

QUANTUM MOLINISM

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Abstract. In this paper, we consider the possibility of a Quantum Molinism: such a view applies an analogue of the Molinistic account of free will's compatibility with God's foreknowledge to God's knowledge of (supposedly) indeterministic events at a quantum level. We ask how (and why) a providential God could care for and know about a world with this kind of indeterminacy. We consider various formulations of such a Quantum Molinism and, after rejecting several options, arrive at one, seemingly coherent, formulation.

I. INTRODUCTION

Recent decades have seen a remarkable resurgence of philosophical interest in the distinctive “Molinist” account of divine foreknowledge and human free will inspired by the work of the counter-reformation Jesuit Luis de Molina.¹ A number of prominent contemporary advocates of Molinism hold that something like Molinism's account of how God's definite foreknowledge may be reconciled with human free will may also explain how God may have comprehensive providence even over quantum events, which are genuinely and irreducibly indeterministic.

In light of the deliverances of modern quantum physics, it is quite understandable that they may wish to do so. But we want to argue in this paper that there are serious (and neglected) philosophical questions about whether and, if so, how a Molinist account of God's foreknowledge of future contingents may be extended to account for indeterministic events involving quantized systems. By way of conclusion, however, we shall maintain that such an extension may be feasible, and its obstacles are capable of resolution.

Here is the plan for the paper. First, we will outline the Molinist account of free will and providence, setting out a problem for an extension of Molinism to encompass quantum events and explaining why Molinists should seek a resolution of that problem. Then we will compare and contrast the relevant available philosophical accounts of the counterfactuals in question and consider whether physical theory might yield an interpretative framework for understanding God's middle knowledge of quantum events. We will identify such frameworks but conclude that there are formidable obstacles to their viability. Then an alternative account will be developed based on the idea that the universe has a fundamentally indeterministic quantum-metaphysical relational structure. The intuition that a Quantum Molinism attracts particular difficulties remains on such an account, we think; to allay this intuition, we argue that a viable Quantum Molinism might need to be situated against the background of a neglected philosophical task, namely, the defence of a specifically Molinist account of divine action in nature.

1 See Luis de Molina, *On Divine Foreknowledge (Part IV of the Concordia)* (Cornell Univ. Press, 1988).

II. MOLINISM: A BRIEF OVERVIEW

Providence— from the Latin *providentia*, meaning “foresight” (*pro-* “ahead” + *videre* “to see”)— is an attribute of God that comprises His sovereign guidance and control of His creation. Providence is the practical implication of God’s omniscience, a vital divine attribute which includes His “knowledge of the future” or “foreknowledge”. God’s providence requires Him to have foreknowledge of how the world will *certainly* turn out, including how we, as creatures, will act when the world turns out this way.² At least that much is required of a God who is providential and able to care for and guide His creation.

But more is needed. Since God’s providence supposedly extends to free creatures, creatures whose choices are not predetermined by God, a deep puzzle arises: how could a providential God have foreknowledge of genuinely free choices?

Intuitively, trying to reconcile creaturely free will and the foreknowledge required by divine providence appears to be a zero-sum game: every increase of individual creaturely liberty seems to curb divine foreknowledge and *vice versa*. And if God’s foreknowledge does indeed exclude free will,³ that in turn appears to call into question creatures’ moral responsibility, since creatures who are not free can scarcely be held morally responsible for their actions. Foreknowledge on these terms is hardly an attribute of a truly providential God. So, the stakes are high: unless the gap between creaturely free will and God’s foreknowledge is bridged, God appears little more than a manipulator whose actions bring about the existence of creatures who are neither free nor morally responsible for their actions. The doctrine of Molinism was developed to bridge just this gap.⁴

Molinism attempts to solve this conundrum by assuming the existence of a particular kind of knowledge called *middle knowledge*. The doctrine of middle knowledge holds, at a minimum, that God knows what any conceivable free creature *would* do if placed in varying hypothetical circumstances. God is able to parse through all creatable universes by considering all possible choices He might make as to what to include in such universes and then seeing what the free creatures He creates in these universes end up doing. (He can know such contingent truths about what agents would do since He is omniscient.) Afterwards, God proceeds with His choices— that is, with His actualization of a particular set of states of affairs in certain anticipation of the individual free decisions of the creatures that God brings into being in these states of affairs. So, God has definite foreknowledge about what agents will freely decide in the circumstances they find themselves in.

Molinists hold that these are objects of God’s middle knowledge as contingent creaturely decisions. Middle knowledge is supposed to fall between two other types of knowledge (hence “middle”). On the one hand, there is a *natural knowledge* of necessary truths (e.g, that $2 + 2 = 4$). This type of knowledge is supposed to encompass immutable non-contingent propositions that are true, whatever God might decree. And on the other hand, there is *free knowledge*, which is knowledge of contingent truths depend-

² See Hugh J. McCann and Daniel M. Johnson, “Divine Providence”, *The Stanford Encyclopedia of Philosophy*, 2017, for a comprehensive overview of philosophical discussion of the notion of divine providence.

³ This follows from the Principle of Alternative Possibilities (PAP) that if one cannot do other than what one does (as the idea of divine foreknowledge suggests), then one is not free. For Harry Frankfurt’s seminal discussion, see, e.g, Frankfurt, Harry G., “Alternate Possibilities and Moral Responsibility”, *Journal of Philosophy* 66, no. 23 (1969). For an excellent summary of the debate concerning PAP, see Carolina Sartorio, “Frankfurt-Style Examples”, in *The Routledge Companion to Free Will*, ed. Kevin Timpe, Meghan Griffith, and Neil Levy (Routledge, 2016). This principle is generally accepted by Molinists, though whether they can avail themselves of the standard associated argument for incompatibilism is a moot point. See Zagzebski for a comprehensive discussion of the argument for the incompatibility of divine foreknowledge and free will. We have adopted the usual assumption (challenged in Kenneth J Perszyk, “Molinism and Compatibilism”, *International Journal for Philosophy of Religion* 48, no. 1 (2000)) that free will is incompatible with determinism under Molinism.

⁴ See Thomas P. Flint, *Divine Providence: The Molinist Account* (Cornell Univ. Press, 1998) for an excellent discussion of how Molinists understand divine providence and Ken Perszyk, “Recent Work on Molinism”, *Philosophy Compass*, 8, no. 8 (2013) for a comprehensive literature review. William Lane Craig is a prominent contemporary Molinist. His definitive study of divine foreknowledge and future contingents, William Lane Craig, *The Problem of Divine Foreknowledge and Future Contingents from Aristotle to Suarez* (Brill, 1988), situates Molina’s theory and its further refinement by Francisco Suarez against the background of the classical discussion of the problem.

ent upon God's will, such as that God created the world. Middle knowledge, by contrast, is knowledge of certain contingent propositions not under God's control (hence "pre-volitional"), including, notably, true counterfactuals concerning free creaturely acts.

For an example of an object of middle knowledge, suppose that God knows that was Bob to be in a certain bar on a certain day, he would freely decide to order red wine (and not a beer or a lemonade). God may freely choose not to create Bob or not to allow that bar to be created (by not creating the agents who *would* build that bar, were certain other things to happen). But once created, and having (freely) gone to that bar, Bob will order red wine — and this, of course, is something that God knows (and knew before creation) since God had middle knowledge that Bob would do this in the relevant circumstances. And God knows that these circumstances obtain.

That, in short, is how foreknowledge of free actions is possible. Note that this requires strong counterfactuals of the 'would' variety (see below). It is not enough for God to know that there are various things Bob *might* or even *would very likely* do, such as ordering red wine, ordering a Budweiser, or not ordering anything. God must know what Bob *would* do. And, distinctively, Molinists insist that God does not determine the truth values of counterfactuals concerning what Bob would or would not do in the situation.

We will forego exploring the many subtleties of this position and the many questions it raises (such as, for instance, the question of whether individuals could be responsible for sins which they have committed but would not have committed had the context been different.)⁵ Instead, we will proceed to a discussion on how to represent middle knowledge as extending even to indeterministic quantized natural systems.

III. QUANTUM COUNTERFACTUALS

For those impressed by how Molinism seemed to solve the conundrum of reconciling God's foreknowledge and the free will of creatures, quantum mechanics and its mysteries should pose a potentially serious problem. For present purposes, the most salient features of quantum mechanics are, on the one hand, the perfectly deterministic evolution of the quantum state in between measurements, and on the other, a measurement process driven by "the impossibility of any sharp separation between the behaviour of atomic objects and the interaction with the measuring instruments which serve to define the conditions under which the phenomena appear".⁶ Proposals to semantically cope with the probabilities, observables and predictions of standard formulations of quantum theory have resulted in a wealth of empirically equivalent interpretations. A number of these interpretations, by abandoning classical presumptions, allow determinism. In particular, a uniform theory of quantum gravity may turn out to be deterministic on the best interpretation. Nonetheless, indeterministic interpretations of quantum mechanics remain among the most widely accepted, and in this paper, we choose to focus on indeterminism. But such a choice poses a problem. For if there is quantum indeterminacy, nature seems to be a kind of arena of unfetteredly "free" — random — acts that seem incompatible with God's comprehensive foreknowledge and providence. Such uncaused events might even impact upon free actions of creatures in a way that puts God's foreknowledge of such actions at risk.

Many commentators seem not to grasp this point, or else to dismiss its implications too quickly. They insist that Molinism can obviously be adapted to accommodate the quantum cases.⁷ For example Alfred Freddoso writes:

... Molina's theory of divine providence can easily accommodate indeterminism in nature.

⁵ See, for example, Thomas P. Flint, *Divine Providence: The Molinist Account* (Cornell Univ. Press, 1998), Ken Perszyk, "Recent Work on Molinism", *Philosophy Compass* 8, (2013), and Trenton Merricks, *Truth and Ontology* (Oxford Univ. Press, 2007).

⁶ Niels Bohr, "Discussion with Einstein on Epistemological Problems in Atomic Physics", in *Essays 1932–1957 on Atomic Physics and Human Knowledge* (Ox Bow Press, 1987), 52.

⁷ See also, e.g. Eef Dekker, *Middle Knowledge* (Peeters, 2000), 9.

...[I]f indeterminism in nature is so much as possible, then counterfactuals of freedom make up only a proper fraction of what God knows by His middle knowledge. For he also knows by his middle knowledge how natural indeterministic causes would act in all possible situations involving them. So, in Molina's view, God can play dice with the universe, so there can be genuine causal indeterminacy in nature. But, Molina insists, a truly provident God knows exactly which numbers will come up on each roll by His middle knowledge.⁸

Freddoso gives no further justification for his claim that "Molina's theory of divine providence can easily accommodate indeterminism in nature". In saying that under Molinism, "God really can play dice with the universe, and hence there can be genuine causal indeterminacy in nature," he seems to offer more of an assertion than an argument.

The problem is a serious one. If the limitations on our possible physical knowledge of quantised systems arise only from our epistemic limitations, we apparently no longer have an indeterministic quantum physics. If quantum physics is irreducibly indeterministic, it seems the proponent of middle knowledge will need to give an account of God's middle knowledge of quantum systems. What still remains to be shown is how such an indeterministic account of the metaphysics of quantum physics may consistently be combined with foreknowledge of "exactly which numbers will come up". This is something Freddoso doesn't do.

Nor does Freddoso explore the more profound importance of this question for the defence of Molinism itself. Foreknowledge of "exactly which numbers will come up" is even required by a proper Molinist understanding of God's foreknowledge of human agency. To see this, it is worthwhile to note that, standardly, Molinist counterfactuals are taken to have very rich antecedents. Specifically, the antecedents are believed to include the complete prior history of the relevant world.⁹ Accordingly, counterfactuals concerning the free actions of creatures govern how a possible free creature will freely act in a certain possible situation given a (complete) antecedent world history. That history would include a vast array of actual past free actions and, possibly, indeterministic natural events. The same goes, *mutatis mutandis*, for Molinist quantum counterfactuals. Events specified in the counterfactuals' antecedents may be nondeterministic. They may include quantum events and events involving human agency, but these must always be fully in accord with God's foreknowledge and providential plan. God's knowledge of quantum counterfactuals, therefore, should not be seen as independent of his knowledge of counterfactuals of freedom: his knowledge of both structurally reflects the unity of God's providence.

Here is a 'toy' illustration of how quantum events could have direct connections with human free actions. God might know that, if the cat of Schrödinger's famous paradox were to die, the observer's grief on observing this would impel her to commit a particularly reprehensible act. God might also know that if the cat were to live, the observer would commit a particularly meritorious act. How, then, would God know how the agent would act if she were confronted with Schrödinger's cat? God's knowing how the agent would act seems important for God's decision about the circumstances in which to place her; and so, then, does God's knowledge of the quantum events concerning the cat-in-a-box, since these have ramifications in terms of her action. This intrinsic interconnectedness of quantum events and human free actions could well be a deep feature of the world.

The previous points explain the importance of articulating a Quantum Molinism that fits a fleshed-out Molinist account of divine providence. But a Molinist might resist on the following grounds. Suppose God created a world in which quantum events occur deterministically in the manner of Bohm's theory, say. So any uncertainty about how, e.g. a specific radium atom will decay is a result only of in-principle limitations on human knowledge. (What emerges is a view which we might, with tongue only half in cheek, call Quantum Calvinism.) On this view, God's knowledge of how the radium atom will decay falls under what Molinists call God's free knowledge: the truth in question is true in virtue of God's creative decree. Might God, on plausible Molinist assumptions, have created creatures with a libertarian free

⁸ Alfred J. Freddoso, "Introduction", in *Luis de Molina, On Divine Foreknowledge (Part IV of the Concordia)* (Cornell Univ. Press, 1988), 29.

⁹ Flint, *Divine Providence: The Molinist Account*, 244.

will while creating quantum systems whose behaviour is ontologically deterministic in this way? If so, it might be that developing a viable Quantum Molinism is not a vital task for a defender of middle knowledge since a Quantum Calvinism poses no problem for a traditional Molinist account of grace, divine foreknowledge and human free will.

One should not wish, however, for one's preferred account of divine providence to depend on the viability of contested and quite controversial interpretations of quantum physics. As we pointed out above, indeterministic interpretations of quantum mechanics remain among the most widely accepted. At the very least, we should make room for the possibility of ontological indeterminism at the quantum level. It seems reasonable, then, to explore the possibility of an account of divine providence on which divine providence extends to an indeterministic quantum world in something like the way envisaged by Quantum Molinism.

We should therefore take a step back and look at how there might be quantum counterfactuals that genuinely fall under God's middle knowledge. First some clarification, since the use of the term 'counterfactual' might engender confusion here. Sometimes, (and, in philosophy, usually) it denotes the conditional itself, but sometimes also the non-factual states, occurrences, etc, that would have occurred if some other non-factual states, occurrences, etc, had taken place. To avoid confusion, we here let a *counterfactual occurrence, state, proposition*, etc, be any possible occurrence, state, proposition, etc, that is 'not factual'; i.e, merely potential or possibly true, and not actual or actually true ('counterfactual' in sense A). A *counterfactual conditional*, on the other hand, is any conditional of the form 'Y would (alt.: might) have happened if X had happened' or 'If X were to happen, Y would (alt.: might) happen' ('counterfactual' in sense B), to be contrasted with *indicative conditionals* (i.e, conditionals of the form 'If X happened, then Y happened').¹⁰ (The contrast between indicative and counterfactual conditionals is particularly evident when we contrast conditionals like 'If Oswald hadn't killed Kennedy on 22 November 1963, someone else would have' and 'If Oswald did not kill Kennedy on 22 November 1963, someone else did'. The first is almost certainly false, assuming Oswald acted alone. The latter is, however, clearly true.)

In quantum physics, the idea of counterfactual states is familiar, as is reasoning about how such states relate to actual states (understood as states subjected to actual measurement). So to determine the contours of a viable Quantum Molinism, it is necessary to consider and contrast the conceptual frameworks made available to us by physical theory. For instance, in a physical context, we could ask if an ensemble of mutually complementary (maximal) observables can (consistently) co-exist. Each of these maximal observables could, in principle have been measured, but due to complementarity, only one can actually be measured; the others would remain counterfactual observables (counterfactual in sense A). This is often taken to mean that there exists a multitude of co-possible observables that are dormant — to quote Hamlet, an "undiscover'd country, from whose bourn no traveller returns". But such a reading seems highly questionable, since under reasonable assumptions, the resulting *system* of counterfactual propositions is inconsistent.¹¹

The interpretive theory that, on the surface, seems closest to making sense of this while also allowing something like Molinist middle knowledge of quantum events is the *Many-Worlds* interpretation of quantum mechanics, also called *splitting worlds theory*.¹² This hypothesis is based on a particular reading of the 'relative state' formulation, once presented by Everett,¹³ of quantum theory.¹⁴ On the splitting worlds interpretation of Everett's relative state formulation, every time a quantized system is in a

¹⁰ See, e.g, Frank Jackson, ed, *Conditionals* (B. Blackwell, 1987).

¹¹ Simon Kochen and E. P. Specker, "The Problem of Hidden Variables in Quantum Mechanics", *Journal of Mathematics and Mechanics* 17 (1967), 20–22.

¹² Hugh Everett, *The Many-Worlds Interpretation of Quantum Mechanics: A Fundamental Exposition* by Hugh Everett, III, with Papers by J.A. Wheeler [and Others] (Princeton Univ. Press, 1973).

¹³ Hugh Everett, "'Relative State' Formulation of Quantum Mechanics", *Reviews of Modern Physics* 29, no. 3 (1957)..

¹⁴ This reading is presented and discussed in Jeffrey A. Barrett, "Everett's Pure Wave Mechanics and the Notion of Worlds", *European Journal for Philosophy of Science* 1, no. 2 (2011). and Hugh Everett, *The Everett Interpretation of Quantum Mechanics: Collected Works 1955–1980 with Commentary* (Princeton Univ. Press, 2012).

coherent superposition of outcomes with respect to a particular measurement (notwithstanding issues resulting from “undoing” measurements, such as in quantum erasure experiments), the universe splits into mutually distinct, and totally separated, “branches” or “worlds.” Unless they interfere, these worlds exist independently. As Podolsky put it at a 1962 conference on the foundations of quantum mechanics:

somehow or other we have here the parallel times or worlds that science fiction likes to talk about so much. Every time a decision is made, the observer proceeds along one particular time while the other possibilities still exist and have physical reality . . . It looks like we would have a non-denumerable infinity of worlds [here Everett interjected: ‘Yes’], each proceeding with its own set of choices that have been made.¹⁵

Everett’s relative state argument was devised to cope with the question of the consistency of two quantum processes.¹⁶ This question arises from a thought experiment later known as “Wigner’s friend”¹⁷ which challenges us to reconcile, on the one hand, the continuous unitary quantum evolution process (which essentially amounts to a one-to-one transformation) of the wave function in between measurements, with the irreversible measurement process associated with a discontinuous collapse of the quantum state on the other. After all, if the former quantum state evolution is ubiquitous and universally exemplified, there can be no irreversible measurement. Indeed, by a *nesting* argument which Everett saw as creating an “extremely hypothetical drama”¹⁸ it is unclear why the *combined* system comprising the measurement apparatus merged with the object observed by the latter should not evolve according to some continuous unitary quantum evolution process, thereby ruling out any alleged discontinuous collapse of the quantum state from the former measurement. More formally, no one-to-one unitary transformation of the state can give rise to some many-to-one process that “singles out” some eigenstate from a nontrivial coherent superposition of many such eigenstates, thereby losing information and spoiling reversibility. (As in the case of the second law of thermodynamics¹⁹ the apparent irreversibility is means-relative to operational capacities, and valid for *all practical purposes* — *fapp*, for short²⁰).

Unfortunately, this approach might result in the sort of troubles so vividly displayed in Schrödinger’s cat “paradox”. Without irreversible measurements the universe would also soon decay into a huge superposition of classically distinct states, all co-existing simultaneously and interfering with one another. Schrödinger’s concern was that, without measurements, nature could not be “prevented from rapid jellyfication”, so that, say, within “a quarter of an hour, we should find our surroundings rapidly turning into a quagmire, or sort of a featureless jelly or plasma, all contours becoming blurred, we ourselves probably becoming jelly fish”²¹

15 In Everett, *The Everett Interpretation of Quantum Mechanics: Collected Works 1955–1980 with Commentary*, 274. Everett conceived the multiplicity of coherent superpositions in terms of *arbitrary bases*. If taken to the extreme, this would mean that a continuum of conceivable bases needs to be taken into account at all times: from dimension two onwards, orthogonal bases of vector spaces can be characterized by continuous parameters (Julian Schwinger, “Unitary Operator Bases”, *Proceedings of the National Academy of Sciences of the United States of America* 46, no. 4 (1960); Francis Dominic Murnaghan, *The Unitary and Rotation Groups* (Spartan Books, 1962)). If so, on Everett’s understanding, “branches might be individuated concerning any basis whatsoever” (Jeffrey A. Barrett, “Everett’s Pure Wave Mechanics and the Notion of Worlds”, *European Journal for Philosophy of Science* 1, no. 2 (2011), 289). This yields an enormous multiplicity of relative states, generating what Barrett names the *many-many-worlds* interpretation. By comparison, the formalism of splitting worlds considers a single basis at the time of measurement.

16 Everett, *The Many-Worlds Interpretation of Quantum Mechanics: A Fundamental Exposition* by Hugh Everett, III, with Papers by J.A. Wheeler [and Others], 73.

17 E. P. Wigner, “Remarks on the Mind-Body Question”, in *Philosophical Reflections and Syntheses*, ed. Jagdish Mehra (Springer, 1995).

18 Everett, *The Many-Worlds Interpretation of Quantum Mechanics: A Fundamental Exposition* by Hugh Everett, III, with Papers by J.A. Wheeler [and Others], 74–75.

19 Wayne C Myrvold, “Statistical Mechanics and Thermodynamics: A Maxwellian View”, *Studies in History and Philosophy of Science Part B: Studies in History and Philosophy of Modern Physics* 42, no. 4 (2011).

20 John Bell, “Against ‘Measurement’”, *Physics World* 3, no. 8 (1990).

21 Erwin Schrödinger, *The Interpretation of Quantum Mechanics: Dublin Seminars (1949–1955) and Other Unpublished Essays* (Ox Bow Press, 1995), 19.

We do not propose to defend Everett's interpretation of quantum mechanics.²² Nor shall we criticise it. Instead, we want to revisit the view mentioned above that this interpretation of quantum physics seems closest to allowing something like Molinist middle knowledge, yielding a kind of Many-Worlds Quantum Molinism. Here is the argument for that view. Consider the measurement problem in the context of God's providence and ask whether God knows what would happen if measurement were made. In the Many-Worlds interpretation, it follows right away that He does. Since each possible outcome is instantiated in one of the worlds, God, of course knows what would happen if a measurement was made: since God knows the truth of the Many-Worlds interpretation, God sees that He can't go wrong! In short, Everett's Many-Worlds interpretation of quantum mechanics seems tailor-made for Quantum Molinism.

But the argument contains a fallacy. Far from showing that middle knowledge of the quantum world under the Many-Worlds interpretation is analogous to God's middle knowledge of free creatures' actions, the argument indicates that the appeal to middle knowledge trivializes on the Many-Worlds interpretation. If every possible measurement outcome happens in some world or other, and no world is distinguished as THE world (if, in fact, we see the notion of THE world as deeply puzzling because it continues with the thought that we, alongside Schrödinger's cat, exist in one giant superposition state), God, of course, knows what the outcome of any measurement *would* be.

Something has clearly gone wrong in this argument for a form of middle knowledge of the quantum world. This is further shown by the fact that Everett's Many-Worlds interpretation denies the ontological indeterminism we wanted to allow for in Quantum Molinism. One consequence of that interpretation is that from a God's-eye-view, there can now be no difference between a weak counterfactual about what the outcome of a measurement *might* be and the strong counterfactual about what it *would* be. By positing a plurality of worlds, all of which are equally real, the interpretation explains away the pure probabilism of standard interpretations of the fundamental ontology of quantum mechanics. What we imagined might make the interpretation look tempting to a Molinist is the idea that the many worlds might constitute an arena for God's choices among undetermined quantum scenarios. That idea is radically mistaken.

In short, Many-Worlds Quantum Molinism fails as a viable form of Quantum Molinism.

IV. ANOTHER ATTEMPT: BEAM SPLITTER AS ROSETTA STONE

So, where to from here? Consider the following thought, which some, confronted by the problems facing Many-Worlds Quantum Molinism, might entertain as yielding a reasonable version of Quantum Molinism.

Suppose God's situation involves an elementary act of volition involving a particle passing a 50:50 beam splitter. This would be an instance of what is often referred to as a "quantum coin toss".²³ Quantum mechanics formalizes a 50:50 beam splitter by a 2-dimensional unitary Hadamard matrix which mixes the state of any particle in any input port into a coherent superposition of states across two output ports. Until measured, any such state (in the output port) remains a counterfactual possibility. Either measurement outcome remains open. Given the framework of middle knowledge, God's act of volition determines which measurement outcome ensues.

What arguably emerges is a version of Quantum Molinism that affirms:

- (i) God's natural knowledge which includes, *inter alia*, the state evolution of the beam splitter formalized by the Hadamard matrix.

²² Lev Vaidman, "Quantum Theory and Determinism", *Quantum Studies: Mathematics and Foundations* 1, no. 1 (2014).

²³ See Daniel M Greenberger, Mike A Horne, and Anton Zeilinger, "Multiparticle Interferometry and the Superposition Principle", *Physics Today* 46 (1993). For discussion of the idea of a "quantum coin toss", see Karl Svozil, "The Quantum Coin Toss-Testing Microphysical Undecidability", *Physics Letters A* 143, no. 9 (1990).

- (ii) God's consideration of the two distinct states in the two distinct output ports, or even the entire formalized superposition of such states, informed by God's middle knowledge of the particle's passing the beam splitter.
- (iii) God's free knowledge of God's choice (among the two equally likely output ports) of one of the paths the particle is able to take, and which is subsequently detected by a fapp irreversible measurement.

God's choice as specified in (iii) is in no way contingent on any immanent entity, but solely results from God's volition. To any intrinsic, embedded observer bound by operational constraints, God's choice would reveal itself as an unpredictable form of *creatio continua*.²⁴ (It is tempting to say 'ex nihilo', but that terminology is, of course, reserved in theology for the original act of the universe's creation, a kind of 'master-act' logically prior to the coming-into-being of any concrete, finite entity.)

On this version of Quantum Molinism, there is no law-like manner in which God intervenes in nature to produce the fapp irreversible measurement. (The essentially probabilistic manner in which the world unfolds is, on the standard quantum picture, real from the perspective of observers.) Instead, God's volition—His freedom of choice—is mediated by the presence of gaps in the laws of nature, where a gap allows for events without natural causes.²⁵ (Such an account thus places severe restrictions on the "universality" of laws of nature.²⁶) On this conception, God first creates the world through a single act of will. Having done so, God's choices about micro-level systems are effected through the openness of quantum laws by a *creatio continua*, in a similar way to divine action as depicted in Robert John Russell's²⁷ influential "Non-Interventionist Objective Divine Action" theory (NIODA) and Alvin Plantinga's account of "interventions" (in a somewhat different sense from Russell's) by a providential God who "always [acts] in ways that go beyond creation and conservation".²⁸

Call this view *Volitional* Quantum Molinism. But Volitional Quantum Molinism too faces severe difficulties that prevent it from being the kind of version of Quantum Molinism that we are looking for. First, note that it completely obliterates the idea of libertarian free agency if the core idea is extended to account for human free action. After all, these acts of volition on God's part in the quantum world directly bring about certain events or states of affairs, which are, therefore, the result of God's free action. But if our choices too merely reflect the whim of a God who freely chooses what His agents do by directly willing their choices, we scarcely have freedom in a libertarian sense. (The only agent with libertarian freedom will be God.) At best, therefore, Volitional Quantum Molinism is a Molinism whose application never extends beyond the case of quantum mechanics.

Secondly, (ii) refers to God's middle knowledge of the particle's passing the beam splitter. But this is confused. It is true that God has knowledge of what output port the particle *would* take, but that is not enough for it to count as *middle* knowledge. On such a Volitional Quantum Molinism, divine fore-knowledge of how the universe actually develops falls under God's free knowledge since it reflects God's knowledge of His own choices. There is therefore no role for middle knowledge to play. In that case, it lacks the core component of a genuine Molinism.

We shall now develop a genuinely Molinist solution to our puzzle about God's knowledge of events in an indeterministic quantum world, providing, finally, what we take to be a viable Quantum Molinism.

24 Alastair A. Abbott, Cristian S. Calude, and Karl Svozil, "A Non-Probabilistic Model of Relativised Predictability in Physics", *Information* 6, no. 4 (2015).

25 Philipp Frank, *The Law of Causality and Its Limits* (Kluwer Academic Publishers, 1998, section II, 9, 12).

26 Cristian S Calude, F Walter Meyerstein, and Arto Salomaa, "The Universe Is Lawless or 'Pantōn Chrēmātōn Metron Anthrōpon Einai'", in *A Computable Universe: Understanding and Exploring Nature as Computation* (World Scientific, 2013).

27 Robert John Russell, "Quantum Physics and the Theology of Non-Interventionist Objective Divine Action", in *The Oxford Handbook of Religion and Science*, ed. Phillip Clayton (Oxford Univ. Press, 2006); Robert John Russell, "What We Learned from Quantum Mechanics about Noninterventionist Objective Divine Action in Nature-and Its Remaining Challenges", in *God's Providence and Randomness in Nature: Scientific and Theological Perspectives*, ed. Robert John Russell and Joshua M. Moritz (Templeton Press, 2018).

28 Alvin Plantinga, "What Is 'Intervention'?", *Theology and Science* 6, no. 4 (2008), 393.

V. A MODAL CONCEPTION OF WORLDS, AND OF MOLINIST COUNTERFACTUALS

We begin by replacing Everett's idea of many parallel worlds with the modal conception of multiple possible worlds; the one in play in the case of alethic modalities like *it is necessarily / possibly / contingently the case that*. The difference may seem conceptually small. To philosophers, however, it is enormous. Possible worlds are ways the (actual) world may have been, but they are not, in any physical sense, parallel universes. They are whatever allows coherent sense to be made of the claims that I might have acted otherwise, or that you might have been born in another place, or that Caesar might never have been assassinated or that Biden would not have been elected president had he decided not to run for office: familiar *modal* claims. Few philosophers think of such possible worlds as concrete universes; David Lewis is a clear exception,²⁹ but since, for Lewis, such worlds are causally isolated from each other and nothing — animate or inanimate — occupies more than one world, even Lewis's conception of worlds doesn't satisfy the desiderata of Many-Worlds³⁰ theorists. For most other philosophers, possible worlds are abstract objects that represent possibilities. They might even be thought of as a type of fiction.³¹

In the present context, it is important to highlight two features of worlds on this modal conception. First, they are functionally vastly different from worlds on Everett's Many-Worlds conception. On the modal conception there are worlds in which law-like patterns of regularity fail to hold (these worlds are not *physically* possible on the modal conception, since the physically possible worlds are restricted to worlds where the actual laws of nature hold). By contrast, on Everett's conception, "laws" like Schrödinger's equations are presumably supposed to hold in all worlds. (It is important to stress, however, that this doesn't entail that laws are genuinely universal. Even on Everett's interpretation, laws may be gappy.)³² Secondly, understanding worlds in terms of the modal conception rules out the possibility that there are many actual worlds, worlds that capture different world-states corresponding to superpositions. On the modal conception, there is just one actual world, the world that we inhabit, although there are many possibilities *for* this world.

Now consider Molinist counterfactual conditionals on this modal conception. Their truth-conditions are usually thought to involve other worlds, and in something like the following way: 'Were A true, then B would be true' is true at the actual world iff some world where A and B are both true differs, on balance, less from the actual world than does any world where A is true and B false. (On one construal, the *might* counterfactual 'Were A true, then B might be true' is then true iff the *would* counterfactual 'Were A true, then B would be false' is false. But there are alternative readings.³³)

Of course, talk of some world's differing less, on balance, from the actual world than another world seems disconcertingly vague. Those who accept this kind of framework, however, have had much to say about what goes into the measure, vague though it is, of comparative overall similarity that informs our assessment of counterfactuals as being true or false. One especially important feature of worlds that makes for similarity is the set of underlying laws that hold across the relevant worlds (or, if you prefer,

29 David K. Lewis, *On the Plurality of Worlds* (Oxford : Basil Blackwell, 1985).

30 David K. Lewis, "How Many Lives Has Schrödinger's Cat?", *Australasian Journal of Philosophy*, 82, no. 1 (2004) suggests that Everett's branching worlds are best conceived as entities that spread out causally at finite speeds, 'like ripples on a pond', and not as Sunderings of the whole universe. He thought that 'many-worlds' is thus not an apt name for the optimal Everettian view. For related reasons, we reject Alastair Wilson's recent attempt in Alastair Wilson, *The Nature of Contingency: Quantum Physics as Modal Realism* (Oxford Univ. Press, 2020) to construe the Many-Worlds interpretation as a way of understanding Lewis's modal realism. (We acknowledge that Wilson's work warrants a fuller response than we are here able to provide.)

31 See Daniel Nolan, "Modal Fictionalism," *The Stanford Encyclopedia of Philosophy*, 2022. For an account of how such a conception fits into the larger programme of fictionalism, see Fred Kroon, Stuart Brock, and Jonathan McKeown-Green, *A Critical Introduction to Fictionalism* (Bloomsbury Academic, 2019).

32 The notion of gappy laws may be required for reasons that have nothing to do with quantum indeterminism. Indeed, some considerations supporting non-universality arguably cast doubt on the very notion of a law of nature. See Bas C. van Fraassen, *Laws and Symmetry* (Oxford Univ. Press, 1989), John W Carroll, "Laws of Nature", *Stanford Encyclopedia of Philosophy*, 2020, and Calude, Meyerstein, and Salomaa, "The Universe Is Lawless or 'Pantón Chrématón Metron Anthrópon Einai'".

33 Schrödinger, *The Interpretation of Quantum Mechanics: Dublin Seminars (1949–1955) and Other Unpublished Essays*, 19.

the patterns of regularity that we codify as laws). Thus, suppose I am in a park, holding a large rock 5 feet above the ground, and make the claim:

(S) Were I to release this rock in the next five seconds it would fall to the ground.

On the present account this is true because, even if I do not actually release the rock, *some* possible world in which I do release it and it falls to the ground is more similar to the actual world (in terms of physical laws continuing to hold, etc) than *any* world in which I release it and where it doesn't fall to the ground. In the latter kind of world, odd things happen: gravity may fail or an eagle may suddenly snatch the rock from my hands, or ...etc, making such worlds far more dissimilar to the actual world than one in which everything is just as it is until the moment I decide to release the rock (compared to everything being just as it is and the rock's not being released).

Much has been written to justify such an account or explain away apparent difficulties it faces. We would not add to the discussion.³⁴ What is important and worth highlighting, though, is its radically non-epistemic nature. Take (S) again. Suppose that, unbeknownst to me, God is of a mind to falsify my strong belief that the rock, upon release, will fall to the ground. God's actual presence and intention change the similarity ordering of worlds. It turns out that, despite the overwhelming weight of scientific opinion, (S) is false, even if no one ever gets to *know*³⁵ that (S) is false.

We are now ready to turn to Molinist counterfactuals. Consider first Molinist counterfactuals concerning free will: counterfactuals of the form 'Were such-and-such be the case, X would freely choose to do such-and-so'. According to the Molinist, there are counterfactuals of this form that are known to be true by God (by His middle knowledge). And these account for God's foreknowledge of free human action. What, if anything, could make them true under Molinism is, famously, a matter of contention. Some commentators agree that something must ground their truth, although what this something is, and how to formulate the appropriate sense of grounding, is disputed. (If we are sceptical of finding appropriate ways to ground counterfactuals of freedom, that may in turn found scepticism of Molinist middle knowledge.)³⁶

What would an appropriate version of Quantum Molinism be like on such an understanding of counterfactuals? Take the beam-splitter experiment again. Assuming that there is only a 50% chance that the particle will be detected at one particular port, we cannot say that when the particle encounters the beam-splitter then it *would* be detected at that port, but only that it *might* be so detected. But, of course, divine knowledge of such 'might' counterfactuals is not enough for the definite foreknowledge which Molinists affirm.

God, granted comprehensive foreknowledge, must know what *would* have happened in such a beam-splitter experiment. We shall now explore two explanations of how this could be so. Each recalls some interpretation of Einstein's dictum that God does not play dice with the universe. Suppose, as we have been assuming, that a feature of the best possible quantum physics is its pure probabilism. But further suppose that the world as it really is, structured in a way that only God could know and understand, is such that there is a deterministic route from the particle being emitted to its arriving at some particular port. In that case, God does not play dice, but this could never yield any help to scientists in predicting which port the particle will arrive at. So, there will be counterfactuals of the form 'if the beam *were* split then it *would* be detected at port A' that God knows to be true, but that humans not only do not but *can-*

34 For a good overview see William Starr, "Counterfactuals", *Stanford Encyclopedia of Philosophy*, 2021.

35 It is important to note that some 'Open Theists', like William Hasker, allow that there might be truths about what possible free creatures would freely do in any given situation, while denying that anyone, even God, could know these. See William Hasker, "Counterfactuals and Evil: A Final Reply to R. Douglas Geivett", *Philosophia Christi* 5, no. 1 (2003).

36 See, e.g. William Hasker, "The (Non)-Existence of Molinist Counterfactuals", in Molinism: *The Contemporary Debate*, ed. Ken Perszyk (Oxford Univ. Press, 2011). Merricks, *Truth and Ontology*, is in fact sceptical of *any* grounding requirement. Even if the truth of Molinist counterfactuals is not grounded, it might still be that their truth can be *explained*: see Alexander R. Pruss and Joshua L. Rasmussen, "Explaining Counterfactuals of Freedom", *Religious Studies* 50, no. 2 (2014).

not know to be true. They would be true because similarity among possible worlds will be a function of the actual world's fundamental structure. Epistemic access to this structure will be God's alone.

That outlines the first option. Einstein did not accept the idea of a personal God who is able to know things about the universe that humans cannot, but he was famously a realist about that universe. He was someone who to the end of his life continued the search for a unified physical theory that would remove the pure probabilism apparently found in quantum physics. Given the sorry state of the quest for a unified field theory, it is not unreasonable to think that Einstein would have allowed the possibility that the world's deep structure might be uncodifiable and unknowable.

But of course, on this particular modal version of Quantum Molinism we lose an important point of analogy with classical Molinism. The sort of freedom of action that classical Molinism was designed to reconcile with God's foreknowledge is no longer present, even in modified form, on this version, since it abjures ontological quantum indeterminism — it is only *as if* the world is indeterministic, because the fundamental laws of physics tell a fuller, deterministic, story, even if they are laws not fully accessible to humans.

However, another option offers more hope on this front. It preserves quantum indeterminism by recognizing that the universe has a fundamentally indeterministic quantum-metaphysical structure. It combines this, however, with the thought that the complex systems we find in the world are not closed but open. And irreducibly probabilistic accounts of the behaviour of the open systems cohere with something that looks, but in fact isn't, deterministic: the existence of true quantum counterfactuals and, in so far as they depend on facts about the quantum world, true counterfactuals of freedom.

Think of the way the effects of quantum uncertainty on macroscopic objects are far beyond what could be observed: Schrödinger's famous cat lives or dies based on the random decay of an atom. The proposal is that, given the nature of the universe as a complex, integrated system of whose fine structure we humans have only very limited knowledge, facts about how the universe as a whole is structured may ground the truth of counterfactuals about such things as the outcome of a beam splitter experiment, consistent with the sort of quantum uncertainty that is disclosed by quantum physics. The truth-values, known infallibly by God, of counterfactual conditionals concerning how indeterministic quantum systems would behave under any antecedent conditions may supervene on the necessary fundamental relations between natural systems. And since, as traditional Molinist counterfactuals, these counterfactuals have antecedents including a complete history of the relevant world, those counterfactuals relate all the events in such a history, macroscopic and microscopic, to the events specified in their consequents. The conditionals would be Molinist counterfactuals in just the sense we have been looking for: they would suffice for God's foreknowledge of physical events even under conditions of quantum indeterminacy.

In short, God's middle knowledge may be based on His knowledge of how all possible indeterministic systems are related to one another. This does not impugn genuine indeterminacy because God's middle knowledge so understood should not be thought of as determining God's action and choices in creating the world and governing it. Addressing the 'grounding objection' to Molinism, Ken Perszyk has said "... it does not seem to me to be ... wildly implausible to suppose that [counterfactuals of creaturely freedom] supervene on primitive non-naturalistic facts open ... to the mind of God".³⁷ Our proposal is that, analogously, God's middle knowledge encompasses Molinist counterfactuals concerning undetermined quantum events, where the truth of these counterfactuals could supervene on non-naturalistic brute facts, logically prior even to creation, concerning the complex intrinsic relations between possible physical systems.

VI. AN IMPORTANT OBJECTION, AND A CONCLUSION TOWARDS A NEW RESEARCH PROGRAMME

William Hasker formulates the nub of a well-known anti-Molinist argument in this way:

37 Ken Perszyk, "Recent Work on Molinism", 759.

God's consideration of the counterfactuals of world-actualization is an integral part of the divine creative action, and is thus inescapably a part of the world's history [H]. Contrary to the Molinist ... 'H' does entail 'C $\square \rightarrow$ X', where 'C $\square \rightarrow$ X' is a true counterfactual of freedom. But if this is so, then we created free agents do not bring about the truth of counterfactuals of freedom about us ...³⁸

Since 'vicious circularity' objections such as Hasker's are often thought of as particularly troubling for the Molinist, could it not be objected that the viability of our version of Quantum Molinism is entirely parasitic on the failure of arguments that parallel Hasker's?³⁹ (We rely, after all, on the claim that God's middle knowledge does not determine which of a set of possible 'actions' of indeterministic systems God might actualize as being the best, thus minimizing divine freedom.)⁴⁰

This might invite the charge that we must be wrong to suppose that irreducible quantum indeterminacy poses a particular problem (even if it is ultimately resolvable) for the Molinist account of providence and foreknowledge. Once we assume that objections such as Hasker's fail, as we must if Molinism is judged to be as much as coherent, what reason remains for doubting that Molinism can, as, e.g. Freddoso claims, easily be adapted to accommodate the quantum cases?

We have a response to this charge. Very often, in the literature assessing the Molinist account of providence when compared with its competitors, one finds implicit or explicit the suggestion that God's choice, in the light of his middle knowledge, to create an indeterministic world was motivated by a desire to create finite free persons with serious moral responsibility and free choice, along with all those goods that are logically contingent on the exercise of such responsibility and freedom. And, of course, what goes hand-in-hand with this suggestion is the familiar claim that only free agents with libertarian free will could enjoy those goods. Once we extend the scope of God's middle knowledge to cover possible natural systems at a quantum level, we require more explanation as to God's motivation for creating, in light of his middle knowledge, a world containing indeterminism.

One such explanation is not far to seek. Natural indeterminism, it might be said, is logically necessary for the realization of goods for whose sake God creates free and morally responsible creatures whose free actions He foresees, given His knowledge of the counterfactuals of creaturely freedom. The Molinist would then need to explain how God's lack of control, prior to his act of creation, over the counterfactuals concerning physical events at the quantum level makes sufficient difference to the realization of the goods consequent only on human free will. Otherwise, God's creation of indeterministic systems, of whose actions he has middle knowledge, remains unmotivated.

Conventionally, this kind of view of the value of indeterminism in nature goes hand-in-hand with an Open Theist account of divine providence. On such an account, God has neither definite foreknowledge of free creatures' actions, nor of indeterministic natural events. God is supposedly omnipotent and all-knowing. Open Theism, however, entails only that God has as much power as it is possible for anyone to have over free creatures and indeterministic natural events. It does not entail that God can have definite knowledge of anything more than probabilities of a given free action or indeterministic natural event. God literally takes risks in creating and governing the world. God plays dice! How the dice will roll, not even God can know for sure. Suppose we grant the Open Theist's (questionable) assumptions about the limitations on God's power and knowledge necessary for the emergence of free creatures and an open but regularity-governed cosmos. It might then be possible to see how natural indeterminism, even at a quantum level, might be a necessary precondition for the existence of free creatures and hence of the goods on which their freedom depends. After all, without it, God might inevitably be exercising too much control over nature, thus impeding the exercise of free will and the actualization of its concomitant goods.⁴¹

38 Hasker, "The (Non)-Existence of Molinist Counterfactuals", 33.

39 See, relevantly, John D Laing, "Molinism, Question-Begging, and Foreknowledge of Indeterminates", *Perichoresis* 16, no. 2 (2018), 70–71.

40 Yishai Cohen, "Counterfactuals of Divine Freedom", *International Journal for Philosophy of Religion* 79, no. 3 (2016), maintains that the objects of middle knowledge turn out to be pre-volitional for God, i.e. objects of His natural knowledge, since the Molinist's God cannot engage in rational deliberation over which world to create.

41 See the theodicy presented in Bruce R. Reichenbach, *Evil and a Good God* (Fordham Univ. Press, 1982).

The challenge, however, for the Quantum Molinist would be to explain without weakening the traditional account of providence and foreknowledge how indeterminism at a quantum level is required for free will and its associated goods. The problem arising becomes more acute when one sees that random quantum events do not seem to afford a very promising physical substrate for free responsible actions at the macroscopic level.⁴² The Molinist who wishes to advance this explanation of God's motivation will say that there are goods whose realization depends on the development of finite, free, responsible creatures. But such a Molinist will be constrained also to say that these goods could not have arisen, or at least would be less well distributed, without (ontological) quantum indeterminacy. This conclusion seems difficult to substantiate.

Nevertheless, another, less anthropocentric, possibility presents itself. This is that the significance and value of indeterminism, actualised by God in light of His middle knowledge, extends not only to the consequences of the free actions of finite free creatures. Instead, finite persons endowed with libertarian free will exemplify and instantiate an ontological status which God has seen fit to place in things in the cosmos, even down to the level of its minutest constituents. And this ontological status, it would be contended, has an intrinsic and non-instrumental value and significance. God's creation might be intrinsically valuable in virtue of an axiology reflected in the whole interrelated network of created things. God would not be an external and temporal intervening agent, adopting a "hands-off" approach in order to avoid excessive contrivance or manipulation. Substantial work has been done in recent philosophy and theology to give an account of how quantum indeterminism yields a mechanism for special divine action without postulating constant temporal interventions in the natural order.⁴³ Serious in-principle limitations and other difficulties beset any such account.⁴⁴ The indeterminism of free creatures and natural indeterministic systems would on our account emerge, instead, from counterfactuals that connect possible histories of the world with indeterministic events — contingent counterfactuals made true by aspects of the world not under God's direct control and so objects of His middle knowledge rather than His free or natural knowledge.

Again, the point bears repeating that Molinist counterfactuals are standardly taken to have antecedents that include a complete history of the relevant world, a history encompassing free human actions, and many natural events, including at a quantum level. Natural indeterministic systems and finite free agents might act by radically different mechanisms.⁴⁵ (Consider Aristotle's account of future contingents;⁴⁶ such contingency may similarly have very different sources; it may be a function of yet-to-be-made choices, of the way the natural world may unfold, or of a combination.) Yet both kinds of indeterminacy might be intrinsically involved in a progressive unfolding of physical reality, via a kind of 'double agency' that leaves room for both created indeterminacy and divine sovereign causality. And what might link them is the way the counterfactual conditionals God knows by middle knowledge fall, given the fundamental counterfactual structure of reality. On the resulting picture of creation, God creates in a single act, in light of His middle knowledge, a range of secondary causes. What would result might be called a 'noninterventionist' account of divine action: on it, laws of nature are not violated by God. But accompanying such

42 As J. J. C. Smart in J. J. C. Smart and John Haldane, *Atheism and Theism* (Blackwell Publishers, 2002), 63, remarks: "... I would feel that my freedom was impaired if I thought that a quantum mechanical trigger in my brain might cause me to leap into the garden and eat a slug. ... It really is extraordinary how many physicists in their popular writings come out with the idea that quantum mechanical indeterminacy leaves room for free will."

43 See, e.g. Thomas F. Tracy, "Creation, Providence And Quantum Chance", in *Philosophy, Science and Divine Action*, ed. F. LeRon Shults, Nancey C. Murphy, and Robert John Russell (Brill, 2009). and Russell, "Quantum Physics and the Theology of Non-Interventionist Objective Divine Action".

44 With respect to the work of Russell, see, e.g. Russell, "What We Learned from Quantum Mechanics about Noninterventionist Objective Divine Action in Nature-and Its Remaining Challenges" and Emily Qureshi-Hurst, "Does God Act in the Quantum World?: A Critical Engagement with Robert John Russell.", *Theology and Science* (2021).

45 For excellent recent philosophical discussion of divine action, determinism and quantum physics see Jeffrey Koperski, *Divine Action, Determinism and the Laws of Nature* (Taylor & Francis, 2020). We leave for future projects elaboration of the details of how a Quantum Molinism might inspire a rigorous account of divine action under conditions of indeterminacy.

46 Aristotle, "De Interpretatione", in *Categories and De Interpretatione*. (Clarendon Press, 1963), pt. IX.

an account is a comprehensive account of providence that robustly forecloses any accusation of deism, not just claims of divine manipulation.

Such a proposal calls for much more work, and much effort to harmonise it with the best available philosophical, theological, and scientific frameworks. Important questions arise about how God's general act of creating could relate to putative special providential acts of redemption, like the act of raising Jesus Christ from the dead.⁴⁷ In turn, such questions would then have implications for Molinism's preferred philosophical approach to resolving the problem of evil, and to understanding, for example, the practice of petitionary prayer. We think this marks out space for an exciting research programme for original future work on Molinism: the elaboration and defence of a distinctively Molinist account of divine action.⁴⁸

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⁴⁷ These questions are particularly acute when one conceives of God as a person like us, but without our embodiment or limitations in terms of power, knowledge and goodness. On one important interpretation of the tradition of classical theism, out of which Molina himself emerged, classical theism does not conceive of God in such terms.

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