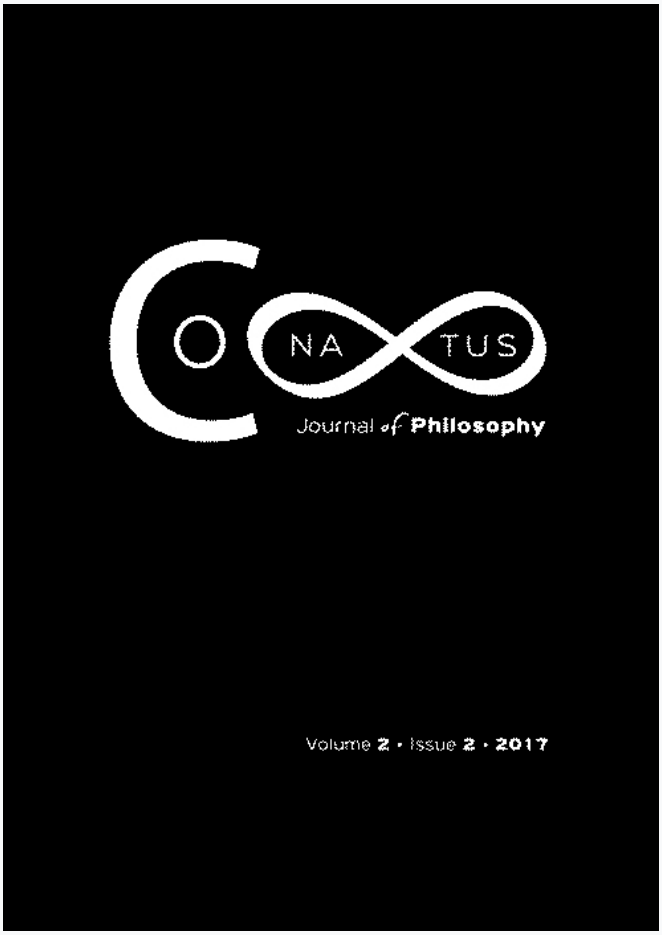
Conatus - Journal of Philosophy

Vol 2, No 2 (2017)

Conatus - Journal of Philosophy



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doi: 10.12681/conatus.15963

To cite this article:

Rehman, R. (2018). Disintegrating Particles, Non-Local Causation and Category Mistakes: What do Conservation Laws Have to Do with Dualism?. *Conatus - Journal of Philosophy*, *2*(2), 63–73. https://doi.org/10.12681/conatus.15963

R. Rehman / *Conatus* 2, no. 2 (2017): 63-74
DOI: http://dx.doi.org/10.12681/conatus.15963

Disintegrating Particles, Non-Local Causation and Category Mistakes: What do Conservation Laws have to do with Dualism?[1]

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Abstract

The single most influential and widely accepted objection against any form of dualism, the belief that human beings are both body and soul, is the objection that dualism violates conservation laws in physics. The conservation laws objection against dualism posits that body and soul interaction is at best mysterious, and at worst impossible. While this objection has been both influential from the time of its initial formulation until present, this paper occupies itself with arguing that this objection is a fleeting one, and has successful answers from both scientific and philosophical perspectives. It is to this end that I provide three groups of responses to the conservation laws objection. First, I outline responses which take the 'laws of nature' as the proper entry point into the discussion. Secondly, I provide an analysis of those who argue that contemporary quantum physical data requires that the objection itself involves scientifically unjustified premises. Finally, I layout a philosophically oriented answer which argues that the objection is linguistically problematic since its demands on the dualist are categorically fallacious. From these groups of answers, I conclude that while the conservation laws objection has been arguably the most widely accepted objection against dualism, the objection is without philosophical justification.

> *"Given that the soul of a human being is only a thinking substance, how can it affect the bodily spirits, in order to bring about voluntary actions?"*
>
> Princess Elisabeth of Bohemia to Descartes, 1643

The philosophical skepticism -moulding into a scientific skepticism in later years of the dualist hypothesis ultimately began with the objection by Princess Elisabeth of Bohemia levelled against Descartes in 1643. Descartes'

[1] I would like to thank the Reviewer and Editor of ***Conatus*** for their patient and helpful reviews of the initial draft of this paper. I would also like to thank Prof. John Thorp for his metaphysics lectures -an essential space where I could formulate, and be challenged on, the thesis presented in this paper.

Meditations on First Philosophy (1641) famously argues that the self is an immaterial 'thing' distinct from the physically extended body. Having desired to sweep away all heretofore beliefs -developing his classical foundationalist epistemology-[2] he writes: "But what, then, am I? A thinking thing, it has been said. But what is a thinking thing? It is a thing that doubts, understands [conceives], affirms, denies, wills, refuses, that imagines and also perceives."[3] However, while the causal effectivity of such acts of the intellect might be questionable in itself, critics of Descartes' philosophical anthropology level a more lethal objection. The objection moves from the skepticism of a 'thinking substance' or 'immaterial thing (self, soul, ego, et cetera)' causally interacting with an 'extended body (physical substance, material object, et cetera).' Since the initial formulation of the problem, the objection has taken on a number of forms, and this paper attempts to engage with the objection in its most substantial formulations.[4] In this paper, then, I will exegetically present current perspectives in response to perhaps the most popular objection -variation, really, of Princess Bohemia's objection- to (almost any[5]) form of dualism; namely, the objection from the violation of conservation laws in physics. The free-will problem seems to be, for the dualist, relatively straightforward and linear; however, the problem is not establishing freedom of the soul per se, but of the soul and body *conjunction*.[6] I will take libertarianism to be roughly the view that a human being is free at a given moment, if and only if one can choose between two alternatives (x v not-x) without antecedent, determining causes.[7] I will take, then, 'libertarian dualist' to be the philosophical anthropological view -or view within the philosophy of mind- that in addition to libertarian free-will, the thesis that there is a body and soul -whatever their exact relation- is correct. So, two relevant questions arise: Even if the soul is free, how could it, in conjunction with the body, be free? More specifically, even granting this conjunction of soul and body, how could the soul and body be free, given that the soul cannot interact with the body (since it allegedly violates conservation laws)? For the dualist, then, the second of these questions is most important -since, without an answer, libertarian dualism must be given up. Structurally, then, I will lay out this paper by providing an exegesis of the main strategies for dealing with the objection from the violation of conservation laws, make brief observations about each of them, and conclude that while none of these suggestions establish their conclusion

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[2] For an extensive exegesis and criticism of classical foundationalism see Alvin Plantinga's *Warrant: The Current Debate* (New York: Oxford University Press, 1993).

[3] René Descartes, "Meditations", in *The Rationalists* (New York: Anchor Press, 1960), Meditation II, 122.

[4] In this sense, this paper could be interpreted as doing part of the serious metaphysical work which, in the words of John Hawthorne in his "Cartesian Dualism", moves beyond treating merely the "pale caricature" of dualism, and its constant "frivolous dismissal[s]." Printed in Dean Zimmerman and Peter van Inwagen's *Persons: Human and Divine* (Oxford: Oxford University Press, 2007), 98.

[5] I am unsure that Thomistic dualism is affected -but at any rate if it does (which I will grant for the sake of argument), this paper responds to it anyhow.

[6] For instance, it would not really matter if the soul was free if when conjoined with the body it was not (you would get, as it were, Stoic freedom where you could assent or dissent to actions as a spectator, but really make no real difference to the choices you perform that occur by necessity). I am indebted to Prof. J. Thorp's class for this historical note.

[7] Sometimes called the *Principle of Alternative Possibilities* (PAP).

conclusively, the objection from conservation laws is at best (currently) the best objection, but one less philosophically forceful than it is usually purported to be. More relevant to free will, if the libertarian relies on dualism to secure free will, to even get off the ground the conservation problem must be satisfactorily answered.

The characterization of the conservation law objection to dualism as, in the words of Kenneth Himma, "none thought to be more damaging",[8] should not be taken lightly; it is certainly the most popular -or most *well-known*- objection offered. However, there have been many notable attempts to respond to the problem of dualism violating conservation laws which merit philosophical attention. The arguments, though, are typically based on alleged inconsistencies with well-attested scientific theories. In this sense, the dichotomy involves a scientific theory, and a philosophical position -the latter, of course, takes precedence *a priori*. Hence, the dualist's response must involve consideration of (i) the nature of scientific laws, (ii) the allegation of dualism's inconsistency with those purported laws and (iii) a model in which the dualist -without being *ad hoc*- rejects those laws or shows how the alleged inconsistency is only apparent. Let me sketch the problem briefly, and, thereafter, lay out each of these distinct methods of dealing with the problem. I will also forestall a definition of "conservation laws", since there are different laws purported to be broken, and so I will only specify when necessary. The problem runs something like the following. Consider the movement of a billiard ball striking another billiard ball. We can reduce this to something like the causal formula 'x causes y'. Leaving spatial questions aside,[9] it is a relatively straightforward case: The ball itself has the capacity, or perhaps propensity, to move another ball in virtue of its properties i.e., having causal powers, being of such a shape as to be able to hit and causally affect another object, et cetera, in conjunction with its being hit by the stick ultimately moved by the person. The question, then, arises: Can a soul or mind or self (supposing it to be non-physical) causally affect a material object?[10] While an objection might be raised that this begs the question in that we are unsure about exactly what "material" or "physical" or even "nonphysical" means, I should like to respond that standard definitions suffice for our purposes, and it is best to overlook such a problem for now. Suppose that "matter" turns out to be just energy. One can still ask "how can something non-material (with no energy) causally affect something material (with energy)?". The same sorts of questions can be generated—and so the objection from ignorance is without warrant. But, assuming common

[8] Kenneth Einar Himma, "What is a problem for all is a problem for none: Substance dualism, physicalism, and the mind-body problem", *American Philosophical Quarterly* 42, no. 2 (2005): 81.

[9] One might want to ask "where did the causality take place?", for instance. In a brief reply, while this is a meaningful question, it is at best irrelevant in this discussion. What matters is that a cause occurred, its spatial location is unimportant i.e., in any arbitrarily chosen location there is still causality.

[10] If one speaks generally of "a non-physical thing interacting with a physical thing", one's analysis is without much merit. For instance, it is likely that not a "non-physical thing" cannot causally affect a "physical thing" as such, but only something like a substantial soul with the inherent capacity to causally interact with physical things. In other words, souls should not be thought of as *abstracta*.

sense definitions, -*pace* Berkeley- the question remains, and the question can be put more precisely: Given the law of conservation of mass and energy (matter and energy can neither go out of existence nor come into existence), how should we think of the dualist claim that a non-material thing can causally affect a material thing? Let me briefly outline some responses to the problem.

For simplicity, I will bundle the responses together. So, in the first group, there will be the "laws of nature" group which suggest that re-valuating the laws themselves seems to beget positive implications for thinking about conservation laws and dualism. Secondly, there is the "quantum mechanics" group which suggest that our current science makes improbable the objection from the violation of conservation laws. Lastly, I will give the "Craig-Moreland" response to the problem that the objection to dualism is semantically meaningless since "how" questions are mechanical, scientific questions and the soul's interaction with the body is *not* a scientific process operative through a medium of some sort i.e., energy exchange. I will now lay out these groups of positions.[11] To begin, C.S Lewis has written on the subject of the 'laws of nature', which I think is valuable to note as an initial response to the problem. Lewis' concern with the philosophical debate of dualism was not in mind in his paper; however, his contribution, though indirect, provides a useful conceptual framework in which scientific laws are interpreted. In this way, Lewis attempts to provide an ontological backdrop to the debate which is logically prior to the discussion of whether dualism violates laws—since delineating what these 'laws' are is explanatorily crucial. In his "The Laws of Nature", he writes the following:

> "*Up till now I had had a vague idea that the laws of Nature could make things happen. I now saw that this was exactly like thinking that you could increase your income by doing sums about it. The laws are the pattern to which events conform: the source of events must be sought elsewhere.*"[12]

By way of application, Lewis is suggesting that we think of laws as mere rules of nature, and not as causally efficacious ones. More relevantly, Lewis begins the discussion I am presenting here by noting that the laws do not causally affect anything i.e., if no soul acts in a body, the body thus operates solely based on laws; rather, Lewis points out that the laws are just patterns to which events conform, and so there is no *a priori* internal inconsistency in affirming the soul's causal activity. While Lewis does not take us to, nor answer the question of, the conservation laws themselves, Lewis' note serves as a precursor to Alvin Plantinga's formulation of the laws of

[11] This paper should not be taken as fundamentally exhaustive of all the 'groups' of responses that could be listed. The 'groups' I have devised to explicate are to my mind significant contributions to the discussion, and thus are printed here in a relatively chronological fashion. A future paper might involve (i) conjunctions of the aforementioned 'groups', (ii) additional 'groups' as well as (iii) nuanced versions of the groups heretofore spoken of. All of this is naturally beyond the scope of the paper itself—and in this sense this paper intentionally aims at narrowing the scope of the problem.

[12] C. S. Lewis, *God in the Dock: Essays on Theology and Ethics*, ed. Walter Hooper (Grand Rapids, Michigan and Cambridge: William B. Eerdmans Publishing Company, 1970), 73.

nature as a contribution to the debate in question. The context in which Plantinga is writing is within the domain of the science and religion controversy, and in particular the question of the philosophical legitimacy of miracles. Thus, his understanding of scientific laws is derivative from his analysis of the concept of 'miracles', and their respective modal status. However, this metaphysical approach to the concept of 'law' clarifies the debate in the sense that the question of 'laws' -in the context of miracles, or, I suggest, dualism- isn't strictly speaking scientific, but philosophical.[13] In his *Where the Conflict Really Lies* (2011), Plantinga gives a definition of 'laws of nature' which is rather hospitable to dualism:

> "*(LN) When the universe is causally closed (when God is not acting specially in the world), P. For example, Newton's law of gravity would go as follows: (G) When the universe is causally closed, any two material objects attract each other with a force proportional to the product of their masses and inversely proportional to the square of the distance between them.*"[14]

As such, on Plantinga's framework, it could be added that the universe is not causally closed but that it involves acts which do not break the laws per se but which operate within the framework of a causally open universe. In Plantinga's view, the answer to whether the universe is open or closed is not really a scientific question; rather, it is a metaphysical or theological question.[15] Thus, so Plantinga could argue, the soul by causally affecting a material body does not violate laws because there is an implicit *ceteris paribus* clause which leaves this "causal space" open. In this sense, this answers the conservation law objection since there are, technically, no laws being violated.[16] While this might not help the dualist exactly even if true i.e., conservation laws would be broken at every instant, it points us in the right direction (at least *prima facie*): Why hold the conservation laws at all? As aforementioned, the question is philosophical: It asks about the consistency between the propositions *dualism is true* and *the conservation laws must be kept*. However, another group, the 'quantum mechanics' group, asks the deeper question of the necessity of holding conservation laws at all.

Quantum physics, the study of sub-elementary particles, so says this group, makes more plausible the dualist claim that a non-material thing can causally affect a material thing. Up first is Karl R. Popper, who, in his *The Self and Its Brain* (1985) argues that these 'conservation laws' had to be given up on scientific grounds (not

[13] Though he says 'metaphysical' or 'theological'.
[14] Alvin Plantinga, *Where the Conflict Really Lies: Science, Religion and Naturalism* (New York, NY: Oxford University Press, 2011), 80.
[15] In addition, I don't think we necessarily need to be closed a priori to such explanations. See my "Theistic Explanations of the Ontology of Consciousness", *Discussions* 13, no.1 (2017): 17-23.
[16] I suppose the best objection to this is to suggest that this leaves God as acting *arbitrarily* in the world. For an answer which Plantinga gives in response, see his and Daniel Dennett's *Science and Religion: Are They Compatible?* (New York, NY: Oxford University Press, 2011), 63-65.

exactly quantum mechanical grounds, but something in the scientific neighborhood):

> "*The new theory could explain the push between pieces of matter (the 'impenetrability of matter') by the electrical repulsion of equally charged particles (the electron shells of the atoms). This was convincing, but it destroyed the idea that push was 'essential', depending on the essential space-filling property of matter, and that push was the model of all physical causal action. Other elementary particles are now known which cannot be interpreted as charged (or uncharged) bits of matter -matter in the sense of materialism- for they are* ***unstable****: they disintegrate. Moreover, even stable particles like electrons can be pairwise annihilated, with the production of photons (light quanta); and they can be created, out of a photon (a gamma ray). But light is not matter, though we may say that light and matter are forms of energy. Thus, the law of conservation of matter (and of mass) had to be given up.*"[17]

Popper thus suggests that conservation laws as an argument against dualism is without merit; for given counter-examples to the "push" theory of matter interaction i.e., unstable bits of matter, as well as counter-examples to the notion that matter cannot be destroyed i.e., electrons being pairwise annihilated, the notion that dualism violates conservation laws, even if true, is without much merit, since that law *itself* should be given up. One might suggest, though, that really what is happening is an avoidance of the real problem, since what one wants to know is *how* the soul moves the body (if it does) -emphasis on '*how*.' Does it do it through some mechanical process with energy exchange, for instance? It should be noted that what is happening here -as happened with the initial alleged inconsistency between dualism and conservation laws- is the calling into question the *scientific* legitimacy of dualism. It should be noted that this doesn't implicitly (nor explicitly) undermine the *philosophical* discussion that is taking place. The claim between the irreconcilability of conservation laws with dualism is a philosophical position, since it charges propositional inconsistency. As such, re-call that earlier in this paper I noted that a philosophical discussion of the matter would involve the consideration of the laws themselves, as well as the necessity of their constancy. In this way, the considerations from science do not supplant, but supplement, the philosophical discussion taking place. The motivation for or against dualism might be philosophical, religious or scientific; what is clear, though, is that the implications of the scientific data for dualism are intrinsically significant, since depending on one's answer to the question of the scientific laws in general, one can generate

[17] Karl Popper and J. C. Eccles, *The Self and Its Brain* (New York: Springer International, 1985), 6-7. As a typographical note, I do not omit Eccles' name from the essay accidentally insofar as 'Part 1' of the book is written exclusively by Popper. For a critical review of Popper's interactionist dualism, see Wilfrid Sellar's "A Note on Popper's Argument for Dualism", *Analysis* 15 (1954/55): 23-24.

one's philosophical position.[18] Alongside Popper's defense resides philosopher Robin Collins' defense, in his essay "Modern Physics and the Energy Conservation Objection to Mind-Body Dualism." He notes, significantly, that "underlying the EC [energy conservation] objection is the idea that causal interaction requires an exchange of energy."[19] He gives a lengthy counter-example to the claim that energy exchange is needed in fields like quantum physics. The thought here is not to prove definitively that such interaction actually takes place, but that positing this occurrence does not violate any known laws and has an analogical counter-part in the realm of quantum physics. Consider the following scenario:

> *"...consider two particles each with a spin of 1/2-- say two nitrogen (N) atoms -- initially bound together to form a system (such as the nitrogen molecule, N2) with a total spin of zero. Suppose we break these particles apart in a spaceship between Earth and Mars, with one of the particles going to Earth and one to Mars. Call the Earth-bound particle p_E and Mars-bound particle p_M. Further, suppose there is an observer on each planet that will measure the spin (in some prearranged direction Z) of the particle that arrives on her planet. Quantum mechanics dictates that each observer will either measure her particle as having a spin of +1/2 or -1/2. Further, because of conservation of spin and the fact that they are measuring the spin in the same direction Z, quantum mechanics dictates that if the Earth observer measures p_E as +1/2, then the Mars observer will measure p_M as -1/2, and vice versa: that is, the measurement results are anti-correlated. Consequently, if our Earth observer measures p_E as +1/2, she knows that the Mars observer will measure p_M as -1/2. The seemingly obvious explanation of this is that when the two particles were initially separated on the ship, the process of separation caused each of them to be in some definite state that was anti-correlated with its partner -- e.g., the p_M was forced into a +1/2 state while p_E was forced into a -1/2 state. This explanation is an example of what is called local causation. To*

[18] I would like to make two notes here. First, I am not espousing the logical priority of science over philosophy; I merely suggest that if 'laws' are part of the discussion and their nature is a scientific question—while things like whether there are *ceteris paribus* clauses within what is denoted by them aren't—then the philosophical discussion must work in conjunction with the scientific question. (Though one might object that conservation laws are simply irrelevant, as Moreland and Craig will argue later). Secondly, the importance of the considerations of the scientific data should not be underestimated in general. In fact, E. J. Lowe has suggested that the "serious area of concern" just is this scientific inconsistency: "The more serious area of concern is created by the suspicion that dualist views of the mind- body relation — and certainly those that are interactionist — are somehow at odds with the findings of modern physical science: not only physiology and neurology, but also, more fundamentally, physics itself." E. J. Lowe, "The Problem of Psychophysical Causation", *Australasian Journal of Philosophy* 70, no. 3 (1992): 263. Contrariwise, the opposite could be the case and there might be a 'scientific case' for dualism to be made: "...one might argue for dualism "on scientific grounds" in two ways: one, we are directly aware of the existence of something which, it happens, science cannot reduce to the material; two, to explain human behavior we must posit the existence of something which, in order to do its explanatory job, must have properties unlike those of matter." Alan Sussman, "Reflections on the chances for a scientific dualism", *Journal of Philosophy* 78 (1981): 95. The legitimacy of such an endeavor, of course, lies outside the scope of this paper.

[19] Ibid., 13.

see why this explanation only needs to invoke local causation, first note that it explains why pE was measured as +1/2 by saying that it had a certain attribute, being in a +1/2 state, that caused the measuring apparatus on Earth to register +1/2. This causation is purely local, since once p_E hits the apparatus, there is no longer any relevant spatial distance between it and the apparatus. In the same way, it explains using only local causation why the Mars observer apparatus registered -1/2 when measuring the spin of p_M. Finally, only local causation is required to explain why the two particles started off in their respective spin states via the mechanism that separated the two particles: when the two particles were bound together on the ship, no relevant spatial distance separated them from the mechanism that split them apart and imparted to them their respective spins, and hence only local causation was involved."[20]

Despite the intricacies and details of Collins' argument,[21] the question becomes, simply, "why can we not just posit local causation as the explanation of the correlations?". He notes that with John Bell's theorem vindicated in 1966, local causality as an explanation of the correlations is problematic. Indeed, he notes, since 1977 the predictions of quantum physics -implying local causality (i.e., energy exchange) as an explanation of the correlations as insufficient- have been vindicated.[22] This situation that Collins outlines is not merely restricted to isolated cases but "pervasive throughout the microscopic world, playing a fundamental role in the operation of nature".[23] Given Collins' argument, we should, then, ask the following derivative philosophical question: If there is no energy exchange taking place between soul and body (presumably), then *how* does the soul causally affect the body? What sort of mechanism is specifiable here? The philosophical implications of the quantum physical data are thus clear: Irregardless of one's theory of laws, quantum physics supplants the objection from conservation laws and *updates* the objection itself. The argument from conservation laws is, so says Collins, scientifically *outdated*; quantum physics gives us the philosophical 'right' -if I may use this term- to adopt a philosophical anthropology in which, say, causal interaction between soul and body is acceptable. While the argument for this conclusion is based on the scientific data available, the philosophical implications should not go unnoticed. I suggest two basic philosophical implications if Collins' argument is correct. Firstly, quantum physical data will positively supplement the debate regarding dualism; it lends credence to the idea that the soul -body or mind- body interaction is less

[20] Robin Collins, "Modern Physics and the Energy Conservation Objection to Mind-Body Dualism", http://home.messiah.edu/~rcollins/Mind-Body%20Problm/Modern%20Physics%20and%20the%20Energy%20Conservation%20Objection%20to%20Mind-body%20Dualism.doc.

[21] I only re-print his scenario in full inasmuch as what is required -for the objector to dualism from conservation laws- is a clear-cut case of non-local explanation which brings into question the necessity for local energy exchange.

[22] Ibid.

[23] Ibid.

mysterious and problematic than once thought. Secondly, if Collins is correct, it is ceteris paribus possible to suggest that progress in the field of philosophy has taken place; the dualism which was rejected based on an obscure, vague notion of the causality taking place is less vague given the mysteriousness of the same phenomena in the quantum world.[24] This notwithstanding, the last group, the 'Craig-Moreland' group, will attempt to provide a philosophical answer to this question of the 'how-question' from a more philosophical perspective of the analysis of 'how-questions' in general.

In their *Philosophical Foundations for a Christian Worldview*, J. P. Moreland and William Lane Craig offer an interesting response which may be unsatisfying for many,[25] but nonetheless merits attention. Their approach -from the analytic tradition in philosophy- is to analyze the linguistic formulation of the problem itself. Consider again an overview of the objection against dualism, schematized as an argument:

1 Any causal interaction from x to y must involve a mechanical, intermediary process specifiable, in principle, in scientific terms.

2 There is no mechanical, intermediary process specifiable, in principle, in scientific terms, regarding the soul's interaction with the body.

3 Therefore, dualism does not answer the how of the soul and body causal interaction, since there is no mechanical, intermediary process specifiable, in principle, in scientific terms.

The crucial premise is (1). The presupposition of the incoherence of a causal interaction without a mechanical, intermediary process is what is in question here; for these sorts of causal interactions are scientifically specifiable interactions i.e., describing how a billiard ball hits another billiard ball—and thus answers the 'how' of the process. Consider what Craig and Moreland suggest to this:

> "*...it may even be that a "how" question regarding the interaction between mind and body cannot even arise. A question about how A causally interacts with B is a request for an intervening mechanism between A and B that can be described...The interaction between mind and body may, and most likely is, direct and immediate. There is no intervening mechanism, and thus a "how" question describing that mechanism does not even arise*."[26]

[24] Alex Pruss argues for something similar regarding the mysteriousness of physical objects in general.

[25] Especially advocates of epistemological *scientism*. Though one could hold scientism and simultaneously hold that as long as there are *material effects* of the soul i.e., its moving the body, one could admit a non-material soul i.e., for its explanatory power. I suppose that even if the electron was non-material, we would still posit it for its explanatory power as we already do. Or maybe not—I am not sure (and it doesn't concern me much since I reject scientism).

[26] William Lane Craig and J. P. Moreland, *Philosophical Foundations for a Christian Worldview* (Downers Grove, Illinois: Intervarsity Press, 2001), 243-244.

On this view, the soul contacting the physical body does not have an interaction process or intermediary into which or through which the soul causally affects the body. Thus, no energy exchange takes place at all (and so no conservation laws are broken -though if Popper is right, this doesn't matter, and if Collins is right, this should be without worry *viz-a-viz* quantum mechanics). While this analysis of 'how' questions in the context of the debate seems *ad hoc*,[27] it has the virtue of (i) keeping the conservation laws (what the objector wants to preserve) and (ii) is consistent with a rejection (or acceptance) of Bell's theorem. As such, there is no interaction problem between the soul and body in that there are no laws broken. A demand, then, for a 'how' of the interaction presupposes that such interaction is mechanistic; since this is simply begging the question, there simply is no problem. The implications of this is that the question of dualism is really *philosophical*. The debate over whether scientific laws are inconsistent with dualism is ad hoc, since it makes a category mistake of applying scientific laws to what is meta-scientific, that is, something which is exempt from the realm of the scientific domain i.e., the soul does not obey physical laws. While the consistency between scientific theories and dualism seemed to have a shifting relationship over time, in the end, the objection itself was both outdated by further scientific discovery—and worse, by philosophical analysis. If the Craig-Moreland group is correct, the question of dualism should be decided on philosophical grounds, not scientific.

In this paper I hope I have shown that despite first appearances, the libertarian who adopts dualism to preserve freedom cannot be indicted on the grounds that conservation laws are broken. I have surveyed three groups of responses which I think help to show how the conservation problem is at best a fleeting one, and that despite the controversy of conservation laws, the objection might after all be predicated on a misunderstanding of the interaction itself between soul and body. Maybe it is a meaningless question to ask "how" the interaction takes place, maybe not. Perhaps, libertarian dualism doesn't solve anything, and we have fixed a problem for nothing. Again -maybe, *maybe not*. To be honest, I haven't made up my mind yet. But I don't see why libertarian dualism should be ruled out of the live explanatory options on the philosophical scene today in virtue of the objection given by Elizabeth of Bohemia to Descartes. At any rate, despite the route we take, it cannot be said that a law has been plausibly broken—and so the wrongly convicted libertarian dualism can enter into the world of philosophical disputation once again as a "viable competitor".[28]

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[27] I suppose ad hoc only relative to certain ontologies.

[28] Lowe, "The Problem of Psychophysical Causation", 276. By logical implication, naturally, this renders, for instance, the notion of 'life after death' logically possible. Consider Richard Swinburne's concluding remarks of his paper "From mental/physical identity to substance dualism": "Since I am a pure mental substance, I may hope to continue to exist after the destruction of my body, and perhaps then to be given a new body. My acquiring a new body will consist in the new body being brought into causal interaction with the pure mental substance which is myself. The "resurrection of the body" of all humans at the "last day" (the "General Resurrection") is a central Christian doctrine. Catholics, Orthodox, and many Protestants also believe that the person continues to exist without a body in the period between death and the General Resurrection. Both these doctrines are fully compatible with the account of human nature which I have defended in this paper." Printed in Dean Zimmerman and Peter van Inwagen's *Persons: Human and Divine* (Oxford: Oxford University Press, 2007), 164-165.

Descartes' perceptive remark at the end of Mediation II, then, remains relevant:

> "*But because it is difficult to rid one's self so promptly of an opinion to which one has been long accustomed, it will be desirable to tarry for some time at this stage, that, by long continued meditation, I may more deeply impress upon my memory this new knowledge.*"[29]

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[29] Descartes, *Meditations*, Meditation II, 127.