

ANTIDUALISM AND ANTIMENTALISM IN RADICAL BEHAVIORISM*

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Abstract: Radical behaviorism (RB) is antidualistic and antimentalistic. Antidualism is the rejection of ontological dualism, the partition of reality into physical and nonphysical. Antimentalism is the rejection of the ontological theses that mind is causal, internal, subjective, and nonbehavioral in nature. Radical behaviorists conflate both rejections, based on depictions of mentalism as inherently dualistic. However, such depictions are fallacious. Mental causation and mind as internal are fundamentally incompatible with dualism and hence inherently materialistic. Mind as subjective and nonbehavioral in nature are compatible with dualism, but can be construed materialistically. I exemplify with the mind-brain identity theory. The same arguments apply to functionalism, which is also materialistic and provides a more plausible philosophical interpretation of cognitive psychology as a paradigmatic example of mentalism at work in psychology. I propose that radical behaviorists' accusations of dualism against mentalism rely on an invalid redefinition of "dualism" in terms other than the physical-nonphysical partition. All of this only weakens RB's antimentalism. Radical behaviorists are advised to stop making those accusations and adopt a behavioristic ontology of mind, such as mind-behavior identity, to reject alternative nondualistic ontologies.

Key words: radical behaviorism; antidualism; antimentalism; mind-brain identity; cognitive psychology; functionalism; mind-behavior identity

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This paper is a criticism of an aspect of Skinnerian or radical behaviorism (RB). I will use elements from academic philosophy of mind, but constructively: If correct, my criticism will suggest ways to strengthen that aspect. More precisely, the aspect in question is the rejection of dualism and mentalism, or, for short, “antidualism” and “antimentalism,” respectively. Both rejections have been central to formulations of RB¹:

The radical behaviorist’s objection to mentalism is really an objection to *dualism*, the idea that two sorts of existence, material and nonmaterial, or two sorts of terms, referring to the material and the nonmaterial, are necessary to understand behavior fully. All the sciences, not just behavior analysis, reject dualism because it is confusing and uneconomical (Baum, 2005, p. 43);

Rachlin parts with methodological behaviorism and aligns himself with radical behaviorism on two grounds: antidualism and pragmatism. Like any radical behaviorist, he denies the existence of mental fictions, and especially mental causes of behavior (ibid., p. 51);

... radical behaviorism rejects any form of dualism, including subjective-objective or inner-outer dualism (Baum, 2011a, p. 185);

... in comparison with antidualism, the role of private events in radical behaviorism is peripheral and inessential (ibid., p. 186);

... a strength of radical behaviorism is its denial of dualism, its assertion of “one world” only..., and, indeed, if the science is to be a natural science, it must deny dualism, for the good reason that it renders cogent explanation impossible (Baum, 2011b, p. 122);

... [a] major error ... attributes historical influence to Descartes and implies that radical behaviorism accepts Cartesian mind/body duality (Chiesa, 1994, p. 16);

... radical behaviorism dispensed with dualism at an early stage of its development...Because radical behaviorism does not assume that behaviour counts as evidence of something else, the person is a unity rather than a duality (Chiesa, 1998, p. 357);

Radical behaviorism is a materialistic philosophy: the universe is physical, and Cartesian notions of a mind-body duality are rejected (Foxall, 2010, p. 52);

... the basic principles of radical behaviorism may be expressed as follows (Moore, 1999, p. 46) ... *Anti-mentalism*. Radical behaviorism is also staunchly anti-mentalistic. ... Dualism, in which the mind (or some phenomenon in the nonphysical, nonmaterial dimension) is presumed to cause behavior (which is in the physical, material dimension), is probably

¹Antidualism and antimentalism are equally central to other behavioristic philosophies (viz., teleological, molar, interbehaviorism, etc.), where it is formulated and used in similar ways. My criticism thus applies to them as well. I focus on RB as the presently dominant behavioristic philosophy.

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the most common form of mentalism... mentalism also brings with it an implicit commitment to a bifurcation of the world into physical and mental realms or domains (ibid., p. 48);

It is usually held that one does not see the physical world at all, but only a nonphysical copy of it ... Sensations, images, and their congeries are characteristically regarded as psychic or mental events, occurring in a special world of "consciousness" where ... they occupy no space ... We cannot now say with any certainty why this troublesome distinction was first made (Skinner, 1953, p. 276);

But where are these feelings and states of mind? Of what stuff are they made? The traditional answer is that they are located in a world of nonphysical dimensions called the mind and that they are mental. But another question arises: How can a mental event cause or be caused by a physical one? (Skinner, 1974, p. 10).

RB is defined by other theses, like pragmatism (e.g., see second quotation above), but antidualism and antimentalism seem to be equally defining². Antidualism per se, of course, is fine. In fact, I will provide an argument for it later. As for antimentalism, I have misgivings about how radical behaviorists have formulated it, and therein lies my criticism. The quotations above indicate that radical behaviorists formulate their antimentalism in terms of antidualism, by depicting mentalism as dualistic. I will argue that such a depiction is invalid. Dualism and mentalism are quite different, in fact opposite theses: Mentalism, traditionally defined, is intrinsically materialistic or physicalistic, so it cannot be dualistic. Mentalism is neither the same as, nor does it imply or is it implied by, nor is it even deeply similar to, dualism. Nor can dualism be a form of mentalism, or vice versa.

The distinction between mentalism and dualism is not new. Sperry (1980) asserted it: " 'mentalism' is no longer synonymous with 'dualism' " (p. 196). I will also echo his point that conflating the two relies on a redefinition of dualism that significantly departs from the standard definition in philosophy of mind, and agree with his rejection of this practice:

Sir John [Eccles] tells me that I am a dualist and I respond, 'Only if the term is redefined to take on a new meaning quite different from what it traditionally has stood for' in philosophy.' ... I see no advantage in changing the classic definitions (p. 195).

However he mistook reductive materialism to oppose mentalism:

²There are strong historical and conceptual ties between pragmatism and antidualism: "all the classic pragmatists were explicitly focused on the defeat of Descartes' impossible realism (on epistemological grounds) and were aware (however unequally) that this defeat entailed the repudiation of Descartes' dualism" (Margolis, 2002, p. 12). Rorty (e.g., 1979) is no exception. His pragmatism differs from others', but he too opposes Cartesian dualism, which he sees as dominant in philosophy (this assessment is very debatable, as I will argue later).

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I am in strong agreement with Eccles in rejecting both materialism (or physicalism) and reductionism-or at least what these terms predominantly stood for prior to the mid-1960s. ... I have referred to myself as a 'mentalist' and ... firmly renounced reductionism ... 'mentalism' is no longer synonymous with 'dualism' nor is 'physicalism' the equivalent of monism'. ... monism has to include subjective mental properties as causal realities. This is not the case with physicalism or materialism which are the understood antitheses of mentalism, and have traditionally excluded mental phenomena as causal constructs. In calling myself a 'mentalist', I hold subjective mental phenomena to be primary, causally potent realities as they are experienced subjectively, different from, more than, and not reducible to their physicochemical elements (p. 196).

Against this, and as integral to my criticism of antimentalism in RB, I will argue that mentalism, as Sperry conceived it, is compatible with reductive materialism or, more precisely, the mind-brain identity theory. I begin by discussing the relations of a defining ontological thesis of mentalism, mental causation, to dualism (first section) and materialism (second section). Another ontological element, the thesis of mind as internal, is discussed in the third section. The fourth section revolves around the other two ontological theses of mentalism, mind as subjective and nonbehavioral in nature, where the main argument will be that both can be construed in a purely materialistic way. Lastly (fifth section), I argue that cognitive psychology cannot be validly accused of dualism, as its philosophical foundation is more plausibly associated with functionalism, another materialistic philosophy of mind. The paper ends with a proposal to strengthen RB's antimentalism. None of this is an advocacy of mentalism, of course. Mentalism can be rejected for various reasons. My main argument, rather, will be that dualism is not one of them.

Another antecedent is Keat's (1972) criticism of Skinner's antimentalism. I sympathize with this criticism, but it overlaps little with mine. My criticism targets RB in general, not just Skinner. As the quotations above suggest, like others later, antimentalism in RB goes well beyond (and often seems stronger than) Skinner's. Also, I claim a much tighter relation between RB's antidualism and antimentalism, while omitting other topics Keat discusses (the use of theories, freedom, etc.). Like me, he discusses the thesis of mind as internal, but differently, but I discuss two other topics: Mental causation and subjectivity.

My focus will be on ontological (metaphysical), not epistemological (e.g., whether and how the mind can be known) or linguistic matters (e.g., the meaning and eliminability of mentalistic talk). Such non-ontological matters are important but will be peripheral to my discussion.

Such focus stems from the ontological character of dualism in its standard formulation in philosophy of mind, which makes antidualism equally ontological. On this basis, the above quotations suggest to me a substantial ontological aspect to RB's antidualism and antimentalism. There also are linguistic and epistemological aspects, of course, but they do not seem to be any more crucial than the ontological aspect.

Here is another quotation from Moore (2008) that further suggests a significant ontological aspect to RB's antidualism and antimentalism: "The mental dimension is rejected because it does not exist" (p. 431). Such assertion

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is clearly ontological. Leigland (2009) too construes Moore's position as ontological: "Moore takes a strong metaphysical stand against mental entities" (p. 248).

Alas, Moore (2011a) has also suggested "what Skinner did was to bracket the ontological question and relegate it to second place, rather than get into interminable ontological debate about his emphasis on the "only one world" (p. 133). Therein lies a potential rub with the present ontological focus. For now, I will just say this about it: Skinner's emphasis is clearly ontological, even sufficiently important to have its own name ("monism"). But I do not understand how an emphasis on an ontological thesis is consistent with relegating ontology to second place (regardless of whether that particular interpretation of Skinner is correct). If the above quotations, some of them from Moore, are not meant to engage in ontological debate, I do not know what they are meant to do.

On the more linguistic side, I will use the noun "mind," but this should not be interpreted, as it often is, to uniquely denote, let alone imply acceptance of, mental substances. My use of the term will be liberal, only as generic, convenient shorthand to denote different kinds of entities (substances, properties, events, processes, states), as the case might be. If a particular sense is at work, it will be clear from the context, so no confusion should ensue. The same applies to "brain," which is also often used to denote both, a physical substance and its functioning.

Dualism and Mental Causation

Radical behaviorists argue that mentalism is dualistic for propounding mental causation (among other reasons, to be discussed later). In this section, I will challenge this argument as invalid. For this, I will use the standard definition of dualism in philosophy of mind. In this definition, dualism is an ontological (neither epistemological nor linguistic) thesis according to which reality in itself partitions (exhaustively, sharply, and nonreducibly divides) into material (physical, natural; I use these terms interchangeably) and immaterial (nonphysical, thinking, mental, spiritual, supernatural). This partition has been applied to substances and properties, resulting in two forms of dualism named after these categories, both of which I will discuss in this section.

This definition of dualism overlaps with the radical behaviorists'. They use "dualism" in other ways, but often come down to a physical-nonphysical partition as a reason for rejection. For example, Moore (e.g., 2003) also talks of "epistemological dualism." However, he defines it as the thesis that "immediate experience is a mental (or equivalently, subjective) dimension that differs from the physical" (p. 182), which I cannot but read as "nonphysical."³

³ As Sellars (1921) clarified, the term "dualism" in "epistemological dualism" is a misnomer: "The modern epistemological dualist begs to differ from those who identify epistemology with metaphysical dualism. He can see no logical connection between his own epistemology and Cartesian dualism and he is, moreover, no dualist. To assert that one's idea in knowledge is numerically distinct from the object known does not imply that they are parts of different worlds" (pp. 483–484). The physical-nonphysical

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This definition makes epistemological dualism questionable for the same reason as ontological dualism: Allegedly implying a physical-nonphysical partition⁴. Using the term “dualism” in other ways, then, does not seem to make too much of a difference in why radical behaviorists reject dualism.

Substance Dualism

In substance dualism (SD), substances (technical philosophical lingo for “things,” not “stuff;” a more recent technical term is “continuants”) are partitioned into *objectively* physical and nonphysical. SD is the conclusion of the so-called “Real Distinction Argument” or “Argument from Doubt,” which Rozemond (1998, p. 35) has outlined as follows:

- (1) I can doubt that I am extended but I cannot doubt (that is, I am certain) that I think.
- (2) For any (intrinsic) properties ϕ and ψ , if it is possible to doubt that something is ψ while not doubting (that is, while being certain) that it is ϕ , then ϕ is not a mode of ψ .
- (3) Thought is not a mode of extension. (1, 2)
- (4) Extension is the principal attribute of body, that is, corporeal substance.
- (5) If thought is not a mode of extension, it is a principal attribute distinct from extension.
- (6) Thought is a principal attribute distinct from extension. (3, 5)
- (7) Every substance has exactly one principal attribute.
- (8) The substance that is the subject of my thoughts (=my mind) is not extended. (4, 6, 7)
- (9) My mind is a different substance from body. (4, 8, Leibniz’ Law)
- (10) If A and B are different substances, they are really distinct.
- (11) My mind is really distinct from body. (9, 10)

SD is the conclusion (Line 11) of this argument⁵. The argument is officially credited to Descartes (e.g., 1641/2013), for which SD also is known as “Cartesian dualism”, although this name means more than SD, as I clarify

partition implies a knower-known duality, but to infer the converse is fallacious. I will return to this kind of fallacy later.

⁴ Moore (e.g., 1995b, p. 66–67) has other objections to epistemological dualism, but they do not seem to be any less central than the ontological one. Later I will refute the ontological objection in relation to his rejection of private language.

⁵ This conclusion is a singular, first-personal statement: It refers to “my,” not “the” or “all” minds. SD would thus have to be formalized in first-order predicate logic as an *existential* statement: At least one x and one y exist such that x is a nonphysical substance and y is a physical substance. Strictly, SD’s generality is not demonstrated, although this does not mean Descartes was a solipsist. He rejected solipsism by arguing that it was reasonable to infer other minds in humans from certain behaviors (e.g., language). Still, such argument is non-demonstrative.

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below⁶. I need not discuss the details of the argument. I included it only to make two points.

One, mind qua thinking substance *essentially* differs from body qua corporeal substance only in that the latter has “extension” (Line 4) and the former does not (Line 6). By “extension” Descartes meant “length, breadth, and depth.” No other essential difference obtains between mind and body (Line 7). In particular, neither internality nor subjectivity are principal attributes (essences) of mind. I will return to this point later.

Cartesian dualism = SD and causal interaction thesis.

SD is only half of Cartesian dualism. The other half is the thesis of mind-body causal interaction. Cartesian dualism is the conjunction of both, SD *and* this *causal-interaction thesis* (CIT for now; I qualify in a moment), not just either one. Much hinges on the logical relation between SD and CIT, so I need to discuss it. This brings me to the other point I want to make about the Real Distinction Argument as outlined above: CIT is nowhere to be found in this argument. The argument only intends to demonstrate how mind and body differ *intrinsically*, not how they relate extrinsically to one another. Such demonstration does not rely at all on CIT. SD, then, is logically independent of CIT.

SD does not even imply CIT: Nothing in SD logically forces us to accept CIT. It thus is coherent to accept SD *per se*, without speculating about the mind-body relation at all, as tempting as it might be. Of course, we can also engage in such speculation based on SD, as Descartes purportedly did (but see Note 6). If we do, any result of this speculation will be dualistic. This is how Cartesian dualism works: SD is used as a metaphysical foundation to speculate about the mind-body relation. CIT is the result of this speculation, but not as a logical consequence of SD. Rather, CIT is metaphysically ancillary to SD, for which CIT is dualistic and can thus be labeled more precisely as CIT_D.

The dualistic character of Cartesian dualism, then, is given entirely by SD: Cartesian dualism is dualistic only because of SD. CIT_D's dualistic character results from making the idea of mental causation metaphysically ancillary to SD. The core thesis of Cartesian dualism, then, is SD, not CIT_D. CIT_D is just a non-demonstrative extra thesis that Descartes propounded to account for the high mind-body correlation while maintaining SD.

The logical independence of SD from CIT_D is apparent from one way to address a common criticism of Cartesian dualism: The incoherence of CIT_D. This criticism was first made by two of Descartes' contemporaries: Pierre Gassendi (see Voss, 1993, p. 137–138) in his *Fifth Set of Objections to Descartes' Meditations* (1641/2013), and Princess Elisabeth of Bohemia in her correspondence with Descartes in 1643 about the same book (see Shapiro,

⁶ Some disagree with the official Cartesian story about Descartes' views (e.g., Baker & Morris, 1996; Christofidou, 2001). But I will stick to the story, as nothing I will say hinges on Descartes' really having held it.

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2007, pp. 67–69). Both pointed out that mind-body causal interaction was unintelligible, as it required spatiality, which thinking substance lacked, according to SD⁷.

This criticism implies that mental causation is logically incompatible with SD: If the two are combined, as Descartes purportedly did in CIT_D, incoherence ensues. One solution to this problem maintains SD without CIT_D, which means rejecting mental causation. This tactic leads to alternative forms of SD (e.g., occasionalism and the theory of pre-established harmony). They are non-Cartesian because they dispense with CIT_D, but Cartesian for holding SD. The term “Cartesian,” then, is ambiguous. It is more precise to qualify these forms of SD as “non-interactionist” (in this terminology, Cartesian dualism is interactionist). This solution shows that the Elisabeth-Gassendi criticism is effective only against to CIT_D. The criticism leaves SD unscathed.

Property Dualism

The criticism can also be addressed by rejecting SD. This tactic, however, does not guarantee the escape from dualism either, as it allows for yet another dualistic alternative to Cartesian dualism: *Property dualism* (PD). PD propounds a partition of *properties* (not substances) into physical and nonphysical. PD is non-Cartesian in rejecting SD, but this label is imprecise because it also applies to non-Cartesian (for non-interactionist) forms of dualism. PD is more precisely qualified as a *non-substantival* form of dualism (in this terminology, Cartesian dualism is *substantival*).

PD can be traced to Spinoza’s (1677/1955) so-called “double-aspect” theory. According to this theory, mind and body are not substances but “attributes” of the same substance: “... though two attributes are, in fact, conceived as distinct ... we cannot, therefore, conclude that they constitute ... two different substances” (p. 51); “... mind and body ... are one and the same individual conceived now under the attribute of thought, now under the attribute of extension” (p. 102).

Spinoza conceived thought as nonphysical, but was neutral about the nature of the one substance. PD is different in this regard (e.g., Chalmers, 1996). Property dualists do not postulate nonphysical substances and thus view all substances as physical. Therefore, PD does not imply SD, even if SD implies PD. To claim otherwise is to commit the *fallacy of the converse* (or affirming the consequent), to infer implication of SD by PD from implication of PD by SD. This fallacy will reappear in different forms throughout the rest of paper.

Because PD postulates physical and nonphysical properties, but only physical substances, it can be coherently viewed as a form of dualistic materialism: Dualistic about properties, materialistic about substances. But labels aside, a key point is that mental particulars in PD are not substances but

⁷ This problem seemed so insurmountable to her Highness that she replied this to Descartes: “I admit that it would be easier for me to concede matter and extension to the soul than to concede the capacity to move a body and to be moved by it to an immaterial thing” (see Shapiro, 2007, p. 68). This reply could be one of the first modern expressions of materialism.

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events where physical substances temporarily possess mental properties⁸. No mental property in PD, then, is essential to any substance: All mental properties are accidental to (for temporarily possessed by) any substance. Otherwise, there would be mental substances. Mental properties are essential only to mental events. But this means all mental events in PD are nonphysical, even if they involve physical substances.

For example, I as a physical substance had a headache yesterday morning at home, but have no headache now at the office⁹. In PD, this means that I had (with many physical properties) the nonphysical property of headache-ness temporarily, at that particular time and place. This mental property, then, is not essential to me, as I have no headache now. Otherwise, I would permanently have a headache. Still, this particular event is essentially nonphysical, even if it involves a physical substance (me). The nonphysicality of mental events in PD is given by the nonphysicality of mental properties, which are essential to mental events, not the physical properties of the substance that has those mental properties.

A rationale for PD (see Chalmers, 1996) appeals to the conceivability of philosophical zombies (different from the Caribbean folklore type). These are creatures physically exactly like us, down to the last particle. They thus have bodies and brains exactly like ours, anatomically and physiologically. They also behave exactly like we do, exhibiting pain and pleasure behavior, and reporting experiences of colors, shapes, smells, tastes, and everything we non-zombies report to experience. In short, zombies are physical twins of us non-zombies.

Zombies differ only in lacking conscious experiences: They feel no pain, no pleasure, have no sensory or perceptual experiences, even if their brains and behaviors exhibit everything we non-zombies do when we experience all of this. If zombies are logically possible, the argument goes, conscious experience cannot be physical. Thus, materialism is false and must be replaced with something else. SD and idealism (the ontological thesis that everything is nonphysical) are not options, which only leaves PD, the argument concludes.

What I said about Cartesian dualism also applies to this argument: It hinges entirely on the conceivability of zombies (conceivability is an epistemological notion, but it often is viewed to imply possibility, an ontological notion commonly interpreted in philosophy in terms of possible worlds; if zombies are conceivable, the argument goes, they are possible in that there is at least one possible world where they exist).

⁸ I speak of “events” broadly, to include states and processes, without elaborating metaphysical details about their nature, differences, and relations (see Steward, 1997, for a study of this). Sometimes I speak of “states” and “processes” to remind the reader that I mean my analysis to include both.

⁹ PD is not a theory of personal identity (what makes something be the same person through time). It thus is entirely consistent with PD to say that I am a physical (i.e., nonmental) substance. SD, in sharp contrast, is as much a theory about personal identity as it is a metaphysics of mind: The person is a mind. The need for persistence through time was perhaps what motivated Descartes to construe minds as substances.

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The core thesis of PD, too, is a physical-nonphysical partition, which is what makes PD dualistic, even if it is a partition of properties and not substances. Nothing else makes PD dualistic. In particular, the argument does not rely on the subjectivity and internality of mental events. PD is consistent with at least the former (not so much the latter, as I argue later), but the zombie argument is logically independent of both.

The argument is logically independent of mental causation as well. In fact, the two seem incompatible. A criticism of the argument was made by Kirk (2005) in a repudiation of zombies, which he (Kirk, 1974) devised to reject materialism. The gist of his criticism is this. If zombies are conceivable, then *epiphenomenalism*, the thesis that mental events are causally inert, is conceivable (i.e., if zombies behave exactly like us without consciousness, then consciousness is causally superfluous). But epiphenomenalism is inconsistent with an intuition epiphenomenalists routinely use (or so Kirk argues): We can do much about our conscious experiences (talk about, act according to, remember them, etc.) that we would not be able to do were epiphenomenalism true. Epiphenomenalism thus becomes self-contradictory and, hence, inconceivable. So do zombies.

This result casts doubts over PD by rendering PD compatible with epiphenomenalism and, hence, incompatible with mental causation. Property dualists admit this incompatibility is potentially worrisome, but have two replies (e.g., Chalmers, 1996, pp. 150–160). One, the jury is still out on the nature of mental causation (and causation in general), so it is unclear whether PD actually excludes mental causation and entails epiphenomenalism. Two, even if this were clear, there still is no forceful argument against epiphenomenalism, so holding it may not be as disastrous as some believe.

These replies are reasonable, but equally reasonable is to adopt the working hypothesis that mental causation, despite all its difficulties, is incompatible with PD, as much as it is with SD. On this conjecture, the idea of mental causation can be used to reject PD, as it can to reject SD, and thus as a rationale for antidualism.

Materialistic Antidualism

On the basis of the standard definitions of SD and PD in philosophy mind, as summarized in the previous section, dualism about mind and body can be defined as either SD and hence PD (SD entails PD), or just PD (PD does not entail SD). At the core of dualism thus defined is a physical-nonphysical partition of reality, whether of substances (and, hence, properties) in SD, or just properties in PD, where mind is conceived as being essentially immaterial or nonphysical. This is a metaphysical thesis about the intrinsic nature of mind and body, not how they relate extrinsically, in particular, mental causation. Consequently, a rejection of mental causation is ineffective against dualism. However, and this is a key result, mental causation is incompatible with dualism (in fact, PD seems to imply epiphenomenalism, the rejection of mental causation). Hence, holding mental causation is a good way to avoid dualism.

Contrary to what radical behaviorists claim, then, mental causation does not make mentalism dualistic, nor is dualism a form of mentalism (or vice versa). If anything, mental causation makes mentalism inherently materialistic

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and, therefore, antidualistic. Now I further strengthen this result by showing how mental causation can be used to ground antidualism¹⁰.

As a first approximation, antidualism can be defined as the negation of both SD *and* PD. This negation, however, does not commit us uniquely to materialism: Idealism, too, negates SD and PD. To exclude idealism (for too counterintuitive and implausible), we need more. As suggested above, the idea of mental causation can serve us well in this regard, especially if combined with another idea: The causal closure of nature (all causes and effects are natural; Kim, 1989). The two ideas provide powerful simultaneous protection against PD, SD, and idealism.

Indeed, both ideas exclude epiphenomenalism and hence PD (insofar as PD implies epiphenomenalism). SD is excluded as well, as SD implies PD. Idealism too is excluded, for the same reason as in the Elisabeth and Gassendi criticism: Mental-mental causation is as incoherent as mental-physical causation. We are only left with *materialistic antidualism* or MAD, according to which mind is material or physical. This label is not redundant, because “antidualism” can also be nonmaterialistic (i.e., idealistic). The redundant label would be “antidualistic materialism,” as materialism is necessarily antidualistic. Still, I prefer “MAD” over “materialism” because “MAD” is shorter and more clearly conveys my points.

The idea of mental causation also makes good scientific sense, as it brings mind into a causal way of thinking that is quite common in science. Descartes was onto something with the idea. The problem with his account was not this idea per se but to build it metaphysically on SD, which is what made CIT_D incoherent and prompted the Elisabeth-Gassendi objection in the first place. But the incoherence is avoidable if we go the other logical way against dualism, from the idea of mental causation as a sensible initial working hypothesis to a metaphysics of mind that is consistent with this hypothesis.

Actually, there is no need to assume mental causation, as it can be derived from other, more general, perhaps less contentious working hypotheses. Here is an outline of an argument for MAD, as a series of hypothetical syllogisms (“or” means “and/or;” assume that only some particulars are mental, to allow for nonmental particulars; also assume that mental particulars include phenomenal experiences as well as intentional states such as beliefs and desires):

- (1) All mental particulars are events (no mental substances)
- (2) All events are causes or effects (causal determinism)
- (3) All mental particulars are causes or effects (1, 2: Mental causation)
- (4) All causes and effects are physical (causal closure of nature)

∴ (5) All mental causes or effects are physical (3, 4: MAD).

¹⁰ There is another philosophical beast that often accompanies discussions of mental causation, and is as abstruse as the zombie idea, if not more: Supervenience. But I will not invite such a beast to this party.

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SD is rejected in Premise 1, which admits mental particulars but only as events, not substances (I assume events make up states and processes). Also, Premise 1 allows us to interpret mental causation as efficient. However, Premise 1 is compatible with, and hence does not suffice to avoid, PD (PD also rejects mental substances). Insofar as mental causation excludes PD, Premise 3 excludes PD, where mental causation (the rejection of epiphenomenalism) is deduced from Premises 1 and 2. PD is also excluded by the conclusion, (5), which expresses MAD as a logical consequence of Premises 3 and 4. The conclusion excludes idealism as well. Of course, the premises admit much further discussion, but I will not engage in it here, in the interest of brevity¹¹. I thus submit them only as working hypotheses pending more investigation.

MAD is a metaphysical thesis argued for in metaphysical terms. Hence, MAD should not be confused with any epistemological thesis about whether and how the mind can be known, or linguistic thesis about mentalistic talk. Of course, we can make any other thesis we wish metaphysically ancillary to MAD, but it would still be different from MAD. More importantly, any such thesis will be as antidualistic as MAD.

Despite this, MAD does not imply the negation of any of dualism's implications, whatever they might be. To argue otherwise is to commit the *fallacy of the inverse* (different from the fallacy of the converse). In this fallacy, implication of $\sim Q$ (the negation of some implication Q of dualism) by $\sim D$ (the negation of dualism) is inferred from implication of Q by D . MAD, then, does not inoculate us from any of dualism's implications. But that is all right, as they do not conversely imply dualism (beware the fallacy of the converse).

As formulated, MAD does not impose any specific way to construe mental events and mental causation as physical. To say they are physical is a step in the right direction, but more detail is needed. There are several ways to flesh MAD out. The argument would have to be augmented to capture the details of each way, but I will not do this here. I will just assume that the details can be worked out as needed. Details aside, the key point is that any specific way to flesh MAD out will be equally materialistic and, therefore, antidualistic.

Mind-Brain Identity

One way is the type-type mind-brain identity theory (identity theory, henceforth). I do not mean to advocate this theory here, but use it only as an example of a purely materialistic metaphysics of mind that satisfies MAD and, hence, is antidualistic.

According to the identity theory, all mental properties *are* brain properties and all mental events are brain events (e.g., Place, 1956; Smart, 1959; see Polger, 2004, for a more recent defense). For example, pain is C-fiber firing, visual consciousness is the functioning of the MT/V5 complex, and so on. The

¹¹ In particular, my initial assumption that there are mental and nonmental physical particulars needs a rationale. Such rationale, however, is not easy to articulate. An explicit metaphysics of causation might also be useful, but then again, such metaphysics remains elusive.

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theory thus satisfies Premise 1 of MAD, and nothing precludes it from satisfying Premises 2 and 4.

Also, from its initial formulations, the theory was grounded on a strong emphasis on mechanistic explanation as common in science: “It seems to me that science is increasingly giving us a viewpoint whereby organisms are able to be seen as physico-chemical mechanisms: it seems that even the behavior of man himself will one day be explicable in mechanistic terms” (Smart, 1959, p. 142). This assertion satisfies (3) in MAD, insofar as all mechanisms are causal. As Kim (1996) asserted, “... psychoneural identification ... makes mental causation entirely unmysterious: Mental causation turns out to be a species of physical causation” (p. 56; see also Polger, 2004, p. 3).

Environment-behavior relations could thus be viewed as causal chains where some links are mental-qua-brain events (e.g., C-fiber firing for pain, MT/V5 firing for visual consciousness, etc.). These events would thus be efficient causal mediators in environment-behavior causal chains. As such, they can be coherently said to play a causal mediating role in behavior. Of course, it could be argued that there is not sufficient evidence to support such a role. But I am not saying the contrary. I am only saying that mental causation in the identity theory is *coherent*, and thus cannot be rejected a priori for incoherent, as CIT_D is in the Elisabeth-Gassendi objection. This outcome refutes Sperry’s (1980) claim that the identity theory precludes mental causation¹².

Mental causation is dualistic only if made metaphysically ancillary to SD, as it is in Cartesian dualism, but then again nothing forces us to do this, and we already know the problems of doing it. If we reject mental causation for epiphenomenalism, we give up what might be the best rationale available for MAD and against dualism. To paraphrase Princess Elisabeth (see Note 7), I find it easier to concede mental causation than dualism.

Internalism about Mind

The outcome of the preceding sections is that mental causation, a defining ontological thesis of mentalism, far from being inherently dualistic, is inherently materialistic. This outcome refutes the radical behaviorists’ argument that mentalism is dualistic for propounding mental causation. In this section, I do the same with another reason radical behaviorists give to accuse mentalism of dualism: The thesis that mind is internal, or internalism about mind (internalism henceforth). My rationale will be the same as before: Internalism, too, is fundamentally incompatible with dualism, and very much for the same reason as mental causation.

¹² Perhaps Sperry (1980) meant to say that the identity theory excluded mind-brain and brain-mind causation, in which case he would be correct, as mind-brain identity excludes both causations because they imply self-causation, a dubious notion. But neither exclusion precludes mind-behavior qua brain-behavior causation.

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Radical behaviorists and others believe that internalism is inherently dualistic. Some of the quotations I included in the introduction provide textual evidence of this, but here are some more:

Radical behaviorism ... rejects the dualism between inner world and outer world (Baum, 2005, p. 31);

The radical behaviorists' denial of mental inner space and its contents is a rejection of a dualism ... The rejection of this fundamental inner-outer dualism is one of the features that makes radical behaviorism radical ... (Baum, 2011b, p. 186);

An assumption of the autonomous, initiating power of internal factors is certainly a legacy of dualism, if not dualism itself (Moore, 2009, p. 23);

An even more common practice is to explain behavior in terms of an inner agent which lacks physical dimensions and is called "mental" or "psychic" (Skinner, 1953, p. 29).

Such assertions are often based on certain passages from Descartes: "... a given motion in the brain must always produce the same sensation in the mind" (1641, trans. 2013, p. 123); "...the human soul ... has ... its principal seat in the brain" (1644, trans. 1988, p. 200, §189); "*The soul has sensory awareness only insofar as it is in the brain*" (ibid., p. 204, §196).

Rockwell (2005) has tapped on these assertions to call the identity theory "Cartesian materialism:"

I refer to the mind-brain identity theory with the more abusive epithet "Cartesian dualism," because when Descartes formulated the mind-body distinction, he also emphasized that "The soul feels those things that affect the body ... only in so far as it is in the brain" ... He thus emphasized and defended the brain-body distinction as an essential corollary of the mind-body distinction. Modern physicalists have kept the brain-body distinction even though they have thrown away the mind-body distinction, and are thus left with a philosophy of mind that is still in many ways fundamentally Cartesian: Descartes said the soul was *in* the brain, and identity theorists say the soul *is* the brain. Descartes' basic concept of mind is not really changed, it is simply demoted to being a concept referring to a particular kind of physical thing (p. xi).

A problem with this rationale is immediately apparent: If the brain-body distinction is an "essential corollary of the mind-body distinction," as the author claims, how could the former be kept without the latter? Something is amiss here: Either modern physicalists are incoherent for keeping the brain-body distinction without the mind-body distinction or the brain-body distinction is not really an "essential corollary" of the mind-body distinction.

Some add abuse to abuse by using the label "Cartesian materialism" to also reject neuroscience as dualistic¹³: "A rather surprising outcome of current

¹³ As evidenced in Sperry's (1980) quotations in the introduction, cognitive neuroscientists do not necessarily embrace the identity theory. In fact, I would say very few, if any, do. Hence, one must be careful not to equate the two. Accusations of

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neuroscience is the reappearance of dualism disguised either as emergence or as the existence of multiple levels of reality. ... Teed Rockwell nicknamed this dualism in disguise “Cartesian materialism” (Manzotti & Moderato, 2010, p. 19; see also Manzotti & Moderato, 2013). Surprising indeed, but deeply mistaken.

Let me begin to explain by admitting the obvious: The identity theory implies internalism about the mind¹⁴. Again, on this theory all mental events are brain events. But normally all brain events are internal to the animal that participates in them. There is nothing mysterious about such internality. The brain is officially regarded in anatomy as an *internal* organ. The implication of this elementary anatomical (not philosophical) concept is that all brain functioning is internal, including that which identity theorists hypothesize as mental (e.g., pain as C-fiber firing, visual phenomenal consciousness as MT/V5 activations, beliefs as prefrontal cortex activity, etc.).

But does this mean the identity theory is dualistic or, worse, that brain events are nonphysical? Of course not, because the internal character of mind, just like mental causation, is fundamentally incompatible with dualism, and very much for the same reason: If internality requires extension (i.e., means to occupy a spatial sub-region of something else that also occupies space) and mind is unextended, mind cannot be coherently said to be internal to anything. We can coherently say that the water is inside the glass, the books are inside the box, and my C-fibers and MT/V5 complex are inside my skull precisely because all have spatial extension and hence are physical. But in dualism, mind is nonphysical because it lacks spatiality.

Internalism, then, just like mental causation, does not combine well with dualism, as the nonphysicality of minds precludes their internality. It thus seems unwise to take too seriously Descartes’ assertions about mind as internal.

dualism against cognitive neuroscience (e.g., Bennett & Hacker, 2003; Gibson, 1986, p. 225; Manzotti & Moderato, 2010, 2013; Uttal, 2004), then, do not necessarily generalize to the identity theory. Of course, this does not mean they are true. The cognitive neuroscientists’ metaphysics of mind is not sufficiently explicit to warrant unequivocal accusations of dualism. Such accusations are interpretive at best and thus debatable. For example, Gibson (1986) said this: “Neurophysiologists, most of them, are still under the influence of dualism, however much they deny philosophizing” (p. 225). But it is precisely because they deny philosophizing that it is unwise to conclude so confidently that they are dualists.

¹⁴ Manzotti and Moderato (2013) claim that this is a confusion, but it is not. They define physicalism too broadly: “... physicalism is the thesis that whatever the mind is it has to correspond to a physical phenomenon. However, this thesis does not entail in any way that the mind has to be *internal to the CNS*” (p. 84). Indeed, but only in *nonreductive* physicalism, where mind is physical but need not be brain functioning. Obviously, a mind that is realized in a physical system other than a brain (e.g., a silicon circuit) cannot be internal to a CNS (although such a mind would still be internal to the particular physical system that realizes it; more on this form of physicalism later). But in reductive physicalism and the identity theory (the two should not be confused: see Polger, 2004, p. xxi), any mind (normally) is internal to a CNS insofar as mind is brain functioning and all brain functioning is part of a CNS.

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They are likely to have been slips of the pen, more than rigorous, demonstrative statements. At least, internalism is nowhere to be found in the Real Distinction Argument for SD (similar considerations apply to the zombie argument for PD, but see Clark & Chalmers, 1998).

Even if internalism could be coherently construed dualistically (a big “if”), this would not mean it cannot possibly be construed nondualistically. The fact that something can be done dualistically does not necessarily mean it cannot be done nondualistically. Even if dualism were shown to imply internalism (another big “if”), to infer the converse would be fallacious.

The incompatibility of internalism with SD is consistent with Rockwell’s (2005) perplexity in an endnote to Descartes’ quotation: “It seems strange that Descartes would say this, because he has also asserted that the mind is without spatial properties. But Descartes’ thinking was somewhat muddled on this issue” (p. 209). Indeed, not just “somewhat muddled,” but incoherent. But this is why we should not take such assertions from Descartes too seriously and use them as a foundation to reject the identity theory, as Rockwell does. To use such incoherent assertions in a critique can only breed more incoherence.

An Invalid Redefinition

The incoherence of viewing mind as nonphysical and internal is too obvious to be denied. In particular, it would be absurd to view brain properties and events as nonphysical for internal. I thus doubt that anyone really holds such an absurd view, despite appearances to the contrary. So, exactly what do they hold?

The answer, I think, is found in Sperry’s (1980, p. 195) point that accusations of dualism against neuroscience rely on a redefinition of dualism that significantly departs from the standard definition in philosophy of mind. Such redefinition is quite explicit in Rockwell’s (2005) rejection of the identity theory in his passage above. I agree with Sperry that there is no reason for such a redefinition, other than crying “dualism.” But in the case of Rockwell, it is more than just a redefinition: It is a deep distortion of Cartesian dualism.

To begin to see why, notice that “Cartesian materialism” does not refer to SD. Otherwise, it would be an oxymoron. Rather, the expression refers to aspects of Cartesian dualism *other than* SD (e.g., the idea that mental events have specific brain locations). Here is Dennett’s (1991) definition, who coined the expression: “Let’s call the idea of such a centered locus in the brain *Cartesian materialism*, since it’s the view you arrive at when you discard Descartes’s dualism but fail to discard the imagery of a central (*but material*) Theatre” (p. 107, emphasis mine). And here is Rockwell’s (2005) definition: “I refer to the mind-brain identity theory with the more abusive epithet “Cartesian materialism,” because ... Descartes’ basic concept of mind ... is simply demoted to a particular kind of *physical* thing” (p. xi, emphasis mine).

On both definitions, Cartesian materialism is, well, materialistic and hence antidualistic. If “Cartesian materialism” really meant “Cartesian dualism,” it would be superfluous to rename a doctrine that already has a good name. The only valid reason to do this is to focus on an aspect of Cartesian dualism other than SD, which is fine. But Rockwell (2005), unlike Dennett (1991), goes further and claims that Cartesian dualism is *essentially* the brain-

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body distinction. Rockwell (2005) thus redefines Cartesian dualism as Cartesian materialism, in terms of the brain-body distinction¹⁵.

The brain-body distinction.

The invalidity of this redefinition is exposed by clarifying that Descartes used the brain-body distinction only in his speculations about how mind and body relate, as part of his CIT_D . What I said in the first section about the logical relation between SD and CIT_D in Cartesian dualism bears repeating here: SD neither hinges on, nor does it entail, CIT_D . So much so that SD can be coherently maintained without CIT_D , as it is in non-interactionist forms of SD.

The Real Distinction Argument for SD only demonstrates the mind-body, not the brain-body distinction. Obviously, the two distinctions are not equivalent, for mind is as distinct from brain as it is from body. At best, the argument implies a mind-brain distinction, insofar as brain is bodily. The brain-body distinction, then, is not an “essential corollary” of SD, as the distinction is part of CIT_D and CIT_D is not an “essential corollary” of SD (by “corollary” I guess Rockwell means the standard sense of the term: Logical consequence or implication; I do not know what he means by “essential”).

It is not obvious that the distinction is even entailed by CIT_D , but to show why I need to wax logical for a moment (the logically uninclined can just skip this part). Let the premise, CIT_D , be “a mind causally interacts with a body in a brain,” symbolized in first-order predicate logic as $\exists x\exists y\exists z(Ixyz)$, where I denotes the triadic predicate “... causally interacts with ... in ...” This expression reads as follows: “There is at least one (\exists) particular mind (x), one particular body (y), and one particular brain (z) such that x causally interacts with y in z .” The conclusion to be deduced from this premise is “body is different from brain,” or $\exists y\exists z(y \neq z)$, which reads as “there is at least one particular body (y) and one particular brain (z) such that y is different from z ”¹⁶.

I entered premise and conclusion into the symbolic logic proof tree (semantic tableaux) generator ProofTools (Laird & Kirkegaard, 2014). After a

¹⁵ Bennett and Hacker (2003), too, redefine Cartesian dualism as something other than SD, in their case, “the mereological fallacy.” Like Rockwell (2005), they rename the result of their reformulation, albeit differently, as “crypto-Cartesianism.” But this redefinition too bears little relation to SD, because the mereological fallacy cannot possibly be committed with SD (see Burgos & Donahoe, 2006, pp. 77–80), for the same reason: Mind as nonphysical cannot be a spatial part of a brain. Nor can mind as immortal be a temporal part a brain either (the brain dies, the mind goes on). On the two standard notions of parthood, then, the fallacy is logically incompatible with SD. Therefore, crypto-Cartesianism has little to do with Cartesian dualism, other than the term “Cartesian.”

¹⁶ I formalized both as existential (rather than universal) statements based on what I said in Note 5, which I generalize to CIT_D . I thus assume that Descartes’ speculations about mind-body causal interaction, like SD, referred to *his* own mind and body in particular.

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48-line proof, the result was “Invalid argument.” According to this generator, then, the distinction is not even a corollary of CIT_D. The generator is in beta testing, so I leave this outcome open to verification through other means. But even if the generator is wrong and CIT_D indeed is demonstrated to entail the brain-body distinction, what would be the problem? The only problem would be that the distinction conversely implied CIT_D, which does not. To claim otherwise would be to commit the fallacy of the converse.

Two further points speak against redefining Cartesian dualism as Cartesian materialism. One, Rockwell (2005) is influenced by this passage from Dewey (1916): “... the older dualism of soul and body has been replaced by that of the brain and the rest of the body” (p. 336). In this passage, however, Dewey equivocated on the term “dualism,” using it as a weasel word to refer to two very different, in fact opposing theses: A physical-nonphysical partition (soul-body), and a physical distinction (brain-body)¹⁷. To be driven by such fallacious reasoning can only beget more of the same.

Two, Descartes could not have believed that being in the brain was essential to (a principal attribute of) mind because otherwise the mind would die with the brain and, hence, be mortal, which defies the whole purpose of SD, to ensure a mental afterlife. Descartes’ quotation in Rockwell’s passage only implies that the brain is necessary for the soul to *feel*, not to exist. The brain’s death, then, only means that the soul will stop feeling, not that it will cease to exist. The Cartesian soul continues to exist without feeling after the brain’s death, which means that feeling is inessential to the soul. What is essential to the soul in Cartesian dualism is being unextended, nonphysical, immaterial *thought*, not feeling. Being in the brain is inessential to the mind in Cartesian dualism, and so is the brain-body distinction.

In the identity theory, in sharp contrast, being in the brain is essential to the mind, because the mind is part of the brain’s functioning and, hence, dies with the brain. In Cartesian dualism, the mind does not die with the brain. The two conceptions could not be ontologically more different. Contrary to what Rockwell (2005) claims, Descartes’ basic concept of the mind is radically changed in the identity theory.

There also is a historical reason against redefining Cartesian dualism as Cartesian materialism in terms of the brain-body distinction: This distinction is part of an ancient scientific tradition that was well in place well before Descartes and the mind-brain identity theory. Descartes most certainly did not invent the distinction. He did not even discover the pineal gland. Its discovery, first anatomical descriptions, and speculations about its function date back at least to the works of Galen ca. 170 AD (see Martensen, 2004, pp. 58-63).

¹⁷ Here is another example: “... the older dualism of body and soul finds a distinct echo in the current dualism of stimulus and response” (Dewey, 1896, pp. 357–358). But clearly this too is an equivocation on “dualism” (I wonder what corresponds to the soul here, stimulus or response?). The stimulus-response distinction does not propound a physical-nonphysical partition, any more than the brain-body distinction. Underlying this kind of fallacy, I think, is the use of “dualism” interchangeably with “duality” (some quotations in the introduction use the latter; see also Bunge, 1980, p. 27; Uttal, 2004, p. 292). Such use makes it all too easy to dupe ourselves into thinking of all dualities as dualistic, which only results in confusion. Dualism propounds a duality, but this does not mean that all dualities are dualistic.

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Descartes just drew from this tradition (and deeply misunderstood it; see Lockhorst, 2013).

Historically, then, it is entirely unwarranted to depict the brain-body distinction as inherently dualistic or even Cartesian. Such depiction is as absurd as depicting dynamic systems theory as inherently Freudian because Freudians use the term “dynamic” in their theory. Cartesians do not own the rights on the brain-body distinction, any more than Freudians do on dynamic systems. Nor does Descartes’ incoherent use imply that the distinction is irremediably incoherent and thus unusable. The brain-body distinction is no more inherently dualistic or even Cartesian than the liver-body, heart-body, or stomach-body distinctions.

The identity theory too draws from this tradition, but far more coherently and knowledgably, by identifying mind with brain functioning as presently known in science. This identification changes nothing in how, according to current science, the brain differs from the rest of the body, and different parts of the brain differ from one another. The differences (and similarities) are purely anatomical and physiological. Also, far more is known today about them than in Descartes’ time. His thesis that the pineal gland is the part of the brain where mind interacts most directly with body is nowhere to be found in present cognitive neuroscience. Nor is his notion of mind as nonphysical substance. The anatomical and physiological differences (and similarities) between the MT/V5 complex, for example, and any other part of the brain or body remains exactly the same after identifying its functioning with visual consciousness. The same applies to pain qua C-fiber firing. The neuroscience and physical nature of vision and pain do not change in the least with the identity theory.

In the identity theory, mind qua brain functioning is not fundamentally different from digestion qua the functioning of a stomach, blood-pumping qua the functioning of a heart, respiration qua the functioning of lungs, and so on. Of course, there are differences among these functions, but they are exactly as described in science, purely anatomical and physiological (the latter, of course, include environmental influences), and, hence, physical.

In case the above is not enough, here is yet another reason against redefining Cartesian dualism as Cartesian materialism: It backfires. The brain-body distinction refers only to physical entities, so it makes no physical-nonphysical partition. However, this partition is the best reason to reject dualism. Dispensing with the partition in our definition of dualism only weakens its rejection. Again, the partition was precisely what motivated the Elisabeth-Gassendi objection to Cartesian dualism. Redefining Cartesian dualism in other terms makes the partition irrelevant, which precludes the criticism. The standard rejection of Cartesian dualism is possible only because it is defined by SD.

Private Language

Some radical behaviorists have also targeted the notion of private language as part of their rejection of internalism as inherently dualistic. For

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example, Moore (e.g., 1995b) discusses it in his construal of epistemological dualism as propounding a physical-nonphysical partition (see Note 4):

Epistemological dualists ... end up assuming that humans ... possess ... a “private language”... it is hard to imagine anything more nonmaterialistic than an appeal to a “private language.” Indeed, Wittgenstein, among others, has found this appeal ... a prime indicator of dualism... (p. 67).

I have two concerns about this passage. One, the idea that Wittgenstein (1953) meant his private-language argument to reject Cartesian dualism is very debatable. To begin with, the terms “dualism,” “dualistic,” and “dualist” do not appear anywhere in Wittgenstein’s book. Nor do “Descartes” or “Cartesian.” So, if he viewed the notion of private language as dualistic, he did not say it in so many words. An inspection of the relevant literature reveals quite a different interpretation. Here is one from Baker (2004), who imputes no anti-dualistic designs to Wittgenstein’s argument:

The private language argument differs in several respects from the model of a *reduction ad absurdum* of Cartesian dualism. Wittgenstein offered no criticisms whatsoever of the idea that there is a kind of inner perception (introspection) which gives us knowledge of our own sensations. ... Moreover, he does not criticize the idea that the mind and human behavior are linked together according to a causal model; he does not reject that ‘paramechanical hypothesis’, which undoubtedly constitutes one of the principal defects of Cartesian dualism. Nor does he advise us to discard the idea of the mind as something inner and hidden. According to him, this image is far from being worthless (p. 112);

The interlocutor is not a philosopher who comes out with doctrines borrowed from Descartes, much less does he obstinately defend Cartesian dualism against accusations which Wittgenstein addresses to him (p. 113);

Wittgenstein was not acquainted with the works of Descartes, and, besides, he does not think that the confusions of today’s philosophers arose from the sins committed by the great philosophers of yesterday. ... There are then powerful reasons to conclude that Wittgenstein is not engaged in a battle against a more or less definite ‘Cartesian’ adversary (p. 117).

Which interpretation is correct? My own reading of Wittgenstein coincides with Baker’s interpretation, but we cannot know for sure. It thus is unwise to conclude too confidently that Wittgenstein meant his private language argument to reject Cartesian dualism.

My other concern is that Moore does not explain exactly what makes private language nonmaterial. Is it the private aspect or the language aspect? If it is the private aspect, exactly why is it nonmaterial? If the privacy of private language is given by its internality, I have already argued that internality excludes nonphysicality.

Perhaps the alleged immateriality of private language is given by the language aspect, but this seems even less plausible. Overt language, whether spoken, written, or signed, is anything but nonphysical, so this cannot be what makes language nonmaterial. The only possibility is that private language is nonphysical because it is internal, but this only returns us to internality. So, if it

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is neither the privacy nor the linguistic character of private language what makes it nonphysical, what is it? No obvious answer presents itself.

All in all, then, it is far from clear exactly what makes private language as nonmaterial as Moore claims. My attempts to explain what he means hit seemingly insurmountable snags and inevitably lead to the conclusion that private language is material. This outcome weakens Moore's argument against epistemological "dualism." Of course, I am not advocating epistemological "dualism" here. Epistemological "dualism" can be rejected for a number of reasons. I am only saying that dualism is not one of them, unless the term "dualism" is used in a way other than its standard meaning in philosophy of mind.

Reprise

In sum, internalism, just like mental causation, cannot possibly commit us to dualism. This result echoes Place's (1956) assertion that "an acceptance of inner processes does not entail dualism" (p. 44), and the following warning from a defense of internalism:

Don't be alarmed. I'm not pushing dualism. Qualia empiricism, as developed here, is a physicalist theory. The internal conditions that constitute my qualia, sensations, and thoughts are physical conditions inside my skin. Indeed, I will presume ... that only physicalist accounts are plausible contenders. I will presume that the same basic physical resources that make up the vast universe of insentient stars and galaxies make up my measly experiences and thoughts (Mendola, 2008, pp. 5–6).

If my argument is correct, however, such warnings and Sperry's (1980) effort to separate mentalism from dualism are unnecessary. If internalism is a defining ontological element of mentalism, then mentalism is fundamentally inconsistent with dualism, in particular with the nonphysical nature of mind. Far from committing us to dualism, mentalism commits us to materialism (although not necessarily the identity theory, as I clarify later).

Because internalism implies that mind is material, it could be used to build a different kind of argument for materialism (e.g., everything internal is material; mind is internal; therefore, mind is material). However, I prefer an argument based on mental causation, like the one I built above, for two reasons. One, the negation of internalism, unlike the negation of mental causation, does not necessarily make for a more difficult case against dualism. Such negation, externalism (e.g., Clark & Chalmers, 1998; McCulloch, 2003; Rowlands, 2014), too, implies materialism. Two, internality is not as widespread a notion throughout science as causation. Hence, an argument based on internalism seems less easily relatable to science at large than an argument based on mental causation. An argument based on mental causation makes it easier to place mind in a general scientific framework than an argument based on the internality or externality of mind.

Mind as Subjective and Nonbehavioral

I have refuted two ontological reasons radical behaviorists give to accuse mentalism of dualism: Mental causation and internalism. Both are fundamentally incompatible with dualism, unless dualism is disfigured beyond recognition. Thus, neither one defines, entails, or is entailed by dualism. Nor is dualism a form of mentalism. Mentalism is a form of materialism and, hence, antidualism.

In this section, I refute the other two ontological reasons radical behaviorists give to view mentalism as dualistic, namely, the theses that mind is subjective and nonbehavioral in nature. Here is textual evidence that radical behaviorists identify traditional versions of both theses with dualism:

... radical behaviorism makes no distinction between subjective and objective phenomena in the traditional sense. It avoids all forms of dualism that would introduce unsolvable mysteries (Baum, 2005, p. 36);

For radical behaviorism, then, dichotomies between subjective and objective, knower and known, or observer and agent imply at most unique access to a part of the world, rather than dichotomous ontologies (Moore, 1995a, p. 37);

Talk of a mental or subjective dimension with causal phenomena that differ from the causal phenomena of a physical dimension ... is a legacy of traditional assumptions about the causes of behavior that are cherished for extraneous and irrelevant reasons (Moore, 2001a, p. 222);

Mentalistic verbal behavior is not of concern to radical behaviorists simply because it purports to refer to subjective, mentalistic entities from another dimension. ... There is no such other dimension, and there are no such entities (Moore, 2008; p. 326).

Unlike mental causation and internalism, viewing mind as subjective and nonbehavioral are compatible with, perhaps even implied by, dualism. Therefore, neither inevitably commits us to materialism, as mental causation and internalism do. Despite this, my refutations will not be any less valid, and in fact will appeal to some arguments I have given in the preceding sections. Let me begin with subjectivity.

There are several traditional senses of “subjective.” Here I focus on the ontological sense most commonly found in philosophy of mind, usually in relation to conscious states, although it also applies to intentional states. In this sense of the term, mental states are subjective in that they exist insofar as some particular animal (a “subject,” whether or not human) experiences, undergoes, or has them. Mental states are thus viewed as having a “first-person” nature. Searle (2007) has put it thus:

... every conscious state is subjective in the sense that it only exists as experienced by a human or animal subject. For this reason consciousness has what I call a “first-person ontology.” It only exists as experienced by some “I”, some human or animal subject (p. 170).

In short, to be a mental state is to be experienced by some particular subject. More technically, mental states *depend ontologically* on (could not

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exist without) some particular subject. Here is one argument against viewing subjectivity thus conceived as inherently nonphysical. Assume, for the sake of argument, that dualism nontrivially implies such dependence, as follows: If mind is nonphysical, then mind is subjective. Fair enough, but this does not mean that if mind is subjective then it is nonphysical. To argue otherwise would be to commit the fallacy of the converse.

The same applies to the thesis of mind as nonbehavioral. If mind is nonphysical, then it is nonbehavioral (insofar as behavior is physical). Dualism thus implies that mind is nonbehavioral in nature. However, this does not conversely imply that mind is nonphysical. To argue otherwise would also be to commit the fallacy of the converse. Moreover, all behavioral properties and events (which involve whole organisms and their environments) are physical, but not vice versa. Brain properties, events, states, and processes are nonbehavioral but physical. For example, in the identity theory, my headache right now at home is the firing of my C fibers right now at home. My headache thus construed is subjective: It exists only as experienced by me here and now. It also is nonbehavioral, for neural. However, it is physical.

This example also brings back an argument I gave before against viewing the subjective and nonbehavioral character of mind as inherently nonphysical: The fact that both can be construed dualistically does not necessarily mean they cannot possibly be construed nondualistically. Again, doing something in a certain way does not necessarily mean it cannot be done differently. As the example above illustrates, mind as subjective and nonbehavioral in nature can be construed nondualistically with the identity theory.

The subjectivity of mental states, then, even if ontologically construed as nonbehavioral in nature, does not necessarily mean they are nonphysical: A mental state can be subjective (in the present ontological sense of the term), nonbehavioral, and physical. There is no contradiction here. Admittedly, this implies a distinction between “behavior and something else” (Chiesa, 1994, p. 201), but that “something else” (a rather ambiguous expression) is not a nonphysical entity but a sort of brain functioning and, hence, physical. No physical-nonphysical partition is postulated here.

Obviously, if “dualism” is redefined as a distinction between “behavior and something else” regardless of whether this “something else” is physical or not, the identity theory can be labeled as “dualistic.” But then again, there is no reason to do this other than being able to use this label. Besides, nothing stops us from redefining “dualism” in any other way we please. For example, that “something else” could be the environment. On this redefinition, the environment-behavior distinction becomes dualistic. Why would this redefinition of “dualism” be any less legitimate than others? Such is the intellectual poverty of redefinitions: They are too easy, convenient, and arbitrary.

I have thus refuted the last two ontological elements radical behaviorists use to view mentalism as dualistic, namely, construing mind as subjective and nonbehavioral. My main argument was that neither element could be validly taken to conversely imply dualism, if dualism implies them, and both can be construed in a purely materialistic way with the mind-brain identity theory.

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Cognitive Psychology

To finish, I will also argue that a paradigmatic example of mentalism at work in psychological research, cognitive psychology, cannot be dualistic either. The following quotations provide textual evidence of accusations of dualism against cognitive psychology in RB (cf., Leigland, 2009, p. 248):

The writings of René Descartes (1596-1650) were influential in establishing dualism in psychology (Baum, 2005, p. 43);

The radical behaviorists' denial of a mental inner space and its contents is a rejection of dualism that is fundamental to modern, common-sense folk psychology (Baum, 2011b, p. 186)¹⁸;

Descartes' mind/body dualism continues to inform much of contemporary psychology, but not Skinnerian psychology (Chiesa, 1994, p. 17);

Contemporary psychology remains grounded in a dualistic view of the person... (ibid., p. 172);

... the Cartesian assumption of two parallel systems, mind and body, continues to be overtly expressed in some areas of psychological theory and remains a background assumption in others (Chiesa, 1998, p. 356);

The famous French philosopher René Descartes (1596–1650) held that we are just supposed to know the features of our own internal lives so perfectly well that we could not possibly be mistaken about them: *Cogito, ergo sum* (“I think, therefore I am”). ... This dualistic position is well-established in Western culture, and it is the view upon which much of cognitive psychology is predicated, despite its frequent denial of dualism (Moore, 2010, p. 707);

The dualism of Descartes' psychology is the feature that is essential to our understanding of the history of psychology (Rachlin, 1970, p. 7).

These quotations echo this assessment from Watson (1924): “All psychology except behaviorism is dualistic. That is to say, we have mind (soul) and body. This dogma has been present in human psychology from earliest antiquity” (p. 4). Radical behaviorists are not alone in these accusations. Kantor (1978) said this: “Cognitive psychology is definitely a continuation of the spiritistic way of thinking developed by the Church Fathers as early as the 2nd century B.C. The evidence of this continuity is well symbolized by the antiscientific writings of St. Augustine” (p. 329). Bunge (2010) claimed this: “Standard cognitive psychology is dualist” (p. 135). Uttal (2004) dedicated a whole book to the same claim: “dualism... pervades... thinking about the nature of cognitive processes” (p. 4).

¹⁸ From what I argued before, talk of “inner space” in this quotation is inconsistent with talk of “dualism.”

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Contrary to these claims, if cognitive psychology is mentalistic, then, as I have argued, it is not (regarding mental causation and internalism, it cannot be) dualistic. However, I illustrated this with the mind-brain identity theory, which cognitive psychologists repudiate. Does this make them dualists? Not necessarily. There is another way to flesh MAD out, namely, *functionalism* in the philosophy of mind. I will argue that functionalism is as materialistic as the identity theory and RB (albeit for different reasons) and provides a more plausible philosophical interpretation of cognitive psychology than dualism.

The Kantian Connection

The following quotations provide a starting point for such interpretation:

Kant has virtually been adopted as an intellectual godfather by cognitive science (Brook, 1994; p. 12);

The ideas of ... Kant ... are of great importance for the future development of psychology (Farrell, 2014, p. 124);

Kant has had a considerable influence on psychology ... Kant's most direct influences on modern psychology are seen in Gestalt psychology ... and cognitive psychology (Hergenhahn & Henley, 2014, p. 184);

Kant's influence in psychology has been far greater than is generally recognized (Robinson, 1995, p. 225);

In the eighteenth century, German philosopher Immanuel Kant (1724–1804) dialectically synthesized the views of Descartes and Locke, arguing that both rationalism and empiricism have their place. ... Most psychologists today accept Kant's synthesis (Sternberg & Sternberg, 2012, p. 7).

On these assessments, cognitive psychologists are more influenced by Kantianism than by dualism. Still, if Kantianism synthesizes the views of Descartes and Locke, as the last quotation asserts, perhaps dualism is part of this synthesis. Not quite, though.

To be sure, Kant's (1724/1787) philosophy is notoriously difficult, some would say muddled and obscure, so there is disagreement over how to interpret it. Still, there are good reasons to believe he was not a dualist. As is well known, he called his philosophy "transcendental idealism" and proposed it to explain how synthetic a priori knowledge (truths that are neither conceptual nor empirical) was possible.

His core thesis was that we cannot know how things in themselves, or "noumena," as they really are. We can only know "phenomena," which result from interactions between noumena and innate organizing categories (e.g., plurality, negation, causality, etc.), on the other. Noumena lack spatiality, temporality, causality, plurality, singularity (talk of "noumena" and the singular "noumenon," then, is not strictly correct), and so on. This thesis opposed what Kant (1724/1787) called "the *problematic* idealism of Descartes" (p. 244).

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Indeed, SD proposes that thinking substance is really unextended in itself. In PD, mental properties are really physical in themselves. In short, both construe the mental realistically or *noumenally*. Contrary to this, transcendental idealism propounds that nothing is unextended *in itself*: Noumena are not unextended. Dualism is thus meaningless to Kant, insofar as it purports how things really are in themselves: "...were I to enquire whether the soul in itself is of spiritual nature, the question would have no meaning" (Kant, 1929/1787, p. 558). Transcendental idealism thus entails antidualism, insofar as dualism treats things (corporeal and thinking alike) noumenally, purporting that they are material or immaterial in themselves. Kant could thus not have been a dualist, at least a Cartesian dualist.

For the same reason, Kant was also antimaterialist, as materialism also treats mind noumenally, as being really material in itself. He thus was antidualist and antimaterialist about the mind:

... if materialism is disqualified from explaining my existence, spiritualism is equally incapable of doing so; and the conclusion is that in no way whatsoever can we know anything of the constitution of the soul, so far as the possibility of its separate existence is concerned (ibid., p. 376).

This conclusion is consistent with two contemporary works on Kant's theory of mind:

In Kant's view, the soul in life has spatiality, but one which is unessential, derivative, and virtual ... This position is undeveloped but it does point to a provocative and consistent alternative to familiar options, in particular to the mind-brain identity theory and traditional dualism (Ameriks, 1982, p. 108);

... so far as the real nature of the mind is concerned, strict ontological neutrality has to be the order of the day, not just about the world as it is and other minds as they are but also about our own mind as it is ... materialism has just as good a chance of being true of the mind-as-it-is and representations-as-they-are as any other theory – dualism (standard, not transcendental) idealism, or whatever (Brook, 1994, p. 16).

In sum, Kant was antidualist and antimaterialist for the same reason: Antirealism (indeed, idealism). If he influenced cognitive psychology, cognitive psychologists should be ontologically neutral about the real nature of the mind. Thus, they should be neither dualists nor materialists, if dualism and materialism are theses about the mind as it really is in itself. The implication is that cognitive psychology cannot tell us what or how the mind really is in itself. At best, as Kant himself put it, psychology can only be "transcendental" (see Kant, 1929/1787, pp. 331–367).

However, cognitive psychologists do not go that far. They seem to assume that cognitive psychology can provide us with knowledge about the mind as it really is in itself. The Kantian connection has thus been redirected to a different, more explicitly materialistic philosophy of mind. This philosophy still has a strong Kantian flavor, but is more consistent with that assumption.

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Functionalism

Some philosophers suggest that Kant anticipated functionalism. Sellars (1970) said that “Kant’s revolutionary move was to see the categories as concepts of functional roles in mental activity” (p. 11). Also, Kitcher (1990) claimed that “Kant suggests an account of the representational content of judgments that is like that defended by contemporary functionalists” (p. 111). Likewise, according to Meerbote (1991), “Kant adopts a functionalist (and teleological) psychological account of the cognitive mental life of persons” (p. 162). Brook (1994) agrees: “Kant was a functionalist *avant le mot*” (p. 13). On these assessments, it is Kant’s idea that the mental is *functionally* defined, more than the unknowability of real nature of the mental, which has been most influential in present cognitivism.

This suggestion is consistent with viewing functionalism as the closest philosophical ally of cognitive psychology:

Functionalism in philosophy of mind holds that mental states and processes are functions that can be identified by their causal role, that is, by the way they cause behaviour, react to input and interact with other mental states ... Functionalism provided the appropriate philosophy for cognitive psychology (Bem & de Jong, 2006, p. 158);

Functionalism was a movement in philosophy of mind that began in the 1960s in close association with the earliest stirrings of cognitive science (e.g., Putnam, 1960). Its main idea is that a given mental states can be defined in terms of causal relations that exist among that mental state, environmental conditions (inputs, organismic behaviors (outputs), and other mental states (Palmer, 1999, p. 623);

To many, the growth of cognitive psychology in the 1970s and the so-called cognitive sciences in the 1980s appeared to offer boundless support for functionalism. These empirical sciences reversed the behaviorist trend and studied mental states as causally efficacious internal states (Polger, 2004, p. 158);

The view probably most responsible for renewed interest in cognitive studies is Functionalism, which holds that mental states, roles, or properties are identical with functional states, roles, or properties. This ontologically neutral alternative to (type-type) physicalist Identity Theory opens the door for multiple realizability of cognitive processes and thus for the minds and machines analogy in general (Smith, 1991, p. xiii);

The dominant theory of mind in current cognitive psychology is *functionalism* ... In this view, mental states are defined in terms of causal relations to environmental stimuli, other mental states and behavioural responses (Valentine, 1992, p. 32).

These quotations summarize the two core theses of functionalism. One, like the identity theory, functionalism is an ontological thesis about mental properties, but conceived differently. Mental properties in functionalism are defined by their function as internal causal mediators of certain inputs-output

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relations. Two, mental properties thus conceived can be possessed by multiple kinds of physical systems that include but are not restricted to brains. Brains physically realize mental properties. But contrary to identity theorists, functionalists propound that brains are not the *only* possible physical realizations of mental properties. The same mental properties that are physically realized by brains can *in principle* also be realized by physical systems other than brains, even inorganic systems like silicon circuits (literally, not metaphorically).

Although functionalism arose as an alternative to the identity theory and behaviorism, it is ontologically as materialistic as both. Functionalism, like the identity theory and PD, views all substances as material: Functionalism postulates no nonphysical substances. This feature makes functionalism as ontologically incompatible with SD as are the identity theory and PD. Also like these two philosophies, functionalism construes mental particulars as events: No mental substances are postulated (Premise 1 of my argument for MAD). However, in contrast to PD and like the identity theory, functionalism construes all mental events as physical.

Like the identity theory, functionalism admits mental causation, and even more explicitly so. PD departs ontologically from both in this regard: Again, the zombie argument for the nonphysical character of mental properties in PD suggests an incompatibility with mental causation. Functionalism, then, is incompatible with PD as well. Thus far, functionalism cannot be said to be dualistic, as it postulates mental causation, which is incompatible with both SD and PD.

However, functionalism departs ontologically from PD and the identity theory in one key respect: PD and the identity theory view mental properties as *first-order* properties (i.e., directly possessed by and predicated of particular mental events), albeit, again, they are nonphysical in PD and physical in the identity theory. In functionalism, in contrast, mental properties qua causal roles are *second-order* properties, that is, properties of properties.

For example, C-fiber firing is a first-order property of certain particular brain events. In the identity theory, this property is the mental property of being in pain. According to functionalists, this property has the second-order property of causally and internally mediating certain input-output relations. It is the latter which is the mental property of being a pain in functionalism. This property can be literally possessed, at least in principle, by first-order physical properties other than C-fiber firing (e.g., silicon transistor current gain), which is why functionalists admit the logical possibility of realizations of mental properties by physical systems other than brains. Hence this key difference: Mentality is restricted to brain functioning in the identity theory, but not in functionalism, where physical systems other than brains too can have mentality. But such systems are as physical as brains.

In functionalism, all first-order properties that possess mental properties (qua causal roles qua higher-order properties) are physical. So, functionalism is materialistic with respect to substances, events, and first-order properties that possess mental properties. The key question thus becomes this: What is the nature of mental qua higher-order properties? Here is where functionalism is open to accusations of dualism. However, functionalists are clear on this: They

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see this question as unanswerable. They are thus ontologically neutral about the nature of mental properties qua higher-order properties.

Such neutrality is what Dennett (1969) means when he speaks of his “ontological blindness” (p. 22) and “ontological neutrality” (e.g., p. 90) about the mental. He, like other functionalists, sees the issue as too vexing to profitably invest on it. Identity theorists have no issue with this: They view mental properties as first-order brain properties. Nor do property dualists (e.g., Chalmers, 1996): They view mental properties as first-order nonphysical properties of physical events. Functionalists, in contrast, refuse to speculate about the nature of mental qua higher-order, functional properties¹⁹.

Unless mental properties qua higher-order properties are demonstrated to be uniquely nonphysical, functionalists cannot be accused of dualism. At best, they can only be accused of ontological neutralism. This ontological neutrality is another Kantian legacy. In functionalism, however, it is less extreme, as it is restricted to the nature of higher-order properties. Functionalists still view all substances, events, and their first-order properties, including those that possess mental properties, as physical in themselves. The only ontological commitment that functionalists have about mental qua higher-order properties is that they exist only as possessed by physical first-order properties (e.g., C-fiber firing), which, in turn, exist only as possessed by physical substances (e.g., C-fibers).

In sum, if functionalism is a more plausible philosophical interpretation of cognitive psychology than dualism, cognitive psychology is not dualistic. Quite the contrary: By propounding mental causation and internalism, cognitive psychology is inevitably materialistic. As mentalistic, cognitive psychology (and functionalism) also construes mind as subjective and nonbehavioral, but this does not necessarily make it dualistic. The mind-brain identity theory does the same, and it is materialistic.

Further Support

There are two more reasons against viewing cognitive psychology as dualistic, ironically from the first radical behaviorist. One is that Skinner sometimes downplayed the influence of dualism in contemporary psychology: “... dualism is no longer a challenging issue in American psychology” (1959, p. 247); “I agree that “the study of cognitive phenomena does not presuppose dualism,” but I insist it presupposes inner determination” (1988, p. 212-213); “What is wrong with cognitive science is not dualism but the internalization of initiating causes which lie in the environment and should remain there” (1988, p. 73).

The other ground is Skinner’s (1977, 1985) reasons for rejecting cognitive psychology and cognitive science. Dualism is nowhere to be found as a reason for such rejections in any of these papers. At the end of the second paper, for instance, Skinner accuses cognitive scientists of many things, all of them

¹⁹ This refusal has wider antecedents. The nature of higher-order properties in general (e.g., color, in contrast to particular colors such as red or blue) is one of the most perplexing issues in metaphysics.

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reasonable, but none of them is dualism. If he really thought they were dualists, it would have been much more direct, succinct, and effective to say “*I accuse cognitive scientists of dualism.*” But such accusation is nowhere in that paper.

Concluding Remarks

All radical behaviorists’ accusations of dualism against mentalism, then, are false, at least on the standard formulation of dualism in philosophy of mind as the ontological thesis that propounds a physical-nonphysical partition of reality, where mind is conceived as essentially nonphysical. Obviously, if dualism is redefined in terms other than this partition, any thesis can be painted as dualistic. In particular, if “dualism” is redefined in terms of the brain-body distinction, the identity theory can be labeled as “dualistic.” But then again, this would be too easy, convenient, and arbitrary. Besides, “dualism” can also be redefined to label as “dualistic” dualities such as stimulus-response (see Note 17), environment-behavior, operant-respondent, primary-secondary, discriminative-delta, intermittent-continuous, and contingent-noncontingent, which would make RB dualistic. Once we redefine “dualism,” anything goes.

By the same token, radical behaviorists’ accusations of dualism against contemporary philosophers of mind are equally unwarranted. For example, Rachlin (2014) sees “a back-door way of smuggling Cartesian dualism” (p. 72) in Noë’s (2009) refusal to view people as “mere automata” (p. 32). The “extra requirement” that Rachlin finds so suspicious is consciousness, which philosophical automata (like zombies) supposedly lack. But this does not necessarily mean consciousness is nonphysical. Consciousness can be viewed as a special kind of physical state or process that occurs only in certain physical systems (only certain brain systems in the identity theory, possibly other physical systems in functionalism). There is nothing dualistic about such a view.

Rachlin (2014) also claims that “Searle ... has not completely eliminated Cartesian dualism from his own philosophy” (p. 174), based on Searle’s acceptance of mind as causal, internal, subjective, and nonbehavioral. But then again, mental causation and mind as internal are incompatible with dualism. Mind as subjective and nonbehavioral are compatible with dualism but can also be construed materialistically with the identity theory and functionalism. Mind can thus be causal, internal, subjective, nonbehavioral, and physical (if internal and causal, mind *must* be physical). None of this commits us to dualism in any way, as traditionally defined in philosophy of mind.

Dualism thus defined has never been a real threat in academic philosophy of mind, as widespread as some (e.g., Bunge, 1980, p. 241) allege it to be in ordinary language (cf. Ryle, 1949). Antidualism has been the default position in academic philosophy of mind for a very long time now. As Passmore (1961) put it: “... the rejection of dualism is indeed one of the few points on which almost all the creative philosophers of modern times have agreed” (p. 38; cf. Rorty, 1979). Some spots of dualistic resistance remain (e.g., Foster, 1991; Hart, 1988; Lavazza & Robinson, 2014; Lowe, 2010), but they are far from dominant.

The real philosophical competitors of RB are the identity theory and functionalism, and more so the latter. Contrary to Moore’s (1999) claim, “the

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most common form of mentalism” (p. 48) is not dualism but functionalism. Dualism cannot possibly be a form of mentalism because the former is fundamentally inconsistent with two of the latter’s theses (mental causation and internalism about mind). The identity theory is much less popular among cognitive psychologists and cognitive neuroscientists. Popularity aside, both philosophies are as antidualistic as RB.

RB, then, does not have the monopoly on salvation from dualism: Antidualism gives no special advantage to any of the three philosophies. Baum (2011a) has claimed that “a strength of radical behaviorism is its denial of dualism” (p. 122). But this strength is not unique to RB: It also is a strength of the identity theory and functionalism. Before these philosophies, RB could get some purchase as an alternative to dualism. But once they became more developed and visible, antidualism no longer was dialectically effective as an argument for RB. If RB is the better philosophy, it is not because of antidualism.

The radical behaviorists’ accusations of dualism against mentalism only weaken RB’s antimentalism. RB’s antimentalism will thus be strengthened if radical behaviorists stop making these accusations, which does not mean to accept mentalism. Any of the theses of mentalism can in principle be rejected on grounds other than such accusations (e.g., lack of parsimony, clarity, precision, explanatory and heuristic value, evidential support, pragmatism, etc.).

However, I recommend radical behaviorists not to reject mentalism by rejecting mental causation. Mental causation, again, provides a very good ground for MAD and against dualism. Dualism becomes much harder to reject if mental causation is rejected in favor of epiphenomenalism (epiphenomenalism does not imply, but makes it harder to build a strong case against, dualism). Such rejection thus puts RB’s antidualism at a disadvantage with respect to the identity theory and functionalism, both of which avoid dualism far more easily by admitting mental causation.

I thus recommend radical behaviorists to embrace mental causation. Doing this does not necessarily mean to accept the identity theory or functionalism. Radical behaviorists could view mental causation in a radical-behavioristic way. After all, they do not reject causation per se, only causation conceived in a certain way, as functional relation. They could extend this view to mental causation. If identity theorists and functionalists view causation in general differently (not a big “if”), a radical behavioristic view of mental causation would separate RB from both, the identity theory and functionalism.

To ground their antimentalism, then, radical behaviorists are better off by rejecting other theses of mentalism (although, again, not for being dualistic or leading to dualism, because they are not and do not). Perhaps the best candidates are the theses of mind as internal and nonbehavioral, as radical behaviorists seem to unanimously reject both (some radical behaviorists, e.g., Moore, 1995b, admit subjectivity behaviorally construed).

A valid rejection of mentalism can be more effectively accomplished through a uniquely radical-behavioristic metaphysics of mind, where mind is behavioral and hence external in nature. Rachlin (2014) has proposed such a

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theory: “According to behavioral identity theory, mental states are identical not to specific neural events, but to behavioral patterns” (p. 50). To construe mind as behavioral in nature implies the negation of internalism and the thesis of mind as nonbehavioral and, with them, the identity theory and functionalism. All of this would preserve antidualism in a way that is compatible with mental causation as functional relation.

But then again, behaviorists must resist the temptation to ground a mind-behavior identity theory on accusations of dualism against mentalism. Rachlin (2014) succumbs to this temptation by trying to pass the mind-brain identity theory as a close ally of dualism, based on a misinterpretation of both:

With non-physical theories and neural identity theory alike, it is conceivable for a person to repeatedly, over long periods of time, exhibit one mental state (such as pleasure) while internally experiencing another (such as pain). This contradiction, allowed in principle by neural identity theory, is avoided by teleological behaviorism (p. 44).

If “exhibit” here means “behaviorally exhibit,” no contradiction obtains, because neither the mind-brain identity theory nor dualism view any behavioral state as mental. Only certain nonbehavioral states are mental in both philosophies (nonphysical in dualism, brain and hence physical in the mind-brain identity theory). In Rachlin’s example, then, experiencing pain is mental in both philosophies, whereas pleasure behavior is not (although experiencing pleasure is).

A mind-behavior identity theory clearly overcomes dualism, but so do the mind-brain identity theory and functionalism. It remains to be seen whether and how a mind-behavior identity theory can be shown to be a better metaphysics of mind than the mind-brain identity theory and functionalism without accusing them of dualism.

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Abstract: Radical behaviorism (RB) is antidualistic and antimentalistic. Antidualism is the rejection of ontological dualism, the partition of reality into physical and nonphysical. Antimentalism is the rejection of the ontological theses that mind is causal, internal, subjective, and nonbehavioral in nature. Radical behaviorists conflate both rejections, based on depictions of mentalism as inherently dualistic. However, such depictions are fallacious. Mental causation and mind as internal are fundamentally incompatible with dualism and hence inherently materialistic. Mind as subjective and no Radical Behaviorism. Operant Conditioning. Schedules of Reinforcement. Behavior Modification. Radical Behaviorism: Complete Elimination of the 'Inner Man'. Although Skinner classified himself as a Behaviorist, his theories differed somewhat from the more "traditional" forms of this school of thought. He called his own approach "Radical Behaviorism". Like other Behaviorists, Skinner believed that Psychology is the science of behavior and should be regarded as a natural science focusing primarily on the facts. He also supported the idea that animal behavior is high!

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Behaviorism (or behaviourism) is a systematic approach to understanding the behavior of humans and other animals. It assumes that all behaviors are either reflexes produced by a response to certain stimuli in the environment, or a consequence of that individual's history, including especially reinforcement and punishment, together with the individual's current motivational state and controlling stimuli.