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Neither Brain nor Ghost: A Non-Dualist Alternative to the Mind-Brain Identity Theory.

by Teed Rockwell

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Introduction:

Gives a précis of the book, and describes how its thesis arises in response to the post-analytic neurophilosophy of the Churchlands, and how it resembles the Pragmatism of Dewey. Defines Cartesian Materialism (in contrast to Dennett's definition) as being the claim that the mind is a particular part of the nervous system that occupies the skull, and explains why this is not the only possible alternative to dualism.

Chapter One: Minds, Brains, and Behavior

Describes the dialectic that has arisen in this century between the views of 1) mind as brain and 2) mind as behavior, and presents a third alternative to resolve this conflict. Behaviorist Philosophers and Psychologists wanted to replace all talk about mind with something that was less theoretical i.e. talk about dispositions or stimulus-response connections. Cognitive psychology rightly objected that it is impossible to do science without theorizing, and asserted that talk about mind is actually theorizing about brain states. This is not however the only possible way of theorizing about the mind. I propose that it is more accurate and fruitful to think of the mind as a behavioral field. This behavioral field may arguably have a brain at its center, but the borders of this field fluctuate as it radiates out into the body and the environment.

Chapter Two: Beyond the Cranium

Dennett has criticized what he called Cartesian Materialism--the belief that some part of the brain is the seat of the soul, rather than the brain as a whole. This chapter describes many new developments in neuroscience, which show that trying to isolate

the brain from the rest of the nervous system is vulnerable to many of the same kinds of criticisms. The processing that goes on in the rest of the nervous system is not functionally different from what goes on in the skull. Consequently, even neuroscience cannot avoid assuming that mind is at least the entire nervous system, and not just the brain. Descartes' idea that the rest of the nervous system is merely a set of message cables that connects the body to the brain is no longer supported by the evidence.

Chapter Three: Beyond the Neuronal Mind

We cannot save Cartesian Materialism by positing a mind-nervous system identity, rather than a mind-brain identity. This chapter describes evidence that the mind is hormonal as well as neural. Any attempt to make a principled distinction between these hormonal activities as physical and the neural activities as mental seems doomed--which makes it difficult to ignore the possibility that almost anything that takes place within the skin has some claim to being part of the embodiment of mind. The traditional assumption has been that some things that take place in the body may cause experiences, but only brain events actually embody the mind. But a close look at the data shows that this distinction is based more on prejudice than principle. So the question arises: what other criteria can we use to distinguish between causation and embodiment? In order to coherently ask that question, let alone answer it, we need a careful philosophical analysis of the concept of causation.

Chapter Four: **Causation and Embodiment**

Three widely accepted views of causality appear to provide support for the assumption that the mind is the brain: 1) The atomistic "one cause-one effect" view. If there were only one cause for mental phenomena, brain activity would probably be it. 2) The view that objects possess "intrinsic causal powers" makes us assume that the ability to cause mental phenomena must be intrinsic to brains. 3) The view that the mind-brain relationship is not strong enough to be describable as either an identity or a causal relationship, and thus should be described by the technical term "supervenience". 1)

and 2) are shown to be inadequate for our best science, and riddled with philosophical problems. The careful ambiguity of the supervenience relationship makes it the best contender for the mental-physical relationship. But the Cartesian Materialist claim that the mind supervenes on nothing physical except the brain is based on 1) The "brain in the vat" thought-experiment which may be impossible to perform even in principle, and has certainly never been performed in fact. 2) The assumption that experiences can supervene on brain events which are independent of other brain events. This assumption must imply that mental events are either a) independent sense data, each of which has an epistemic value that is completely self-contained or b) bits of information, whose epistemic value is derived from how they are processed by modules in the brain. Accepting this dichotomy creates a dilemma whose two horns are rationalism and empiricism.

Chapter Five: Experience, Sense Data, And Language

Describes why Cartesian materialism creates the conflict between rationalism and empiricism. Because Cartesian Materialism says the mind is the brain, it requires us to assume that the only way that the mind can have experience of the world is to somehow get the world inside the brain. Because this is clearly impossible, what with the world being so big and the brain being so small, it is very hard to avoid concluding that knowledge is impossible. If we reject the assumption that each moment of experience is directly given to us as a self-contained sense datum, and continue to accept Cartesian materialism, the only alternative to sense datum theory is some kind of Kantian idealism. If the world cannot get into our heads a piece at a time, Cartesian Materialism forces us to conclude that the world never gets into our heads.

However, if the self is embodied by the brain/body/world nexus, rather than by the brain alone, there is no need for the world to get inside the head in order for the self to be aware of it. However, in order to avoid the vacuously mystical claim that "we are one with everything" , we need a very specific and technical definition of "world". It would be trivial to claim that the entire causal nexus responsible for a mental state embodies a mental state. But once we see "world" as a biological concept defined by function, it can have borders that go beyond the brain without encompassing so much as to be meaningless or trivial. Every organism has a symbiotic relationship with specific aspects of reality in its immediate spatial vicinity. It is these elements which the science of ecology calls an organism's environment , and which Heidegger and others have called a creature's "umwelt".

Once we define "environment" this way, many confusions are cleared up. The controversy between Internalism and Externalism that arose from Putnam's Twin Earth

thought experiment arises only if we assume that an organism's environment is completely mind-independent. Once we recognize that language is a biological category that gets its being from its relationship to its environment, it becomes undeniable that non-verbalizable experience, of the sort that we share with animals, is even more ontologically dependent on environmental relations than is language. An organism that posseses language can use the same symbolic icon in service of a variety of different purposes. But the environmental relationship of the non-verbal experience we share with animals is seamless. The frog's ability to capture a fly does not require that the frog have a concept of the fly as independent from itself, anymore than it needs a concept of neuron or reflex. In much the same way, a person hammering has no distinct concept of hammer, until she stops hammering and starts talking to herself about hammering. So the need to separate the brain events from the body or world events in the *experience* of hammering is far less than it is in *thoughts or words* about hammering.

Chapter Six: The Return of the Zombies

Once we acknowledge that assertions about what embodies mind are genuinely in need of proof, the "hard problem" that arises when we attempt to bridge the explanatory gap between experience and objective reality becomes not only philosophically inscrutable, but scientifically important. If it were a brute fact that the mind was the brain, we could accept this as a philosophically puzzling postulate, and then do competent science of the mind by accepting it on faith. But if it we are forced to answer the question "what embodies the mind?" we must deal with the hard problem in order to tell we're even looking for answers in the right place. And the choice of the right place will continue to seem stunningly arbitrary as long as we assume that the problem of consciousness is totally self-contained. In order to escape the clearly unsolvable nature of the hard problem as it is currently formulated, we have to consider the presuppositions which make it seem inevitable. Because the problem is how to explain consciousness, we need to rethink not only our concept of consciousness, but also our criteria for what an explanation is. This rethinking reveals a new relationship between subjective experience and objective knowledge, which again makes use of the Deweyan view of experience to dissolve the hard problem.

Chapter Seven: **"The Frame Problem" and "The Background"**

For Dewey knowledge always exists within a background of experience, which is why any attempt to "solve" the hard problem by completely comprehending experience as knowledge was doomed to failure. In this chapter, we see that the failure of symbolic AI supports the validity of Dewey's insight. Hubert Dreyfus' critique of symbolic AI showed us that it failed because its goal was a computerized simulation of the Cartesian materialist brain, which tried unsuccessfully to mirror the entire world "inside the head". We also see how Searle's concept of "the background" requires a theory of meaning and mind which make it impossible for language comprehension to be accomplished by a self-contained system that operates entirely inside the head. Language works because, as Searle and Dreyfus propose, we share a background of lived and embodied experience. AI research has produced decisive evidence that it is impossible to capture what we know by simply adding more and more sentences to a system's memory. This seems to imply that language and experience must work together for language to be meaningful at all.

Chapter Eight: Dreams, Illusions and Errors

It seems at first that Cartesian Materialism has an advantage over the account we are proposing: it's ability to account for illusions and errors. But the Cartesian Materialist account actually has serious problems dealing with this issue, which can be solved by our Deweyan Pragmatist alternative . Recent developments in Philosophy of Science and Epistemology have lead many philosophers to conclude that we cannot draw a sharp line between true and false theories. This is a problem as long as we claim that reality exists in the world, and illusions exists only in our heads. If there is a continuum between true and false theories, how can we claim that there is a specific point where a theory loses it's grip on the world, and collapses back into the head? The Pragmatist answer to that question is: all theories and experiences emerge from the relationships that constitute the brain/body world nexus. But some theories/experiences have an erratic and unpredictable relationship with the world, and thus relate to the world in an equivocal and confused manner. Because all of our theories are imperfect, and none are completely useless, we don't have to posit subjective entities called illusions to explain why we make errors. We just have to say that some theories have better relationships with the world than others, and science and other forms of inquiry must help us find the best theories we can.

Chapter Nine: Dewey and the Dynamic Alternative

In 1895, Dewey claimed that the most accurate way of conceiving of the relationship between organism and environment was to see both as moments in a process with constantly shifting boundaries. He claimed that this relationship should be seen not as interactions between two distinct entities, but rather as "a shift in a system of tensions." This is a prophetic description of what is now called Dynamic Systems Theory (DST), which studies organisms by measuring the interactions between various physical forces. When these kinds of forces temporarily settle into some kind of equilibrium, it becomes possible for the resulting system of tensions to perform cognitive activities by bifurcating between basins of attraction. In order to fully understand such a system, however, we must in Port and Van Gelder's words, recognize that "the cognitive system cannot be simply the encapsulated brain; rather it is a single unified system embracing the . . . nervous system, body, and environment".

The principles of state space transformation were introduced into Cognitive Science by connectionist AI, and later refined by DST. The biggest weakness of connectionist AI is that it assumes that experience is fully embodied by the state space transformations that take place in the head. DST overcomes this objection by measuring state space transformations that take place in the entire brain-body-world nexus. It would require a miracle for brain tissue to behave exactly as if a world were impacting it, even though a world is not impacting it. So we must conclude that the supervenience base for all mental events, including subjective experiences, includes not only brain events, but events in the rest of the body and in those parts on the environment with which the conscious organism maintains a symbiotic relationship.