DUELING WITH DUALISM

THE FORLORN QUEST FOR THE IMMATERIAL MIND

MICHAEL SPENARD

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The Forlorn Quest for the Immaterial Mind
Michael Spenard

philosophy

Dueling with Dualism takes up the commonplace understanding of man's mind as having a distinct mode of existence outside of physical space and corporeal bodies: the infamous notion of "mind-body duality." In this brisk and lucid work Spenard lays forth a historical account and cumulative critique against the intuitive conception of the mind, as separate from the brain, by bearing out fully the consequences and implications of this notion. In challenging the reader from the opening—"What is it that your name names?"—*Dueling with Dualism* gives to the reader what all philosophy should: a renewed interest in how we conceive of ourselves by looking to the ideas of past, reconciling them with the present and pointing to a future "conceptual topography."

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To
Shaun
who taught me to consider

To develop the skill of correct thinking is in the first place to learn what you have to disregard. In order to go on, you have to know what to leave out: this is the essence of effective thinking.

—Kurt Gödel

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PREFACE

> What is done by what is called myself is, I feel, done by something greater than myself in me.
>
> —James Maxwell, *on his deathbed*

> That everything should be explicable in terms of physics (together, of course, with descriptions of the ways in which the parts are put together—roughly, biology is to physics as radio-engineering is to electromagnetism) except the occurrence of sensations seems to me to be frankly unbelievable.
>
> —J.J.C. Smart, *Sensation and Brain Processes*

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WHAT IS IT THAT YOUR NAME NAMES? Try pointing to that which is *you*. You will find that a nose, eye, or forehead quickly gets in the way. Then, peeling these back and tossing them aside, you will find yourself being able to point only to the various parts of your brain that go about working on the distributed task of making you … *you*. After sorting through various clusters of flesh, bone, tissue, and gray matter, and then turning one's gaze aside to the body asunder, a portentous observation is staring you in the face. Where have *you* gone? And who, or what, will file one's own missing person's report?

Seemingly, it makes little sense to say, "My body is warming my body by the fire." "If we cut off the finger," as the philosopher John Locke said, "we have not diminished the self. The body is not the self." And we feel that the audible words we speak, and the visible actions we make, are not themselves exercises of the mind, but only external indications and expressions of our real but private mental world—and that it is this domain where our self is found.

Subsequently, which statement is more correct: "I have a brain" or "This brain has itself"? The former statement has the intuitive pull as felt by the physicist and mathematician James Maxwell. However, as with the reservations of the philosopher J.J.C. Smart, is such a bifurcation between mind and brain really a lesser absurdity than saying "My brain is doing multiplication" or "A brain sees blue" or "This brain enjoys listening to music"?

A similar scenario is also sketched by the philosopher W.D. Hart in *The Engines of the Soul* (1998, p. 145): One day, upon waking up, you carry yourself in a groggy stupor to the bathroom so that you may splash water onto your face. Pulling your head upward, you glance into the mirror only to find to your horror that, where there would normally be two eyes staring back at you, there are only two empty eye sockets. And taking the nauseating affair several steps further, you can remove your optic nerves, brain, head, torso, and the rest of your body while still

maintaining the mental capacity to "see," "think," and "feel."

This thought experiment is, of course, quite impossible in real life. But, as advocated by Hart, it certainly seems we can *conceive* of its occurrence in some possible world without contradicting oneself—in contrast to how one cannot conceive of a world in which there are square circles. Then, from this conceiving, it seems possible to weigh on the mind of the conceiver that the domain of personal experience, thought, and desire (mental content) is of a nonphysical or immaterial nature. A nature conceived with a central "mean-er" or central "purpose-er" (i.e., the seat of experience, thought, and action). And commonly regarded as an entity distinct from the body, as the spiritual part of man, in contrast to the purely physical—a bifurcation between physical reality and some nonphysical counterpart for the mind. Additionally, the sciences tell us roughly that one's atoms are always ebbing and flowing. This seems to also admit of our person-hood being nonphysical, since this appears to bear on our nature like the Heraclitus metaphor that "one can never step in the same river twice due to its water always flowing." And, from this, many have felt inclined to claim the necessity for a central immaterial essence, ego, or soul of person-hood.

We have strong intuitions that push on our minds and pull on our hearts when we deal with these considerations and questions. Your experiencing-self seems to converge at, and then

emanate from, the center of something; the problems start when we ask what this center might be. To answer these questions, we must push reason as far as it will go and instill in ourselves a desire to delve beneath appearances – to steer clear of man-made cages for the mind of man.

The discourse on mind-body duality provided here is presented in the following way: Sections 0 and 1 outline a historical account and the lineage of the notion that mind and body (and brain) are distinct from each other and persist in separate domains. Sections 2 and 3 examine the core conceptual claims and arguments that are consistent with, and born from, our intuitions. Holding these considerations to the flame and compass of science, the empirical difficulties to be overcome are considered in sections 4 and 5. Section 6 opens a page to the linguistic framework used in mind-body duality. Finally, in section 7, the overall value of the notion is taken up (i.e., whether or not it pays dividends on our inquiry into the nature of our mind) and we then turn to looking to the future of the inquiry.

The argument throughout will be cumulative as it sets forth to bind together prior observations and arguments from a wide scope of thinkers, with my share of the contributions being not altogether great. My hope throughout is that this advocacy and discourse provides a more salient and cohesive argument than those individual arguments expressed without the advantage of their mutual benefits and exploits—that they may

give off more than the sum of their light then when the pieces are held separately. Our effort here will be to survey a specific species in the ecology of ideas, examine the conceptual topography of how we have intuitively and historically looked upon the nature of our minds, and clear the landscape of any conceptual fodder we find to be malnourishing. Therefore, due to its discounting of the superfluous (and thus misleading), this discourse will have an apparently destructive tendency. However, since I have no desire to construct a perch from which to cast only aspersions, I have been, hopefully, diligent in leaving room for new points of view.

In circumspection, the discipline of philosophy is the practice of thinking to stop—to set aside the time, to stop and think, to steer clear of simply memorizing rules and bearing in mind doctrines—and to embark upon the process of discovering the right questions to ask when it is not quite clear what should be asked. This discipline, above all, is commonly thought to be profound and tread in the deepest of thought. I wish here, at the outset, to opine antithetically. Let us be clear and transparent—or, stated with more crassness, conceptually shallow. Weighted with the hefty stones of philosophical problems, should our aims be to lighten our conceptual load or to let our inquiring minds sink to the unfathomable, unseen, and unseeable depths? There are those who love the challenge of searching for a black mouse in a dark cellar with the lights off, who

think philosophy—with bearing and without interminable depth—is egregiously shallow. But could earnest inquiry be conducted any other way? Would we really want it any other way?

Therefore, this discourse is a disconcerted effort in advocating the exploration of that which we know best, using the light and bearing of science to avoid the calm waters of deep mysticism. We will examine the landscape created by a set of concepts, that we all regularly employ, and we will explore what is in plain view—venturing into not only what it is to be human but also what it is to be you. My aim—if taken personally and therefore more specifically—is a critical analysis of a well-known and established story: the story of you and the nature of its authorship.

The essence of this discourse is a philosophical one and, as with many philosophical problems, we set out to step from one bank, on the stream of who we are, to another, without any conception of the bridge that is to support this migration of perspective. And in the eddies formed, we will find newly freed and bothering questions, due to the caissons we place in the construction of this conceptual bridge, from our depths.

However, this is the nature of philosophy and perhaps its greatest virtue: to be enthralling, vigorous, and worrying. As progressive beings we must not become complacent in our landscape of understandings and perspectives. To grow old in mind is to replace the blind curiosity of youth with the cynical rust from a life passed by. And finding new questions to ask may arguably be as

important, or more important, than seeking the comfort of answers. Such wonderful child-like aspiration is the task of philosophy: to scrutinize the accepted conceptual schemes and to make explicit what has been thus far left to vagary, thereby renewing our interest in how we conceive of nature and man writ large.

(0) Cartesian Dualism

> If you would be a real seeker after truth, it is necessary that at least once in your life you doubt, as far as possible, all things.
> —René Descartes

It seems quite plausible, if not obvious, that the mind is better known than the body and other objects—what we know best and what we know first. That is, we can doubt the veracity of a thought or experience, but being able to doubt that we are having such a thought or experience, when we think we do, seems beyond skepticism.

The best-known version of this line of thinking comes from the seventeenth-century French mathematician and physicist René Descartes (1596–1650), who is also noted as being the founder of modern philosophy. Descartes wanted to base his philosophical thoughts on nothing but the securest of foundations, asserting to himself only that which could be beyond doubt, and so he invented a method of systematic doubt to achieve this goal.

> The first precept was never to accept a thing as true until I knew it was such without a single doubt. (Descartes 1637, p. 2)

Any instance of an object or event that he could bring himself to doubt he would hold as one, and any that he could find no reason to doubt he would accept as being a fact of reality. In holding his head in his hands, Descartes imagined that it was possible to doubt its existence because his senses might be deceiving him. He even imagined

that a deceitful demon was presenting his mind with an entire illusory world. In pursuing this methodology, he gradually came under the conviction that the only certainty of existence that he could not doubt was his own thoughts and mind—for if he did not exist, no malicious demon or his senses could deceive him. Descartes argued that since he was capable of thinking about the extent of his own existence, and doubting it, he must therefore exist: "*Cogito, ergo sum,*" he said. "I think, therefore I am."

As in Hart's example on page 2, Descartes concluded that since the entire existence of the body could be doubted, and since the mind could not doubt its own existence (otherwise there would be nothing that is doing the doubting), then the mind must be of a nonphysical substance. From this premise he bifurcated a person into two factions of substance. The first substance was material existence, of which the human body and its constituent parts persists in by consuming and "extending" in space with properties such as height, length, width, mass, motion, and spatial location; Descartes called this *res extensa*. The body and other material, or what he called "extended," objects (e.g., chairs and tables, and subatomic particles, atoms, and molecules), are governed by mechanical clockwork-like laws of physics. The second substance of existence, by contrast, is the thinking thing. And although it is without mass or location in space or shape or any other physical properties, it persists in the property of time that it shares with physical "extended" objects, and it

interacts with the body; Descrates called this *res cogitans*.

Figure 1

This bifurcation of a person into distinct physical and mental substances ("substances" being that which can exist independently on its own) is often and popularly described as *substance dualism*. Dualism is the stance that the mind is something nonphysical and decisively distinct from the world we see, smell, and touch: a soul. It holds that physical events in the world *somehow* give rise to the experiences and mental content (e.g., imagery, thoughts and desires, and so on) of reality. Descartes posited that the two kinds of stuff—mental stuff and material stuff—interacted

through a small component at the center of the brain called the pineal gland (the teardrop feature in Figures 1 and 2). And, using the science of his day, he explained the experience of pain as mechanical responses of "animal spirit" through tiny tubes terminating in the brain (see Figure 1). In his *Sixth Meditation,* he presents us with a mechanical model of how this might work. The body has tiny fibers running throughout it. When someone or something touches the body, the pressure tugs a tiny fiber, which opens a pore in a tube's ventricle that allows "animal spirit" to travel upwards to the brain. The physical event of touch is transmitted by means of mechanical motion to the pineal gland, where the soul is rung (like a bell is rung by its rope), and an event of subjective experience is created. When the mind chooses to exercise its will and commit to an act of volition the casual path runs in the opposite direction: when the soul requisitions an act of volition, in the physical world through use of the body, the soul causes a change in the pineal gland, which causes the mechanical strings to move and tug at the relevant part of one's body, causing it to move.

To summarize, under this model the physical world impinges upon our body, which then affects our brain, and then through the pineal gland affects our mind; the case is reversed for how our minds affect and control our body.

Descartes was one of the first to contemplate on the nature of how contemplation itself could work in a world with physical bodies and on what we

should expect when we peered inside the body and brain. Additionally, he was the first to clearly associate the mind with consciousness and awareness and to distinguish this entity of intellect and perception as separate from the physical brain. His conceptualization of the mind-body and *interaction problem* (i.e., the problem, to which we will return in section 4, of how each domain affects the other) was the first formal instance of how these concepts now exists today in less sophisticated terms.

(1) The Heritage of Dualism

> It was universally believed in the Middle Ages as well as in the Græco-Roman world that the soul is a substance … that there is a power inherent in it which builds up the body, supports its life, heals its ills and enables the soul to live independently of the body … We must turn back to the teachings of our forefathers … The ancient view held that spirit was essentially the life of the body, the life-breath, or a kind of life-force which assumed spatial and corporeal form at birth or after conception, and left the dying body again after the final breath. The spirit in itself was considered as being without extension, and because it existed before taking corporeal form and afterwards as well, it was considered as timeless and hence immortal.
>
> —Carl Jung, *Modern Man in Search of a Soul*

Although Descartes was the first to clearly formalize the idea of mind-body duality analytically, the concept can be traced at least as far back as Zarathushtra, the ancient Iranian prophet from tenth-century BC. The Greek philosophers Plato (427 BC–347 BC) and Aristotle (384 BC–322 BC) were also spellbound by the mysterious workings of the mind and the nature of the soul (Plato's focus, along with those of the medieval period, was in giving an account of the *intellect* outside of a materialistic framework, whereas Descartes' account was of conscious *perception*). Plato used the word *psych* for this entity that is the part of us that has experiences, desires, and reasons, and in essence is what we now refer to as the mind.

In Plato's dialogue *Phaedo,* he formulated his theory of "Forms" (eternal, unchanging universal concepts and ideas that make the world intelligible; e.g., whiteness, humanness, and other

-nesses) as distinct and immaterial substances. His ideas served as the archetype for all future implementations of dualism in the philosophy of mind. Plato argued (in what was a precursor to Descartes' own argument) that the psyche can know Forms and, as a consequence of this access that the psyche has to universal aspects, it must therefore be a nonphysical entity. The nature of the psyche must be more akin to unchanging and eternal Forms than that of things in the physical world that grow, decay, and perish (Plato 1995). However, if in granting that the mind is like that of permanent Forms, can we really say that they are of the same unchanging nature when our minds are obviously continuously changing?

In his *Metaphysics* (350 BC), Aristotle rejected Plato's ideas on Forms using his "third man argument" (Aristotle 1924).[1] Notably, he revised Plato's theory of Forms, doing away with the idea that Forms existed independently above and beyond that of particular physical entities (some thinkers on the subject have advocated that this is a sort of materialism, which may have substantiation). That is, Aristotle's account of forms is of the essential nature of objects existing only as embodied in those objects. Therefore, according to Aristotle the person is a *unified* being of soul and body; the soul is the form of the body and to

[1] This argument posits that if a man is a man because he partakes in the form of man, then a third form would be required to explain how man and the form of man are both man.

describe the form is to describe the distinct characteristics of intellect and rationality.

> To say that the soul [psyche] is angry is as if one said that the soul weaves or builds a house. It is doubtless better not to say that the soul pities, learns, or fears, but that the human being does this with his soul. (Aristotle, *De Anima* 2.4.408b11–15)

However, he also did not believe that the mind could be conceived of as something material. He argued that if the mind were a physical organ, in part or in whole, it would be restricted to receiving only physical information. Since the eye may only receive visual information and the ear only auditory information, and the intellect is able to reflect on *all* types of information, then the mind must be a nonphysical organ and therefore immaterial in existence (Aristotle 1968).

In the twilight preceding the dawn of early Christianity, many doctrines on mind-body duality had been circulating without much general consensus. Jewish theologians interpreted their sacred books, such as Genesis, to assert or imply the distinct existence of a soul. Later on, the Jewish philosopher Philo of Alexandria (20 BC–AD 50) took Plato's ideas and infused them into Jewish thought in what would become early Christianity. In addition to the implied dualism of early Jewish texts, the philosophy of Christian New Testament gospels can be found to make clear assertions of this nature.

> And fear not them which kill the body, but are not able to kill the soul: but rather fear him which is able to destroy both soul and body in hell. (Matthew 10:28)

In the teachings of St. Paul (?–AD 64) and the Gnostics, we find a further developed trichotomous doctrine where man consists of three parts (paralleling the doctrine of the Holy Trinity with the Father, Son, and Holy Spirit): *soma*, *psyche*, and *pneuma* (body, soul, and spirit), with body and soul being entities of the natural physical world and the spirit being attributed as an immaterial property of the Christian alone. In the early Middle Ages, a consensus solidified around Plato's ideas with some minor modifications, in what is a doctrine referred to as Neoplatonism (Whittaker 1901). Later Christian thinkers, such as Thomas Aquinas (1225–1274), following Neoplatonism into a Neoaristotelian doctrine, retained the idea of a human being as a three-way constituency of the body, immaterial soul, and spirit. However, in a proposal akin to the ideas of Aristotle, Aquinas maintained the idea that it was only through the soul's conjunction with the manifest human body that the soul could be said to be a person. The soul (or form) could exist independently of the body but the soul by itself could not constitute a person, and upon the end of one's corporeal existence, all things formed from the conjunction of soul and body, such as personal memories, were discontinued (Aquinas 1981). Modern-day Christianity has different views on this point of conjunction. Like Aquinas, the

Catholic Church's official doctrine asserts that the reunification of the mind, spirit, and body (i.e., *psyche, pneuma,* and *soma)* will take place at the Second Coming of Christ, whereupon the person will go to a realm of eternal bliss or damnation. Therefore, within the Catholic Church is a strong inseparability of mind, body, and spirit that is strongly comparable to the views expressed by Aquinas and Aristotle,[2] but still maintains some of these constituents as material and others as nonphysical. The various other denominations of Christianity (whether Protestant, Baptist, Anglican, or the Orthodoxies)[3] profess a belief in a variant of a dualistic doctrine as part of their catechism.

Even among modern nonreligious spiritualists and paranormalists, what is being proposed with "energy," along with the paranormal concepts of psychic, astral, cosmic, and *élan vital* (life energies) that flow through and animate the body, while appearing to be significantly different than the traditional religious notion of a soul, is a further example of the old idea of dualism being brought into the new modern language of science. These concepts are derived from the traditional Eastern belief in *ch'i* (Chinese) or *ki* (Japanese) or *prana* (Sanskrit),[4] also commonly denoted as "deeply held." As would be expected, many of the original

[2] Apostles' Creed, Catechism of the Catholic Church.
[3] Protestants reject this strong inseparability.
[4] These Eastern spiritual ideas are analogous to the Western idea of *pneuma* (or *spiritus* in Latin) from Greece that we saw previously.

researchers of the paranormal, such as Edgar Cayce and William Crookes, had seemingly fervent religious motivations to validate paranormal phenomena. The psychiatrist and philosopher Carl Jung of popular fame writes:

> While everything else that exists takes up a certain amount of room, the soul cannot be located in space … Why should the simple mind deny, in the face of such experiences, that the "soul" lives in a realm beyond the body? I must admit that I can see as little nonsense in this so-called superstition as in the findings of research regarding heredity or the basic instincts. (Jung 1933, p. 6)

In more recent years, popular books and movies such as *The Secret* and *What the Bleep Do We Know!?* have promoted the unsubstantiated idea that the difficult-to-understand field of quantum mechanics reveals the connection between these traditions of *élan vital* life energies (what is categorically called *vitalism*) and modern science. Moreover, many contemporary advocacies of this brand of dualism, such as those by Deepak Chopra, Amit Goswami, and Fred Wolf, have continued the tradition of a bifurcation between the physical body and some nonphysical mind. Wolf writes:

> I suggest that this chooser/observer does not exist in spacetime and is not material, which suggests that it is a spiritual essence or being residing outside of spacetime. (2004, p. 197)

Goswami adds:

> As the real experiencer (the nonlocal consciousness) I operate from outside the system—transcending my brain-mind—that is localized in space-time … My separateness—my ego—only emerges as an apparent agency for the free will of this cosmic "I," obscuring the discontinuity in space-time that the collapse of the quantum brain-mind state represents. (1993, p. 9)

Throughout history most Western or Eastern people—philosophers, theologians, spiritualists, and laypeople alike—have adopted some form of dualism. For example, Christians (Descartes was a Roman Catholic), Jews, and Muslims believe in an eternal nonphysical soul, Hindus in a divine self called the *Atman,* and various Native American tribes in mythical spirits. Even among modern-day nonreligious people, ghost hunters, and advocates of the paranormal or New Age spiritualists, dualism is still the prevalent theory found in the varied and colorful cultures of humanity. Among the major religions, Buddhism alone rejects the idea of a separate, nonphysical eternal mind.

So, the heritage of dualism comes not exclusively from Descartes and his apprehensions on the implications of the mechanical clockwork-like physics of the seventeenth century. The ideas of Plato and Aristotle, on the nature of mind and body, had trickled down through the centuries to shape theological doctrines of mind and body. These ideas finding themselves washed upon the shore of Descartes' own mind, where he would frame the concepts on mind and body found in the prevailing theological winds in the newly charted scientific language of Galileo. Nor has the heritage

and reworking of the idea ended within traditional religion; it is also found to be reworking itself under the guise of a more modern scientific language within paranormal and New Age practices.

(2) Intuitions and Exclusivity

> It is only prudent never to place complete confidence in that by which we have even once been deceived.
>
> —René Descartes

> The man who has no tincture of philosophy goes through life imprisoned in the prejudices derived from common sense, from the habitual beliefs of his age or his nation, and from convictions which have grown up in his mind without the cooperation or consent of his deliberate reason.
>
> —Bertrand Russell, *The Problems of Philosophy*

It seems to me that *I* exist—that, when I consider the actions of this body, there is some central *me* behind it all. What could it be that feels he is inside this head, peering through these windows that anatomy calls eyes? The feeling is overwhelming that I am here persisting somewhere, somehow in this body and that when contemplating to what things matter in the course of this body's history, it is to *I*, and not it, that we resort.

Descartes' meditations on a possible deceitful demon may be fairly described as eccentric and at odds with common sense, but his account that there is this real distinction between body and oneself—that is, one's *self*—is quite earnestly in harmony with common sense, our intuitions, and everyday thinking. We intuitively make this distinction between body and mind within the context of ordinary everyday conversation and prose, as well as in technical and philosophical contexts. And, as we have just succinctly seen,

humanity has a long and cherished heritage of making this distinction in religious and even nonreligious spiritual traditions.

But why should we take this distinction as factual truth? Seemingly, the answer is all too obvious: mind and brain are as different and distinct as apples and oranges and in little need of scientific (let alone philosophical) demonstration. We only need to consider the nature of our subjective experiences to see this. When your arm is pinched, you know what you think and feel; no special investigation is needed into this matter. However, my knowledge of your thoughts and feelings is quite unlike your situation. I must proceed to understand your thoughts and feelings through empirical investigations: using evidence and inferences. For example, if you weep I shall attribute "sorrow" to your mind, and if you laugh, "joy." But, such expenditures in effort can be of little value, for the mental is separate and distinct with an unknown causal link that is by most accounts beyond the capacity of man to understand, let alone use.

Or perhaps you are a deceitful prankster who has taken Novocain, broken your hand, and now only acts as if you are in pain. Of what use are the instrumentation of science and the physical sensory-hardware (nature's instrumentation) of biology? Only you can take an account of the states, thoughts, and feelings of your mind through the channel of introspection, since a person's biography is bifurcated into two endemic histories: one of the public physical body and one

of the private immaterial mind. Accordingly, from the direct access to one's private world, we cannot only ask but state firmly, "Who best to write the biography of one's mental life then oneself?" and "Who best to affirm the truth of one's own mental state—for who could challenge such a thing without direct access?" You may have your uncertainties and misinterpretations of the physical world, but there can be no doubts in your mind about what you, yourself, think and feel. For instance, you may state "the ball *is* red," but a doubter may fairly challenge you; perhaps the ball is not *really* red but only *looks* red to you. However, it strikes us that there is no room for further doubt, as the *looks*, *seems* or *appears* language cannot be further iterated; there are no *looks-to-look* red or *seems-to-seem* red. Seemingly, the reality of our "looks" cannot be cast into further doubt and denied of us (consider again the opening paragraph of section 0).

The difference between the stuff of mind (the *raw feels*)[5] and the stuff of body is seemingly irreconcilable; mental contents such as feelings are not amenable to instrumentation (whether it is of the mechanical or the biological kind) that takes measure of physical properties, behaviors, and speech.

Therefore, when it comes to knowing your mental states, the inferences we (the observers of you) draw from the affairs of the physical and

[5] *Raw feels* are first-person phenomenal experiences (e.g., "redness"), also known as *qualia* within philosophy.

behavioral are doomed to be weak at best or without validity altogether.

Consider the teacher who wishes to test the performance of a pupil. No question posed and no test forwarded could be an accurate indication of what was before the pupil's mind or what he knows, as the only answers replied would be physical speech acts and behavioral doings—all external symptoms that betray what is truly and ineffably before the pupil's mind. Could not the pupil simply tell it to us? He might; he may speak "warm," but we can call this physical speech into question. Perhaps he misspoke, or perhaps his mouth or brain failed him in some other way, or perhaps we simply heard him wrong. And if the intuition of mental exclusivity is upheld, we have no means to verify; perhaps he really does feel warm, or perhaps he feels cold—or perhaps he feels nothing at all.

By his own account, a dualist could never tell the difference between an imbecile and a genius, for he has just conceded that the mental lives of each are private and beyond the means of *any* form of scientific psychology or armchair psychology to assess. The characterizations we place on others, or worse yet the ones we publicly make of ourselves, would be empty or hazardous at best.

The Australian philosopher David Chalmers (1996, p. 94) asks us to imagine the logical possibility of your *doppelgänger* (a twin you), that is indistinguishable from you in every physical and behavioral way (e.g., it reads books, eats

dinner, cries when it sees a sad movie or stubs its toe, listens to music, says it loves the sound of rain falling in the evening, and so on). However, this doppelgänger has no private inner life, no subjective experiences, no soul. All is dark inside the mind (or lack thereof) of your doppelgänger (this has become known as a *philosophical zombie*).

This is certainly a very alluring idea and extremely easy to imagine, but it forces a question of the most difficult sort: does a soul *do* anything? After all, this doppelgänger looks and behaves like you in *every* way. If your doppelgänger and yourself were put side by side, who would an observer decide as being the real you with an inner life? You might reply "Me! It's me who is *alive* alive and conscious! *Me,* me!" But alas, so would your twin! And by the dualist's standards (i.e., subjective experiences are private and nonreducible to the objective physical stuff of science), the observer would have no real way of identifying the imposter.

Here we should pause to ask whether our intuitions have placed us on an all too slippery slope. Is there something that Greeks know about consciousness that Canadians cannot know? Or, is there something that left-handed people cannot know about consciousness that right-handed people know? As we have just seen, our dualistic intuitions and common-sense thinking about the mind legitimize these facetious questions.

An adherent of the dual-worlds view is faced with the impending implication of having placed

his mind within a box that we the observer cannot open. Nor can he open the lid to the world of our minds. From here, he is then found quickly sliding into the abyss created from his own dogma: that he may only be sure of the existence of his own mind (*solipsism*). Therefore, if such presuppositions of exclusivity and infallibility are in standing, they are to be demonstrated rather than operate as the initial premise to measure the truth of a theory of mind. It has been this Cartesian prison of the mind, created from the implications of dualism's two-worlds doctrine, that philosophy has been trying to escape. And the implications of such radical solitude make it all too clear that common sense is not enough, as someone else's common sense may easily refute it.

(3) Conceivability

> When these painful contradictions are removed … our minds, no longer vexed, will cease to ask illegitimate questions.
> —Heinrich Hertz, *Principles of Mechanics*

We started our discourse by practicing what we could conceive of. And by picking away bit by bit at our bodies, we forced upon our minds, and brought into focus, contemplation on the nature of the self. In this same spirit, we have seen dualists—Descartes with his systematic doubt, Hart using physiological elimination, and Chalmers with his zombies—attempt, and succeed quite successfully, to bear the weight, size, and shape of the problem upon our minds. Then they have advocated that we conclude from our ability to imagine ourselves without these three properties and others of the same physical nature that it proves in principle the existence (or potential for existence) of a nonphysical mind. We are to understand these conceptions as suggesting, first, analogously to how it was thought in early history that water was elemental and "water-like" all the way down, that the stuff of mental life is "mental-like" all the way down, and that this can be known to be true through introspection. Such conceptions are to then suggest further that their conceivability shows this to be a metaphysical necessity and that there is therefore a difference in identity between minds and physical mechanisms such as information processing and control systems like brains.

To understand this style of argument, we must understand the difference between possible conceivability and metaphysical necessity. Given the way the world works, it is impossible for pigs to fly, but if we could imagine a world where pigs could fly—perhaps a world with less gravity—then it is conceivably possible for there to be flying pigs. Therefore, they are not impossible in the way it is impossible for two plus two to equal three or for a triangle to be circular; in all imaginable worlds, it is a metaphysical necessity for triangles to be triangular, and not circular.

Such instances of circular triangles are not only impossible but also inconceivable—we are not able to imagine a world with circular triangles, and to attempt so would impose contradictions. As the Polish writer Stanislaw Lem (1971, p. 189) stated so auspiciously, "When in a system of logic a single, solitary contradiction is permitted, then by the principle of *ex falso quodlibet,* one can draw from that system whatever conclusion one will." Therefore, to understand the identity of two possibly identical concepts (e.g., apples and oranges, or circles and triangles, or H_2O and water, or brains and minds), we should attempt to imagine a conception of them in separate and distinct juxtaposition. If we are able to do so, then the two identities we hold in question do not fall under a single identity. If we find contradiction, then what we are dealing with are not two separate and distinct identities. This reasoning, on the nature of the possible and conceivable, is called the *identity principle*: that for any instance of

a or *b*, if *a* equals *b*, then it is not just impossible in this world but impossible to have *a* without also having *b* in *any* conceivable world. If someone claims that any instance of *a* is equal to *b*, then we should attempt to imagine whether we can conceive of a world where *a* can exist apart from *b*. If in doing so we find ourselves able to imagine such a world of *a*'s without *b*'s, then we should be so inclined to think they are not really identical in this world. For example, is it possible to conceive of a world where water is not the same thing as H_2O? Can you imagine, without introducing contradiction, a world where there is a substance that is transparent, boils, and freezes at the same temperature as water and possesses *all* of the other properties of water, yet has a different chemical makeup than H_2O?

This type of argument, which is used in defense of dualism, is known as the *conceivability argument*. As we have seen above, the arguments of Descartes, Hart, and Chalmers are versions of this reasoning. Their arguments ask us to examine the claim that the mind is identical to a physical information processing and control system, such as the brain; challenging that if it might be the case that the mind is identical with the brain (or another physical system contributing exactly the same functions), and if it is possible to conceive of the mind apart from the brain in any imagined reality without introducing contradictions, then the identity principle shows that in this

unimagined reality the mind and brain are not really identical.

However, this conceivability argument is a mirror image of that which it sets out to explain; it relies upon the private, subjective introspective imaginings on possibly conceivable alternate worlds, and it is these subjective introspective accounts and their relation to physicality that we are trying to explain. The knife is trying to cut itself to determine whether it is a knife. Any critic could simply reply, "Why yes, I *can* conceive of a circular triangle without contradiction" or "Why yes, I *can* conceive of water in some strange world that is not H_2O and do so without imposing contradiction." Because he has no means of checking the validity or nonvalidity of the introspection, any proponent of dualism would be required to forfeit his objections to these objectionable conceptions (due to his own doctrine of exclusivity that we saw above in section 2). That said, let us not be quite so terse with our assessment of the conceivability argument.

Water designates any instance of a substance that fits the characteristics of being a transparent liquid that freezes and boils at a certain temperature, is drinkable, and is used by living things as part of their metabolic processes. On the other hand, H_2O designates a substance with a certain chemical composition: two hydrogen atoms bonded to an oxygen atom. Therefore, in any conceived world "water" will designate substances with the same former general characteristics and "H_2O" any substance with the

same characteristics of chemistry. We know from empirical investigation that the substance that meets the general characteristics is the same as the substance that meets the chemical characteristics; in this reality, water is H_2O. Taking into account that the characteristics by which we designate that which is H_2O are the same characteristics by which we designate that which is water, and that the difference lies in the terminology and context in which we go about ascribing them, we can see that under more careful contemplation, we really cannot conceive of one as separate and distinct from the other. In convincing ourselves that we have conceived of water that is not H_2O, we have ignored the fact that the concept of water depends on some underlying physical construct—chemistry. Moreover, to conceive of a substance *similar* to water is not to conceive of a substance that *is* water without also being H_2O.

Similarly, a scientifically naïve child or adult may argue that since they know their sensations perfectly well, and know nothing of their neurophysiology, that what they speak of must be something else besides the latter. But this is quite like saying there are naïve people who do not know that their "morning star" is also the "evening star" of others, and that their "morning star" could not refer to the same thing as the "evening star" of these other people. Or it is like saying that naïve children who speak of "lightning" cannot be speaking of the same thing

as those sophisticated adults who speak of "electrical discharges" (Smart 1959, p. 146).

Hart (1994, p. 266) attempts to impress upon us an argument of this ilk when he writes that no example has been given to support that "one can imagine that *p* (and tell less imaginative folk a story that enables them to imagine that *p*) plus a good argument that it is impossible that *p*. No such counterexamples have been forthcoming…" However, this argument surely rests on a lack of effort. For instance, we can easily imagine, first, that any length of distance can be halved. Next, imagine this halved distance to be further halved. Finally, imagine this halving of distances to continue *ad infinitum*. But we now know this to be impossible. The smallest possible distance of space is the speed of light in a vacuum multiplied by the *Planck time*. This distance is 1.9×10^{-35} of a meter long and is known as the *Planck length*. And, despite our imaginings, the Planck length cannot be halved further; it is a discrete unit (Stenger 2009, p. 75).

Or consider a *vitalist* (someone who believes that the functions of a living organism are due to a vital energy or principle, known as *élan vital*, which is distinct from biochemical reactions and other physical phenomena) who presents the following to a molecular biologist:[6]

[6] A comparison indebted to Dennett, "Facing Backwards on the Problem of Consciousness," *Journal of Consciousness Studies*, vol. 3, no. 1, 1996.

> Those facts about stuff like DNA, amino acids, proteins, and cells are all very well and nice. However, I can imagine a conception of a rabbit capable of protein synthesis, reproduction, metabolism, growth, and all such mechanical phenomena, but that wasn't *alive* alive. Sure, your account from the physical sciences still gives us a rabbit hopping along, and doing all of the various rabbity things rabbits do, but this account you offer us is merely a mechanical rabbit, made of what equates to used pinball machine parts. Your account of life is merely mechanical and misses the enduring mysterious essence of what it is to be alive—having *élan vital*.

There is little our molecular biologist can say to such a vitalist beyond pointing out that his misapprehension (that what it is to be alive cannot be reduced to any mechanical and physical happenings) cannot be used in support or against the account from molecular biology:

> If this were true, then there need be a "rabbitness" belonging to and individuating each physical aspect of the rabbit. And this I find to be dubious, if not outright unintelligible. I'm sorry, but I fail to see the explanatory power of your argument. Perhaps this is due to my inability to peer into your introspective conceptions on what it really is to be alive—or as you call it, *élan vital*. Unfortunately, just stating that you are able to

> do so, and make a name up for it, doesn't cut any mustard. Such imaginative conceptions of überbunnies cannot enlighten us one way or the other on the nature of what it means to be a rabbit—let alone, more generally, what it is to be alive.

The American philosopher Daniel Dennett characterizes these types of thought experiments, which elicit intuitive answers, as *intuition pumps*:

> If you look at the history of philosophy, you see that all the great and influential stuff has been technically full of holes but utterly memorable and vivid. They are what I call "intuition pumps"—lovely thought experiments. Like Plato's cave, and Descartes's evil demon, and Hobbes' vision of the state of nature and the social contract, and even Kant's idea of the categorical imperative. I don't know of any philosopher who thinks any one of those is a logically sound argument for anything. But they're wonderful imagination grabbers, jungle gyms for the imagination. They structure the way you think about a problem … I went on to say that intuition pumps are fine if they're used correctly, but they can also be misused. They're not arguments, they're stories. Instead of having a conclusion, they pump an intuition. They get you to say "Aha! Oh, I get it!" (Brockman 1995, p. 182)

Descartes and Hart have pumped our intuitions by asking us to imagine ourselves without hands or arms or eyes or optic nerves or a visual cortex. They have asked us to see whether we can conceive of ourselves, without introducing contradiction, as still being mindfully conscious—and not just similarly but in the same human way. We are to imagine all of our physical structures, and the physical information processing removed, and then determine whether we can still imagine

ourselves in some possible world as retaining our conscious minds in the *same* way as a physical human. But, in attempting to do so, are we really imagining *all* physicality removed when we say we can conceive of such a thing? "Yes, I assuredly can," one might reply. But how do you know that? How do you know that you have imagined all physicality removed in the required detail and paid sufficient scrutiny to all possible implications to avoid contradiction? Where are our assurances? Such conceptions seem to hinge on dramatic projection and feigning not to have any physical antecedent.

Many have concluded that color properties are qualities of an inner nature; they are not *out there* in the physical world, where science has removed color and left us with various wavelengths of electromagnetic radiation, but rather are *in here* in the eye of the beholder. From this seemingly obvious observation, we can conceive of ourselves as having these experiential properties of color without any physicality.

However, the human capacity for conscious awareness, perception, and experience has been designed by and bound within the evolutionary history of our species, which has accumulated to the point of creating the artifact known as the human brain. The forlorn conclusion that one can coherently conceive of experiencing such qualities as "redness" without any physicality fails to take into account that these apparent qualities are inescapably bound to both the physical observer

and the environment in which that species of observer developed its visual proclivities.

Consider the color experiences of bees, which coevolved with the colors of flowers they pollinated. Without the surface reflectance properties of flowers matching with the corresponding capacities of bees, the mutually beneficial phenomena of pollination could not take place and "bee flower-color-experience *r*" (or let's call it "bee-red") would not exist. Similar stories can be told for other species, with radically different color-spaces.[7] Why is a ripe apple red? A detailed description can be given using the terms and phenomena of chemistry (the surface reflectance of such and such substance due to chemical process *x*), but these explanations fail to take into account why there are apples in the first place: for apple-eaters to eat and propagate apple seeds (from the apple tree's point of view) and to provide a rich source of nutrition (from the apple-eater's point of view). The fact that apples have chemical properties *xyz* with surface reflectance *u,* and apple-eaters have a visual system capable of discernment *r,* has more to do with their mutual occurrence together and coevolution than some independent natural essence of "redness," as "redness" *is* this "displayer" and "seeker" interlocking. That is, the whole reason for there being not only visual systems but also colors is

[7] Humans are *trichromatic* (three cone types), while cats and dogs are *dichromatic* (two cone types).

due to this physical color-coding development and capacity (Dennett 1991, pp. 375-83).

Phenylthiocarbamide (PTC) is a chemical compound that tastes either very bitter to 70 percept of human population or tasteless to 30 percept of the population—the differentiation being genetically determined. How does PTC taste, bitter or tasteless? If we answered bitter, and then the 70 percept of the population with PTC bitterness genes went extinct, we would be in error: PTC would not taste bitter to anyone. If we answered tasteless, and then the 30 percent of the population without PTC bitterness genes went extinct, we would again be in error: PTC would taste bitter to everyone. Furthermore, before there were any humans and PTC bitterness genes, was PTC (chemically identical back then to how it is today) bitter and/or tasteless? (Bennett 1965, p. 9)

Experiential qualities (i.e., qualia), such as redness or bitterness, cannot be defined independently of the capacities, predispositions, and susceptibilities of the physical observer and environment in which these qualities take on their true meaning. Furthermore, discernments between "redness" and "blueness" cannot be meaningfully stated without reference to a specified physical visual system (Dennett 1991, p. 379).

Similarly, but for the mind *en masse* and not just color experiences, Descartes asked us to bear upon ourselves the intellectual responsibility of calling into question even the most obvious of our beliefs.

And, since he found it possible to doubt all but his own mind, he wanted us to proceed from this conception of a mind without a physical world and construct an understanding of our nature upon it. This methodology rests on the traditional idea that the core to human nature is our ability to lay aside our tropistic (noncognitive or "automatic" reactions to stimuli) habitual tendencies and to form propositions, deliberate, and reason—to perceive, plan, and then act. *Homo sapien*: the rational animal.

However, "[h]abit is a characteristic of body as much as mind" (Russell 1921, p. 52), and Descartes' error was to think that we could achieve complete mastery and subversion of our habits and to conceive of ourselves free of them. His oversight was that forming propositions (see Footnote 13), making judgments, and making decisions always take place within a context, and it is context—ripe with tropism and habit-forming stimuli—that allows us to do so. As the philosopher and linguist Willard Quine (1960, p. 264) has put it, "Any subjective talk of mental events proceeds necessarily in terms that are acquired and understood through their associations, direct or indirect, with the socially observable behavior of physical objects." For instance, I may perceive a desk before me and doubt its existence, but coming to such a judgment and forming the proposition of illusory desks takes for granted the concept of what a desk is. Forming propositions and reasoning requires language, and for the words of our language to

take on meaning and for them to make reference requires public social practice in a physical world; a language cannot stand on one man's mind alone. Making judgments requires you to interpret and apply categories, most of which are not left up to your own devices—and yours alone—to form, confirm, and stipulate. Descartes thought of knowledge as growing from the inside out, but the implications of language show that it more likely grows from the outside in. His fantasy of emancipating a mind from any presuppositions, other than its own existence, is just that—fantasy. There could be no Cartesian "method of systematic doubt" all the way down such a rabbit hole. And it is that human language is the outcome of shared social practice *inter alia* that saves us from the solipsism found at its bottom.

To sum up thus far, someone may say that what he or she can conceive of is truly without contradiction, and therefore a metaphysical necessity, but often, on more careful reflection and consideration, it turns out later to be not so conceivable after all. I can imagine that lightning is not an electrical discharge. However, you can be sure that it is. Or we might be able to conceive of some liquid similar to water, but not H_2O, and we might be able to conceive of a conscious mind without a brain that is similar to that of a human mind with a brain. But, "similar" is not the same as "identical," and it is this issue of identity that is at question. And so, we should have serious reservations on the coherence of a mind

experiencing not just similar but real human "redness" without any physical aspects or history, or of propositional thought and judgments without a social and public language grounded in a physical world.

Furthermore, the validity of the conceivability argument depends decisively and critically on the acuteness of the imaginer's capacity and standards for conceiving. Someone might claim to be able to imagine a possible world with circular triangles, just as he or she might claim to imagine a world with nonphysical minds or rabbity nonphysical rabbits, but the person is mistaken. And, if he has misgivings about our skepticism, the burden of proof lies on him to substantiate the validity and *a priori* reasoning of such conceptions in *this* reality that demands of falsifiability and verification. The claim that the life of man (and other conscious life) divides into two fundamentally different domains or worlds needs to depend on a clear principle stating the premise for the bifurcation. Any advocacy of a controversial position should avoid having to defend the initial position (the two-worlds doctrine) by appealing to another that is as controversial (the validity of conceivability arguments).

The point is not that our inability to provide assurances, that all implications are being imagined proves that minds are brains, but that this intuitive imagining and conceiving is inept in proving one way or the other that minds are not identical with brains. Instead of providing judicious philosophical circumspection (as done

when considering the process of evolution in relation to color), such stories merely inflate our intuitions and underline what we already accept as common sense.[8] The conceivability arguments, even if we grant that they are not decisive one way or the other on minds being identical to brains, place the burden of proof on the dualist who wishes to claim that a mind can exist without any physicality. We cannot simply make the assumption on imaginings and proceed without any verifiable assurances that these conceptions are coherent. If dualism is to be theoretically tenable, it must stand on more than the fact that it is believed by many and taken to be self-evident.

Taking it into account that mankind has been struggling with the mysteries of consciousness and the mind for millennia, we should now expect that if a veridical answer to the questions on our mental nature does arise, it may not be commensurable with our intuitions and common sense. Logic and conceiving are capricious without the circumspection of science, and the prescription for our metaphysical and ontological fevers may be a nonintuitive antibiotic, rather than the conceived placebo of dualism.

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[8] In psychology there is what is known as the *simulation heuristic*, a mental strategy we are predisposed to follow as a "cognitive shortcut" in our judgments, according to which people judge the likelihood of something based upon how easy it is for them to picture it mentally (Kahneman & Tversky 1982). I would like to suggest that, perhaps, the conceivability arguments mentioned are unintentionally predatory upon this psychological predisposition.

(4) The Interaction Problem

> Divide each difficulty into as many parts as is feasible and necessary to resolve it.
>
> —René Descartes

Your body—tissue, bone, organs, cells and neurons, and so on—is a physical thing of the natural world, and the outside world causally shapes your experiences through your senses. You hear, see, smell, and feel that which lies before you in this natural world. Dualists, as we saw earlier, while thinking of actions in causal terms, attribute the actions willed as the result of some nonphysical agency wielding control over the physical body. That said, perception and action require causation between things in the natural world and our mind. As Descartes (1641, p. 56) writes, "Nature teaches me by these sensations of pain, hunger, thirst, and so on, that I am not merely present in my body as a sailor in a ship." How could the natural world affect this agency? And how could this agency affect the causal relations of the natural world if it is of a radically different type of substance than anything in the natural world?

The lurking *interaction problem* became acute in the seventeenth century. Astronomers had seen the moons of other planets revolve around something else other than what was then considered the center of the universe: Earth. The clockwork principles of Galileo and his contemporaries were found to be bearing in not

only on the idea of the Earth being the center of the universe but also of man as the causal center of his actions. Natural philosophers of this period argued that natural phenomena such as the movement of heavenly bodies could be explained by a small set of principles that governed their motion, and that the same must hold true for smaller earthly bodies. However, the central assertion of *substance dualism* is that the physical body (including the brain) and the immaterial mind each has its own distinct mode of existence and being (what philosophers call *ontology*) and that each of these distinct "kinds of stuff"—mental stuff and material stuff—interact causally (i.e., they can each make something happen to the other).

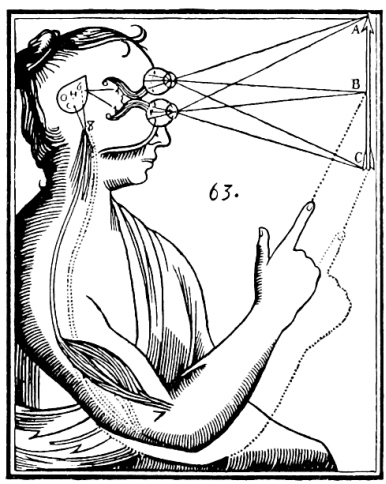

Figure 2

For example, as shown in Figure 2, light is reflected off an arrow, enters the eye, creates signals that follow the optic nerves, and enters the pineal gland which is the locus of causal interaction with the mind. Then somehow this visual message is transmitted to the immaterial mind; the brain is but only a conduit. The conscious visual perception and awareness of the arrow happens only after this transaction has—somehow somewhere—taken place, and the willful act of moving the arm and finger to point to the arrow can only follow subsequently. How does this brain-to-mind transaction take place? No one has even the slightest idea how in any way that is verifiable.

Several issues emerge from the difficulty that the transaction—by definition within dualism's own conceptual framework—can belong neither to the physical nor immaterial modes of existence. First, it is not at all clear *where* the causal transaction would take place. If the puppet master (i.e., the self) is in a nonphysical domain and the puppet (i.e., the brain and body) is in the physical domain, then where are the puppet strings? As we saw in Figure 1, there is a supposed causal chain, leading from the physical touch or pinch, down the physical fibers (nerve cells) to the brain, where a particular cluster of neurons called the pineal gland (*epiphysis*) causes the sensation of pain in the immaterial mind. However, where is this puppet string or link—that is, the link between physical brain stuff and immaterial mind stuff—in the

chain? If it is in the brain, then it is physical and cannot have any nonphysical mental properties, and therefore cannot affect the mind. If it is in the world of the immaterial mind, then it is nonphysical, and since physical brain stuff is affected only by other physical stuff, the puppet string cannot affect the brain. If the principle attribute of the mind is not persisting in space but subjective content, and the principle attribute of physical bodies is taking up space (a *where*), and the principle attribute of something is what deems it a type of substance, then how can a mind that does not persist in space make things happen in space if it is nowhere spatially? Where is this supposed metaphysical puppet string of causes? If it exists, it should be observable.

Here is the second, and more pronounced difficulty: if the principle attribute of the mind is subjective feelings and thoughts (no waves of light, cosmic rays, or atomic particles), and the principle attribute of the body is of physical properties such as mass and location in space, then *how* does this transaction take place? If *m* causes *p*, then some of the properties attributable to *m* and *p* must be of the same nature; therefore, no purely immaterial phenomena can cause physical events. For example, the very simple causal relation between two billiard balls striking and their following movements is due to the mutual properties of mass, velocity, and direction. We can understand their interaction as a transfer of momentum that causes the outcome of a ball being pocketed. Dualism, in contrast, tell us that

the mental event of "move my arm" has no physical properties and therefore leaves it a mystery as to how it may cause any neurons to fire in the brain to then cause the arm to move. However, *any serious academic approach to the problem requires an explanation of how something without any physical properties can afford itself physical affects.*

If the brain is to be altered (e.g., neurons are made to fire) by nonphysical mental causes, then energy is introduced into the physical system from outside the physical world; any change in a neuron's firing requires an expenditure of energy. However, a fundamental principle of physics called *the law of conservation of energy*, states that the total amount of energy in the entire physical material world, or an isolated system, remains constant.[9] A consequence of this law is that energy can be neither created nor destroyed. Furthermore, within the sciences the concept of energy is intimately bound to this concept of energy conservation, and if new forms of energy exist beyond those already observed and understood, then these too must be added to the equations of energy conservation.[10] However, violating this

[9] Strictly speaking, the system being described, such as the brain, need not be isolated for the principle of energy conservation to apply; the net total energy going in and out of the system need just be zero.

[10] Einstein had suggested to early twentieth century psychic power researchers, who were looking for the effects of psychic or biological energy (e.g., ESP or *ch'i*), that they should look for evidence that the signal diminishes with the square of the distance (the *distance effect*) as with all other types of energy. This anticipated effect was not

conservation principle by the spontaneous creation and injection of energy into the physical world, to alter the brain, is exactly what dualism advocates. It is an egregious violation of one of science's most general heuristic principles: the *causal closure* of the physical world.

Classical Newtonian physics gave physicists laws of motion that allowed them to predict the motion of bodies with seemingly unlimited accuracy in principle. From these laws it was thought the nature of the universe analogous to a clockwork-like machine, whereby that which happens next is entirely predetermined by preceding events. However, such a method of prediction requires unlimited accuracy on the knowledge of both the position and momentum of the body in question. The physicist Werner Heisenberg tells us, in what is known as his *principle of indeterminacy*, that the description of motion for an atomic particle can never be fully predicted from the physical information available at the time; this is what is often called *quantum indeterminacy*. This principle follows from two facts. First, to measure the position of the body in question a particle such as a photon, with a wavelength less than the requisite accuracy, must be reflected off that body. Second, the momentum of the particle used to measure the position of the

found (Hansel 1989). And, while this does not rule out the existence of psychic energy or *élan vital*, because the distance effect is a key feature of energy (due to the law of conservation), it would have been strong evidence in its favor.

body will be transferred to it in part or in full, thereby making the momentum of the body uncertain by this degree—with greater momentum at lower wavelengths. Therefore, these two facts in conjunction mean that in the pursuit of greater positional accuracy, less accuracy of momentum must follow from it.

Heisenberg's discovery is often heralded by those who feel the conception of man as being among those objects of a material nature removed our ability to maintain man as having any sense of free agency. However, while there is certainly no reason to doubt the occurrence of physically indeterminate events within the brain, we should stop to consider the operative nature of the indeterminacy in the brain. The first concern is that the amount of indeterminacy allowed for by the Heisenberg principle is increasingly inconsequential as objects become larger and more massive. It is only with the smallest of objects such as electrons that the indeterminacy becomes significant. In contrast, a single neuron itself—not to mention the brain *en masse*—is of some huge order of magnitude more massive (a million, million, million times heavier) than the electron, so that the appreciable affects of indeterminacy at the scale of a single neuron is nearly without force altogether. The physicist Victor Stenger gives the following criteria for whether quantum mechanics are required to describe a system:

> If the product of a typical mass (m), speed (v), and distance (d) for the particles of the system is on the order of Planck's

> constant (h) or less, then you cannot use classical mechanics to describe it but must use quantum mechanics. Applying the criterion to the brain, I took the typical mass of a neural transmitter molecule ($m = 10^{-22}$ kilogram), its speed-based thermal motion ($v = 10$ meters per second), and the distance across the synapse ($d = 10^{-9}$ meter) and found $mvd = 1700h$, more than three orders of magnitude too large for quantum effects to be *necessarily* present. This makes it very unlikely that quantum mechanics plays any direct role in normal thought processing. (Stenger 2009, p. 188)

A second point to consider is that the brain is quite unlike the puppeteer's rig of strings whereby a single indeterminate affect may drastically change the whole performance. The brain and central nervous system are highly redundant at both the level of component parts and at the level of functional description; at any one time, there are likely millions of neurons working on any one cognitive task. While it is of course very likely that there are indeterminate affects ongoing in the brain, the fact that the brain is a highly redundant system makes such affects insignificant compared to the affects that are determinable under the scope of neurology. Succinctly put, because the brain is highly tolerant of single neuron failures, highly redundant, and designed for the mitigation of noise, the affects of quantum indeterminacy become vapid (MacKay 1957, pp. 397–8).

Even though brains are complex and hard to understand, we can peer into the brain and see how one neuron affects another; how groups of neuron firings synchronize and then dissipate; and that no further causal domain is needed for how a neuron fires because the physical system of

a neuron is causally complete. Further intervention is unneeded by an immaterial mind for the brain to interact with the world, plan, carry out, and respond by making the body exhibit all of the wonderful behavioral attributes (and not just running and jumping but also speaking, laughing, crying, longing, and so on) that make humans *human*.

However, let us consider for a moment that our intuitions are true, and that there is a personal essence outside a functionalistic worldview (and thereby excused from the interaction problem).

In *The Unfortunate Dualist* (1980), the philosopher Raymond Smullyan tells the fictional story of a pain-stricken individual who professes a belief in dualism and acknowledges that its understanding is beyond human ken. This dualist had gathered sufficient empirical evidence to prove that the end of his pain would not occur within his life, and so he desired to terminate his own life. However, he does not wish to emotionally hurt others by his death, nor does he wish to commit the immoral act of suicide and thus risk the chance of eternal punishment. Then word came of a solution to his desperate dilemma: the discovery of the most miraculous drug. This drug's effect was to remove the soul entirely, leaving the body and brain to behave and function *exactly* as it did prior. No one could tell, not even the closest of friends, that someone had taken this drug (unless, of course, the taker informed the person). Not a single physical change could be detected even by

the most astute of observers, not only in regard to his physiology (e.g., how he walked), but more importantly how he moved his mouth and the physical sound waves that came out.[11]

At this point in Smullyan's story, an intriguing thing happens to our dualist. A friend, who knows about the drug and wishes to help, injects the dualist with the drug while he is asleep. The next morning the dualist awakes as usual (but without his soul); he dresses and feeds himself very much as he normally does and walks to the drug store to purchase the drug. Once home he thinks to himself and says quite emotionally, "Now finally I shall be released from this pain!" just as we would expect. The dualist takes the drug and waits the time required for the drug to work, after which, as we would expect, he exclaims in anger, "Damn it, this stuff hasn't helped at all! I still obviously have a soul and am suffering as much as ever!"

Smullyan's story suggests to us that perhaps adding an immaterial soul to a human body would be a superfluous difference that would make no difference.

Two final, and tacit, difficulties are created from the advocacies that mental contents persist in a nonphysical domain. First, they create a problem of mind-brain binding: why does one mind only associate with one brain, and why is there no

[11] Smullyan asks us, "Suppose your spouse took such a drug, and you knew it. You would know that she (or he) no longer had a soul but acted just as if she did have one. Would you love your mate any less?"

interference in one's brain from other minds? That is, why does my brain and body never carry out the acts of volition from other minds or vice versa? Second, Descartes described the mental as being without mass or location in space or shape or any other physical properties and persisting in the property of time that it shares with physical "extended" objects (such as brains). However, the theory of relativity postulates that time and space form a single continuum (*space-time*), and that which persists in time must also persist in space. Quite perspicuously, mental contents seem to exist in time, sensations coming before one's mind and then leaving, in which case they would have to persist in physical space as well.

Together, these contentions form the standard objection to dualism—the antecedents of which were all too obvious to Descartes himself—and are famously known as the interaction problem. Mind and brain interaction in dualism is the stuff of "perpetual motion machines," dowsing rods, and Ouija boards; in other words, magic. And due to its confrontation with established, proven, and accepted principles of science, dualism is widely in disfavor and regarded as gratuitous and untenable among cognitive scientists, neurologists, psychologists, and philosophers of mind. Francis Crick (1995), the co-discoverer of DNA, writes, "The Astonishing Hypothesis is that 'You,' your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behavior of a

vast assembly of nerve cells and their associated molecules." Psychologist Susan Blackmore (2006) writes, "I think [dualism] bothers me in the same way that everything about the world bothers me. I wouldn't be a scientist at all if I weren't bothered by things that appear to make quirks in the world; jumps and gaps that don't fit. They seem to me to be an indication of something wrong in the way we're thinking about things; and this seems to be one of those."

A theory of mind, whether it is dualism or physicalism, has to explain the integration between experience and physical reality.

(5) On the Continuity of Phylogeny

> The brain and its satellite glands have now been probed to the point where no particular site remains that can reasonably be supposed to harbor a nonphysical mind.
>
> —Edward O. Wilson, *Consilience: The Unity of Knowledge*

> It may be doubted whether any character can be named which is distinctive of a race and is constant.
>
> —Charles Darwin, *The Descent of Man*

The deluge of scientific inquiry has brought many new insights and questions about the nature of man and poses mounting difficulties for the position of dualism. As we have just surveyed, the study of physics brought with it imposing problems on the nature of how the physical and nonphysical could interact. Along with the impositions from physics have come problems, both conceptually and empirically, within the context of physiology and natural history. In addition to the interaction questions we saw on *where* and *how,* there is the question of *what*: What does the immaterial mind interact with? The brain? Part of the brain or all of it? Why the brain and not the entire nervous system? If just the brain (or just the central nervous system, for that matter), where do we draw this boundary? Or, why is the posited linkage with the brain and not with every cell of the body? That is, if the immaterial substance of dualism can affect matter, then why a need for the control structure of the nervous system, when instead there could be the attachment of puppet strings to every corner and

joint of physiology? If we dismiss these pressing questions and accept that it would only seem reasonable for the immaterial seat of the will to interact with the brain, then why is the brain not one big motor and somatosensory cortex? (People in Aristotle's day thought the brain cooled the blood, and Descartes viewed the brain as merely a conduit through which the mind controlled the rest of the body.)

It certainly feels as if there is an experiencing self that converges at, and then emanates from, the center of something. And many people describe themselves as being somewhere inside the head, looking out through the eyes and hearing things around themselves as if the mind were a stage on which the experiences of the external physical world were presented. We imagine that some place "in here"—in my brain, in this multisensory theater of the mind—there is the real performer where *I* am. We envision that it is in this special private space, where all the experiences come together to be presented or projected on a stage, that consciousness happens. This is what Dennett (1991) calls the *Cartesian theater*. And it has seemed to all too many a philosopher and psychologist that an account of perception is provided to us by way of inner images or representations of the external world (Descartes was able to doubt all but this, and from this his failures followed). For instance, biblical scholar Franz Delitzsch writes:

> We see in essence not with two eyes but with three: with the two eyes of the body and with the eye of the mind that is behind them. (Delitzsch 1878, p. 267)

Jung continues the sentiment:

> Without a doubt psychic happenings constitute our only, immediate experience. All that I experience is psychic. Even physical pain is a psychic event that belongs to my experience. My sense-impressions—for all that they force upon me a world of impenetrable objects occupying space—are psychic images, and these are my immediate experience, for they alone are the immediate objects of my consciousness. … We are in all truth so enclosed by psychic images that we cannot penetrate to the essence of things external to ourselves. (Jung 1933, p. 9)

Jung may not have been able to doubt the psychic nature of the mind, but what good is an inner image without also an inner eye to see it? And, if there is an inner eye to see inner images, how does one then account for its capacity of inner perceptions of the inner image? Via inner-inner introspection? With inner-inner eyes and inner-inner images? Then what of accounting for those? This tendency has placed all accounts of this Cartesian theater nature on an infinite regress.

The feeling of being at the center of some internal theater (see Figure 3) is in need of little promulgation, and this intuitive conception of there being a *homunculus* (little person) inside the brain on a stage is what influenced Descartes to propose the pineal gland—the only organ in the brain that does not have a mirror version—as the center of the brain. So strong and natural is this feeling, and so inoffensive the analogies, that it

hardly seems worth questioning. However, Descartes was wrong not only in detail but also in principle. The pineal gland is not the center of the brain; more importantly, there could be no center in the brain that could coincide with the intuition of a homunculus. Fundamentally, *the brain is a parallel processing system with no central headquarters.* By way of simple electrical impulses, the senses bring into the brain information about the world. This information is distributed throughout the brain for different purposes and discernments. There is no central point through which all sensory information is funneled. And in all of this there is no central conductor, no central *you* watching what the senses bring forth on a stage, no central arrival point or finish line in which things go in or out of consciousness. The intuitive homunculus couldn't be there, for if it were then we would have to open up his little head, only to find another, still smaller homunculus inside—*ad infinitum*. Instead, neurology has found that even without a brain headquarters, the brain just moves forward with the various jobs and tasks at hand; therefore, there is no neurological modem to the soul. The mind subsumes the distributed and parallel systems of the brain, and what we would have the homunculus doing and perceiving does exist, only his work is distributed throughout the brain and nervous system.

The Cartesian theater strikes us as a very familiar, undeniable, and innocuous way to describe the mind and self, but it is an illusion.

(And this is not to say that the mind or self does not exist, as an illusion is of something that objectively exists, but in such a way as to cause misinterpretation of its actual nature.)[12]

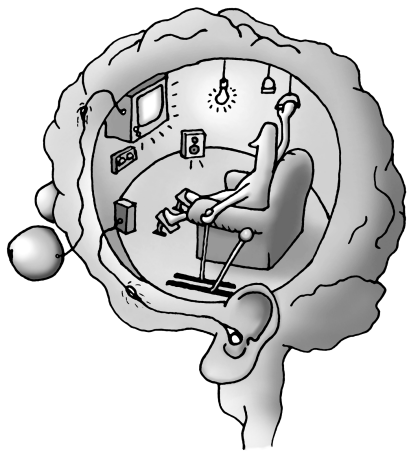

Figure 3. The Cartesian theater. (© Jolyon Troscianko).

Then there is the looming question from everyday experience: if the mind is a separate and distinct substance from the brain, then why is it that for every instance of damage done to the brain, there is corresponding injury to the mind? Injury, drugs, alcohol, and disease all demonstrate dramatic and pronounced alterations of the mind

[12] "illusion." *Merriam-Webster's collegiate dictionary* (11th ed.). (2005).

in complex and proportionate ways, from subtle impairments to an inability to think at all. How can this be the case if the mind is separate and distinct as dualism takes it to be? This relationship seems altogether more than just simply correlated, but indisputably causal and predictable. With modern controlled experimentation being able to obtain the same results repeatedly for certain manipulations of the brain, neuroscientists have shown a strong relationship between physiological and mental states. We also know from neuroscience that the brain has areas responsible for discernments of vision, hearing, touch, smell, and perhaps most importantly of all, language and emotion. Augment these regions, and the capacities change. Since dualism would seem to entail that we find the opposite (i.e., one large motor cortex for the paranormal puppet strings of the nonmaterial mind to pull), why should we find this if we accept the premise of dualism?

Therefore, the contention becomes more than merely conceptual but of a very pernicious, empirical kind, indicating, as we see uniformly in the sciences, that the best explanation would be of a physical linkage: the mind is affected by alcohol because the mind apparently *is* the nervous system, which belongs to the same physical domain as alcohol. This fundamental principle of "like causing like" (i.e., physical changes causing physical changes) that is supported by a wealth of scientific successes—both theoretically and pragmatically—leaves one wondering why the

same principles should not be applied to understanding the mind.

> The weight of evidence now implies that it is the *brain*, rather than some nonphysical stuff, that feels, thinks, decides. (Churchland 2002, p. 1)

Following the science and engineering of his time, Descartes had described the human body and the bodies of animals, as machines. When the body is opened up, it is obvious that the various components are constructed to carry out functions, such as the pumping of blood by the heart, just as might be found in a mechanical device. And so, animal and human behavior can be explained using a similar approach to that of explaining a mechanism. However, Descartes only applied this analogy up to a certain point, his reasons being that no machine could speak and reason. While the commensurable lives of both animal and man are so interestingly overlapped in nature, to focus on the similarities is to create an undue lack of observance on the many pronounced differences. With animals being unable to speak or reason, and the lack of any great intelligence, culture, and history, he considered their behavior to be explicable in purely mechanical terms. And so, in contrast, he concluded that there must be some part of what it is to be human—the mind or soul—that is above and beyond mechanism. This radical discontinuity between the explanatory power of science on the

nature of the body and mind is known as the *Cartesian stop*.

Physiology and neuroscience are not the only scientific disciplines to find contention with dualism. The science of modern biology now informs us quite securely that man is a product of a strictly material natural process—evolution—that operates by the same purely physical laws that govern everything from predictable clocks and stars to the unpredictable nature of weather. In 1828, the strict bifurcation between organic and inorganic matter fell when the chemist Friedrich Wöhler synthesized the compound urea for the first time, which had been found only in living organisms, from inorganic starting materials. The results of Wöhler's experiment implicitly invalidated vitalism as a tenable science, and it has become unavoidably clear that there are many borderline examples between life and nonlife. Aristotle (1984, p. 922), even without the benefit of insights from modern molecular biology and organic chemistry, struck upon this veridical observation when he wrote, "Nature proceeds little by little from lifeless things to animal life, so that it is impossible to determine either the exact line of demarcation, or on which side of the line an intermediate should lie."

In his monumental book *On the Origin of Species* in 1859, Charles Darwin put forth an advocacy of how such magnificently complicated machines, like the human body, could be created through the slow and gradual process of evolution by natural selection. With his next publication, *The Descent of*

Man in 1871, Darwin laid out evidence from a collection of various sources that humans are biologically related to other animals and that the natural record shows continuity of both physical and mental attributes. However, some of his contemporaries, such as the co-discoverer of natural selection Alfred Wallace, felt the tugging of the differences between man and ape and opted to advocate that the chasm between was just too great to be explained by their theory. Evolution by natural selection could explain everything up to the human mind, and its power of explanation stopped there; human consciousness could not be accounted for in any sense by the evolutionary processes that created assemblages of molecules, proteins, cells, and organs. Where Darwin saw continuity, Wallace could not bring himself to this position. The seeming discontinuity was too great, the capacities of consciousness of too different a nature, to be explicable by the same processes that forged biological machines from unanimated matter. Some extra ingredient must be added from outside these purely physical processes.

> These faculties could not possibly have been developed by means of the same laws which have determined the progressive development of the organic world in general, and also of man's physical organism. (Wallace 1889, p. 475)

Wallace, like Descartes before him, felt there to be sufficient reason to warrant a stop in scientific naturalism and a need to expand metaphysics. But the Darwinian question remains: In the continuity

of species—viruses, bacteria, bees, dogs, humans, and so on—and the phylogeny of man, where do we draw this Cartesian line? Did early humans and protohumans have souls? Did proto protohumans? Did the Neanderthals? Do chimps? Only mammals? If so, what of the early protomammals of our natural history? Do viruses? Where are the goldfish hauntings of toilets?

The English biologist and writer Thomas Huxley (1825–1895), best known for his defense of evolution, writes an empirical argument against putative discontinuity:

> The doctrine of continuity is too well established for it to be permissible to me to suppose that any complex natural phenomenon comes into existence suddenly, and without being preceded by simpler modifications; and very strong arguments would be needed to prove that such complex phenomena as those of consciousness, first make their appearance in man. We know that, in the individual man, consciousness grows from a dim glimmer to its full light, whether we consider the infant advancing in years, or the adult emerging from slumber and swoon. We know, further, that the lower animals possess, though less developed, that part of the brain which we have every reason to believe to be the organ of consciousness in man; and as, in other cases, function and organ are proportional, so we have a right to conclude it is with the brain; and that the brutes, though they may not possess our intensity of consciousness, and though, from the absence of language, they can have no trains of thoughts, but only trains of feelings, yet have a consciousness which, more or less distinctly, foreshadows our own. (Huxley 1874, p. 237)

Huxley here is criticizing the Cartesian position that the capacities and nature of the entire natural history of life can be explained by a common set of principles, *except for one species* in all of this

history: man. His analogy is that just as a person begins existence entirely as an amassment of physical molecules into a single cell (a single fertilized ovum), with nothing "extra" being found as added in the course of development (i.e., there is nothing immaterial involved in conception, embryonic development, or birth), and with the following consequence being that we necessarily end up being fully developed physical entities, so too it is with the course of evolutionary history and development for the human species (our *phylogeny*).

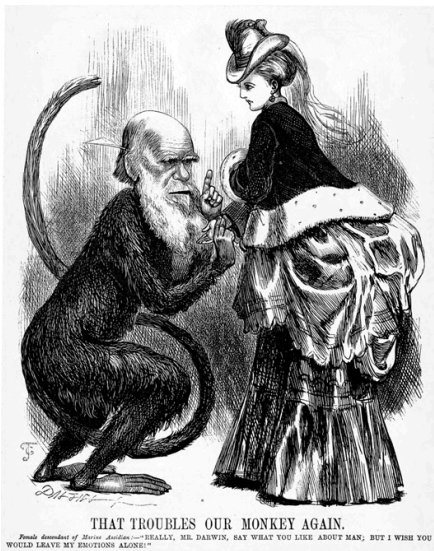

Figure 4. "Really, Mr. Darwin, say what you like about man; but I wish you would leave my emotions alone!"

Phylogenetically, our species and all others developed from a single-celled form of life made up purely of matter, akin to how we just described conception, embryology, and personal development (our *ontogeny*). Considering that all of which occurred earlier in the natural history of our species can be explained through the purely physical processes of evolution, the difficulty for a dualist becomes to explain where, when, and why some apparently superfluous nonphysical event in this process took place. (It is one of science's central heuristic principles, *Occam's razor,* not to assume the existence of more entities than need be for clear explanation and prediction.)

Huxley, like Darwin, knew that the continuity of nature would not allow for only one species, in the whole of natural history, to maintain a "biological patent" or "biological design right" to the very beneficial conscious mind, and that any difference must be of degree and not of metaphysical kind (the ongoing dispute between evolutionary biologists and Creationists can be seen as a confrontation over this Cartesian stop and personal soul, rather than the more impersonal question of humanities origin). However, here we can agree in part with Descartes and Creationists: there is something special about the human mind, but we need not impress upon ourselves an ontological fever.[13]

[13] Descartes and his contemporaries were of the opinion that it was the capacity to attain knowledge of truths intellectually grasped as *propositions* that was the defining property of a mind. However, it is

Perhaps the human mind is not different in a fundamental mode of being but only as a difference in how matter is arranged, organized, and associated.

As we saw with the interaction problem, dualism can hardly help us in resolving the questions on the nature of the human mind, as it merely pushes the original questions into a problem of inter-realm causation, of which we have no good empirical grounds to believe. And while modern-day science is itself still incomplete and burgeoning into the unknown, if the claims of dualism are true, they are in stark contradiction to the picture of the universe and man rapidly developing in all major fields of physics, physiology, biology, and neurology.

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clear that human language, upon which propositional knowledge rests, is subject to the same evolutionary critique of where to draw the Cartesian stop. Language, whatever its origins, is of a form today that is radically different to that of the past. Those features, which today distinguish human language so clearly from that of other present-day species (which at best can be described as protolinguistic), have developed by the slow progression of transient forms under the process of evolution by natural selection. Also, there have existed, along the continuum of this process, other species that exhibit man's linguistic features in earlier stages of development.

(6) Misappropriations of Language

> A myth is, of course, not a fairy story. It is the presentation of facts belonging to one category in the idioms appropriate to another. To explode a myth is accordingly not to deny the facts but to reallocate them. And that is what I am trying to do.
>
> —Gilbert Ryle, *The Concept of Mind*

In 1949 the British philosopher Gilbert Ryle famously criticized what he called "the dogma of the Ghost in the Machine"—a term that has since entered into popular usage. Ryle went about doing a linguistic analysis of dualism, which was fashionable at the time in philosophy. Ryle, and many of his contemporaries such as the philosopher Wittgenstein, thought that a good deal of philosophical problems were due to "misappropriations of language."

To misappropriate language is to make a semantic error by which a property is ascribed to a thing or concept that could not possibly have that property—an error that Ryle called a *category mistake*. Some mistakes are incorrect for factual reasons; for example, to claim "most Americans are indigenous natives" is not a category mistake. However, to state "most planets are indigenous natives" is a category error. Ryle gives us the following example:

> A foreigner visiting Oxford or Cambridge for the first time is shown a number of colleges, libraries, playing fields, museums, scientific departments, and administrative offices. He then asks "But where is the University? I have seen where the members of the College live, where the Registrar works, where the scientists experiment and the rest. But I have not yet seen the University

> in which reside and work the members of your University." It has then to be explained to him that the University is not another collateral institution, some ulterior counterpart to the colleges, laboratories, and offices which he has seen. The university is just the way in which all that he has already seen is organized … In a partially similar way, John Doe may be a relative, a friend, or a stranger to Richard Roe; but he cannot be any of these things to the Average Taxpayer. [A person making a category mistake] knows how to talk sense in certain sorts of discussions about the Average Taxpayer, but he is baffled to say why he could not come across him in the street as he can come across Richard Roe. (Ryle 1949, pp. 16–8)

An error made during empirical investigations, through observation, results in theoretical or factual falsehood. When language is misused or misappropriated, the error that results is of a conceptual nature and results in a lack of sense. If an ordinary expression is predicated, contrary to the rules that are normally employed, nonsense may be the result.

Like indigenous and nonindigenous planets, Ryle thought that to treat the mind as a nonmaterial substance, while still attributing to it dispositions and capacities, was to use language mistakenly; as long as someone maintains thinking of the average taxpayer as a real person, he will continue to think of him as a mysterious ghost of a person. The linguistic critique aims to dispel the dualist notion that a person essentially has a dual life (a biography for his physical body and another for his immaterial mind) and to elucidate that the mind-body problems arise from a pronounced category mistake.

As Ryle saw it, the questions on the nature of the mind were of a philosophical nature in need of conceptual clarification and that sorting out this business must precede any sort of empirical investigation (which is the inherited *raison d'être* of this very discourse). What it is for a mind or soul to think, believe, reason, feel, and so on cannot be investigated empirically until it is conceptually clear just what we mean by these phrases and whether we are correct in ascribing to an immaterial mind these attributes. Before we search and affirm, we must be conceptually clear on what we are searching for, how we are searching, and whether we are making a mistake in attributing these concepts to certain categories of further concepts. For instance, we cannot look for the state of Alaska until we are clear on what a state is. Otherwise, we may find only lakes, mountains, and people and come to the conclusion that Alaska exists as a sort of para-state. As put by the American cognitive scientist Stephen Pinker (2007, p. 243), "Many disagreements in human affairs turn not on differences in data or logic but on how a problem is framed."

The clockwork-like mechanics of Galileo influenced Descartes, yet Descartes accepted as an obvious truth that a mind could not be understood in physical terms, whether of physics or the design of an engineering process. Since the human body is of an organizationally complex physical nature and situated by physical causes and effects, so too must the human mind have its own

causation. However, since the nature of mind is not amenable to the causation of physics, it must be of an organizationally complex *non*physical nature and situated by nonphysical causes and effects. Descartes, a man of both serious scientific motive and deep religious sensitivities, found himself unable to affirm the claim of material mechanics upon the mind. Since the laws of physics govern the material world (the movement of heavenly and earthly bodies in space), other nonphysical laws must explain the nature of the mind. And the difference between bodies and minds must be due to two different kinds of causation: physical and immaterial causes.

While the differences between the physical and immaterial domains within dualism are based upon two different kinds of causation, they are represented using a common linguistic framework. The physical sciences and dualism both use categories such as "thing," "stuff," "process," "change," "attribute," "state," "cause," and "effect." The soul is a different kind of "stuff" or "thing," with its own special kind of "causes" and "effects." Just as John Doe was expecting to find average taxpayer, so too is the advocate of what Ryle called the *para-mechanical* theory expecting to find something like physical "stuff" but distinctly unlike "stuff." And, despite applying the same categories to the immaterial mind as to the body, the normal understandings of physical causation are nonapplicable.

Descartes impinged his theory of mind into the same mold as Galileo's mechanics, and it is this

casting of what are to be two distinct and separate realms, using the same linguistic categories and grammatical framework, that has created the infamous interaction problem. Due to this shared framework but distinct and separate nature, the dualist is forced to describe the mind and its workings in purely negative terms (e.g., *non*physical, *non*clockwork, *non*mechanical, and *im*material). These terms, in their normal positive forms, are attributable within the rest of the natural world. The result of this forlorn metaphysical bifurcation, while still attributing of the same linguistic categories, is nonsense; when an existing expression such as "thing" or "cause" is given a new technical or pseudotechnical usage that is distinct and separate, and the new usage invokes inferences that could only be drawn from the historical usage, the result is inanity.

For instance, the description Plato gives us in *Phaedo* and *Republic* of what happens to the soul after death is essentially of a nonphysical thing residing in a supposedly nonphysical world. However, it bears the mark of being described in physical terms:

> Those who have purified themselves sufficiently by philosophy live in the future altogether without a body; they make their way to even more beautiful dwelling places which it is hard to describe, nor do we now have the time to do so. (*Phaedo* 114c2–6)

Similarly, the Bible describes the place a soul will travel to and dwell in as a city:

> As they were walking along and talking together, suddenly a chariot of fire and horses of fire appeared and separated the two of them, and Elijah went up to heaven in a whirlwind. (2 Kings 2:11)

> Surely goodness and love will follow me all the days of my life, and I will dwell in the house of the LORD forever. (Psalm 23:6)

> Instead, they were longing for a better country—a heavenly one. Therefore God is not ashamed to be called their God, for he has prepared a city for them. (Hebrews 11:16)

> It had a great, high wall with twelve gates, and with twelve angels at the gates. On the gates were written the names of the twelve tribes of Israel. (Revelation 21:12)

However, Plato needs more than time to describe the dwelling place of the soul more clearly. What could it possibly mean for a nonphysical, nonembodied thing to "dwell"? Without a body, how can one sit or persist in any sort of place? How can there be nonphysical cities? If something exists without the property of space, how can one travel in and out of it? Both Plato and theological scripture seem chained to using the categories and language normally used in describing the physical to the descriptions of the nonphysical. Therefore, it becomes a pronounced difficulty to explain how a nonphysical person could go about doing and enjoying making things happen without the body.

> Such philosophical double talk, which would repudiate an ontology while enjoying its benefits, thrives on vagaries of ordinary language. (Quine 1960, p. 242)

In addition to dualism's use of the framework of physical terms, to define in negative terms its own metaphysical doctrine, is the use of words such as "energy" employed by spiritualists and paranormalists. It is presumed that both life and consciousness require some activating agent beyond the mere subject matter of physics—some energy or *élan vital* (vital force) as mentioned above in section 3.

Physicists tend to use the terms they employ loosely—for example, speaking as if there were some kind of physical substance "escaping" and radiating away (in their descriptions of energy transfer) from a heat or light source—and then rely on mathematics and equations to bring precise meaning to their words. The use of the word "energy" dates back to 1599 and started to play a major role in science around 1847 when the German physicist Hermann Helmholtz introduced the law of conservation of energy. It was the introduction of this principle that gave the concept of energy its crucial significance. The concept of energy is intimately bound to the principle of its conservation, and if the term is to be extended using the same scientific framework—with the respect accompanying scientific inquiry—the new form or usage of the term must be added to the equations of conservation. If this is not possible, then the term should be called something else; to do otherwise will most likely result in a conceptual confusion and perhaps even the nonsense Ryle warns us of.

The advocacies of dualism we have surveyed run the risk of overinflating language. And, while we cannot say that such language forbids one from considering and understanding concepts posed in a contrasting system of speaking (e.g., physicalism), it does commit one to a habit of what *must* be said, in contrast to what *may* be said. Therefore, perhaps, the explanatory effort of dualism is to effectively inflate language and leave in hand a mind cast with only the widest of scopes to wrench on our inquiry into the nature of the mind.

Many dualists, responding to this accusation of committing a linguistic and conceptual confusion by misappropriating and egregiously inflating language, claim that this error is unavoidable due to the limitations of language. If a person commits the error of ascribing a term (such as "energy") to an entity or hypothetical phenomena that the term in question could not logically apply, the common retort is, "It was not meant like that." Since a person does not obviously desire to talk nonsense, the use of his term must not be taken in some ordinary sense, but as a logical extension. Pinker puts the point as well as anyone:

> The view from language shows us the cave we inhabit, and also the best way out of it. With the use of metaphor and combination, we can entertain new ideas and new ways of managing our affairs. We can do this even as our minds flicker with the agonists and antagonists, the points and line and slabs, the activities and accomplishments, the gods and sex and effluvia, and the sympathy and deference and fairness that make up the stuff of thought. (Pinker 2007, pp. 438–9)

Analogies can be of great use in translating formal scientific explanations in novel ways. For example, the application of language on hydrodynamics was conductive in developing the theory of electricity, despite the fact that water does not flow in the same sense as electricity. Theoretical language expands the expressive scope of natural language.

The question, therefore, from the Ryleian critique becomes whether it is appropriate to attribute through extension the terms normally used in explaining the physical world in explaining an immaterial one. And, as this discourse has labored, the prospects do not look good for dualism conceptually or empirically. The applicability of both physical and psychological expressions, such as "stuff," "dwell," "energy," "experience," and "belief," to a nonphysical mind is not part of a developed theory stocked with functional relationships expressible in the scientific language of mathematics under general quantifiable laws (such as is found with both hydrodynamics and electricity).

However, despite many attempts by Ryle, Wittgenstein, and their devotees, no philosopher or logician has ever articulated the "rules" or "categories" by which ordinary expressions and language must abide by. Categories are not predetermined for us as absolutes from the natural structure of language; humans contrive them. The history of philosophy and science, since Ryle's period, has shown that however appealing

and plausible a category may appear, it may turn out to be spurious. Or more tersely, Ryle's linguistic analysis itself is unremittingly negative, and the critique stands on the false premise of determined categories. Outwardly this may appear to be the case and is in some sense true. However, that a man did not desire to utter nonsense does not ensure he did not do so, and we must look at the implications of the terms in his proposition as the ultimate arbiter of reason; if a man speaks of expecting to see average taxpayer on the streets, is he not speaking esoteric nonsense? To understand what someone is *trying* to say we must look to uncover what he or she *ought* to say in certain contexts. And what should be remitted from this process is to resolve what someone is trying to say to a *context-independent set of rules or categories.* When someone says, "Average taxpayer is a frugal man" what is being violated is not a law or rule of language but a *contextual convention*, which is a rule in a different sense (*ad hoc*) than the universals Ryle had implied with categories, but it is still a rule of sorts nonetheless. And when such expressions of contextual convention become routinely broken, the error becomes a systemic one, weighted with the infinite mass of contradiction.

Philosophical attempts to quickly dispel of a dispute by critiquing the way words are used are no doubt something to be wary of. However, not all attempts of the sort are without leverage and traction; when terms are used in inappropriate ways that are seemingly contradictory to the way

they are normally put to use, it is reasonable to shift the burden of proof to the progenitor of the linguistic innovation to show that the new use is not purely fanciful misappropriation.

Therefore, Ryle's analysis, while not proving the doctrine of dualism wrong in detail, shows how it is unlikely to be a tenable position due to a misusage of a conceptual framework from physics and the egregious altering of linguistic entropy (i.e., over stretching the scope of words). By applying terms that were sourced from a diametrically different ideological discipline in forging the concept of an immaterial mind, the linguistic landscape has become treacherous. Moreover, the understanding of exactly what an immaterial mind or soul subsumes has become incomprehensible.

Furthermore, the working *modus operandi* in science is to assume that general rules that have exceptions are amenable or replaceable by subsequent general rules without. Scientific inquiry is the search for uniformities, to which experience is protracted, without exception (such as the general laws of thermodynamics and motion). While a linguistic analysis of dualism cannot dismiss it outright, it highlights its subversion to the scientific resolution of knowledge just mentioned. Dualism's concepts, based upon knowledge that we have no empirical acquaintance with, are left hanging with no means of resolution to make them understandable. Yet if we are to speak significantly and not utter mere

noise, we must attach some meaning to the words we use, and the meaning must be from particular or general phenomena in which we can objectively affirm. It is in this sense that the doctrines of dualism and science do not overlap and are in stark opposition, despite sharing the same linguistic framework and language. The result is an epistemic chasm created upon the fault line between spiritual authority and the sovereignty of scientific inquiry, such that everything that is not explained is not in view. *A man-made cage for the mind of man.*

(7) The State of Mind and Inquiry

> It is the philosopher, however, that must put the brakes on the enthusiasms of the storytellers, for, left to their own devices, they might conjure a future that vindicates only our current confusions.
>
> —Daniel Robinson, *Still Looking*

In Victorian times it was thought that mind stuff was an extended form of matter called *ectoplasm*, a slime- or mist-like substance said to be the enabling material of the ghost and spirit world that, reflects light, has weight, and can be contained in jars just like ordinary matter. During the same period, the physical sciences used to include as part of its vocabulary the terms *caloric* and *ether,* as the substances that heat was made of and the stuff light and sound waves were thought to subsist in. Going back two hundred years in the study of biology, we would find a similar stance with people speaking of *élan vital* and life forces: "I do not see how a study of chemistry and biomechanics can help us understand life. How could the wonderful behaviors and functions, such as reproduction and growth, come from dead matter? Life is a separate and distinct thing from those aspects." Yet some people hold the same anachronistic stance with the mind—that when we really understand all the neurology, mechanics, behaviors, and hierarchical complexity of the brain, we still won't understand what it is to be conscious.

Descartes and dualists have mistaken the nature of the mind-body problem. As Ryle pointed out in *The Concept of Mind*:

> Instead of asking by what criteria intelligent behavior is actually distinguished from nonintelligent behavior, he asked 'Given that the principle of mechanical causation does not tell us the difference, what other principle will tell it us?' He realized that the problem was not one of mechanics and assumed that it must therefore be one of some counterpart to mechanics … the question is not the envelop-question 'How do I discover that I or you have a mind?' but the range of specific questions of the pattern, 'How do I discover that I am more unselfish than you; that I can do long division well, but differential equations only badly; that you suffer from certain phobias and tend to shirk facing certain problems or facts; that I am more easily irritated than most people but less subject to panic, vertigo, or morbid conscientiousness?' … Questions of these sorts offer no mysteries; we know quite well how to set to work to find out the answers to them; and though we may have to stop short at mere conjectures, yet, even so, we have no doubts of what sorts of information would satisfy our requirements, if we could get at it; and we know what it would be like to get at it. (1949, pp. 169–70)

Does the American state of Alaska exist? We would all surely and emphatically state yes. However, can we touch (or experience with any of the senses) Alaska? In some important and hesitant sense, no. Just like we can touch (and see, etc.) mountains, trees, lakes, glaciers, wildlife, people, and buildings, but in each of these instances it would not *be* Alaska we are touching or empirically confirming. Alaska is defined by a set of invisible borders created by the discipline of cartography within a certain sociopolitical context, and although these borders may in some instances

overlap with natural barriers, they are arbitrary and meaningless without the sociopolitical context. Are we to conclude from this later consideration that Alaska does not exist? Again, surely we would assert it does exist, and it is preposterous to think otherwise. And rightly so. Are we to then surmise, from the conjunction of these two points in contention, that Alaska exists outside of space and is supernatural? If we followed our intuitions, as we do when dealing with our minds (consider the opening paragraph and that perhaps there is a person named Alaska), almost all of us would end up affirming the idea of a ghostly para-Alaska. But, to impress it upon others and ourselves that Alaska is not physically resolvable would seem absurd. In doing so we would turn the processes of state and federal government into ghostly state-conjuring or producers of state spirits. The doctrine of "the ghost in the machine" (i.e., dualism) attempts to introduce just this kind of absurdity.

The problem we face with the unwarranted bifurcation of Alaska's being arises because we have different levels of description, not planes of metaphysical existence (e.g., a physical plane of existence and a para-Alaskan plane). Within these *ad hoc* levels or contexts in which we go about describing the world and attributing properties, we have words (e.g., "touch," "enter," or "think") that we use as tools. Sometimes the words we use in one context or level of description work in others, but lots of times they simply do not, as we

just encountered with trying to "touch" Alaska or at the outset in trying to touch the self.

Such wordplay is very often at the heart of much of our humor:

> "Archie, do you think I'm a nothing?" asks Edith.
> "What kind of question is that, at 2:30 in the morning?!" he replies.
> "I'm sorry, nothing just came into my mind."
> "Well it must of felt right at home there!"

"Nothing" is not a different sort, type, or variety of something of *any* kind. There is not a kind of thing that "nothing" names, nor can we rationally use or speak of "nothing" as if it were something. At no point will we find ourselves changing into, arriving at, or entering "nothing"; the verb "enter" only makes sense of "things" within space-time, and "nothing" is the absence of both space and time; in applying the verb "enter" to "nothing," it has no ground both literally and metaphorically. To expect and state so is to misuse language in the same subtle and egregious way as in the example with para-Alaska. Yet when we are not in such a serious mode of contemplation, we laugh at our misappropriations of language (as with the *All in the Family* dialogue); at other times, we take them to heart and are willing to fight to the grave for them.

While our vocabulary may need to be expanded in order to account for the phenomena of consciousness, and considering that ideas such as *ether* are no longer taken seriously from the lack of empirical support, we should bear it upon

ourselves that positing new kinds of para-energies or para-substances (e.g., *élan vital* or ectoplasm) or para-worlds really do little to help the position of dualism without including a scientifically inclusive account of integration with physical reality. Even as children we have the inklings of what is wrong with this picture. How can a ghost both push over a lamp and fly through a wall? It strikes us as odd that an entity could both be affected and unaffected by the physical world depending merely on that agent's intentions and desires. (Not that simply being odd discredits some phenomena as being real. But, considering that any physical thing that can move another physical thing is itself a physical thing, it begs the questions on interaction set forth above.) Its discomposure is so simple that even a child can notice the inconsistencies. However, when such inconsistencies arise, we often suspend an inquiry toward their resolution for the sake of the fictional narrative (e.g., Casper the Friendly Ghost) or for the personal narrative (e.g., the story of yourself).

Dualism relies on stating that mind-body interaction is axiomatic and that there is no explanation; it must stand as a brute fact.[14] Therefore, it should come as no surprise that those who openly affirm their support of dualism acknowledge that—with even some air of satisfaction—they have no scientific theory of how the mind works. Instead, it is advocated that the

[14] Brute facts that Smart and the philosopher Herbert Feigl (1958) called *nomological danglers*.

enduring problems of the mind are beyond the scope of scientific inquiry and so mysterious as to surpass human ken *interminably*—and that this is a good thing since we must leave room for faith. For instance, the American novelist Marilynne Robinson writes (my italics):

> So long as the human mind exists to impose itself on reality … what it is and what we are *must* remain an open question. (Robinson 2010, p. 131)

This motive to keep science and understanding at bay forever—a consequently *anti*scientific aspect to dualism—is its most insuperable and disqualifying feature. To the problem of understanding the nature of the mind, the response that dualism gives us is not an answer, as it leaves it as much a mystery to why the nonphysical should support our conscious mental lives as that of a physical explanation, if not more so by way of its nonintegrative antithesis with the normal scientific account of the physical world. What dualism posits, by way of mind-stuff or para-energies, simply moves the "explanatory load" into the unexplainable. While I can give no inexorable proof that dualism in all its disparate forms is false, *this motive creates an explanatory regress of an antiscientific nature, from which inquiry will never escape* with the yielding of affirmable results worthy of the respect that accompanies true inquiry, such as that found in science.

This issue is not unlike that found between geology and Biblical literalists who hold the Earth

to be as described by Genesis, according to which the layers of rock found in the strata, indications of erosion, and the embedded fossil record were created four thousand years ago. Suppose that this were the case and all of the geological phenomena from both accounts were the same (i.e., the geology today is as it is) and the universe just began with the entire constituency of all discovered and nondiscovered facts as is. Despite the fact that both the scientific geological account and the Creationist account would then be consistent with the present-day evidence, no scientist would seriously entertain the latter account; it stands on too many brute facts impenetrable to verifiable inquiry, and it is disagreeable with one of science's prime *modus operandi*: the principle of parsimony. Why is a particular fossil at a certain level in the strata? This fact just requires our acceptance. And this egregious theoretic feature, like that in dualism's, permits its dismissal from serious consideration.

Considering we have dismissed such pseudo-scientific advocacies, why should we not similarly dismiss dualism? When physicists discovered antimatter, dualists did not raise their voices and acclaim, "Aha! At last—evidence of what we have been going on about!" Despite physicists providing support for the idea that the universe contains two pronouncedly different kinds of stuff, the trouble for dualists was that the new discovery of antimatter was within the scope of the scientific methods of investigation (Hofstadter

and Dennett 1981, p. 388); what dualists *really* want us to accept is that which can never be understood. Dualism is so mysterious and resilient to clarification that in retrospect we may wonder what ever attracted anyone to it. In the end, dualism always resorts with having to advocate the stuff of magic or something that science cannot approach; to accept dualism is to give up the serious inquiry into the nature of the mind (Dennett 1991, p. 37).

Furthermore, should we expect consciousness to be a single unitary property or essence that an agent either has or does not have?[15] Or do we expect that there are to be many degrees of consciousnesses and minds, progressing from the easily recognizable (e.g., man) to the highly attenuated and alien (e.g., a worm)? And what of within humanity, from the normal man to the severely mentally impaired?

Consider that you've forgotten someone's name, and these things happen even to the best of us. Infuriatingly, you try to reach the dark recesses of your mind where this name has been lost, but you just cannot make your own mind behave as you will it to—your "self" is not in complete control of yourself. Or perhaps you find yourself determined to attend to some pressing issue but are unable to pull yourself away from watching a TV program. In this instance, are both of these wills "you" simply because they have the same inner voice?

[15] An agent being a form of life or a machine which displays (behaviorally) intents.

Who is in control in these situations? Is there one central dictator of will or an anarchy of multiple inner agents, each with their own will, fighting for control? Or, is one of these wills an imposture? If so, how are you to determine which voice is really "you" and which is an auxiliary, if either? We oft think that we are entirely in control of our thoughts; however, the difficulty in trying to think nothing—to leave a blank page in the mind—shows how inept and noncentralized our control really is. But, whom or what has control if not I? Our conscious thoughts seem to come bubbling up from the subterranean caverns of our mind. Images flood into our mind's eye without our having any idea where they came from. Yet when we report our thoughts, we expect that *we*, not our subconscious structures, will get credit for *our* thoughts. And the Cartesian intuition presses on us: *If we are fooling ourselves about these matters, than whom or what is being fooled?* The methods and styles in which we resolve our internal conflicts is one of our most vivid examples of a person's personality.

As we saw at the outset, the questions on the nature of one's mind are intimately bound up with the idea of a self as a central and monolithic ego. *Your experiencing self seems to converge at, and then emanate from, the center of something; the problems start when we ask what this center might be*. The sciences have shown the implausibility of a central "mean-er" physically in the brain or as one that interacts with the brain from some

nonphysical domain, and so we have reached an impasse: has science, quite literally, lost its mind? Fortunately, in a way that may mirror the mind itself, no single idea in and of itself is completely unequivocal, and by that nature inexorable; there is always room for revision.

The physicist and philosopher Ernst Mach (1838–1916) passes on to us a marketable insight:

> If a knowledge of the connection of the elements (sensations) does not suffice us, and we ask, "*Who* possesses this connection of sensations, *Who* experiences it?" then we have succumbed to the old habit of subsuming every element (every sensation) under some unanalyzed complex, and we are falling back imperceptibly upon an older, lower, and more limited point of view … But if we take the ego simply as a practical unity, put together for purposes of provisional survey, or as a more strongly cohering group of elements, less strongly connected with other groups of this kind, questions like those above discussed will not arise, and research will have an unobstructed future. (Mach 1886, pp. 25–6)

Dualistic traditions suggest that in contrast to the observations we surveyed above, the mind is a central and unified ego or self: what is called *ego theory*. However, other philosophers have taken such observations into consideration and proposed that the mind is a "bundle of sensations." The theory, which is known as *bundle theory,* takes its name from the work of Scottish philosopher David Hume (1711–1776) who wrote in *A Treatise of Human Nature*:

> For my part, when I enter most intimately into what I call *myself*, I always stumble on some particular perception or other, of heat or cold, light or shade, love or hatred, pain or pleasure. I

> never can catch *myself* at any time without a perception, and never can observe any thing but the perception. (Hume, *Treatise*, I, VI, vi)

According to bundle theory, a mind consists of its constituent sensations that are tied together by memory, which seem to belong to one person, and nothing more. Under this model the ego is considered an *economical unity*, owing its practical importance to both the individual and species, in the constraints of developing (among other things) pain-avoiding and pleasure-seeking behavior in our biological history. When the ego ceases, only an idealized unity ends, rather than a real unity.

Bundle theory is quite counterintuitive and difficult to comprehend, and a full elucidation of it is outside the scope of this text. However, it is important to note that the theory does not say that the self does not exist; it says that, like the Cartesian theater, the self is illusory (i.e., not what it intuitively appears to be). Similarly, and much earlier, in the sixth century BC the spiritual teacher Siddhartha Gautama (who became known as the Buddha) contested the orthodox idea of ego theory found within all other major religions. Within his doctrine of *anatta* or no-self, he asserted that the self is just a label given to a set of elements, in contrast to ego theory's idea of a persisting unified self. Therefore, like Hume, the Buddha could be considered the first bundle-theorist philosopher, and ego theory and bundle theory can be understood as two fundamental

theories in which all conceptualizations of the mind can fall.

We often use the terms "mind" and "brain" interchangeably. Should we follow suit and regard them as the same thing, in which we would consider the mind as just another part or function of the body? As the American philosophers John Searle and Daniel Dennett state:

> The question, "Where do conscious thought processes occur?" is no more philosophically puzzling then the question, "Where do digestive processes occur?" Cognitive processes are as much a real biological process as is digestion. And the answer is obvious. Digestion occurs in the stomach and the rest of the digestive tract; consciousness occurs in the brain and perhaps other parts of the central nervous system. (Searle 2007, pp. 111–2)

> If you have the right sort of process and you have enough time, you can create big fancy things, even things with minds, out of processes which are individually stupid, mindless, simple. Just a whole lot of little mindless events occurring over billions of years can create not just order, but design, not just design, but minds, eyes and brains. (Dennett 2000, in press)

In a similar physicalist line of thinking, the neurologist Vilayanur Ramachandran writes:

> Even though it's common knowledge these days, it never ceases to amaze me that all the richness of our mental life—our religious sentiments and even what each of us regards as his own intimate private self—is simply the activity of these little specks of jelly in your head, in your brain. There is nothing else. (Ramachandran 2003)

Presently, certain thoughts are occurring to us, but where are they? In our brains. The mounting

evidence from fMRI and other brain-imaging techniques in the neurosciences are getting better every day at saying where—but more importantly, how—the protothoughts or discernments and the recondite web of a full thought occurs.

Having a mind is not to be in custody of a substance, essence, or soul, but to be a certain type of organism with a particular set of capacities and abilities.

The way we look at the nature of our own mind at the beginning of the new millennium may be challenging, difficult, and frightening, but it is not wholly unfamiliar territory. Moreover, in many respects it is exciting due to philosophy that embraces earnest inquiry and science.

What we now know is that humanity is a mosaic—a mosaic of trillions of both human and nonhuman cells within one body—and that it takes the constituencies of both for a man to live his life. Additionally, the mosaic subsumes systematic aspects like our physiological and genetic parts from natural history. But, most strikingly, there is no Cartesian stop; *the mosaic extends all the way in*.

The perspective that the mind, or self, is "little more" than the amassment of simple and stupid parts into some phenomenally complex system is uncomfortable to many and, like the bundle theory of Hume and Buddha, counterintuitive. It seems to force upon us a great incongruity in our conception of identity. Isn't some binding essence

needed to tie the constituency into a whole? This question requires a short digression.

Identity, essential to both our language and conceptual notions, is intimately linked with divided reference, as identity is expressed in the uses of "is" where we are ready to expound into "is the same object as." The division of references comes about when we settle the conditions, such as how far into an intersection one road starts and another ends. Although this is usually a simple practice and notion, confusion over it is not uncommon, such as we saw at the outset with the Heraclitus metaphor that we cannot step into the same river twice because of the flowing water, being held in juxtaposition with person-hood and physical identity. But this difficulty need not ail us. First, we need consider that the applicability of reference for the general term "river" and being able to physically step into the same river on multiple occasions is precisely what gives this general term its meaning and distinguishes the term from stages such as "banks" and "deltas" and divisions of water such as "eddies." Secondly, in putting the *temporal* extend of "river" on equal terms as that of its *spatial* extent, we find no greater qualms in stepping into the same river at different times than at different places. Similarly, these considerations hold for the seeming difficulty of personal identity. Putting space and time on equal par shows that the sameness of person is no more controvertible from the perspective of physical space than of time. Furthermore, no matter the disparity, there is no

reason why childhood, adolescence, and adulthood, or one's limbs and torso and head, are not of the same person. We no longer need cling to the forlorn idea that there be an unchanging kernel or essence to person-hood and personal identity any more than for the identity of a river or Alaska (Quine 1960, pp. 114–5, 182–3). Quine adds:

> If we liked we could … eliminate 'Socrates' as singular term by reconstruing the name as a general term true of many objects; viz., Socrates's spatiotemporal parts. For the old force of 'x = Socrates' can then still be recovered in paraphrase, this time as:
>
> (y) (y is a Socrates if and only if y is part of x).
>
> A possible interest of this alternative is that the uniqueness of such an object x then follows from the logic of the part-whole relation, independently of any special trait of 'socrates' beyond its being true of one or more objects of the sort that can be parts … Physical objects, conceived thus four-dimensionally in space-time, are not to be distinguished from events or, in the concrete sense of the term, processes. Each comprises simply the content, however heterogeneous, of some portion of space-time, however disconnected and gerrymandered. (Quine 1960, pp. 182–3, 171)

To return from digression, and the qualms of personal identity, it is unsurprising then that mankind has found great comfort from the stability of dualism … a comfort found in the security of knowing that our answers today are in accordance with the answers of the past and will accord with those of the future. That when we find we are at the end of our rope, there was really a second rope all along (I can think of no greater aid

than to tell a child whose parent has just died that the parent is still "here"—just not physically here. While the idea of an everlasting soul may be characterized as gluttony of the ego, it is of no doubt a serious teaspoon of sugar to those facing death and as such can leave us with beneficial effects (e.g., facing terminal cancer) or seriously malicious effects (e.g., suicidal martyrdom)).

Throughout the history of humanity, we have been faced with the alarming, disturbing, and often terrorizing reality that we do not know what we are, where we come from, or where we are going. It has been our storytellers who have comforted us with the security of a blanket of unequivocal truth—dualism—unconsciously inducing in our minds a single view of our nature through philosophical asphyxia. However, if man cannot test his dualistic nature, then the fidelity of this answer bears the burden of credulity. Truth based on story stands on this alone with nowhere to go. The great strength of stability and timelessness in the common sense and spiritual truth of dualism is ironically its greatest challenge. Mind-body duality has collapsed in on itself as if emancipated by some unexpected and incurable pathogen. Dogmatic intuitions and introspective conceiving are left stricken as a dying philosophy from mankind's infancy. And the pathology in question? The process of verifiable inquiry. And its carrier is something spiritual tradition thought itself immune to: science.

So here we are, eleven past on the dawn of a new millennia, with too many answers—answers

we have worked hard to hold on to and answers we have worked hard to find. When there is conflict between answers on a common question, which will we keep? The comforting or the cold, brisk air of insight from earnest inquiry? I, for one, wish to be counted among those who hold that our true dignity is to be found in having the demureness to view ourselves as we really are, and that this is within mankind's potential to discover.

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