

The world soul in early modern philosophy
Alison Peterman

Biography: Alison Peterman is Associate Professor of Philosophy at the University of Rochester. She writes about early modern philosophy of science, philosophy of mind, and metaphysics.

Abstract: The world soul was often a target of attack in early modern natural philosophy, on grounds of impiety and explanatory vacuity. But it also played an important role in debates about two of the most important questions in natural philosophy: how does nature depend on God, and what explains nature's organization? As an answer to those questions, it lived on through the early modern period, sustained especially by philosophers who argued that individuals in nature cannot be understood in isolation from the whole. I argue that in this guise, it served as an alternative model of explanation in a context that increasingly emphasized explanation in terms of laws of nature, and that this reflects the fact that these two models represent two fundamentally competing approaches to natural philosophical explanation.

0. Introduction¹

The world soul was regarded as one of the most ancient and venerable philosophical theories by early modern natural philosophers. It was explicitly endorsed by a handful of them, but more commonly served as a polemical target, treated as theologically suspect and explanatorily bankrupt. Like many polemical targets, its actual philosophical content was sometimes nebulously defined.

Just as in the ancient and Renaissance contexts, world souls played a variety of philosophical roles in the early modern period. Sometimes a world soul was deployed as an explanation of psychological, epistemological, or eschatological phenomena, as was the Averroistic claim that human souls are parts of one universal soul or intellect. Other times, it was meant to account specifically for biological phenomena; for example, Burthogge and Gilbert argued that the world must be living, or ensouled, in order to produce living things.² But this chapter will focus on the world soul as an account of physical cosmology, and in particular as an answer to two of the most important questions in early modern natural philosophy: what explains the structure and organization of bodies, and what is the nature of God's activity in and presence to nature?

Sections 1 through 4 describe the views of philosophers who endorse a world soul or something like it. Section 5 is about Leibniz, who doesn't endorse a world soul but whose reasons for rejecting it are philosophically instructive. In Sections 6 and 7, I argue that world soul and adjacent ontologies have two claims at their philosophical core. The first is about the nature of cosmological order: the things in nature are organized as parts of a single concrete individual. As an alternative to understanding natural order in terms of regularity, this represents an important resistance to the increasing dominance of laws. The second is that this order has a single cause, and because of this, the world soul played an important role in the debate over the immediacy of God's presence to and action in the world.

1. Fludd

Robert Fludd (1575-1637) was a Rosicrucian royal physician who, like most philosophers who explicitly endorsed a world soul, was from an extremely influential tradition that I'll call eclectic Platonism. Syncretizing Platonism with Paracelsian chemical philosophy and esoterica like Kabbalism and Hermeticism, eclectic Platonism sought to identify an eternal wisdom that

¹ I am very grateful to the participants of the world soul conference, especially Justin E.H. Smith, who provided characteristically illuminated and illuminating comments on an earlier draft. Many thanks as well to Paul Audi, Patrick Boner, Colin Chamberlain, Marcy Lascano, Mazviita Chirimuuta, Marcy Lascano, Baron Reed, Jonathan Regier, Eric Schliesser, Charles Wolfe, Miklos Vassanyi, James Wilberding, and Rachel Zuckert.

² See REFLECTION WOLFE in this volume.

transcended religious, cultural, and epochal boundaries but culminated in the Christian scripture.³ Typical of this tradition, the cosmology of Fludd's widely-read *De Macrocosmi Historia* (1617) begins with God, the One, or Kabbalistic Einsof, the source of being and unity. The rest of the cosmos proceeds from God by a series of emanations of decreasing perfection and purity.

Fludd argues that there must be an *anima mundi* that "informs, unifies, and vivifies" nature.⁴ He follows the "mysticall Rabbies" who identify this with the Spirit of the Lord, Christ, the divine act, the agent intellect, and the Kabbalistic angel Metatron. The *anima mundi* stands to the world as the soul to man, reflecting the analogy between the macrocosm and microcosm, which plays out in terms of harmonic and numerological ratios.⁵ It stands between God and creatures, mediating between God's perfections and mundane creatures.

The most notable such perfection - besides, perhaps, being - is unity. Fludd describes unity as "the most antique and radical principle of all others," treating the existence of multiplicity as a profound puzzle that requires explanation. His solution is the world soul: the "angelicall composition of... *Alteritas* [and] *Identitas*" which "hath for his internal act the bright emanation of the eternal Unity." The world soul is the "ligament" of the "wiser sort of alchemists," by which things are "fastend together with the Symphoniacal accords of peaceable harmony."⁶

It is central to many such theories that the world soul enforces the primordial, divine unity in nature's diversity. What is more, it is the world soul's unity that explains the fact that nature is ordered. It explains the everyday organized behavior and interactions of bodies, but Fludd, like most world soul boosters, stresses that it does a uniquely good job of explaining sympathetic phenomena.⁷ Sympathetic (or antipathetic) phenomena were otherwise unexplained attractions (or repulsions), especially those that operate at a distance, that ranged from the quotidian, like gravitation and magnetic attraction, to the spooky, like the effectiveness of the weapon-salve. According to Fludd, sympathetic behavior is the striving of bodies towards union, a tendency which ultimately arose from the fact that the world soul wills unity and harmony.⁸

³ Ficino, Bruno, and Pico della Miradola are important conduits of this tradition; see Chapter RENAISSANCE in this volume. For more on this tradition, which she calls "conciliatory eclecticism," see Christia Mercer, "Platonism in early modern philosophy: the case of Leibniz and Conway," in *Neoplatonism and the Philosophy of Nature*, ed. James Wilberding and Christoph Horn (Oxford: Oxford University Press, 2012), 103-125.

⁴ Robert Fludd, *Mosaicall philosophy grounded upon the essential truth, or eternal sapience* (London: Humphrey Mosely, 1659), 147, 285

⁵ Fludd, *Mosaicall philosophy*, 159, 188, 232.

⁶ Fludd, *Mosaicall Philosophy*, 46.

⁷ Fludd, *Mosaicall Philosophy*, 129.

⁸ Fludd, *Mosaicall Philosophy*, 143.

Fludd makes at least a conceptual distinction between God as *natura naturans* and nature as *natura naturata*, but he ultimately argues that God and the world soul are identical.⁹ His justification for doing so is that God's causal activity in the world entails God's presence to the world: because God is "the only Catholick agent in all things" he is "essentially in all things." According to Fludd, this is the true meaning of many Scriptural passages, for example Acts 17:28: "In him we live, and move, and have our being." Acts 17:28 is perhaps the most cited passage of Scripture in early modern natural philosophy, invoked to express the radical dependence of nature on God. Fludd excoriates those who would, in their "Aristotelicall sophistications," dilute the true significance of the passage - say, by distinguishing between God's virtual and essential presence, or by introducing secondary causes.¹⁰

In contrast to Fludd, most Christian philosophers sought to capture the truth in Acts 17:28 without positing or implying some problematically cozy ontological relationship between God and nature. For example, the cleric Marin Mersenne (1588-1648) endorsed what "the ancient philosophers have said by their various words," namely, that

God is present in everything, he contains and comprehends all things eminently...it is what Saint Paul said, 'in him we live, and move, and have our being'... particular natures...depend more on God than the light on the sun or life on the heart. It is he who is the soul of souls, and the soul of the world, not in the manner of our souls which are imperfect, and which are essential parts of compound, but by perfecting all things, and giving them being, and life.¹¹

But Mersenne distinguished the sense in which God is properly the soul of the world from Fludd by arguing that God does not relate to the world as a soul relates to an organic body; for example, the world does not act on God as the body does on the soul, and God does not form a metaphysical compound with nature as a body and soul do. Pierre Gassendi (1592-1655), who Mersenne recruited in his war on Fludd, develops several objections along these lines, for example, that if the world is the body of God, then God inherits all the imperfections of matter, such as divisibility and passivity.¹²

In his very public attack on Fludd, Mersenne cast the world soul as metaphysically ridiculous, explanatorily vacuous, and a danger to religion. The doctrine eliminates individual moral responsibility and renders transubstantiation meaningless, since the bread would already be identical with the body of Christ.¹³ If the world were united by a soul, it would bear contrary

⁹ Fludd, *Mosaicall Philosophy*, 66, 149.

¹⁰ Fludd, *Mosaicall Philosophy*, 13, 15, 29.

¹¹ Mersenne, *Impiété*, 419-420.

¹² As Antonia LoLordo argues, besides objecting to Fludd's identification of the world soul with God, Gassendi also objects to an immaterial world soul that is not God, but does not object particularly to a material non-God world soul, which reflects his own commitment to the activity of matter. LoLordo, *Gassendi*, pp. 48-53.

¹³ Mersenne, *Impiété*, 397, 405-406.

accidents, which is impossible.¹⁴ If, furthermore, my soul were part of an Averroistic world soul, so that “my soul is the same as your soul, and that of an ox, a gnat, a rose, a stone,” why do I “feel no movement from what my soul does in all these bodies”?¹⁵ Many of these arguments were reflected in later criticisms of the world soul as well as criticisms of related philosophical positions like Spinozism.

2. Cambridge Platonism

The Belgian chemical philosopher Jan Baptista Van Helmont (1580-1644), who was one of the most important influences on English philosophy in the 17th century, posited a Paracelsian principle of the Archeus, which he describes as the “chief Workman” or “dominating and ruling faculty” in living bodies. Along with his son, Francis Mercury Van Helmont, who was co-editor of *Kabbalah Denudata* (1677), Van Helmont *père* inspired a group of philosophers known as the Cambridge Platonists, who merged these influences with mechanical philosophy and Christian theology.

The two most influential Cambridge Platonists, Henry More (1614-1687) and Ralph Cudworth (1617-1688), argued that there are non-rational and non-sensitive substances, “intermediate between matter and spirit,” that act “magically, and sympathetically” to organize matter.¹⁶ In addition to particular plastic natures, there is, according to Cudworth, “a general plastic nature in the whole corporeal universe”¹⁷ and, to More, a Universal Spirit of Nature which is

A substance incorporeal, but without Sense and Animadversion, pervading the whole Matter of the Universe, and exercising a plastical power therein.¹⁸

Cudworth and More were extremely careful to distinguish their universal vivifying and organizing principles from neighboring heresies. First, from a world soul with either sentience or reason.¹⁹ Second, from a world soul that is identified with God, like the Stoic “pagan theologians.”²⁰ Third, from “hylozoick atheists” like Francis Glisson, who identify the power to move, organize, and vivify itself as part of the essence of matter. And finally, from an Averroistic

¹⁴ Marin Mersenne, *L'impiété des déistes, athées et libertins de ce temps* (Paris), 394-395.

¹⁵ Mersenne, *Impiété*, 392.

¹⁶ Cudworth, *True intellectual system*, 386.

¹⁷ Cudworth, *True intellectual system*, 167.

¹⁸ Henry More, *The Immortality of the Soul, so farre forth as it is demonstrable from the knowledge of nature and the light of reason* (London: I. Flesher, 1659), 450. For more More, see Jasper Reid, *The Metaphysics of Henry More* (Dordrecht: Springer, 2012), especially Chapter 9. For more Cudworth, see Guido Giglioni, “The cosmoplastic system of the universe: Ralph Cudworth on Stoic naturalism,” *Revue d'histoire des sciences* 61.2 (2008): 313-331.

¹⁹ More, *Immortality*, 495-8 ; see also Cudworth, *True intellectual system*, 840-841.

²⁰ Cudworth, *True intellectual system*, 359.

world soul that comprises individual souls. More, echoing Mersenne, argues that if there were just one such soul, “man cannot lash a Dog, or spur a Horse, but himself would feel the smart of it: which is flatly against all experience, and therefore palpably false.”²¹

The main function of More’s and Cudworth’s world-soul-like entities is to account for the organized motion of bodies. According to Cudworth, the general plastic nature performs its function by “bring[ing] [things] into one General Harmony in the Whole” and “mak[ing] all things to conspire” so that they are “ordered together...into One.”²² More calls the Spirit of Nature the principle of the “*Coalescency* of things,”²³ and writes that, thanks to this spirit, “the Universe in some sense [is], as the Stoicks and Platonists define it, one vast entire Animal.” This is the sense in question: just as in an animal body there is “Sympathy of parts in one particular Subject,” so too there is sympathy between “different and distant Subjects, such as is betwixt the party wounded, and the Knife or Sword that wounded him, besmeared with the Weapon-salve...” in virtue of “the Unity of the Soul of the Universe, and Continuity of the subtile Matter.”²⁴

More’s mention of the “continuity of subtile Matter” reflects that More merges the world soul in the Platonic tradition with the world soul in the Stoic tradition. In the Platonic tradition, the world soul is a single structured and structuring principle that grants properties and relations to the parts of nature.²⁵ In contrast, the world soul of Stoicism and chemical philosophy is a special sort of stuff - a fine or pure matter, or spirit, or fire - that pervades the universe, causing the motion and organization of its parts. These two world souls were sometimes distinguished, with “*anima mundi*” applied to the Platonic version and “universal spirit” to the Stoic, but in the syncretic early modern context, they were increasingly merged. The Stoic world soul invokes nature’s unity somewhat less explicitly than the Platonic world soul, but More’s association of unity with spatial continuity ties them together and also to the mechanical philosophy, informed by his engagement with Cartesian physics.

3. Anne Conway and Margaret Cavendish

²¹ More, *Immortality*, 491.

²² Cudworth, *True intellectual system*, 167, 152, 164.

²³ More, *Immortality*, 468, 452.

²⁴ More, *Immortality*, 222-224, see also 452.

²⁵ Vassanyi identifies a further difference here: the Platonic world soul is part of a structured ontological hierarchy in which it occupies a different level than nature, while the Stoic world soul is part of nature, actively pushing things around (*Anima Mundi: The Rise of the World Soul Theory in Modern German Philosophy*. Springer: Dordrecht, 2011). Vassanyi’s book is an incredibly impressive work of philosophical scholarship and an important resource for understanding the world soul in early modern philosophy.

I've been emphasizing two tenets of world soul views: that the world is unified as a single concrete individual, and that this unity explains the orderly behavior of bodies. Two contemporaries of the Cambridge Platonists, Anne Conway (1631-1679) and Margaret Cavendish (1623-1673), drew on similar influences to develop ontologies that are unique but share these two features.

Conway, who was in the Cambridge circle, argues that there is a 'Middle Nature' between God and creatures, which is responsible for "whatsoever is wrought in...Creatures." While More and Cudworth decline to identify the universal spirit with any member of the Trinity,²⁶ Conway, hewing more closely to Kabbalistic tradition, identifies her middle nature with Christ, *logos*, and Adam Kadmon. This helps Conway maintain, on the one hand, that God is "intimately present" in all creatures and that "all creatures have their being and existence simply and alone from him," but also, on the other, that he is "a substance or essence distinct from his creatures...so as they are not parts of him."²⁷

Conway argues that the sympathetic relations between creatures proceeds from the fact that they are originally of "one substance and essence," and that

all Creatures from the highest to the lowest are inseparably united one with another...and this is the Foundation of all Sympathy and Antipathy which happens in Creatures: And if these things be well understood of any one, he may easily see into the most secret and hidden Causes of Things...²⁸

She illustrates this with an example of sympathetic action that Van Helmont and Fludd also use: if one man's nose is transplanted onto another's face, and the donor dies, the nose will wither and fall off the recipient's face. From this we learn that "Parts and Member so apparently separated, still retain a certain real Unity and Sympathy" in virtue of the fact that they were once part of the same organism.

Margaret Cavendish officially rejects the Platonic soul of the world, More's universal spirit, and Van Helmont's Archeus on the grounds that they are immaterial, and there is only matter in nature.²⁹ She also rejects the claim, which she attributes to Thales, that God is the soul of the world.³⁰ But Cavendish does believe that "there is no part of nature but is animate, that is, has a

²⁶ More does, however, frequently identify God's presence and act. And as Reid points out, More maintains that "the famous Platonick Triad' and were more or less equivalent to the three persons of the Christian Trinity, was that they were 'all omnipresent in the World, after the most perfect way that humane reason can conceive of. For they are in the world all totally and at once everywhere'" (Reid, *More*, 159).

²⁷ Anne Conway, *The Principles of the most Ancient and Modern Philosophy* (M. Brown, 1690).

²⁸ Conway, *Principles*, Chapter 3, Section 10.

²⁹ Cavendish, *Observations on Experimental Philosophy* (Ed. Eileen O'Neill Cambridge: Cambridge University Press, 2003), 255-256.

³⁰ Cavendish, *Observations*, 251.

soul.” The “Life and Soul of Nature” is matter itself, which has self-motion, sense, and reason. Animate matter is the “onely Archeus or Master-workman, that produces all things, creates all things, dissolves all things, and transforms all things in Nature.”³¹ Cavendish’s primary argument that nature is animated is that if matter did not have the capacity to move itself, detect external changes, and respond to those changes, natural order would be inexplicable.

However, while these capacities are necessary to explain order, Cavendish frequently suggests that they are not sufficient. Order is only possible if everything in nature is “joined in one body, and are parts of the one infinite whole”; “where unity is not, order cannot be.”³² If nature were not a single, unified body, it would be

like a beggar’s coat full of lice; neither would she be able to rule those wandering and straggling atoms, because they are not parts of her body, but each is a single body by itself, having no dependence upon each other.³³

Mere causal dependence is not sufficient to order bodies; they must be parts of nature, metaphysically dependent upon on the whole.³⁴

4. Spinoza

Though Spinoza did not explicitly posit a world soul, he was associated with it more than perhaps any other familiar early modern philosopher, most importantly by the post-Kantian German philosophers who would resuscitate the world soul in the 19th century.³⁵ The accusation that someone’s philosophy made God the soul of the world often simply meant that the relationship between God and nature was too cozy, and identity is the coziest of relationships.³⁶ Widely-read critics Jacques Basnage and Johann George Wachter immediately assimilated Spinoza with the Kabbalistic world soul,³⁷ while Pierre Bayle, on the grounds like Spinoza, Seneca, and Cato all identified God and nature, claimed in his *Dictionnaire* that “[t]he theory of the world’s soul, which was so common among the ancients, and which constituted the main part

³¹ Cavendish, Margaret. *Philosophical Letters* (London: D. Maxwell, 1664), 237, 418.

³² Cavendish, *Grounds of Natural Philosophy*

³³ Cavendish, *Observations*, 129

³⁴ Like More and Conway, Cavendish also concludes the impossibility of a vacuum from the dependence of the parts of matter on one another. Conway, *Principles*, Chapter 3, Section 10.

³⁵ As described in the IDEALISM/ROMANTICISM CHAPTERS.

³⁶ Baruch Spinoza, 1984, 2015. (*The Collected Works of Spinoza*. Vol. 1 and 2, Ed. and trans. Edwin Curley. Princeton, NJ: Princeton University Press, 2016), 467.

³⁷ Jacques Basnage, *Histoire des juifs* (Paris: Henri Scheurleer, 1716). Johann Georg Wachter, *Elucidarius Cabalisticus* (Rome, 1706). See Vassanyi’s discussion of Wachter’s claim that Spinoza accepted a world soul “in the manner of the Jews,” according to which everything is animate to some degree, ” but not “in the manner of the Egyptians” - or Hermeticism - for whom “the world is a [single] living being.” (Vassanyi, *Anima Mundi*, 230-231).

of the Stoics' system, is fundamentally the same as Spinoza's."³⁸ Bayle provides a suite of arguments against this hybrid that would be extremely influential in the reception of Spinoza. Some of them echo Mersenne and Gassendi, whose criticisms of Fludd Bayle cites. For example, if Spinozism were true,

we would be mistaken in saying Peter denies this, he wants that, he wants this, he says that such and such is true, because, according to Spinoza's system, it is in fact God who denies, wants and affirms... From this it follows that God hates and loves, denies and affirms the same things at the same time.³⁹

Spinozism denies the manifest mental life of finite subjects, it implausibly attributes human passions to God, and it affirms contrary predicates of a single subject.

In his notes on Wachter's treatise, Gottfried Leibniz (1646-1716) endorses Wachter's claim that Spinoza posited a Kabbalistic *logos* that mediates between God and creatures:

[Wachter] says that the Kabbalists agree in the view that God produced some things mediately, and others immediately. Hence, he next speaks of a certain first principle that God made flow immediately from himself, by whose mediation the rest of things were produced... This they usually call by various names, for example, Adam, Cadmon, Messiah, Christ, *logos*, word, firstborn, first man, heavenly man, leader, shepherd, mediator. Spinoza knew that very doctrine, in such a way that nothing is lacking but the name.⁴⁰

As evidence, Leibniz cites the scholium to 1p28 of Spinoza's *Ethics*. There Spinoza argues that God can only be the mediate cause of finite things, so there must be infinite modes that causally mediate between God and finite modes.⁴¹ In the earlier *Short Treatise*, Spinoza identifies the infinite mode of thought with Christ, and a 1675 letter to Oldenburg with "the eternal son of God, that is, God's eternal wisdom, which had manifested itself in all things and chiefly in the human mind, and most of all in Jesus Christ."⁴²

Just like Conway's middle nature and Fludd's *anima mundi*, Spinoza's infinite modes mediate between the simplicity of God, who both Fludd and Spinoza identify as "*natura naturans*," and the diversity of the created world, or "*natura naturata*." As a result of being organized by the infinite modes, the coherence of creatures reflect God's unity:

³⁸ Pierre Bayle, 1734 (2nd ed.), *The Dictionary Historical and Critical of Mr Peter Bayle*, trans. P. Desmaizeaux, London: Knapton et al.

³⁹ *Ibid.*

⁴⁰ G.W. Leibniz, G. W., *Philosophical Essays*, Ed and trans Roger Ariew and Daniel Garber. Indianapolis: Hackett, 1989), 276

⁴¹ Spinoza, (*Collected Works*, v1, 476.

⁴² For more on Spinoza's identification of Christ and the infinite intellect, see Melamed, "*Christus secundum spiritum*," in *The Jewish Jesus*, ed. Neta Stahl (New York: Routledge, 2015).

if we attend to the proportion of the whole of nature, we can consider it as one being, and consequently there will be only one idea of God, or decree concerning *natura naturata*.⁴³ the whole *natura naturata* is only one being. From this it follows that man is a part of Nature, which must be coherent with the other parts.⁴⁴

Spinoza does not associate the infinite modes with life or animation. Extended substance is explanatorily self-sufficient; he does not think that there must be either an animate or thinking principle to explain the order in nature. This is reflected by the fact that in the Spinozistic system there is not just an infinite mode of thought but also an infinite mode of extension: the "*facies totius universi*," which "though it varies in infinite modes, remains always the same."

More sensitive scholars than Wachter have cited the possible influence on Spinoza of Abraham Cohen de Herrera's rationalist Kabbalism in his *Puerta del Cielo*, which was popular in Amsterdam and was included in the *Kabbalah Denudata*.⁴⁵ Other Platonist Jewish sources might include Philo, Gersonides, and Leone Ebreo. In his *Dialoghi d'Amore*, which Spinoza owned, Ebreo argues that "natural knowledge, appetite, or love" unites and harmonizes the parts of the natural world under the direction of the world soul.⁴⁶ Spinoza's officially pronounces the Kabbalists "insane." But he writes that he agrees with "the Hebrews" and (in a nod to *a prisca theologia* like that of the Platonists, "perhaps with all the ancient philosophers") that God is "the immanent, but not the transitive, cause of all things," identifying this as the meaning of Acts 17:28.⁴⁷

5. Leibniz

Perhaps Leibniz's dearest metaphysical position is that individual created substances are active principles. He regards the world soul, understood as the claim that a single active principle powers nature, as a threatening alternative to be eliminated. While he discusses other versions of the world soul hypothesis, he frequently turns it into an excuse to attack this version.

For example, in *Considerations sur la doctrine d'un Esprit Universel Unique* (1702), Leibniz entertains the world soul of "the Italian philosophers who follow Averroes,"⁴⁸ a universal soul

⁴³ Spinoza, *Collected Works* v.1, 329.

⁴⁴ Spinoza, *Collected Works* v.1, 333.

⁴⁵ Francesca Della Poppa and Miquel Beltran have all recently argued that Herrera was a source for Spinoza's metaphysics.

⁴⁶ Ebreo, *Dialoghi*, 81-82. Ebreo also develops some Averroistic themes that are echoed in Spinoza: once we achieve beatitude through "union and copulation with God...our intellect recognizes itself to be derived from and part of God (61).

⁴⁷ Spinoza, *Collected Works* v.1, 287.

⁴⁸ G. W. Leibniz, *Philosophical Papers and Letters*, ed. and trans. L. E. Loemker (Dordrecht: Kluwer, 1989), 342.

which replaces or grounds individual souls by “animat[ing] organic bodies wherever it meets them, just as the wind produces music in organ pipes.”⁴⁹ Leibniz gives familiar eschatological and psychological arguments against it, for example that we know from experience that our particular thoughts, perceptions and volitions are distinct from those of other people. He also poses his own dilemma for Averroism: on the one hand, the universal soul cannot depend on individual souls, by being composed of them, “because there can be no continuum composed of minds, as there can be of spaces.” On the other, individual souls cannot depend on the universal soul because that “destroys and degrades the human race.”⁵⁰

But Leibniz goes on to say that many philosophers fall into Averroism “unawares” when they posit that there is only a single active principle. He has Fludd and Spinoza in mind, as well as “Neo-Cartesian” occasionalists like Cordemoy, de la Forge, and Malebranche, “who hold that only God acts.”⁵¹ Here, Leibniz’s argument against this is that that different parts of nature have contrary passions and actions, so there must be multiple active principles, which are “none other than individual souls.”⁵² Matter, which is passive, cannot do this individuating work, as the organ metaphor suggests.

In *Two Sects of Naturalists*, Leibniz attacks what he calls the “new Stoics”, led by Spinoza, who identify God as an arational and ateleological world soul which is “the primary power of the world” but acts by “blind necessity” like the weight in a clock.⁵³ This Leibniz rejects on the grounds that there is manifest wisdom in things. In *De Ipsa Natura*, he attacks the occasionalists, or

those who deny true and proper action to created things, as Robert Fludd, author of the Mosaic Philosophy, did long ago, and as now do certain of the Cartesians, who think that things do not act, but that God acts directly on things.⁵⁴

In his 1715-1716 polemics with Samuel Clarke, Leibniz implies that even someone who thinks that God *sometimes* intervenes directly in the course of nature makes God the soul of the world.

Leibniz really works the world soul as a rhetorical cudgel in this exchange. He also argues that Clarke makes God into the soul of the world when Clarke defends Newton’s claim that space is the sensorium of God. Clarke effects a familiar evasion:

⁴⁹ Leibniz, *Philosophical Papers and Letters*, 556. For more on the organ metaphor, see WALLS CHAPTER.

⁵⁰ Leibniz, *Philosophical Papers and Letters*, 162, see also 342 and Leibniz, *Philosophical Essays*, 227.

⁵¹ Leibniz, *Philosophical Papers and Letters*, 554.

⁵² Leibniz, *Philosophical Papers and Letters*, 555.

⁵³ Leibniz, *Philosophical Papers and Letters*, 365.

⁵⁴ For an excellent treatment of the world soul in the debate between Sturm and Leibniz, and more on Leibniz on the world soul more generally, see Vassanyi, *Anima Mundi*, 32-34.

God's being present in or to the world does not make him the soul of the world. A soul is a part of a compound, of which body is the other part, and they mutually affect each other as parts of the same whole. But God is present to the world, not as a part, but as a governor, acting on all things, himself acted on by nothing. He is not far from every one of us, for in him we (and all things) live, and move and have our beings.⁵⁵

Newton argues along similar lines that

we are not to consider the World as the Body of God, or the several Parts thereof, as the Parts of God...they are his Creatures subordinate to him...he is no more the Soul of them than the Soul of man is the Soul of the Species of Things carried though the Organs of Sense into the place of its Sensation...⁵⁶

And famously in the General Scholium to the *Principia* he proclaims that God “governs all things, not as the soul of the world, but as Lord over all: And on account of his dominion he is wont to be called Lord God or Universal Ruler.” At the same time, like Mersenne, Newton also wants to avoid making God an absent *intelligentia supramundana*, as Clarke accuses Leibniz of doing. So in the same General Scholium, he endorses the “opinion of the ancients” like Pythagoras and Philo that “God is omnipresent not only virtually, but also substantially, for virtues cannot subsist without substance. In him are all things contained and moved[.]”⁵⁷ Passages like this reflect the influence on Newton of Cambridge Platonism, Kabbalah, and the alchemical tradition.

Leibniz isn't done with Newton: in *Against Barbaric Physics*, Leibniz dismisses Newtonian gravitation as an unintelligible explanation of natural phenomena alongside the *anima mundi* and “archae, intelligences or plastic faculties, instincts, anti-sympathies or similar qualities.” Now, Leibniz's issue with these explanations here is that they are meant to replace explanation in terms of mechanical laws:

I think that when once we have demonstrated the general mechanical laws from the wisdom of God and the nature of the soul, then it is as improper to refer to the soul or to substantial forms everywhere in explaining the particular phenomena of nature as it is to refer everything to the absolute will of God.⁵⁸

However, Leibniz does actually think that “souls or things analogous to souls” are the ultimate sources of activity and organization in nature; he acknowledges the affinity of his monadic

⁵⁵ Leibniz and Samuel Clarke, *Correspondence*, ed. Roger Ariew (Indianapolis: Hackett, 2000), 14.

⁵⁶ Newton, *Queries to the Opticks*, Query 31.

⁵⁷ For the influence of Platonism on Newton, see Sarah Hutton, “Newton and Cambridge Platonism,” *The Oxford Handbook of Newton*, ed. Eric Schliesser and Chris Smeenk, 2017.

⁵⁸ Leibniz, *Philosophical Essays*, 24; see also *Philosophical Papers and Letters*, 655.

entelechies with plastic natures and compares his system to Conway's.⁵⁹ Leibniz also claims that organized bodies are everywhere in nature, that each organism consists of further organisms, infinitely all the way down, and even that it is appropriate to call each level a 'world.'

It really looks like there is a fast lane from these premises to the hypothesis that the whole world is a great animal with a single soul. And he writes things like this:

what Hippocrates said about the human body is true of the universe itself, that all things [conspire] and are in sympathy, i.e. that nothing happens in one creature for which some exactly corresponding effect does not reach all the others.⁶⁰

Ultimately Leibniz denies that the whole cosmos is an organism, "any more than a pond full of fish is an animated body, although the fish are."⁶¹ But *why* isn't nature a fish?

Leibniz is clearly worried about this. In several places, he develops an argument that the world cannot have a soul because it cannot be united:

It can be demonstrated that God is not the soul of the world; for either the world is finite or it is infinite. If the world is finite, certainly God, who is infinite, cannot be the soul of the world. But if the world is considered infinite, it is not one being or one body *per se* (just as elsewhere it was demonstrated that the infinite with respect to number and size is neither one nor a whole, but only the infinite with respect to perfection is one and a whole). Therefore, no soul of this kind can be understood... There are other arguments as well, like the following one: God continuously makes the world, whereas the soul does not continuously make its body.⁶²

This version seems to establish the un-Leibnizian conclusion that finite organisms cannot have souls either, since they comprise infinite parts. But in another version, Leibniz specifies that creatures, unlike the world, admit of having a soul because they are bounded in size:

...if the world were infinite in magnitude, it would not be one whole, nor could God be imagined to be the soul of the world, as certain ancient authors hold, not only because he is the

⁵⁹"My philosophical opinions are a bit closer to those of the late Madam the Countess of Conway, and stay in the middle between Plato and Democritus, because I think that everything happens mechanically as Democritus and Descartes want it, against the opinion of Mister More and other similar thinkers; and yet everything happens vitally following final causes, since everything is full of life and perceptions, against the opinion of the Democritians."

⁶⁰ Leibniz, *Specimen of Discoveries of the Admirable Secrets of Nature in General*. Trans. Richard Arthur, <https://www.humanities.mcmaster.ca/~rarthur/phil731/specimen.pdf>.

⁶¹ Leibniz, *Philosophical Essays*, 587, 589.

⁶² As cited in Gregory Brown, "Leibniz's Mathematical Argument against the Soul of the World," *British Journal for the History of Philosophy* 13(3), 452.

cause of the world, but also because such a world would not be one body, nor could it be regarded as an animal, and so it would have only a verbal unity.⁶³

Both versions throw in another argument against the identification of God with the world soul: God (continuously) creates the world, but the soul does not (continuously) create the body.

The close association Leibniz makes here between true unities and entities with souls reflects that fact that according to Leibniz, a soul is the only way to make a true unity out of a multiplicity. In fact, Leibniz sometimes treats a soul as essentially a metaphysical machine for binding parts into true wholes. There is no world soul, for Leibniz, and so there is, in a sense, no world, only a collection of worlds. God's greatness is not manifested in unity of the world, as it is for Fludd or Conway or Spinoza, but rather in the simplicity of his means and the variety of his effects: nature is "regular and in accordance with a certain general order" but also "richest in phenomena." Like Cavendish, Leibniz does not think that the parts of nature are united in the strongest sense by being subject to the same set of causal laws or by participating in a common plan:

No regularity will ever be found that can make a true substance out of several beings by aggregation.

Participation in a common plan has no effect on substantial unity.⁶⁴

Unlike Cavendish, Leibniz does not think that the world has this kind of unity. All things conspire, but conspiracy does not a whole make. Only a soul can do that.

6. The world soul realizes a characteristic kind of natural order

What distinguishes the world soul from other ways of explaining natural animation and order? The word 'soul' can be used to refer to *whatever* is the source of a thing's animation and organization, so the danger of vacuity or obscurity looms. This was a common criticism of the world soul, and it was exacerbated by the fact that it was supposed to explain mysterious phenomena like magnetism and sympathetic cures. Mersenne wrote that the world soul contains "no more satisfaction" than the occult qualities of the schools,⁶⁵ and Robert Boyle (1627-1691) that it will "tell us nothing that will satisfy the curiosity of an inquisitive person."⁶⁶

⁶³ Leibniz, *The Leibniz-Des Bosses Correspondence*. Ed. and trans. By Brandon Look and Donald Rutherford. (New Haven: Yale University Press, 2007), 33. For more on this argument, see Brown, *Mathematical*; Richard Arthur, "Infinite Number and the World Soul; in Defence of Carlin and Leibniz," *The Leibniz Review* 9 (1999):105-116; and Adam Harmer, "Leibniz on Infinite Numbers, Infinite Wholes, and Composite Substances," *British Journal for the History of Philosophy* 22(2) (2009): 236-259.

⁶⁴ Leibniz, *Philosophical Essays*, 88, 86.

⁶⁵ As cited in Copenhaver, *Magic in Western Culture* (Cambridge: Cambridge University Press, 2015), 378; see Chapter 7 for more on Fludd's attack on Mersenne.

⁶⁶ Robert Boyle, *Of the Excellency and Grounds of the Corpuscular or Mechanical Philosophy* (London: Henry Herringman, 1674), 5.

World soul views were often characterized analogically: the world is like a human being or an organism, and the source of the motion of and interaction between its parts is like the source of motion and interaction between the parts of an organism. For example, Kepler argues that the planetary system has a soul, the seat of which is the sun:

The vegetating of the world corresponds to the nutritive faculty of plants and animals, heat corresponds to the vital faculty, motion to the animal faculty, light to the sensitive faculty, and reason to harmony. Therefore it is perfectly said, that the Sun is the heart of the world, the seat of life and reason...⁶⁷

This kind of analogizing was a vulnerable point of attack; for example, in a “somewhat long digression” devoted to criticizing the “pagan” hypothesis of the world soul, Boyle asks, if the world is an animal, where are its digestive organs? And even if it had them, where would it find enough food to survive?⁶⁸

The analogical characterization is interesting and informative inasmuch as it denies that vital organization and physico-cosmological organization require different explanations. But it still leaves the position extremely underspecified, because it was an urgent but quite undecided question *how* living bodies are characteristically organized and what is the cause of that organization.⁶⁹ So if you think that animals are machines, then the claim that the world is like an animal is compatible with the claim that the world is like a great watch. If you think that to be ensouled is to be an extended substance joined with a thinking substance, you will think that a world soul is a kind of rational principle in nature. If you think that the soul is a very fine, material animal spirit, then if such a spirit is diffused throughout the world, the world has a soul.

So how, precisely, should we understand what it is for nature to be ordered like an organism? And what is the cause of nature’s coming to be ordered like that? I’ll talk about the first in this section and the second in the next.

The Gassendist Gilles de Launay, calling the question of whether the world is animated the “greatest question among the ancients,” characterizes it as follows:

After having considered the system of this great universe, [the ancients] examined whether there was an assemblage of parts detached from each other, which were only organized into a whole thing as the body of an army or a republic; or whether they were as closely assembled

⁶⁷ Kepler, *Harmony*, 260. Kepler also argues from analogy both that individual bodies like the earth and the sun have souls and that the whole cosmos has a soul. The earth puts out trees and amber like the body puts out hair and earwax, the rainy vapors it exudes upon stimulation by the celestial aspects are like nocturnal emissions, its bowels produce “sulphurous exhalations or unwholesome humor” like...well, you get the idea. (Kepler, *Harmony*, 366.0)

⁶⁸ Robert Boyle, *A Free Enquiry into the Vulgarly Received Notion of Nature* (1686).

⁶⁹ If the world soul is rational, there is a further question about how cognition relates to a human body.

and contiguous as those of a ship or a house; or finally, if the union of all sentient beings in nature is as perfect and continuous as the parts which form the bodies of animals.⁷⁰ While *anima mundi* views were often run together both by proponents and critics with other views that posited vital principles, this is an extremely important distinction between them. Organisms have a special kind of unity, and to say that the world has a single soul is to say that the world has the special kind of unity that organisms have.

According to these philosophers, the properties and behavior of the parts of nature cannot be fixed or understood without reference to the whole. We see this in Conway's claim that there is a "a general unity of all creatures one with another such that no one can be separated from his fellow creatures."⁷¹ Or in Spinoza's claim that each part of nature must cohere with the other parts, or in Cavendish's claim that there are no single parts in nature. Or in Diderot's claim that "the absolute independence of one sole fact is incompatible with the idea of the whole; and without the idea of the whole, there is no more philosophy."⁷² In *Le Rêve D'Alembert*, Diderot speculatively proposes:

There is only a single great individual, that is the whole. Within this whole, as in a machine or an animal, you may give one or another name to a part; but if you call that part of the whole an individual, that is under a conception as false as if, in a bird, you were to call a wing, or a feather in the wing, an individual.⁷³

To be a part of nature is precisely not to be a complete whole, or individual. One interesting implication of this is that the animal-cosmos analogy is in the end undermined, since no finite animals are independent and self-sustaining like the cosmos.⁷⁴

Beyond positing that nature has a special kind of unity, the systems I've described make the further point that the nature and behavior of the parts of nature is determined and explained only by reference to the whole, as in an organism. We can see this as an answer to the question: what is the precise nature of natural order?

Nearly all early modern natural philosophers understand themselves as attempting to explain the order of nature. But in fact there is disagreement over the exact character of nature's order, which is sometimes obscured both in the dialectical context and in scholarship on the period.

⁷⁰ Gilles De Launay, *Les essais physiques* (Paris: C. Barbin, 1667), 37.

⁷¹ Conway, *Principles*, Chapter VII, Section 4.

⁷² Denis Diderot, *Pensées sur l'interprétation de la nature*, (Amsterdam, 1754), 44.

⁷³ Diderot, Denis. 1830 (written 1769). *La Rêve d'Alembert*. Paris: Garnier frères. , 44.

⁷⁴ Vassanyi also identifies as the "philosophical core of the anima mundi theory" that it is "a philosophical guarantee of the collective unity of the world." He argues that this is particularly true in its reception by the German Romantics, who emphasize "the dependence of the individual subject on the all-embracing supra-individual and unified whole that is universal Nature," *Anima Mundi*, 82.

One kind of order is nature's *regularity*: individuals behave similarly across time and space, and as a result we can predict and control them. This suggests that nature is ordered by, as Descartes puts it, "God's selfsame action in accordance with the selfsame laws," and philosophers who emphasize this kind of order emphasize the role of laws of nature in structuring the world and their importance to natural philosophical explanation.⁷⁵

But a different kind of order is *coordination*, or *harmony*. Individuals in nature seem to respond to each other, often at a distance, as if they could perceive or communicate with one another. They make fine adjustments in their motions as if to adapt to or conspire with others, with a variety and complexity that cannot easily be captured by general laws but is clearly not chaotic. Explaining this kind of particularistic, harmonious adaptation does not strictly require appealing to the unity of the parts of nature in a single individual, but it does vividly suggest an analogy between the world and organic systems. A plant or animal soul regulates its body not by legislative decree, but by a kind of particularistic adaptation, aimed at the stability of the entire system.

Many of the philosophers I discussed explicitly contrasted their own models with explanations in terms of laws of nature. They often couched these as critiques of abstraction, by which they meant two things: first, to abstract means to treat a part in isolation from the whole, and second, it means to inappropriately generalize from particulars. For a holist, these are related, because a generalization about a phenomenon made in isolation from its context will be made on the basis of incomplete information about it. Spinoza argues that abstraction "give[s] rise to the greatest deception" because it causes the mind to smear over the diversity of the causes of things. Cavendish argues that abstraction is the greatest source of philosophical error because it fails to take into account the irreducible "variety of nature's action." She argues that natural order cannot be captured by laws:

I cannot well conceive what [Descartes] means by the common laws of nature. But if you desire my opinion how many laws nature hath, and what they are; I say Nature hath but one law, which is a wise law, viz. to keep infinite matter in order.⁷⁶

Nature orders her parts with an eye to uniting them.⁷⁷

It is a natural idea that explanation involves some sort of epistemic or ontological unification, an idea that has been defended by William Whewell, Ian Hacking, Kant, Carnap, Michael Friedman,

⁷⁵ Descartes, *Principles* II 42 (*Oeuvres de Descartes*. Edited by Charles Adams and Paul Tannery. Paris: Librairie Philosophique J. Vrin, 1972–83, VIII A 66). English in *The Philosophical Writings of Descartes*, vol 1. ed. and trans. by John Cottingham, Robert Stoothoff and Dugald Murdoch. Cambridge: Cambridge University Press, 1984, 243.

⁷⁶ Cavendish, *Philosophical Letters*, 146-147.

⁷⁷ E.g. Cavendish, *Observations*, 119.

and others.⁷⁸ Maybe this is true and maybe it is not, but the thesis is usually interpreted as concerning the unification of phenomena or explanation under laws or principles (an important exception is Katherine Brading; see note 78). There is, however, another way to unify phenomena: as manifestations or parts of a single concrete individual. So it is a useful heuristic to think of these as two competing modes of explanatory unification: unification under type and unification under token.⁷⁹

Of course, some philosophers who emphasized laws thought that harmony could be explained by laws alone, but not all. For example, Newton thought that the harmonious relationships in the system of the world, like the coplanarity of the planetary orbits, cannot be explained by the blind application of laws, but requires fine-tuning by Providence. This makes sense of his critique of Cartesian vortex theory on the grounds that it obviates God: the vortex theory is implicitly homeostatic.

Appealing to God's particular providence is one example of how you might explain harmony without explicitly appealing to the unity of nature as a single individual. There are other examples: as we saw above, a number of Platonist philosophers argued that harmony requires sympathetic forces between bodies. Others argued that the particularistic and harmonious adaptation between bodies requires that individual bodies have souls or soul-like powers, so that they "know" what the others are doing and can "plan" appropriate responses. For example, Kepler argues that the influence of ratios like the heavenly aspects on the earth requires that the earth has a soul, because harmonies, proportions and ratios are all relations, and all relations are *entia rationis*.⁸⁰ *Entia rationis* cannot act as "corporeal instruments" like chisels and axes,⁸¹ but

⁷⁸ See, for example, Michael Friedman's seminal "Explanation and Scientific Understanding," *The Journal of Philosophy*, 71(1), 1974, 5-19.

⁷⁹ The relationship between these two kinds of unification is taken up by medieval philosophers, some of whom understand individuals to be parts of the universals that subsume them. See Andrew Arlig, "Medieval Mereology," *Stanford Encyclopedia of Philosophy*. In "Three Principles of Unity in Newton" (*Studies in History and Philosophy of Science Part A* 44(3): 408-415 (September 2013), Katherine Brading comes to a very similar distinction through Newton, adding that a third way of understanding natural unity is in terms of space and time. Recall that More connected holistic unity with the continuity of space (this is also true of Cavendish). That raises an interesting question: to what extent we treat unity in space and time as an instance of one of these two kinds of unity? More generally: how *exhaustive* is that distinction? Perhaps thinking of nature as a unity requires specifying a unit, so that you could also ask whether nature is one Rube-Goldberg machine or one iPhone as much as you could ask whether it is one animal or one system of laws. These examples, on my taxonomy, fall into the "unification under token" category, but the case of space and time is a difficult one to classify, as is a gunky universe.

⁸⁰ E.g. Kepler, *Harmony*, 291, 295.

⁸¹ Kepler, *Harmony*, 363.

only only by being represented by a mind, “just as music upon being heard inspires the farmer to dance.”⁸²

Kepler also argues that certain kinds of irregularities require explanation in terms of a soul. He argues that the sun must be ensouled because the sunspots are generated in a way that is too variable to be explained by a uniform “corporeal *energia*”, or bodily power. The rotation of the earth, due to its dependence on the seasons, is also not regular enough to be explained “by an innate principle of the Earth, since those things that occur thusly tend to be continually uniform.”⁸³

But whether the force behind the organization of bodies is God’s direct activity, sympathetic attraction, or cognitive or perceptual capacities, we can still ask: what is the precise nature of the order that is aimed at? Are bodies in nature ordered by being subject to general laws or by being united in a single individual? Does God or nature aim at unity of type or unity of token?

Indeed, sympathetic relationships were frequently thought to result either from the relata’s being parts of the same whole, or from the relata’s being complementary in kind. Sometimes both; Conway thinks that sympathies arise from the “General Unity of all Creatures one with another, so that none can be separated from his Fellow-Creatures” as well as “a more special and particular Unity between the Parts of one particular Species.”⁸⁴ And we saw that Cavendish thinks that sense and reason are necessary but not sufficient to explain order. After all, maybe all those little agents have a mind to do whatever they want. We can still ask: they plan to do *what*? To conspire to *what*? And two answers present themselves: they can act with an eye to general laws, or they can act with a tendency to union.⁸⁵

The decision between what I called “unity of type” and “unity of token” also tracks, to some extent, another very deep question of metaphysical taste. Remember that world-soul-type theories do not just posit that creatures or phenomena are united as a single organism or entity; they make the related but stronger point that this means that creatures depend upon nature. Is nature first a Spinozistic thing that parts are then carved out of, or is it first a Leibnizian aggregate of things that then stand in relations to one another? In other words: is unity prior to multiplicity, or is multiplicity prior to unity?

⁸² Caspar, *Kepler*, 406, as cited and translated by Boner. For more on Kepler’s use of animate principles in natural philosophical explanations, see Boner’s excellent work, especially “Kepler’s Living Cosmology, Bridging the Celestial and Terrestrial Realms,” *Centaurus* 48 (2006): 32-39.

⁸³ Caspar, *Kepler*, 317, as cited and translated in Boner, “Living Cosmology,” 34.

⁸⁴ Conway, *Principles*, 37.

⁸⁵ There is a third kind of unity available: perhaps nature is unified just by being part of a single divine plan. But most natural philosophers, even voluntarists about the laws of nature like Clarke or Gassendi, thought that God’s works conform to some standard of order. So we can still ask: what kind of order does God aim at?

7. The world soul is a single causal principle

In the previous section, I argued that a central component of the world soul hypothesis is that it attributes nature's order to its unity as a single individual. But the world soul is supposed to cause, not just describe, nature's order. So what kind of cause is it? Again, there were a variety of answers: an immanent, very fine material, quasi-spiritual, or immaterial principle; an Aristotelian animal-like soul; an level in a Platonist emanative structure. What these do have in common, however, is that in each case there is a *single* cause of animation and order, which is what concerned Leibniz about them.

These two features - that the world is organized as a single individual and that it is organized by a single causal principle - can come apart. Take, for example, William Gilbert (1544-1603), who developed a theory of magnetism that was extremely influential, including on Fludd and Kepler, who meant to put "the celestial rooftop upon Gilbert's magnetic philosophy."⁸⁶ Gilbert draws heavily on Platonist tropes, claiming that "we deem the whole world animate" along with Pythagoras, Parmenides, "Plato and all the Platonists," and "the Egyptian and Chaldean" philosophers. However, when it comes time to give actual explanations of natural events, Gilbert appeals to individual animate principles, not to a single animate soul.⁸⁷ So he does not seem to posit a single world soul as the cause of natural order.

At the same time, he thinks that these individual souls, and everything in nature "tends to unity, not merely to confluence and agglomeration, but to harmony," identifying that tendency, or which magnetic coition is an example, as "the bond of the universe and the necessary condition of the conservation of all things."⁸⁸ So the character of their organization is as parts of a single individual, but the cause of that order is the communication between individual souls, not the work of a single world soul.

Similarly, Kepler appeals to individual souls to explain natural events. And like Gilbert, he also seems poetically to endorse a Platonic world soul: he uses the *Timaeus* to interpret Acts, cites with approval Proclus's claim that "some soul of the whole universe, directing the motions of the stars, the generation of the elements, the conservation of living creatures and plants, and finally the mutual sympathy of things above and below,"⁸⁹ and writes that "a Christian can easily understand by the Platonic mind God the Creator, and by the soul, the nature of things."⁹⁰

⁸⁶ Letter to Brengger (1607), as cited in Jalobeanu

⁸⁷ WILBERDING CHAPTER argues that Plato himself sometimes implies this alternative model.

⁸⁸ Gilbert, *De Magente*, 112.

⁸⁹ Johannes Kepler, *Harmonices Mundi*. In *Johannes Kepler Gesammelte Werke*, Vol. 6, edited by Max Caspar (Munich: C.H. Beck, 1940). Citations from the English translation *The Harmony of the World*, translated by E.J. Aiton, A.M. Duncan, and J.V. Field (American Philosophical Society, 1997), 281, 328.

⁹⁰ Kepler, *Harmony*, 358-9.

But Kepler doesn't appeal to this soul to do any actual explanatory work. While he does identify the soul of the universe with the sun, it is because the sun, like the heart of animals, provides light, heat, and motion of the rest of the system, just as the soul does to the animal body.⁹¹ But the sun does not affect the rest of the cosmos by *ensouling* it, and its interactions with a planet like the earth is not explained by the fact that they are coordinated by single soul, but rather by the communication between the soul of the sun and the soul of the planets.

According to Kepler, both the cosmos and organisms are structured by geometrical ratios, the archetypes of which are in God's mind, and copies of which he places in our minds:

the harmonic faculties...have been breathed out by that essential harmony, God Himself, in the act of creation, in as much as he is 'existence in activity'; and he has breathed this particle of His own image into all souls absolutely more or less closely.⁹²

Kepler attributes the actual efficacy of these archetypes not to a single soul but to individual souls that perceive them; again, "geometry is an *ens rationis*, which on its own has no efficacy. It is therefore necessary that the said geometry acts objectively."⁹³ If the cosmos is structured by geometrical ratios or a single geometrical proportion, is it structured by generalities or as a single individual? I don't know, but it is a really interesting question.

Contrariwise, you might think that there is a single cause of natural order, but that natural bodies are ordered by being subject to lawlike regularities and not as parts of a single organism. Against the monotheistic background of 17th and early 18th century European natural philosophy, the most obvious such position is that *God* is the single cause of natural order. And discussions about the cause of the organized motion of bodies in general was often folded into discussions about the precise nature of God's involvement. The world soul showed up in two ways in this context: it might, as the single cause of natural order, be identified with God, or it could be a single created (or 'secondary') cause.

First, those who downplayed or even eliminated the efficacy of secondary causes sometimes identified God with the world soul, as Fludd did. Or they were accused of making God the soul of the world, as in Leibniz's attacks on Malebranche and other occasionalists and his assimilation of occasionalism with Spinozism. Those who wanted to avoid this identification countered that God's omnipotence and omnipresence in the world does not mean that God stands to the world the way the soul relates to an organic body, as, for example, in Mersenne's response to Fludd. But in the polemical context, "making God the soul of the world" was used to describe any position where God was too closely related to nature, be it identity, real presence, or direct causation or concurrence. This makes some sense at a time when the relationship between the

⁹¹ Kepler, *Harmony*, 259-260.

⁹² Kepler, *Harmony*, 311.

⁹³ Caspar, *Kepler*, 407, as cited and translated in Boner, 36.

human mind and body was increasingly conceived in interactionist terms, ignoring some of these other traditional features of the body/soul relationship.

Second, the world soul was sometimes identified not as God but as a single secondary cause. More, Cudworth, and Conway all argue that such an entity is required precisely to effect the proper distinction between God and creatures. For one, it served the Platonist mediating function that is so clear in, for example, Conway's deployment of a middle nature. But More and Cudworth defended their world soul equivalents quite explicitly in the context of debates over secondary causes.

They both emphasize that what is important about having a universal principle is that it is a "real Being" or an "energetic and effectual principle": it manifests God's rational plan but is not a "meer Notion" or an "abstract cogitation."⁹⁴ Cudworth presents his plastic principle as the least atheistical horn of a trilemma generated from the possible positions with respect to, on the one hand, whether there is a rational structure to nature, and, on the other, whether there is a concrete principle in nature carrying it out:

1. There is just the energetic and effectual principle, with no divine plan; i.e., the world is ordered "by fortuitous mechanism and material necessity." Clearly atheistical.
2. There is just the plan with no principle, in which case God does "all things himself immediately and miraculously" including "the meanest and triflingest."⁹⁵ Beneath the divine dignity. (More also argues that God cannot be the immediate source of matter's organization because we observe monsters and other defects and disorders in nature.⁹⁶)
3. There is a universal plastic principle.

Cudworth's formulation of (2) reflects the fact that he wants to avoid making God a particularistic meddler. But then there seems to be an option missing from Cudworth's list: maybe God does things without the help of a plastic principle, but with the help of *laws*?

Cudworth responds that someone who invokes laws as explanations must

either suppose these Laws of Motion to execute themselves, or else be forced perpetually to concern the Deity in the Immediate Motion of every Atom of Matter... The Former of which being a Thing plainly Absurd and Ridiculous, and that Latter that, which these Philosophers themselves are extremely abhorrent from, we cannot make any other Conclusion that this, That they do but unskilfully and unawares establish that very Thing which in words they oppose; and that their Laws of Nature concerning Motion, are Really nothing else, but a Plastick Nature, acting upon the Matter of the whole Corporeal Universe.⁹⁷

In other words: if the laws of nature are a non-rational, immaterial something that is present to and active in nature, that manifest God's rational plan, then they are just another plastic nature.

⁹⁴ More, *Immortality*, 450; Cudworth, *True intellectual system*, 157.

⁹⁵ Cudworth, *True intellectual system*, 135.

⁹⁶ E.g. More, *Immortality*, 216-217.

⁹⁷ Cudworth, *True intellectual system*, 214.

So while Cudworth himself does not think that the plastic principle organizes nature by encoding laws, he doesn't see world soul explanations as involving a more bloated ontology than law explanations.⁹⁸

For Cudworth, a universal plastic nature as necessary to achieving the right balance between respecting God's omnipotence while insulating God from responsibility for the evil, the inept, the stupid, and the menial. Similarly, More argues that there must be a Spirit of Nature because there are monsters.⁹⁹ This generalized problem of evil was one motivation to posit secondary causes, whether a world soul or individual causes.

But another way of addressing the problem of evil was by emphasizing the overarching value of regularity in nature. Malebranche, for example, holds that "the nature or power of each thing is nothing but the will of God," but God "act[s] through general laws in the ordinary course of His Providence not only because this way of acting bears the mark of wisdom and immutable divinity but also because without it there would be no order in nature."¹⁰⁰ And although, as Cudworth points out, there is nothing incoherent about a single entity that organizes nature in accordance with natural laws, world soul views were frequently associated with the idea that whatever is controlling the world is a particularistic meddler. For example, Boyle contrasts his preferred method of explanation, in terms of "brute matter, managed by certain catholic laws of local motion, and upheld by [God's] ordinary and general concurrence," with less excellent ones where a "discreet servant" like a world soul micromanages objects. Most interestingly of all, Boyle uses the argument from evil against the world soul, not against a providential God! Bad things happen, so how can there be a wise and caring nature-goddess always directing things for the best? God's providence is not subject to this argument, because, as Leibniz, Rousseau, and others also argue, local suffering is to be expected when God acts in generalities. So the law framework is essential to distinguishing God from a world soul.

8. Conclusion

I've tried to establish two main points about the world soul in early modern philosophy. First, world soul and adjacent cosmological systems frequently have a distinctive account of the

⁹⁸ Cudworth's instincts here are reflected in a lovely and rich paper about the origins of the concept of laws of nature by Helen Hattab ("Early Modern Roots of the Philosophical Concept of a Law of Nature," in *Laws of nature* (ed. Walter Ott and Lydia Patton, Oxford: Oxford University Press). Helen Hattab distinguishes between the world soul as the blueprint of natural order and the world soul as the concrete causal agent of this order, associating the first more closely with the Platonic world soul and the second more closely with the Stoic world soul. She argues that Sebastian Basso (1573-?) combined these to produce a new kind of principle - a causally efficacious entity that determines natural regularities - which provides a model for Cartesian laws of nature.

⁹⁹ More, *Immortality*, 216-217.

¹⁰⁰ Malebranche, *The Search After Truth*, ed. and trans. Thomas M. Lennon and Paul J. Olscamp. (Cambridge: Cambridge University Press, 1997), 448, 746.

precise character of the world's organization: the cosmos is structured as parts of a single concrete individual. This was implicitly and sometimes explicitly contrasted with an alternative model of natural organization, where individuals are ordered by being subject to a single set of laws. This makes some philosophical sense, given that organization involves unification of a sort, and unification of token and type are two different kinds of unification.

Second, world soul views attributed this order to a single cause. This single cause might be God, and it was for this reason that occasionalism was sometimes accused of making God the soul of the world, by its proponents as well as its critics. In this context, it played an important role in the debate about the nature of God's causation in and presence to creation, only the very outlines of which I've been able to describe here. The single cause might instead be a mediating entity between God and nature, as it was for the Cambridge Platonists. Often the function of this mediating entity was to realize unity in multiplicity, connecting the first and second features of the world soul.

Two features that you might have associated with the world soul are notably absent from this analysis. First, neither involves positing irreducible vital, perceptual, or cognitive capacities in nature. Despite being assimilated to vitalism of different kinds, this is tangential to the what I take to be the primary philosophical interest of the world soul in the period. Second, the world soul does not make any special appeal to teleology. Most natural philosophers in this period thought that nature was structured teleologically, including most mechanical philosophers. The tenacious association between Spinoza and the world soul supports the omission of these two features. It was made despite widespread recognition that Spinoza held that nature can be completely explained without the attribute of thought, and it was made despite his notorious claim that there is no natural teleology. There is a further question about whether the world soul requires a special appeal to *internal* as opposed to external teleology. But to really entertain this would require a careful discussion of teleology that is not possible here.

The epistemic advantage of law explanations is clear: we can learn about the rest of the world by concluding that things are elsewhere much as they are here. Platonists who are willing to posit archetypical or microcosmical innate ideas have some epistemic recourse: though we can't formulate general laws, we have a blueprint of the concrete cosmological individual inside us. But some of these philosophers consign themselves to a certain epistemic pessimism. Cavendish writes that "nature is too wise to be so easily known by her particulars"¹⁰¹; Spinoza writes that I don't know how [the parts of nature] really cohere and how each part agrees with its whole.

To know that would require knowing the whole of Nature and all of its parts. In fact, we are like a worm living in the bloodstream of an animal, who "could have no idea as to how all the parts are controlled by the overall nature of the blood and compelled to mutual adaptation as the overall nature of the blood requires."¹⁰²

¹⁰¹ Cavendish, *Observations*, 236.

¹⁰² Spinoza, *Collected Works* v. 2, 19.

A third and final point that I have not emphasized is the contrast between an ensouled universe and the machine analogy that becomes more increasingly dominant in the early modern period. The meaning of these analogies, though, again depends on what you think are the relevant features of animals and machines. In *Dialogues Concerning Natural Religion*, Hume takes these to be the two most compelling analogical ways of modeling the universe. For his part, Hume is focused on the difference in their origins: an organism springs from vegetation or generation, while an artificial machine arises from design.

But why couldn't have God could have created a great animal instead of a great machine? He could have, but then he would have been quite different from us. A machine is designed by a being who builds wholes out of parts, operating by using general principles of the sort we have rational access to. Leibniz, who denies that the world forms a whole and is an organism, calls the world a work of "divine artifice"; like us, God acts according to laws, the only difference is that divine machines are infinitely complex.

In contrast, no one can deny that an animal body is organized, but no one knows how to build one. So the world soul raises the possibility that the cosmological standard of order eludes human intelligibility. Cavendish posits a fundamental schism between nature and art and argues that "art is not able to demonstrate nature."¹⁰³ Art, and human knowledge more generally, is based on rules and principles, especially mathematical principles. But that kind of knowledge has no special epistemic status. While

other Creatures have not the speech, nor Mathematical rules and demonstrations, with other Arts and Sciences, as Men; yet may their perceptions and observations be as wise as Men's... To which I leave them, and Man to his conceited prerogative and excellence, resting,

MADAM,

Your faithful Friend,
and Servant.¹⁰⁴

¹⁰³ Cavendish, *Philosophical Letters*, 133-4; see also 195.

¹⁰⁴ Cavendish, *Philosophical Letters*, 114.