

Reid and the Role of Hypotheses in Natural Philosophy

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During the late 18th century, Thomas Reid and Joseph Priestley held sharply diverging views on the metaphysics of the human mind. Priestley advocated a strong materialism, where the mind was identical with the physical brain; in contrast, Reid held a version of dualism, with mind and body as wholly distinct substances. Of particular interest in this disagreement is the fact that both parties invoke the method of Isaac Newton to support their opposing positions. Specifically, Priestley and Reid use Newton’s first rule of philosophizing to establish starkly contradictory doctrines, so it seems that at least one of them misapplies Newton’s method. In fact, contemporary Reid commentator Allen Tapper, while sympathetic to Reid in other contexts, finds Reid’s use of the first rule to be flatly inconsistent, as his critique of Priestley’s view applies equally well to his own view.

In this paper, I will argue that, contrary to Tapper’s interpretation, Reid’s appeal to Newtonian method in his unpublished response to Priestley’s materialism is not incompatible with his defense of dualism. I claim that Tapper’s criticism relies on an oversimplification of Reid’s use of Newton’s method, and that Reid’s appeal Newtonian principles, especially his resistance to certain speculative hypotheses, should be reevaluated. By examining Reid’s approach to hypotheses in physical and chemical practice, as well as in response to the question of materialism, I will develop a more nuanced view of Reid’s support for Newtonian methodology.

In sections I and II, I begin by laying out Priestley's main argument for materialism as found in the *Disquisitions* and Reid's unpublished reply to it. Then, in the next section I examine Tapper's criticism of the use of Newton's first law in Reid's thought. Finally, in section IV, I consider the merits of a significantly improved version of Tapper's argument, and argue that Reid has the resources available to respond to even this stronger challenge. As a result, I find that Reid's Newtonian approach to the question of dualism faces no charge of inconsistency.

I. Priestley and the Science of Materialism

The first part of Priestley's *Disquisitions* presents a wholly new defense for the doctrine of materialism, a defense that arises directly out of an engagement with then-current physical science. Priestley begins his argument for materialism by presenting the traditional account of matter. On this understanding, matter is that substance which is "possessed of the property of extension... and also of solidity or impenetrability, but is said to be naturally destitute of all powers whatsoever" (Priestley [1777], p. i). Matter is therefore a wholly inert and passive substance, so causal forces must arise externally to material objects. Such an understanding of bodies can be seen as supporting the law of inertia: if a body has no ability to spontaneously act, only an external force can alter its course of motion. This view of matter is thereby closely connected to early Newtonian physics.

Alternatives to the inert theory of matter were, however, advanced in the 18th century. Roger Boscovich's new theory of matter is an example of such a theory of particular importance to Priestley (Boscovich [1745]). As Priestley interprets the theory, Boscovich claims that inert properties of matter, such as solidity, arise through the interworking of essential powers of attraction and repulsion: "Whatever solidity any body has, it is possessed of it only in consequence

of being endowed with certain powers” (Priestley [1777], p. 13).¹ Attraction alone enables the parts to “keep contiguous to, or preserve a certain distance from each other”, thereby maintaining a particular shape (Priestley [1777], p. 11). Since Priestley takes it as obvious that an object can’t be solid without having some specific shape, solidity itself requires a power of attraction. Furthermore, the theory contends that two objects are never brought into actual contact, but always kept at a certain distance through repulsive forces, so the feeling of solidity observed when two objects are pressed together is nothing more than the effects of powers of repulsion:

Since then it is demonstrable that no common pressure is sufficient to bring bodies into even seeming contact... but the resistance to a nearer approach is in all cases caused by powers of repulsion, there can be no sufficient reason to ascribe resistance in any case to any thing besides familiar powers. (Priestley [1777], p. 20)

In a similar fashion, the other passive properties of matter are supposed to arise out of the effects of certain active powers of material objects.

Such a conception of matter as essentially active was understood to be the central innovation of Priestley’s particular materialist philosophy by both himself and, crucially, contemporary commentators such as Reid: “This account of the properties and power of Matter I take to be new, and that which distinguishes Dr. Priestley’s System from other Systems of Materialism” (Reid [1787?], p. 173). Priestley claims that the apparent need for immaterial minds to explain thought and action rests entirely on an incorrect understanding of matter. If, as had been commonly supposed, the entire essence of matter consists in non-active properties, then inherently active thoughts and acts of volition could not be located in mere matter:

¹ It bears noting that Priestley is not wholly consistent on the status of solidity in Boscovich’s theory. At some points, he claims that solidity is explained as the result of the interworking of the forces of attraction and repulsion (for example, p. 13). At other points, Priestley instead argues that there is no such property as solidity, with the attractive and repulsive powers being the only genuine features of matter (for example, p. 23). Throughout this paper, I will adopt the language of the first option, saying that solidity (as well as all other properties of bodies except extension) may be reduced to extension and the powers of attraction and repulsion.

the only reason why the principle of thought, or sensation, has been imagined to be incompatible with matter, goes upon the supposition of impenetrability being the essential property of it, and consequently that solid extent is the foundation of all the properties that it can possibly sustain. (Priestley [1777], p. 23)

The implicit claim here seems to be that active powers cannot arise in something that is inherently passive. According to Priestley, it is only an understanding of matter which divests it of any active powers that prevents matter from grounding the traditional properties and powers of the mind.

Once matter is endowed with powers, however, there is no inconsistency in claiming that the powers of thought, sensation, and perception are among them. Thus, Boscovich's theory of matter is the crucial discovery that allows Priestley to accept the doctrine of materialism:

besides [solidity and extension], man is possessed of the powers of sensation or perception, and thought. But if, without giving the reins to our imaginations, we suffer ourselves to be guided in our inquiries by the simple rules of philosophizing above-mentioned, we must necessarily conclude, as it appears to me, that that these powers also may belong to the same substance, that also has the properties of attraction, repulsion, and extension, which I, as well as others, call by the name matter. (Priestley [1777], p. 45)

Noting that little is understood of these supposed powers of immaterial minds, Priestley argues that there is thus no reason to assume that they could not be grounded in matter. Nonetheless, the replacement of inert matter with active matter does no more than establish materialism as a live hypothesis; it in no way presents a positive argument for accepting materialism as true. It is at this point that Priestley relies on Newton's rules of philosophizing, in particular Newton's first rule, which he paraphrases as "We are to admit no more causes of natural things than as are sufficient to explain their appearances" (Priestley [1777], p. 8). Priestley argues that the rule prohibits belief in an immaterial mind, as all the powers observed, both of thought and of body, can be attributed to a single material realm: there is therefore no

inconsistency between the known powers of body, and those that have generally been referred to mind... [one] ought... to have concluded, that the *whole substance of man*, that

which supports all his powers and properties, was one uniform substance. (Priestley [1777], p. 52)

Thus, Priestley concludes that man is wholly material, and not comprised of both matter and some wholly inexplicable second substance.

Reconstructing Priestley's argument for materialism, there are two crucial steps. First, using Boscovich's theory of matter, Priestly claims that attraction, repulsion, and extension can plausibly account for all observed phenomena, so there are no phenomena that immaterial minds must be posited in order to explain. Nonetheless, it is only a further, second step which justifies an outright rejection of immaterial minds: given the lack of phenomena for an immaterialist theory of mind to explain, Priestley urges that Newton's first law requires that such immaterial objects be rejected from any empirically grounded theory of reality. In this way, Priestley claims that the Newtonian method requires acceptance of the doctrine of materialism.

Priestley then supplements this basic argument with some additional considerations arising from contemporary research into the human brain. He begins by noting that "the powers of sensation or perception, and thought... have never been found but in conjunction with a certain organized system of matter", and that these powers are found to decline corresponding to physical harm to the brain (Priestley [1777], p. 46). These facts establish that there must be a close correspondence between the mind and the brain. While Priestley acknowledges that it has not yet been discovered how this correspondence specifically works, he notes that Dr. Hartley has begun to provide a "practical answer" to the question of how thought and sensation arises from matter (Priestley [1777], p. 113). As Garrett notes, Priestley was quite impressed with the current state of neurological researches, especially those of Hartley. Underlying all of these supplemental considerations was his optimism that this research would continue to develop until the complete picture of how mental phenomena arose from the brain was discovered (Garrett [2004], p. 143).

Combining Priestley's Newtonian argument with this strong faith in the potential for a successful materialist science of the mind, Priestley aims to establish his materialism as the unique theoretically and empirically justified hypothesis for an adherent of Newton's method.

II. Reid's Response: Explanatory Adequacy v. Inductive Confirmation

As both an avowed advocate of the use of Newtonian method in philosophy and a dualist, Thomas Reid finds this claim particularly problematic. In unpublished manuscripts, collected in the *Papers on Animate Creation*, Reid takes up the tasks of refuting Priestley's argument and providing a Newtonian defense for a belief in immaterial minds. As noted above, Priestley relies on two crucial theses in his main argument for materialism: first, that all observed phenomena can be explained by the properties and powers of matter, and second, that Newton's method thus compels the rejection of any supposed immaterial entities. In his response, Reid rejects both of these theses, though to differing degrees of success. I will consider each in turn.²

In response to the first step in Priestley's argument, Reid turns to Newton's three laws of motion. Noting the universal confirmation and acceptance of these laws, Reid asserts that any adequate philosophical system must accept their implications for physical bodies: "These laws of Nature express all that is meant by the indifference of matter to motion or rest, and all that is meant by the *inertia*, or *vis inertiae* of matter" (Reid [1787?], pp. 201). As the law of inertia has been exemplified in all interactions of macroscopic bodies, Reid argues that, "according to Sir Isaac Newton's third rule of philosophizing", inertness "ought to be held as a quality belonging to all bodies" (Reid [1787?], p. 203). Clearly, this inference is too quick, because it is not readily apparent that the law of inertia could not be grounded on some interactions of active properties. In

² Reid also has a third argument against Priestley's materialism, arising out of the claim that only spirits, and not physical entities, have causal influences. This argument is wholly separate from the interpretation of Newtonian method, and therefore falls outside of the scope of the present concerns.

fact, Priestley takes precisely this approach to the issue of inertia, claiming that the observed tendencies of an object to maintain a constant state of motion can be wholly explained by an equilibrium arising from the multitude of repulsive forces acting on that object: an object will tend to stay at rest because the varied forces acting on the body can balance each other out, and therefore have no net effect on the body.³ Boscovich's theory of matter is therefore wholly consistent with the observed effects of the law of inertia, and Reid's objection fails.

More importantly for present purposes, Reid also responds to the second step of Priestley's argument for materialism, which concerns Newton's rules of philosophizing directly. Reid explains that Newton's method is grounded in a conception of "Natural Philosophy" as having two distinct components: "first to discover the laws of Nature, and secondly to apply the laws of nature to explain the Phenomena of Nature" (Reid [1787?], p. 183). According to this method, these two tasks are strictly separated. The first task simply is to establish general empirical laws through sound inductive inference (Newton [1687], pp. 404-405). Newton and Reid often refer to these laws as causes; this terminology can be somewhat misleading, however, as they mean only general empirical regularities, and not genuine efficient causes. It is only in the second task of inquiry, where the established laws are already in place, that explanation enters the picture at all (Newton [1687], pp. 404-405). This two-part method therefore requires that the truth of a law must be established independently of, and prior to, its use in explaining particular data: "[A hypothesis], if true, is a new law of nature, and therefore, according to Sir Isaac Newton's rules of philosophizing,

³ Reid offers a very weak argument against this understanding of the law of inertia, claiming that in a system with merely two bodies there couldn't be any such equilibrium of repulsive forces, and so any force on either object will generate perpetual motion. While this may be true, this in no way inhibits Priestley from explaining the effects of the law of inertia in the actual world, with its multitude of bodies and repulsive forces. Reid's two-body argument therefore fails to pose any challenge to Priestley's ability to explain phenomena in the actual world.

its truth should first be proved, and then it may be used to explain phenomena” (Reid [1787?], p. 209).

With this understanding of Newtonian explanation in mind, Reid argues that Priestley conflates the two distinct stages of Newton’s method, basing both entirely on the explanation of particular data; that is, Priestley attempts to justify his acceptance of Boscovich’s theory of matter solely on the basis of its explanatory capacities. As Priestley sees it, there are two distinct components to the explanatory success of Boscovich’s theory of matter: its greater explanatory scope and its more limited ontology. With regards to the former, Priestley highlights the wide scope of the explanatory power of Boscovich’s theory in comparison to the alternative theories, claiming that “The principles of the Newtonian philosophy were no sooner known, than it was seen how few, in comparison, of the phenomena of nature, were owing to solid matter, and how much to powers” (Priestley [1777], p. 22). With regards to the latter, Priestley explicitly notes that the less expansive ontology required by materialism is a great virtue of the theory’s explanatory success:

If one kind of substance be capable of supporting all the known properties of man... we shall be obliged to conclude (unless we openly violate the rules of philosophizing) that no other kind of substance enters into his composition; the supposition being manifestly unnecessary, in order to account for any appearance whatsoever. (Priestley [1777], p. 45)

Due to both of these types of explanatory success, Priestley endorses the new theory of matter, transforming Newton’s first rule into a simple method of inference to the best explanation, where the best explanation inherently has the widest scope and the least expansive ontology.

In contrast, we’ve seen that Reid understands Newton’s first rule as demanding a high degree of inductive support for any proposed laws. As only some small amount of the total physical occurrences can be observed, many features of nature must be left out of any human’s account of the world. The main source of error in natural philosophy thus is the positing of far-reaching

general laws on insufficient inductive evidence; such mistakes put too much faith in the similarity of the observed cases, ignoring potential differences that have yet to be observed: “men are prone to draw the general conclusion from too few instances, and to overlook, in instances apparently similar, those circumstances which show them to be of a different kind” (Reid [1787?], p. 190). As Reid understands it, Newton’s first rule is explicitly concerned with this problematic tendency to accept hypotheses on the basis of too few cases. In order to avoid accepting laws going far beyond the warrant of the small set of available observations, the rule requires that an inquirer accept only what can be grounded on an appropriately broad array of cases: “[Newton] did not conceive the explaining appearances to be the only condition required in a cause of natural things... he considered proof of its truth as an essential condition” (Reid [1787?], p. 188). This broad empirical grounding of a proposed law is what Reid considers to be just induction.

Importantly, Reid finds just induction to be wholly distinct from Priestley’s concern for parsimony and explanatory power. The discovery of the true laws of nature in fact goes far beyond merely explaining and predicting observed phenomena:

It is one thing to find a quantity which shall have certain conditions; it is a very different thing to find out the laws by which it pleases God to govern the world and produce the phenomena which fall under our observation. (Reid [1785], p. 83)

The weakness of mere explanation arises from the fact that a capacity to explain the data “is a probability common to thousands of hypotheses” (Reid [1787?], p. 178). As a result, Reid worries that, in endorsing materialism solely on the basis of its ability to explain so few points of data, Priestley can only be arbitrarily picking one of the multitude of compatible hypotheses. Unless the physical theory is grounded on a firm foundation of just induction, Reid argues it will fail to adequately interpret nature, instead problematically projecting the prejudices of the theorizer into reality: “[Newton] had learned from Lord Bacon that sound natural philosophy is nothing but an

interpretation of the great book of Nature, without adding any thing from our fancy to what it speaks” (Reid [1787?], pp. 184-185).

With this interpretation of Newton’s first rule in mind, Reid claims that Priestley fails to properly utilize Newtonian method in his argument for materialism. While materialism may be able to account for all of the empirical data, and thereby represent the best, most economical explanation, this feature simply is not enough to permit the acceptance of the doctrine. As noted above, Priestley first argues that matter may, for all anyone knows, be capable of explaining all observed phenomena of the human mind; he then claims that Newton’s first rule directly licenses belief in materialism. But the argument from explanatory adequacy to truth is, according to Reid, precisely what the rule was designed to prevent:

I know not how [Dr. Priestley] can be acquitted from giving the name and authority of that great Philosopher, to a Rule, which is contrary to his express words, and contrary to the spirit of his Philosophy. (Reid [1787?], p. 188)

Any such hypotheses, without a thorough grounding in inductive argument, must be rejected as mere hypotheses supported only by the false notion that “human wit and invention is sufficient to discover the art of nature” (Reid [1787?], p. 187). By admitting such hypotheses as true principles of the natural world, Reid believes that Priestley falls on pre-Newtonian dogma. As a result, despite Priestley’s claims to represent sound Newtonian method, “the rules of philosophizing which Dr. Priestley has laid down as the rules of Sir Isaac Newton, are not the rules of Sir Isaac Newton... [and] he may be lead wrong by them” (Reid [1787?], p. 192).

Thus, Priestley and Reid end up supporting conflicting doctrines with precisely the same Newtonian rule. Priestley claims that materialism has both sufficient explanatory scope to account for all naturally occurring phenomena and a more parsimonious ontology than the dualist alternative, and he therefore concludes that dualism has no role in a theory of the physical world.

In contrast, Reid claims that any accepted general theories must be grounded on just induction. As Priestley does not even attempt to support materialism with such argumentation, Reid argues that the materialist theory is nothing but a dogmatic hypothesis, and as such cannot be accepted. Thus, the two thinkers starkly conflicting interpretations of Newtonian doctrine lead to opposing answers to the question of materialism.

III. Tapper's Criticism of Reid: A Potential Inconsistency

Contemporary commentator Alan Tapper directly examines the contrast between the two thinkers' approaches to Newtonian method but he sees it somewhat differently than I have. In the case of Priestley, Tapper considers only the importance of a scientific hypothesis possessing a minimal ontology: "On methodological grounds, grounds he sees as Newtonian, [Priestley] seeks a minimalist ontology" (Tapper [2002], p. 514). In contrast, he sees Reid as entirely unconcerned with ontology, but as focused on Newton's famous rejection of hypotheses in general: "Reid's Newtonianism is thus the Newtonianism of *Hypotheses non fingo*" (Tapper[2002], p. 520). On this interpretation, Reid rejects Priestley's materialism just because it is a hypothesis that goes beyond the available empirical evidence. The trouble for Reid then, as Tapper sees it, is that Reid's own dualism is obviously also a hypothesis. So Reid cannot consistently reject Priestley's materialism on the basis of Newton's law without also being required to reject his own positive belief in an immaterial soul.

It first must be noted that Tapper's overall argument faces two minor, but easily resolvable, problems. First, as noted above Tapper reduces Priestley's support of materialism to an endorsement of Ockham's razor; as established above, Priestley's argument is actually much more subtle, emphasizing the wide explanatory scope granted by Boscovich's new theory of matter, which he believes can in fact explain all the required data of the human mind. This difference in

interpretation of Priestley's argument does not, however, effect Tapper's criticism of Reid, and therefore will be put aside. Secondly, Tapper says nothing of the importance for Reid of just induction; it is therefore unclear what exactly, in Tapper's understanding, Reid thinks a theory requires. Nonetheless, this issue is easily resolved by combining my above interpretation of Reid on the matter of just induction with Tapper's views; for the remainder of the paper, I will therefore write as if Tapper understands Reid in this way.

The real problem for Tapper's critique is his assumption that Reid advocates for a blanket rejection of all hypotheses from science. Tapper's claim is quite strong, going well beyond the doctrines actually advanced in Reid's response to Priestley, where he notes only that materialism is merely a "hypothesis that accounts for appearances", cautioning that "those who have a just taste in Philosophy, pay no regard to *such hypotheses*" (Reid [1787?], p. 178). Throughout this critique, Reid focuses on Priestley's endorsement of materialism solely on the basis of its ability to explain appearances, and not his entertaining of any hypothesis whatsoever. Given that Reid's approach to the hypothesis of materialism in his unpublished reply fails to provide support for Tapper's claim that Reid rejects all hypotheses, it is worth asking whether Reid articulates any legitimate roles that hypotheses can serve.

Much scholarly work has been done on precisely this topic by Paul Wood, who has examined Reid's still archival writings in order to generate a clearer picture of Reid's attitudes towards hypotheses. While noting that his more explicit comments on Newtonian method might lead one to expect Reid to whole-heartedly reject all hypotheses, Wood notes that "in practice his attitude towards hypotheses and unobservable entities was more complex than his published

comments would indicate” (Wood [2004], p. 63).⁴ Wood focuses on two particular instances where Reid not only accepts the use of hypotheses in science, but encourages it, notwithstanding their lack of just inductive support: in chemistry and in the theory of electricity. In the first case, Reid is quite willing to accept belief in caloric, as well as a variety of other unobservable but explanatorily crucial fluids (Wood [2004], p. 63). It is important to note that Reid’s understanding of chemistry is not merely that of an interested amateur: he took active part in the development of chemistry in the 1760’s, attending lectures on then cutting-edge developments in the field, and even attempting to send data from his personal experiments to other researchers (Reid [1765], p. 39). In addition to his acceptance of hypotheses in chemistry, Reid is also willing to engage with hypotheses in the theory of electricity; in particular, Wood notes that Reid treats the speculative theories of both J.T. Desaguliers and Benjamin Franklin in his writings and lectures (Wood [2004], p. 64). Even if one claimed that Reid took the existence of caloric to be inductively established, and thus not a theoretical hypothesis, such an interpretation cannot be advanced in the case of Reid’s use of electric theories: as the two theories are directly opposed on various claims, Reid cannot consider them both to be wholly supported by inductive evidence. These examples serve to show that does not reject all hypotheses, but employs a more nuanced approach: “Reid’s attitude toward hypotheses was in the end somewhat ambivalent, for he did allow that they have a legitimate, if circumscribed, role to play in philosophy” (Wood [1989], p. 438).

We therefore find that Reid does not in practice treat all hypotheses as equal. Instead, Reid encourages the use of hypotheses in electrical theory and chemistry, while rejecting the laws of attractive and repulsive powers of matter used in Priestley’s materialism. The question then

⁴ Interpretations of Reid as rejecting all but justly inducted hypotheses have been quite common in Reid scholarship—in fact, it is often characterized as the received view on Reid’s Newtonianism, for example by (Juti[2009], p. 120) and (Wood[2004], p. 63). Laudan [1981] is a prominent advocate for this interpretation.

becomes, given his radically different treatment of different hypotheses, what principled basis there can be for Reid to accept some while wholly rejecting others? In fact, I will argue that Reid recognizes three kinds of hypotheses, which enjoy different epistemic and practical roles in scientific practice. In the first case, there are good, justly inducted hypotheses—established scientific laws, wholly accepted and endorsed—such as Newton’s law of universal gravitation. In contrast to the justly inducted hypotheses, there are also speculative hypotheses, of which there are two distinct types deserving differential treatment.

Priestley’s materialism serves as an example of one type of speculative hypothesis, namely the type that Reid argues should be rejected. As Reid understands it, the only use to which Priestley’s materialist theory of matter can be put is to explain the Newtonian law of gravitation.⁵ Reid argues, however, that there is no need for any such explanation, that Newton has accomplished all that is needed with the description of universal regularities provided by the law of gravitation itself:

all the phenomena referred to gravitation, have already been sufficiently explained by the properties of gravitation... which Sir Isaac Newton discovered without pretending to any knowledge of its cause. (Reid [1787?], p. 210)

As Reid understands it, there is no further explanatory work to be done in the theory of forces underlying Newtonian gravitation. Thus, Priestley’s materialist hypothesis is scientifically useless, what I call a merely speculative hypothesis.

In contrast, Reid’s hypotheses in chemistry and the theory of electricity represent a significantly different type of speculative hypothesis. Crucially, both of these fields were relatively new areas of sustained scientific inquiry, and thus, unlike the field of physics, in great need of

⁵ As a matter of fact, Reid is somewhat mistaken on this point; Priestley’s system, including Boscovich’s theory of matter, is better able to explain atomic cohesion. Nonetheless, as Reid was unaware of this fact, and it is therefore irrelevant to understanding Reid’s argument against Priestley, we will not discuss it here further.

further development. Noting directly that he is not opposed to all hypotheses, Reid claims that “[he] would discourage no Man from conjecturing, onely I wish him not to take his Conjectures for Knowledge” as “Conjecturing may be a useful Step even in Natural Philosophy”. As Reid sees it, hypotheses that fall short of the just inductive support that warrants full belief can still be used to encourage developments in natural inquiry. In particular, hypotheses can serve an important guiding role in structuring the experiments to be conducted and the questions to be asked in a field:

[the Conjecture] may lead me to make the Experiments or observations proper for discovering whether that is really the Cause or not... if I can discover that it is or is not, my Knowledge is improved; and my Conjecture was a Step to that improvement. (Reid [1780], p. 140)

In this way, a hypothesis can provide a structure around which scientific practice can be oriented; performing this role, both the chemical and electrical hypotheses function as what I call guiding hypotheses. As such speculative hypotheses thereby prove productive for the development of new scientific laws, Reid thus finds a reason to accept their use, despite these hypotheses not attaining the lofty epistemic status of justly inducted scientific laws.

As a result, we find that Reid need not treat the hypotheses of materialism and dualism identically. Tapper’s argument relies on the claim that Reid rejects the use of any speculative hypothesis in science, a claim which a thorough engagement with Reid’s unpublished scientific writings shows to be false. Instead of rejecting all speculative hypotheses, Reid considers whether a proposed speculative hypothesis can generate interesting experiments and thereby eventually lead to scientific progress, and he only rejects those speculative hypotheses that fail on this standard. It is clear from Reid’s response to Priestley’s materialism that he does not believe that Boscovich’s theory of matter’s inherent powers can serve the role of a guiding hypothesis. It thus is a merely speculative hypothesis, and as such must be rejected. Thus, Tapper’s argument fails: Reid is not committed to rejecting dualism simply because it is speculative.

Nonetheless, given this expanded understanding of the role of hypotheses in Reid's thought, one can articulate another challenge to Reid's endorsement of dualism. Since dualism is a speculative hypothesis, it can only be endorsed in scientific practice if it somehow functions as a guiding hypothesis, but given that the hypothesis posits an immaterial substance wholly distinct from the entities of the material world, it is unclear (to say the least) how dualism can serve such a role. If Reid cannot defend the status of dualism as a guiding hypothesis, then it must be treated as a merely speculative hypothesis, and rejected with materialism just as Tapper suggests. Thus, to fully defend Reid, we must show that dualism can in fact serve as a guiding hypothesis, leading to the productive development of new science.

IV. Reid's Dualism and the Science of the Mind

Unfortunately, it is quite unlikely that one would find a defense of dualism as a guiding hypothesis in Reid's own writings, as Reid instead defends his dualism entirely on radically different grounds—through a combination of first principles of common sense and philosophical argument. On his list of “first principles of contingent truths” Reid includes the claim “That the thoughts of which I am conscious are the thoughts of a being which I call *myself*, my *mind*, my *person*” (Reid [1985], p. 472). Furthermore, Reid argues that common sense establishes that there must be something beyond all of the thoughts, sensations, and volitions of a mind, and therefore some substance of the mind. Finally arguing that such a substance could not be extended, Reid claims that there must be a non-physical substance of the human mind. Reid summarizes his argument this way:

I take it for granted, upon the testimony of common sense, that my mind is a substance that is, a permanent subject of thought; and my reason convinces me, that it is an unextended and indivisible substance; and hence I infer, that there cannot be in it any thing that resembles extension. (Reid [1764], p. 217)

Thus, for Reid there is little need to articulate a separate argument for the conclusion of dualism on the grounds of guiding scientific practice.

Needless to say, this common sense argument for dualism is problematic, both as it plays out for Reid and from our contemporary perspective.⁶ For our purposes, what is important is that Reid, due to his strong faith in the common sense argument, presents no alternative argument for dualism. Still, I will argue that Reid had the requisite theoretical resources available, that such an argument is compatible with Reid's views on the nature and merits of scientific hypotheses. This potential argument therefore provides alternative grounds for his acceptance of dualism.

To see how dualism might guide scientific thinking, it is first important to consider the broader context of Reid's philosophical and scientific projects. A fairly common goal in post-Newtonian philosophy was to extend the success of Newton's method in physics to other areas of inquiry, especially the study of the human mind; like his predecessors David Hume and David Hartley, Reid is often interpreted as hoping to discover the fundamental laws of thought, the mental equivalents of Newton's law of universal gravitation.⁷ Such an interpretation is supported by the stated goals in Reid's *Inquiry into the Human Mind on the Principles of Common Sense*:

as the mind is a nobler work, and of a higher order than the body, even more of the wisdom and skill of the divine Architect hath been employed in its structure. It is therefore a subject highly worthy of inquiry on its own account, but still more worthy on account of the extensive influence which the knowledge of it hath over every other branch of science. (Reid [1764], p. 11)

Any such science of the human mind must be based entirely on the principles "by which Newton discovered the law of universal gravitation and the properties of light", namely, Newton's laws of

⁶ See Wolterstorff[2004] for exposition of some of the key issues in interpreting the roles played by common sense in Reid's philosophy.

⁷ See Ellos [1981], Juti[2009], or Nichols [2007] for examples of this common interpretation. In particular, Juti argues that the central goal of Reid's work on the mind is to "transform the traditional theory of immaterial souls or spirits into a Newtonian science" (Juti [2009], p. 177).

philosophizing, as “he who philosophizes by other rules, either concerning the material system, or concerning the mind, mistakes his aim” (Reid [1764], p. 12). In this way, Reid explicitly centers his study of the human mind on replicating the successes of the Newtonian method for psychological studies.

But what exactly are the merits of Newton’s law of universal gravitation, as understood by Reid? As explained above, a key feature of the law—what serves to make it “the greatest discovery ever made in Natural Philosophy”—is that the law of universal gravitation ignores questions of efficient causes, and focuses instead on effectively predicting observed physical phenomena (Reid [1787?], p. 184). Newton’s method restricts its focus to the observable effects of the fundamental causal entities of the physical world, as such entities themselves are “involved in impenetrable darkness” (Reid [1787?], p. 209). By eschewing any question of efficient causes, and instead focusing on general empirical regularities, the Newtonian method is able to make significant contributions to human understanding of their observable effects. As a result, a successful Newtonian approach to the study of the mind would have to restrict its scope to accurately predicting the observable phenomena relevant to the domain of the mind: “all our sensations and ideas, and... all the operations of our minds” (Reid [1985], p. 83).

With such limited aims for a science of the mind, Reid finds that the materialist scientists of the day vastly overreach. For thinkers like Priestley, the hypothesis of materialism is inseparably linked to the claim that the conscious thoughts, acts, and sensations of given types directly correspond to various activities in the human brain:

as far as we can judge, the faculty of thinking, and a certain state of the brain, always accompany and correspond to one another; which is the very reason we believe that any property is inherent in any substance whatever. (Priestley [1777], p. 47)

Due to the importance of these brain-to-thought correspondences, a primary aim of the early materialist science of the mind was to discover and isolate the precise interworkings of nerves in the brain that served as efficient causes for the various consciously accessible operations of the mind. But, as Reid understands it, the true aim of a science of the mind is to enable the accurate prediction of the operations of the mind that could arise, a goal which is wholly distinct from questions of efficient causation. As a result, a complete scientific theory of the mind simply should not be concerned with questions regarding the brain at all. Furthermore, given the intricate link between the thesis of materialism and the claim that all types of acts of the mind directly correspond to types of nerve action, Reid may well have feared that any materialist science of the mind will inevitably become focused on questions regarding the location of mental acts in the brain; in just this way, materialism not only fails to provide constructive guidance for the development of the science of the mind, but actively leads it astray from its proper aims and methods. In this way, Reid finds that materialist science of the mind is inherently distracted from its proper questions, thereby failing to properly follow Newtonian restrictions.

It is in these worries that an alternative, more methodologically grounded argument for an endorsement of dualism as a guiding hypothesis may be found. As we've just seen, Reid worries that the acceptance of materialist hypotheses will lead to an unproductive focus on brain-based efficient causes in research, to the exclusion of any study of the mind itself. As a result, merely dropping the supposition that mental activity needs to be correlated with brain activity serves to eliminate a vast amount of unhelpful research. Therefore, due to materialism's ties to such physical location questions, the hypothesis of dualism is productive for the science of the mind simply by wholly eliminating any such questions from the scope of inquiry. In effect, dualism serves to separate off the mental activity—the proper object of study for a science of the human mind—

from any other sorts of activity, and therefore allows the study of the mind to progress separately from any irrelevant questions or influences. In this way, the scientific merits of dualism arise less from any features of the hypothesis itself, but instead from its ability to ward off potentially disruptive questions from more fruitful mental inquiry. Thus, dualism can in fact function as a guiding hypothesis, helping the burgeoning science of the human mind develop productively.

It is worth noting that dualism by itself does not prevent one from succumbing to unproductive questions regarding the physical locations associated with mental acts and operations; a substance dualist may well believe that there is a correlation between brain states and mental states and therefore seek to determine the particular physical correlations are, thereby seeking to answer the location question. In fact, Reid is well aware of this possibility: in addition to his writings on Priestley's approach to studying the human mind, Reid also critiques the dualist David Hartley on similar grounds. Reid directly notes that Hartley rejects materialism while retaining a belief in correlations between all physical and mental activity:

All that [Dr. Hartley] pretends is, that, in the human constitution, there is a certain connection between vibrations in the medullary substance of the nerves and brain, and the thoughts of the mind; so that the last depend entirely upon the first, and every kind of thought in the mind arises in consequence of a corresponding vibration, or vibratiuncle in the nerves and brain. (Reid [1785], p. 84)

As a result of this belief, Hartley focuses his research on studying a plethora of neurological activities in the brain, hoping to uncover enough diversity in the operations of the brain to explain the extent of qualitatively different mental phenomena. Again, Reid finds these questions to be wholly separate from the true aims of a scientific study of the mind, namely, explaining mental experience on its own terms. In this way Hartley, a dualist, is guilty of just the same problems that Reid accuses Priestley as being lead to by his materialism; merely accepting dualism is therefore not sufficient for permitting a successful science of the mind.

Nonetheless, Reid finds that there is a distinct advantage for dualist approaches to the study of the mind over the materialist alternatives. As he sees it, a materialist simply cannot avoid considering questions of physical location with regards to mental acts, as a well-understood way of identifying mental events with particular neurological operations is a crucial prerequisite for a materialist science of the mind. Alternatively, the dualist approach to the mind makes no essential use of any connection between the mind and the brain. While a dualist, like Hartley, can make the mistake of ignoring genuine mental content in favor of locating physical efficient causes, he or she in no way need do so; instead of Hartley's problematic version of dualism, one can advance a dualist science of the mind focused exclusively on investigating conscious mental phenomena. In this way, Reid can claim that dualism is far less likely to mislead the science of the human mind away from its proper goal. Thus, even though dualism can be lead astray, it alone permits the possibility of a proper scientific study of the human mind, and therefore must be endorsed as a guiding hypothesis for the fledgling science.⁸

With this understanding of the hypothesis of dualism, and its particular merits, we can finally refute a Tapper-like criticism of Reid entirely. We find that Reid has the theoretical resources to classify dualism as a guiding hypothesis, and not a merely speculative hypothesis like materialism. Given that Reid, in his methodological writings, argues that one should adopt different epistemic and practical attitudes towards guiding hypotheses and merely speculative hypotheses, we thus find that Reid can coherently claim that the scientific status of dualism is different from that of materialism. As a result, Reid is not guilty of any hypocrisy or inconsistency

⁸ Reid's potential scientific defense of dualism, as permitting the empirical study of mental content in its own particular terms, bears a strong resemblance to the concept of empirical dualism, which was being defended by contemporaries of Reid in Germany. This doctrine "distinguishes soul and body on the grounds that the properties and phenomena revealed through outer and inner sense cannot be united under a single set of concepts", letting both mental and physical domains be subject to separate empirical investigations (Hatfield [1994], p. 386). See Hatfield (1994) and Hatfield (2002) for more on this approach to the science of the mind.

by rejecting materialism and accepting dualism as a working scientific hypothesis. Reid's understanding of Newtonian method therefore represents a more coherent approach to scientific inquiry than it might originally seem.

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