no matter how deeply we probe into the physical structure of neurons and the chemical transactions which occur when they fire, no matter how much objective information we come to acquire, we still seem to be left with something that we cannot explain, namely, why and how such-and-such objective, physical changes, whatever they might be, generate so-and-so subjective feeling, or any subjective feeling at all."²⁵ It is the assumption that creates the gap: if we assume that reality is limited to a closed causal nexus of physical events that are objectively

23. A false impression is widespread, namely, that scientists already possess evidence supporting neurodeterminism. "The media routinely report on scans showing that specific brain locations light up when we feel rejected or speak a foreign language. These news stories may give the impression that current technology provides fundamental insights into how the brain works, but that impression is deceiving" (Yuste, "The New Century of the Brain," 40).

24. Grassie, *The New Sciences of Religion*, 96.

25. Yuste, "Qualia."

described in the third person, then how can we explain the existence of first-person subjectivity?

Some pretend that no gap exists. They pretend that everything you and I experience subjectively in the first person will eventually be reduced and explained objectively in the third person. The result is that the public is beset with claims suggesting that physical explanations may eventually reduce subjective experience to the status of a delusion. "Neuroscientists increasingly describe our behavior as the result of a chain of cause and effect, in which one physical brain state or pattern of neural activity inexorably leads to the next, culminating in a particular action or decision. With little space for free choice in this chain of causation, the conscious, deliberating self seems to be a fiction."²⁶ The pretenders belong to the club of mind-brain identity theorists. "The mind-brain identity theory states that mental states, qualia, are literally identical to specific neural states." Accordingly, our experience of conscious awareness and experience of creative action are reducible to antecedent physical causation. Consciousness with its mental causation has no life it can call its own.

Cambridge physicist Stephen Hawking slams the door shut on human consciousness and free will right along with it: "recent experiments in neuroscience support the view that it is our physical brain, following the known laws of science, that determines our actions, and not some agency that exists outside those laws . . . It is hard to imagine how free will can operate if our behavior is determined by physical law, so it seems that we are no more than biological machines and that free will is just an illusion."²⁷

An illusion? How about a fiction? What we experience as one's self, according to Daniel Dennett, is merely the "fictional center of narrative gravity."²⁸ Also affirming this self-as-fiction position, neurophilosopher Thomas Metzinger pits the brain against subjectivity. "Subjective experience is a biological data format, a highly specific mode of presenting information about the world by letting it appear as if it were an Ego's knowledge. But, no such things as selves exist in this world."²⁹ If we would accept this set of determinist assumptions which eliminate the human self, we could hack into the religious mind by simply hacking into the religious brain with scalpels or fMRI scans.

Nonreductionists such as David Chalmers respond with a warning against reductive overreaching. "Experience may arise from the physical,

26. Jones, "The Free Will Delusion," 32.

27. Hawking and Mlodinow, *The Grand Design*, 32.

28. Dennett, *Consciousness Explained*, 418.

29. Metzinger, *The Science of the Mind and the Myth of the Self*, 8.

but it is not entailed by the physical. The moral of all this is that *you can't explain conscious experience on the cheap*.³⁰ Similarly, Stuart Kauffman at the Santa Fe Institute refuses to allow consciousness with its accompanying creativity to be reduced to physical processes. "Consciousness is emergent and a real feature of the universe."³¹ Finally, philosophical theologian Nancey Murphy and neurotheologian Warren Brown declare war against reductionism and plan to "defeat neurobiological reductionism."³² In short, according to the anti-reductionists, consciousness is more than neuronal firings. And, I might add, consciousness of God is more than automatic neuronal firings. Consciousness of God consists of organized neuronal firings oriented around God as one's ultimate concern.

Reductionism, Determinism, and Anxiety

Determinist and reductionist neurophilosophy elicits public anxiety. Each of us feels at home in our subjectivity, in our consciousness. Subjectivity establishes who we are and where we are. It establishes who is the person experiencing oneself in the world. Subjectivity instantiates us in being. So, for the neurophilosopher—ostensibly relying on the science of the brain—to explain our subjective first-person self-understanding in terms of something else elicits the fear that our personhood will be explained away. The third-person scientific perspective appears as a threat to our interior first person self-understanding. This is an existential threat posed by an abstract discipline. We dare not underestimate the power of this existential sense of threat.

Like a leering Dracula darkening a room with his outstretched wings, some neurophilosophers and ride-along bioreductionists relish the terrified feeling prompted in us by the threat of losing the reality of our subjective selfhood. One intellectual vampire is sociobiologist E.O. Wilson. "It [free will] is a product of the subconscious decision-making center of the brain that gives the cerebral cortex the illusion of independent action."³³ The blood of life's meaning is sucked out of us when we are told that what we think is most real, our self, is an illusion.

Thomas Clark understands the existential anxiety the reductionist agenda prompts. "Involved here are fairly deep and emotional issues of human autonomy and specialness, especially the fear that if consciousness is

30. Chalmers, "The Hard Problem," 18 (italics original).

31. Kauffman, *Reinventing the Sacred*, 4.

32. Murphy and Brown, *Did My Neurons Make Me Do It?*, 305.

33. Wilson, *The Social Conquest of Earth*, 288.

nothing over and above physically instantiated function, then we lose our privileged status as rational agents riding above the flux of brute causality If it turns out that subjectivity and the sense of self are merely function, then it becomes terrifying (for some) that no principled distinction may exist between us and a very clever robot"³⁴

But Clark has no intention of respecting this fear. He takes no prisoners. He presses forward with his task of finding a reductionist explanation. "But of course we must not let such fears prejudice our initial conception of consciousness or restrict our investigation As a scientific strategy for unifying knowledge, the reductionist impulse is hardly to be eschewed but rather to be encouraged To reduce mental phenomena to functional processes via some plausibly evidenced identification is, after all, not to eliminate them, but simply to redescribe them from a third-person perspective."³⁵ Clark supports the "*functional identity hypothesis*," which makes a strong claim . . . that subjectivity is constituted by those central representational processes which transform and enhance sensory information to the point where it normally dominates in the control of behavior."³⁶ In sum, Clark will not eliminate our first-person perspective; he will simply redescribe our first-person perspective in third-person terms. Clark bridges the explanatory gap by shrinking the gap to a small jump from first-person consciousness to a third-person reduction.

Are there alternative ways to leap the explanatory gap? Yes. In an apparently nonreductionist manner, Chalmers attempts to bridge the explanatory gap. Because information is ubiquitously present in all physical reality, and because the human brain is an information processor, could physical information and subjective information become united into a single bridge? Could we hold that human consciousness based upon a physical substrate continues to bear this prior physical information? Yes, answers Chalmers. "Information is truly fundamental . . . information is everywhere."³⁷ The gap has now been closed, thinks Chalmers, by an information bridge.

34. Clark, "Function and Phenomenology," 50.

35. Ibid., 50-51.

36. Ibid., 52 (italics original).

37. Chalmers, "The Hard Problem," 27. Because Chalmers sees a "gap," he is attacked by his reductionist critics on the grounds that he harbors a disguised Cartesian dualism. "The resulting naturalistic dualism Chalmers defends is Cartesian at its core, and despite his claim that such a position is entirely compatible with the scientific view of the world, dualisms have fared badly as science proceeds to unify our conception of humankind in nature (Clark, "Function and Phenomenology," 48). "An imaginary dazzle in the eye of a Cartesian homunculus (Dennett, *Facing Backwards*, 34).

Stuart Kauffman is not ready to cross Chalmers's information bridge from subjective mental activity to objective brain correlates. Why? Because a bridge constructed of information is too weak. "Information [is] a concept that manages to be both restrictive and unclear" complains Kauffman.³⁸ To simply assert that information is everywhere is not helpful, because the role of information in human subjectivity is so complex. In fact, the information hypothesis fails to acknowledge that the concept of information itself depends upon the very conscious agents it attempts to reduce. "Information requires an agent, a nonequilibrium self-reproducing system doing work cycles, to receive the information, discriminate it, and interpret and act on it."³⁹ In human subjectivity, information is pondered, considered, rearranged, evaluated, and judged by an agent who takes action. Much more than Chalmers, Kauffman is ready to expand the explanatory gap.

The explanatory gap problem leads us to ask: do we have a self at all? My own position will be that we must presuppose the self with our subjectivity and first-person perspective if we are to pursue our proposed research into human consciousness of ultimate reality.

From Quantum Consciousness to Classical Causation

Before turning to the question of the self's existence, let me offer a transitional hypothesis: the reductionist temptation derives from a worldview constructed solely by Newtonian or classical physics. This classical worldview presupposes a closed causal nexus, where every effect seems to require an antecedent efficient cause. "Causal closure asserts that everything that occurs has a sufficient antecedent condition or set of conditions."⁴⁰ With the closed causal nexus as an assumption, the temptation to reductionism is quite understandable. But, we must ask: what happens when we incorporate quantum physics—the indeterministic interpretation of quantum physics—into our analysis of self-organization, human selfhood, agency, free will, meaning, value, and moral behavior?⁴¹

38. Kauffman, *Reinventing the Sacred*, 89.

39. *Ibid.*, 96 (italics original).

40. *Ibid.* (italics original).

41. If we drill down below the bottom of consciousness, we might strike oil at the level of quantum physical activity. Does indeterminism at the quantum level provide a necessary—even if not a sufficient—condition for the rise of human consciousness and subjectivity? Perhaps, yes. Nevertheless, no consensus exists that would permit reducing what happens in consciousness to what happens at the quantum level. Consciousness exhibits emergent properties. Physical mathematician Roger Penrose, for

This is the step taken by Stuart Kauffman. Kauffman ghettoizes reductionism within Newtonian or classical mechanics. The problem, he maintains, is that reductionists operate with an outdated pre-quantum worldview. What if instead the human mind begins with quantum activity, with *indeterministic* quantum activity? A quantum basis for the mind would fittingly describe the human person in terms of agency, selfhood, consciousness, free will, meaning, value, and social morality. Observing how quantum activity in the brain decoheres and becomes part of the mechanical nexus of the classical realm, we could solve Descartes' enigmatic puzzle: we could explain how mind could affect matter. We will have jumped the explanatory gap.

"The mind is more than a computational machine. Embodied in us, the human mind is a *meaning and doing organic system*,"⁴² contends Kauffman. Our a-causal mental activity at the quantum level eventually expresses itself in everyday cause-and-effect action. He continues. "Consciousness is associated with a poised state between quantum *coherent* behavior and what is called *decoherence* of quantum possibilities to classical actual events . . . the immaterial—not objectively real—mind has consequences for the actual classical physical world."⁴³ Having posited the co-presence of both quantum and classical physical properties, Kauffman then addresses Descartes' puzzle: how can a non-extended mind (*res cogitans*) affect the extended material world (*res extensa*)? "*Here, mind—consciousness, res cogitans—is identical with quantum coherent immaterial possibilities, or with partially coherent quantum behavior, yet via decoherence, the quantum coherent mind has consequences that approach classical behavior so very closely that mind can have consequences that create actual physical events by the emergence of classicity. Thus, res cogitans has consequences*

example, suggests that quantum activity may affect what takes place in our subconscious, but there lies a huge gap between quantum mechanics and consciousness. There might even be a change in the computational rules of physical activity when it becomes biology (Penrose, "The Quantum Nature of Consciousness"). Brain researchers avoid reducing new properties emerging at the biological level to their underlying influence at the physical level. "To date, quantum interactions do not seem to bear robustly on the issue of consciousness 'as such.' The biological basis of consciousness has been acknowledged as one of the fundamental unsolved questions in science. The weight of evidence indicates that it is a major biological adaptation. We therefore need to understand its evolutionary, developmental, and experience-dependent foundations in the brain" (Baars and Edelman, "Consciousness, Biology, and Quantum Hypotheses," 203). In order to pursue the emergence of human subjectivity one must pursue history—history in the form of evolutionary history. The study of physics in abstraction from evolutionary history will not suffice.

42. Kauffman, *Reinventing the Sacred*, 177 (italics original).

43. Ibid., 197 (italics added).

for res extensa! Immaterial mind has consequences for matter."⁴⁴ Kauffman distinguishes a-causality at the quantum level from efficient causality at the classical level. "*The quantum coherent mind does not . . . act on matter causally at all. Rather, via decoherence, the quantum coherent state has consequences for the physical classical world.*"⁴⁵

A kindred spirit on the relation of quantum activity to mental activity—including free will—would be physicist Henry Stapp. "Contemporary physical theory annuls the claim of mechanical determinism. In a profound reversal of the classical physical principles, its laws make your conscious choices causally effective in the physical world, while failing to determine, even statistically, what those choices will be."⁴⁶ In order to cede to human subjectivity the status in reality that it deserves, say both Kauffman and Stapp, we must move beyond classical physics and acknowledge quantum physics. The inclusion of quantum physics in explanations of human mental processes will avoid reductionism.

Still, I remain cautious. It would be too much to rely completely on the quantum foundation laid out by Kauffman or Stapp. The quantum theory of mental activity is a hypothesis awaiting future confirmation. Yet, when we compare it with the reductionist temptation, it fares no worse. The brain-mind identity theory relies on yesterday's physics and, more importantly, it has as yet no conclusive evidence that it is correct. Of the two approaches—classical physical reductionism or the quantum brain hypothesis—the second is by far the more promising even if still awaiting confirmation.

What we experience every day in our consciousness is this: each of us enjoys an interior life within which we realize we are a self, a valuing and acting agent that impacts the world around us. What we experience is free will: free will consisting of deliberation, decision, and action. The quantum hypothesis replete with indeterminism seems to be a better fit with our experience than is the brain-mind identity hypothesis. With this in mind, we turn to the question: Do we have a self?

Do We Have a Self?

I am working with a material and symbolic treatment of the brain-mind relationship. Within this nonreductionist yet physicalist framework, we can still identify a centering dynamic, the appearance of a self, a first-person orientation. When neuroscientists and neurophilosophers give focused attention

44. Ibid., 209 (italics original).

45. Ibid., 225 (italics original).

46. Stapp, *Mindful Universe*, vii.

to the accessing of perceptual data by our consciousness, they are climbing the internal staircase toward human meaning. According to Chalmers, for example, *structural coherence* provides human awareness with a centering or organizing architecture. "We can think of awareness as *direct availability for global control* . . . Awareness is a purely functional notion, but it is nevertheless intimately linked to conscious experience."⁴⁷

For Chalmers, consciousness and awareness are not identical; rather, they are correlates. "It is this isomorphism between the structures of consciousness and awareness that constitutes the principle of structural coherence The mechanisms of awareness perform the function of making information directly available for global control."⁴⁸ To my reading, global control implies a center, a self, a first-person perspective. So, let us pose the questions:

Does global control require a controller, a self? Does such a thing as the human self exist? Does the human self account for instances of downward causation, of whole-part influence? If we climb the staircase that leads to the top of the Transamerica pyramid, must we retrace our path downward to see how the top influences the stages below?

Before pressing such questions, perhaps we should interpolate a caution. I am not attempting here to reify the self or to retrieve a dualistic version of soul. The self is not a thing. It is not independent, autonomous, isolated. Rather, the presence of the self, I hypothesize, is the product of interaction at multiple levels.

This acknowledgment is important for feminist philosophers. Some feminist thinkers hold that the self is merely the subject of enunciation—a speaker who can use the pronoun *I*. Further, such a speaker is neither unitary nor fully in control of what he or she says, because discourse is bifurcated. At one level, the self appears to be conscious, individuated and in control. At another more subterranean level, however, the language inherited by the self from the surrounding social setting works in the preconscious domain and, from there, invisibly structures the conscious domain. The conscious self unknowingly absorbs into the preconscious the semiotic dimension of language, which is characterized by figurative language, cadences, and intonations. Everything said depends on its context of what is unsaid.

Acknowledging this raises feminist concerns about gender and the self. Since the rational orderliness of the prevailing symbolic system is coded to serve masculine vested interests while the affect-laden allure of the semiotic connotation is culturally coded feminine, it follows that no

47. Chalmers, "The Hard Problem," 22.

48. *Ibid.*, 23–24.

discourse is purely masculine or purely feminine. The speaking subject finds both the masculine symbolic and the feminine semiotic to be equally indispensable, regardless of which socially assigned gender he or she may be. Because of these two levels of symbolic discourse, it is impossible to be a purely masculine self or a purely feminine self. Every subject of enunciation—every self—amalgamates masculine and feminine discursive modalities.⁴⁹ In short, the consciousness of the self is by no means *sui generis*; it is shared by the culture which finds the symbolic field meaningful. The shared culture can tyrannize the self.

One more preliminary before moving on. Let's remind ourselves of those steps from the bottom upward. At the ladder's bottom, Dehaene steps up from our perception of everything in our immediate life-world toward consciousness-access. Chalmers takes us further up the staircase toward centering, toward the consolidation of the human self or person. The human self lives in a world of linguistic discourse and symbolic meaning. To the symbolic world of the self and to the production of abstract ideas we now turn.

As Dehaene climbs the staircase from street level to the fifth floor where consciousness accesses perception, he looks up. What he thinks he sees he calls the *Global Neuronal Workspace* (GNW). What is this GNW? "Consciousness is brain-wide information sharing . . . Consciousness is an evolved device that allows us to attend to a piece of information and keep it active within this broadcasting system. Once the information is conscious, it can be flexibly routed to other areas according to our current goals. Thus we can name it, evaluate it, memorize it, or use it to plan the future. Computer simulations of neural networks show that the global neuronal workspace hypothesis generates precisely the signatures that we see in experimental brain recordings."⁵⁰ Does the GNW include both what is conscious and what is preconscious or unconscious? It seems to, according to Dehaene. It borders on globalizing.

Can consciousness influence what is preconscious or subconscious? Yes. Consciousness can actively assign designated information patterns to a preconscious or unconscious status by establishing habits; and this maintains room in the active consciousness for keeping focus on what is new or important. "The more routine a behavior becomes, the less we are aware of it."⁵¹ By establishing habits, our consciousness can shelve certain activities in the unconscious closet until it needs to draw them out and give

49. Willett and Meyers, "Feminist Perspectives on the Self."

50. Dehaene, *Consciousness and the Brain*, 161.

51. Graybiel and Smith, "Good Habits, Bad Habits," 40.

them renewed attention. Because consciousness is brain-wide, so to speak, it can temporarily consign habits to the unconscious in order to maintain workspace in what is immediately conscious. It appears that via downward causation—via supervenience or top-down or whole-part causation—our consciousness governs at least some of what is unconscious.

What Nancey Murphy would call *supervenience*,⁵² Warren Brown explicates in terms of top-down agency. "*Top-down agency* refers to the ability to modulate behavior in relationship to conscious thought and intention."⁵³ In other words, our symbolic understanding and our abstract reasoning provide top-down influences on conscious access and, in addition, they direct our agency in the world. The self is an agent who takes action and causes changes in the material and cultural world.

When I characterize free will as self-determination—that is, deliberation, decision, and action—free will takes on a future orientation. To be a self and to act freely implies that we provide reasons for what we do; and what we do influences what happens in the future. "A *future orientation* is meant to denote the ability to run a conscious mental simulation or scenario of future possibilities for the actions of oneself and others, and to evaluate these scenarios in such a way as to regulate behavior and make decisions now with regard to desirable future events."⁵⁴ Self-determination produced by top-down agency is not reducible to antecedent physical causation. Rather, it is the product of a human self.

But we must keep asking: is this self merely a delusion? Among neurophilosophers we can find some who affirm that the self is a delusion along with others who deny the delusion premise. Whether the self is real or a delusion, each of us *believes* we have a self.⁵⁵ "The brain makes us think that we have a self," writes Patricia S. Churchland. "Does that mean that the self

52. Murphy and Brown, "Divine Action," 196–204.

53. Brown, "Cognitive Contributions to the Soul," 117.

54. *Ibid.*

55. Immanuel Kant alerts us to a temptation to think that what we can abstract from experience we can also separate. This applies to the human self, which, despite this mistake, cannot be separated from the synthetic a priori, from the interaction of consciousness with objects of consciousness. "I cogitate myself in behalf of a possible experience at the same time making abstraction of all actual experience; and infer therefrom that I can be conscious of myself apart from experience and its empirical conditions. I consequently confound the possible *abstraction* of my empirically determined existence with the supposed consciousness of a possible *separate* existence of my thinking self; and I believe that I cognize what is substantial in myself as a transcendental subject, when I have nothing more in thought than the unity of consciousness, which lies at the basis of all determination of cognition" (Kant, *Critique of Pure Reason*, 246–47). In short, no substantial or permanent self—soul—exists in a disembodied state.

I think I am is not real? No, it is as real as any activity of the brain. It does mean, however, that one's self is not an ethereal bit of soul stuff.⁵⁶ What is she saying? Churchland rejects classical or Cartesian dualism, according to which the self or the soul is made from an immortal substance. Yet, she says that our first-person perspective requires a self to see itself as a self right along with everything else we perceive in the world.⁵⁷

Widely read German philosopher Ottfried Höffe draws the right conclusion, in my judgment. "The person thinks, to be sure, 'with' his central organ; he acts 'with' the brain, but it is the person, not the brain, that thinks or acts."⁵⁸ Similarly, St. Andrews University neuropsychologist Malcolm Jeeves commits himself to an ontology of the human person inclusive of mind, brain and body: "the ontological reality of 'person' is primary."⁵⁹ He adds, "A holistic model of the human person does most justice to the scientific understanding of ourselves. . . . Our unity is central. We know each

56. Churchland, *Brain-Wise*, 124.

57. When making a review of the options for modeling the self or ego or first-person perspective, I delineate five discrete models in contemporary discussion:

(1) *Ego Continuity*, according to which a persistent self-awareness or even an immortal soul inhabits an ever-changing physical body and physical environment. This would be the classic Platonic or Cartesian position.

(2) *Self as Confused Expression of a Higher Self*, according to which, our individual soul is but a manifestation of the over-soul, the spiritual reality that unites all things. We find this model in New Age Spirituality.

(3) *Self as Delusion*, the position taken by many philosophers who claim to base their cognitive theory on neuroscience. "The mind . . . is the brain" (Dennett, "Facing Backwards," 107) or "there is no such thing as a self" (Metzinger, *The Science of the Mind*, 1). This is the reductionist model according to which no substantial ego exists. The self is a fiction.

(4) *Self as Story or Narrative*, according to which the self is an evolving social construction whose identity is defined by our history, our story. Jennifer Ouellette belongs here in the self as narrative model (Ouellette, *Me, Myself, and Why*, 260). For a historical or biographical self to develop requires relationship. "The development of a sense of self relies on the regulating, reliable, and felt presence of the other" (Fisher, *Neuro-feedback*, 21).

(5) *Self as Experiential Dimension*. Here, "the self is claimed to possess experiential reality, is taken to be closely linked to the first-person perspective, and is, in fact, identified with the very first-person givenness of the experiential phenomena," according to Dan Zahavi, who directs the Center for Subjectivity Research at the University of Copenhagen (Zahavi, *Subjectivity and Selfhood*, 106). My own position comes closest to the experiential dimension model with some sympathies toward the story or narrative model.

58. Höffe, *Can Virtue Make Us Happy?*, 245.

59. Jeeves, "Brains, Minds, Souls, and People," 107.

other, not as brains ensheathed in bodies, but as embodied persons"⁶⁰. This leads theologian Philip Clayton to declare the following:

I suggest that language of personhood or 'whole persons' serves an indispensable function in comprehending human actions and interactions Only explanations that include this emergent level of personal actions and intentions are in fact able to explain the data available to us, the data of introspection, the data of human behavior, and the data of human cultural production.⁶¹

The person is centered by the self. It is not my task in this chapter to take up directly the question of the metaphysical status of the human self, but I stipulate for the purposes of coherency in my proposed cognitional model that a phenomenal self with a growing history or biographical narrative is present and operative with a first-person perspective and with agency in the world.

Reports of the Death of Free Will Are Premature⁶²

If the human self is a delusion, is free will also? If preconscious causes determine conscious decisions, does this eliminate what we assume to be free will? Does saying, "don't blame me. My neurons made me do it," eliminate our moral responsibility?

Here is my position: *free will* consists of deliberation, decision, and action that exhibits self-determination. Free will is the self in action, both as self-control and as affecting the environment. This is a nonreductionist assessment that requires some level of indeterminism in the physics—will a quantum theory of the brain supply sufficient indeterminism?—of mental processes. Physical indeterminism provides a necessary condition for human free will; but it is not a sufficient condition. What else is needed? The existence of the self as a determining agent.

The so-called free will debate is not the same as the debate between determinism and indeterminism. Rather, the free will debate deals with this question: is the human self a determinant? In my camp we answer yes, the human self determines (at least in part) what will happen in our world. I would like to invite Murphy and Brown into my camp. They contend that free will should be "understood as being the primary cause of one's own

60. Jeeves, "Brains, Minds, Souls, and People," 107.

61. Clayton, "The Emergence of Spirit," 290–310.

62. Weissenbacher, "Ten Principles," 48.

actions; this is a holistic capacity of mature, self-reflective human organisms acting within suitable social contexts."⁶³

Patricia Churchland wanders on the perimeter of my camp. "I am not a puppet; I could have done otherwise," she writes⁶⁴ "Neuroscientists know in a general way what structures are crucial for normal self-control . . . self-control depends on the connectivity patterns between neurons in a set of subareas of the prefrontal cortex (PFC) and subcortical structures, mainly the basal ganglia and nucleus acumbens."⁶⁵ As brain-mind identity theorists are inclined to do, Churchland eschews any contraccausal attempts to explain free will. "The name *contraccausal* reflects a philosophical theory that *really* free choices are not caused by anything, or at least by nothing physical such as activity in the brain." Churchland opposes contraccausal accounts of free will. She affirms that the brain produces a self complete with free will and self-control. "If you are *intending* your action, *knowing* what you are doing, and are of sound mind, and if the decision is not coerced (no gun is pointed at your head), then you are exhibiting free will. This is about as good as it gets"⁶⁶ My way of putting the matter is this: there is such a thing as the self, and the self provides its own set of antecedent causes for both internal and external effects. According to Churchland, similarly, free will is not an illusion. The facts demonstrate that self-control and free will happen. "What is *not* illusory is self-control."⁶⁷

Self-control or self-determination benefit from what we describe as holism, top-down causation, or supervenience. "The question is no longer whether processes at these lower levels are deterministic; but rather whether higher-level systems, in general, are entirely governed by the behavior of their parts," writes Murphy⁶⁸. A whole cannot be reduced to its parts; and a human self is a whole whose symbolic and abstract thinking supervenes on his or her consciousness, deliberation, decision, and activity. This means human persons gain "a level of control over their bodies and behaviour."⁶⁹

This understanding of freedom as self-determination does not require a blanket indeterminism in the physical nexus. Rather, it requires that the self as agent be thought of as one of the determining causes among others in the causal nexus. Philip Clayton contends that freedom is a property of biological

63. Murphy and Brown, *Did My Neurons Make Me Do It?*, 305.

64. Churchland, *Touching a Nerve*, 178.

65. *Ibid.*, 176.

66. *Ibid.*, 180.

67. *Ibid.*, 185 (italics original).

68. Murphy, "Divine Action," 254.

69. *Ibid.*

organisms which gradually developed over evolutionary time scales as the degree of complexity increased. With complexity comes the emergence of new causes, one of which is the emergent human self as agent. "Emergence points toward continuously new forms of complexity and causality," he writes.⁷⁰ The complex human self has evolved into an agent in the physical world. James Haag reinforces this position: "I propose that the dynamic process occurring between representations, decisions, and actions, instigated by a tendency to change (the will), is the self."⁷¹ In brief, what we know as free will is, in fact, the self as a subject deliberating, deciding, and taking action which has a cause-effect impact on the physical world.

The type of freedom at stake here we know as free will, otherwise described as subjective arbitrariness, freedom of choice, human agency, and such. What is not at stake in this discussion is distinctively *Christian* freedom. The two freedoms are not the same. Whereas the concept of the *free will* in popular usage denotes the opportunity of the self to choose between alternatives, the concept of *Christian Freedom* requires transcending one's self-interest and taking action on behalf of the needs of other selves. Whereas the first is a form of self-expression, the second requires self-transcendence. Whereas the first freedom is a human accomplishment, the second is a gift of divine grace. Martin Luther describes Christian Freedom paradoxically. "A Christian is a perfectly free lord of all, subject to none. A Christian is a perfectly dutiful servant of all, subject to all" in love.⁷² Curiously, in this chapter I am trying to rescue the self from enslavement to neuro-reductionist accounts; but, theologically, Christian Freedom then requires giving that very self away in the service of love.

Even more paradoxically and even more curiously, what most of us accept as free will is, from a theological point of view, bondage. The will is bound to self-expression; to self-interest, sometimes even to self-aggrandizement. Metaphor theorist George Lakoff enunciates the secular understanding of free will as self-expression. "There is a simple understanding of freedom. Freedom is being able to do what you want to do, that is, being able to choose a goal, have access to that goal, pursue that goal without anyone purposely preventing you. It is having the capacity or power to achieve the goal and being able to exercise your free will to choose and achieve the goal."⁷³ Or, "Freedom requires government of the self, by the self, and for

70. Clayton, "The Emergence of Spirit," 141.

71. Haag, *Emergent Freedom*, 197 (italics original).

72. Luther, *Luther's Works*, 31:344.

73. Lakoff, *Whose Freedom?*, 225-26.

the self."⁷⁴ From a theological point of view, what Lakoff dubs freedom is, in fact, bondage to the self. For the human person to love as God loves it requires liberation from the self. "The bondage of the will calls, therefore, for a liberation and, in the radical sense, for a redemption that will establish the will's identity anew," writes theologian Wolfhart Pannenberg.⁷⁵

Christian freedom is distinguished by its attunement with God, an attunement given to us by God as a gift of divine grace. As important as this attunement is to the person of faith, distinctively Christian freedom is not the focus of this exploration into cognitional theory. Rescuing human freedom as self-determination from the jaws of the reductionist dragon will suffice for this knight's errand.

The Cognitive Pinnacle: Abstract Knowledge

At the pyramid's pinnacle we locate knowledge, rationally produced concepts of the type neuroscientists along with all scientists, philosophers, engineers, and virtually everybody wants. Knowledge may be located within consciousness; but it is not in itself consciousness. Knowledge is the result of a process wherein a self assesses experience, engages in active understanding, and renders judgments about what can be known and not known. "Consciousness is just experience, but knowledge is a compound of experience, understanding, and judging."⁷⁶ This is so very important that it is worth repeating: "Consciousness is just experience, but knowledge is a compound of experience, understanding, and judging." Knowledge is consciousness with an object; and abstract knowledge is objective knowledge intended in subjective awareness.

Judgment leads to decision, the decision of a self to take action. According to the Lonergan scheme, the movement from judgment to decision and then to action constitutes a *moral conversion*. The moral conversion marks the move from abstract deliberation to value, ethics and self-constitution as a moral person.⁷⁷ The moral conversion begins with an objective idea and concludes with personal integration.

Now, just what do I mean by saying rational knowledge is objective? Dehaene offers a helpful distinction between transitive consciousness and intransitive consciousness. Transitive consciousness intends an object; whereas intransitive consciousness is simply a state of awareness, of

74. Lakoff, *Whose Freedom?*, 36.

75. Pannenberg, *Anthropology in Theological Perspective*, 119.

76. Lonergan, *Method in Theology*, 106.

77. Tracy, *The Achievement of Bernard Lonergan*, 20, 165.

wakefulness or vigilance.⁷⁸ When we become occupied with a toothache, we are experiencing transitive consciousness. We may so focus on the toothache that all other items present to our perception recede to an invisible background. This is what the phenomenologists call *consciousness-of*. That which we are conscious-of is the object.

What then is intransitive consciousness? While waking up in the morning our inquisitive child with thumb in mouth might ask: "Are you awake?" We might moan in answer, "Yes, now I am." In the waking state we are intransitively aware; but when the child asks a question we focus transitively or objectively on our answer, "Yes, now I am, damit." Intransitive consciousness provides the backdrop or stage on which transitive consciousness engages in objective play.

This distinction between transitive and intransitive consciousness sets contemporary neuroscientific discussions apart from early twentieth-century phenomenology, where consciousness was necessarily consciousness-of, necessarily transitive. Employing the concept of intentionality, phenomenologist Edmund Husserl tied subject and object together within consciousness: the subject intends an object, so to speak. "The object of the presentation, of the intention, *is* and *means* what is presented, the intentional object."⁷⁹ This is not realism. It is phenomenology.⁸⁰ "Thus, intentionality does not presuppose the existence of two different entities—consciousness and the object. All that is needed for intentionality to occur is the existence of an experience with the appropriate internal structure of object-directedness."⁸¹ Object directedness occurs within consciousness; it structures consciousness, according to Husserlian phenomenologists. My point here is this: as we move from traditional phenomenology into contemporary neuroscience we bring along transitive consciousness with its concept of intentionality; and we supplement it with intransitive consciousness, the state of simply being awake or aware. In objectless intransitive consciousness, our being-in-the-world is present to our awareness even though it may not in itself be an object of our intentional thought.

We must now take a step beyond phenomenology toward realism, toward the reality of the object of human knowing. Deep within us we have

78. Dehaene, *Consciousness and the Brain*, 22.

79. Husserl, *Logical Investigations*, 596 (italics original).

80. "Phenomenology is not . . . just another name for a kind of psychological self-observation, rather, it is the name of a philosophical approach specifically interested in consciousness and experience inaugurated by Husserl and further developed and transformed by, among many others, Scheler, Heidegger, Gurwitsch, Sartre, Merleau-Ponty, Levinas, Henry, and Ricoeur" (Zahavi, *Husserl's Phenomenology*, 4–5).

81. Zahavi, *Subjectivity and Selfhood*, 21.

a yearning to know, to know what is real, to know what is ultimately real. "Ontological thirst" is what Mircea Eliade called this deep human yearning.⁸² Learning to distinguish what is real from what is fictional, merely imaginary, or even false is a hurdle we jump on the way to the finish line: knowledge of reality. This takes thinking. "Thinking is for the purpose of determining whether or not what is thought does exist."⁸³ The human thirst for knowledge will not be quenched by anything less than reality, not by anything less than the truth of being that transcends the inquiring subject.

In order to jump the hurdle between falsity and truth we rely upon judgment. After our consciousness has accessed our perceptions and then filtered them through symbolic discourse, we pause just before we take a leap: the leap of intellectual judgment. It is the leap of judgment that moves experience toward knowledge. "Desiring to know is desiring to know being; but it is merely the desire and not yet knowing. Thinking is thinking being; it is not thinking nothing; but thinking being is not yet knowing it. Judging is a complete increment in knowing; if correct, it is a knowing of being; but it is not yet knowing being, for that is attained only through the totality of correct judgments." Knowledge is personally satisfying only if it is true knowledge, true knowledge of one or another object. In other words, abstract thinking includes judgment before the mind can claim to have knowledge; and knowledge by definition is knowledge of what exists, of what really is. To know being in the capital 'B' sense of Being-itself, however, requires a comprehensive collection and melding of all our judgments, says Lonergan; but this is something to which we undoubtedly lack conscious access.

Knowledge is pursued through questioning. And this questioning can itself be subject to questioning. I call this capacity for recursive questioning, *critical consciousness*. The human mind is capable of critical thinking; and critical thinking spurs the process of making judgments within the pursuit of knowledge. Because critical thinking leads ineluctably toward big questions regarding the intelligibility of our world or the ground of all Being, the human pursuit of knowledge leads eventually to the question of God. According to Lonergan, human consciousness is inclined to ask about the transcendent ground of reality, to ask about the divine reality. Questioning "rises out of our conscious intentionality, out of the *a priori* structured drive that promotes us from experiencing to the effort to understand, from understanding to the effort to judge truly, from judging to the effort to choose rightly . . . there is the same transcendental tendency of the human spirit that questions,

82. Eliade, *The Sacred and the Profane*, 64.

83. Lonergan, *Insight*, 354.

that questions without restriction, that questions the significance of its own questioning, and so comes to the question of God . . . [expressing] our native orientation to the divine."⁸⁴ The pursuit of knowledge opens the question of ultimate reality—the question of God—in human consciousness. In short, the question of the divine is native to human consciousness.

The place of ultimate reality in one's mind and in one's life cannot escape a paradoxical tension. On the one hand, we find ultimacy at the level of thought, abstract thought. On the other hand, the ultimate reality cannot be thought. The result is that the divine or the ultimate is a thought about what cannot be thought. If Anselm is correct that God must be that than which nothing greater can be conceived (*id quo maius cognitari nequit*), then a thought about the ultimate is a thought about what is beyond thought. The tension of the paradox is relieved by allowing it to remain while the person of faith lives a life of love. God "may be well be loved, but not thought," we find in medieval *The Cloud of Unknowing*. "By love may [God] be gotten and holden; but by thought, never."⁸⁵

Summary Thus Far

What I have presented here is a foundation plus framework for a cognitional theory that attempts to map the scaffolding of human consciousness and locate human knowledge. I have placed the foundation—the ground floor of our cognitional pyramid—at street level where each person is inextricably related to the surrounding world and is continually perceiving the surrounding environment. As we climb through sense impressions to the fifth floor, we find consciousness at work accessing its perceptual intake. In the process of accessing this perceptual intake, our sense impressions become selected, organized, and packaged in order to permit conscious attention and understanding. Then, rising above bare intransitive consciousness to the observation deck on the 27th floor, linguistic consciousness structures our already filtered perceptions into meaningful objects, sometimes objects with multiple meanings. At the level of language, the world—our life-world or *Weltanschauung*—becomes structured in terms of a meaningful interaction between parts and whole. This linguistic life-world is intersubjective—that is, we individuals share it with our contemporaries as well as with our ancestors. We share centuries of tradition that lives on today embedded in the connotative meanings associated with the linguistic symbols we inherit. Out of this reservoir of linguistic and symbolic meaning we abstract

84. Lonergan, *Insight*, 103.

85. Underhill, trans., *The Cloud of Unknowing*, 14.

selected conceptual objects for judgment, for judging whether they exist or not, for judging claims of truth or falsity, for quenching our thirst for reality. We rely upon the abstract idea that has passed through the fires of judgment to connect us with what is real, with being, with the truth of being which transcends our subjective apprehension of it. Finally, it is only natural and normal that we ask questions about ultimate reality, about the intelligibility of the universe, about the divine.

This human questioning of reality knows virtually no limits, because the quest is aimed at the whole of reality. The religious mind of the whole person thirsts for the whole of reality, for grasping the deep structures of the universe. "A religious perspective claims to speak not of a part but of the whole," observes theologian David Tracy; "without the sense of that reality of the whole, I believe there is no religion."⁸⁶ The religious mind asks questions—even abstract questions—about the whole.

As human beings we do more than ask questions, however. We make decisions and take actions. The religious mind intends to serve God by loving the neighbor. When discerning whether or not to serve God by loving one's neighbor, the religious self relies upon linguistically derived concepts of God which are intelligible and which function in the abstract mind as knowledge. On the basis of this knowledge, the decision to serve God can be made and, in turn, this decision instructs the brain to get with the program, so to speak, and to orient one's entire life around this intention. How is this possible? Because neurons that fire together wire together.

Neurons That Fire Together Wire Together

The abstract idea of God in the mind has the potential to rewire the brain through free will, through self-determining decisions to love one's neighbor. If a person is convinced that God is love and that we humans should love as God does, that person will make the decision to develop daily habits which exhibit compassion and attend to the needs of those in need. Such a habit becomes reinforcing, so that over a period of time what was originally a conscious decision becomes a preconscious or even unconscious pattern of daily behavior. In sum, the abstract idea of God gains a causative influence on bodily functions, even brain functions.

How is this possible? Because of downward causation and because the brain is susceptible to alteration by decisions made by the self. In her writings on complex, dynamic systems, philosopher Alicia Juarero explains how the effect of synaptic plasticity permits changes in potentiation.

86. Tracy, *The Analogical Imagination*, 159.

Learning induces structural brain changes that make it more or less likely that in a similar situation stimulation will cause a particular population of neurons to fire.⁸⁷ Carla Shatz, writing in *Scientific American*, reports memorably, *neurons that fire together, wire together*.⁸⁸

Recall what we said earlier when referencing Dehaene. By establishing habits, our consciousness can shelve certain activities in the unconscious closet until it needs to draw them out and give them renewed attention. Because consciousness is brain-wide, so to speak, it can temporarily consign habits to the unconscious in order to maintain workspace in what is immediately conscious. It appears that via downward causation—via supervenience or top-down or whole-part causation—our consciousness governs at least some of what is unconscious. Or to say it another way, in the case of virtuous habits our conscious mind has instructed our automatic pilot where to fly.

Essential to this chapter's thesis is the observation that one's neurology becomes altered through thought leading to action, which in turn impacts future thought and action. This ongoing process of transformation—linking, unlinking, and potentiating various neural pathways—involves the inter-related aspects of action-oriented learning, imagination, emotion, and the development of automaticity. Virtue and morality are shaped by affective, imaginative, and interpersonal interactions with the material and social world feeding into symbolic understanding and self-determination. Having climbed to the very pinnacle of the Transamerica pyramid, the religious person reverses direction, so to speak, and restructures the entire complex on the trip back down to the symbolic and material foundations.

The implication for the religious mind is clear: loving actions, when performed repeatedly, could influence the morphology and potentiation of neural systems that support such loving actions, readying them so that they are available for activation in future circumstances. It further implies that a virtuous life requires one to continue to act accordingly, because failing to practice virtue can result in regression. The discipline of Virtue Ethics has long known what today's neuroscience only reinforces, namely, that as one develops in a virtue, there becomes less a need to consciously direct moral action. One acts preconsciously and spontaneously as virtue becomes an indelible part of one's character.⁸⁹

87. Juarerro, *Dynamics in Action*, 53.

88. Shatz, *The Developing Brain*, 60–67.

89. For this discussion I am dependent on the research of Alan Weissenbacher, who is writing a doctoral dissertation, "The Born Again Brain: Neuroscience and Wesleyan Salvation," at the Graduate Theological Union.

Our Idea of God and the Reality of God

Can we hack the religious mind? Yes. What we find in the religious mind is likely to be a worldview filled with symbolic meaning plus, at least in some cases, an abstract idea of God. Does this abstract idea accompanied by its symbolic penumbra affect conscious access in order to structure experience, perhaps even perceptual experience? Yes. This structuring of experience is the product of top-down supervenience taking place within the consciousness of a human self.

I rely on supervenience, not supernaturalism. Theologian Klaus Nürnberger acknowledges that the religious mind amounts to the organization of the natural mind. "According to modern neurology, all human knowledge is located in synaptic networks and processes in our brain. God consciousness cannot possibly be an exception. Spirit is structured and oriented consciousness."⁹⁰

Our natural cognitive faculties need no supernatural intervention. "Religious experiences do not depend on any special faculties over and above humans ordinary emotional and cognitive faculties," writes Nancey Murphy. "Their religiousness consists in (sometimes) their special content, but, more importantly, in their circumstances—circumstances that justify their being interpreted as acts of or encounters with the divine. In brief, religious experience supervenes on cognitive and/or affective experience in the context of an encounter with God."⁹¹ The cognitional theory I hypothesize here does not require supranatural communication or even a mystical encounter with the *numinous* transcendent. Rather, the presence of the abstract idea of the divine in the human mind exhibits a top-down causative influence on ordinary everyday consciousness.

By abstract I mean cognitive, mental, ideational, rational. Some religious models of ultimate reality can be quite anthropomorphic, such as Hinduism's Krishna or the old man with a white beard in Christian art. Other models rank higher on the level of abstraction, such as Moses' experience with YHWH or mystical apprehensions of the divine in Brahman.⁹² Whether as anthropomorphic projection or as radically transcendent, the abstract concept of the ultimate exerts downward causation on one's psychic activity and, eventually, on one's biological and social activity. More important than the mere concept of ultimacy is its effect, namely, does it inspire love? Does it radiate love like a soccer goal prompts a roar from

90. Nürnberger, *Faith in Christ Today*, 28.

91. Murphy, "Nonreductive Physicalism," 147.

92. Wildman, "Behind, Between, and Beyond Anthropomorphic Models," 885–906.

the stadium crowd? Key to the religious mind is the role the ultimate plays in structuring the worldview through supervenience, which in turn births faith, hope, and love.

The key is the role of the ultimate regardless of how the ultimate is symbolized. Whether this abstract idea takes the form of a monotheistic God, polytheistic gods and goddesses, Brahmanic fullness or Buddhist emptiness, what we refer to as the divine stands at the end of all rational questioning. "*The object of theology is what concerns us ultimately,*" writes theologian Paul Tillich; "*Only those propositions are theological which deal with their object in so far as it can become a matter of ultimate concern for us.*"⁹³

The "object" language of Tillich here can be misleading. Ultimate reality turns out to be something non-objective. Ultimate reality is not one object among others, because it includes us as well. It includes both the object of our knowledge and our own subjectivity which has abstracted this object from the linguistic flow of meaning. Because ultimate reality is inclusive of both object and subject, it can no longer be represented merely as an abstract item of knowledge. Our relationship to ultimate reality—to God or the divine—is so self-involving that our subjectivity becomes a participant rather than an observer of what is ultimately real. The best term to use to describe this self-involving relationship is *love*. One cannot know God without loving God or, more precisely, without experiencing the love of God for us. In sum, our relationship with ultimate reality requires the totality of our consciousness, not merely abstract knowledge.

We have not here proven the existence of God. William Grassie reminds us: one "cannot prove or disprove the existence of God by studying someone's brain."⁹⁴ Though it has not been our task to prove or disprove the existence of a divine ultimate, we have, however, demonstrated the plausibility of a nonreductive account of human cognition that includes top-down agency wherein the idea of God affects our experience and influences our intentional action in the world. With this in hand, a worthy future task would be to add a theory of divine action within human consciousness. "The nonreductive physicalist account of nature needs to be complemented by a theological account in which descriptions of divine action supervene on descriptions of historical events, but without being reducible to them."⁹⁵

93. Tillich, *Systematic Theology*, 1:12, (italics original).

94. Grassie, *The New Sciences of Religion*, 104.

95. Murphy, "Nonreductive Physicalism," 147.

Conclusion

In order to hack into the religious mind, we must rely upon a theological observation: one's relationship to the divine is much more than merely knowledge at the abstract level. Lonergan introduces the notion that the person of faith falls in love with God. The Christian will want to add: love should envelope one's total consciousness, not just abstract knowing. We experience our love relationship with the divine as fulfillment. "That fulfillment is not the product of our knowledge and choice. On the contrary, it dismantles and abolishes the horizon in which our knowing and choosing went on and it sets up a new horizon in which the love of God will transvalue our values and the eyes of that love will transform our knowing." The scope of fulfillment is inclusive and reorienting. "As the question of God is implicit in all our questioning, so being in love with God is the basic fulfillment of our conscious intentionality. That fulfillment brings a deep-set joy that can remain despite humiliation, failure, privation, pain, betrayal, desertion. That fulfillment brings a radical peace, the peace that the world cannot give. That fulfillment bears fruit in a love of one's neighbor that strives mightily to bring about the kingdom of God on this earth."⁹⁶

Lonergan makes an additional point which flowers from the nourishment of his Christian roots, namely, our love relationship with God is a gift of divine grace. "In religious matters love precedes knowledge and, as that love is God's gift, the very beginning of faith is due to God's grace."⁹⁷ Paradoxically, what we pursue through questioning turns out to be something already given us by grace. Just how does a fulfilling love relationship with the divine go back down the stairs from abstract knowledge toward symbolic speech, conscious access, and perhaps temporal and spatial perception of the world around us?

The transcendental experience which some report in meditation or prayer can be described as mystical. Frequently, it is described as interactive love between one's self and the divine. And, more often than not, it is an experience of divine grace. Just how does a fulfilling transcendental relationship with the divine go back down the stairs via abstract knowledge toward symbolic speech, conscious access, and perhaps temporal and spatial perception of the world around us? Let's try to find out.

96. Lonergan, *Method in Theology*, 106.

97. *Ibid.*, 105.

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