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# **DISCORDANT HARMONIES** A Fault line in Leibnizian Cosmology?

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Hunter, G. (2024). DISCORDANT HARMONIES: A Fault line in Leibnizian Cosmology? *Science et Esprit*, 76(2), 231–245. https://doi.org/10.7202/1111044ar Résumé de l'article

Leibniz a maintes façons de rendre compte du nombre infini des réalités existantes. Elles peuvent exister par suite d'un « fiat » divin les ayant introduites dans le monde à titre de causes secondes. Ou encore elles peuvent toutes exister du fait de leur appartenance au « meilleur des mondes » dont fait partie toute entité pouvant coexister avec une autre, quelle qu'elle soit. Ou encore elles peuvent exister parce que Dieu, tel un bon artisan, crée tout être apte à coexister avec ce qu'il a déjà créé ou projette de créer et de poser dans le « meilleur des mondes ». On peut se demander si ces trois façons de rendre compte de l'origine ultime des choses sont bien compatibles. Le présent essai vise à montrer qu'elles peuvent l'être.

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# DISCORDANT HARMONIES: A Fault line in Leibnizian Cosmology?

Graeme Hunter

# Problem

Leibniz has several ways to account for the infinite number of actual things. They may exist because God, by "fiat," brings them all into existence as secondary causes.

Or they may all exist because they belong to the best possible world (BPW) which contains every entity compossible with every other entity.

Or they may exist because God, like a craftsman, creates every being compossible with all he has already created, or means to create and install, in the BPW.

It is not clear that these three accounts of the ultimate origin of things are compatible. The purpose of this essay is to show that they *may be*.

## A Fault line in Leibnizian Cosmology?

Suppose a shoe store stocks 10 different styles of shoe in 10 different sizes, each available in 10 different colours. If we mean by a *type* of shoe, one of a specific style, size and colour, regardless of whether it is a left shoe or a right, then it is obvious that 10x10x10 = 1000 types of shoe are available in the store. Because the store's proprietor would want to be able to retrieve for his customers quickly whatever type of shoe they might require, he would organize his stock in a way that facilitated prompt retrieval of a pair of any arbitrarily chosen type. In the showroom, for example, he might erect ten rectangular display sections, one for each style of shoe, with colours displayed in ten columns across each section, and sizes in 10 rows running horizontally down.

Other arrangements of his stock would clearly be possible and some would be just as good for presenting it in a perspicuous manner. However, there would also be many, many possible arrangements, which, though orderly from a mathematical point of view, would not be at all perspicuous. Permutations in which size, colour and style were arranged according to some complex algorithm would make finding shoes very difficult. For ordinary purposes, as the German philosopher of art, Rudolf Arnheim, once pointed out, what we call order tends to reduce complexity, while complexity tends to reduce order.<sup>1</sup> The arrangement I suggested (or one very like it) would suit the proprietor because it is low in complexity and high in order.

But what is the source of the order implicit in my proposed arrangement? Who or what conferred that order on the shoes? There are two plausible candidates. It might have come either from mathematics or from the shopkeeper.

Mathematics looks like a good answer. There are 10 types of shoe to display. Thus if each of the 10 styles is given its own section, and the 100 pairs in each section are displayed on a grid made of 10 adjacent columns of colour and 10 subjacent rows in descending order of size, all thousand types will be accounted for in a perspicuous way. So it is obvious that mathematics has conferred on the shoes the order they have.

Or is it? Doesn't the proprietor also have a reasonable claim to being the source of the order? The shoes did not arrange themselves by section, column and row. It took a great deal of work to get them into order, and if a disgruntled clerk some evening mixed them all up, the proprietor would have no choice but to begin the sorting process again. The cause of the order therefore seems to be the purposive activity of the proprietor.

Shoes possess an inalienable tendency to be disorderly, which only effort and vigilance can curb. The philosopher James Feibleman put my point more generally when he said that, but for the disorderly tendencies of material objects, there would be nothing to distinguish them from mathematical ones.<sup>2</sup>

You may think Feibleman's metaphysical assertion too bold to be justified by my humble shoe store example. What if the shoe manufacturer had installed in each shoe a responder that would blink and beep if you keyed in its *type* on an electronic shoefinding device? In that case, you might say, the order the shoes were displayed in would be irrelevant as far as retrieving them when wanted was concerned. Mathematical order and material order would be one, and yet a shoe would still be more than its mere mathematical coordinates. Feibleman would be wrong.

But the old problem will quickly reassert itself even with the new example. Someone has had to attach the programmed responder to each shoe, just as the shopkeeper of the earlier example had to place each shoe in its allotted section, column and row. And if an employee were to detach the responders and then put them indiscriminately onto other shoes, the order problem would be just as acute as in the former example. So at least my version of Feibleman's sug-

<sup>1.</sup> Rudolf ARNHEIM, "Order and Complexity in Landscape Design," in Paul G. KUNTZ ed., *The Concept of Order*, Seattle WA: University of Washington Press, 1968, p. 154.

<sup>2.</sup> James K. FEIBLEMAN, "Disorder," in Paul G. KUNTZ ed., *The Concept of Order*, p. 11: "If it were not for the element of disorder, the universe of matter could be reduced to that of logic. But in fact it cannot, and it is this fact which preserves the distinction."

gestion still bears consideration: material objects resist order and even when it is somehow imposed upon them, its exact source remains difficult to ascertain.

The puzzle about the origin of order is intrinsically interesting and of broad significance. In contemporary cosmology, it manifests itself in the rivalry between two different accounts of the perceived order of the universe. The first account invokes what it calls the "fine-tuning principle," which ascribes the order present in the world to the activity of its creator (possibly, but not necessarily, a god). The second, the "ensemble hypothesis" concedes that we inhabit a finely tuned world, but points out that our world may be only one of an *ensemble* of existing, but non-overlapping, universes, many of which are tuned as badly as ours is well. If a plurality of universes exist, instantiating many different degrees of orderliness, no particular explanation seems necessary to explain why one of them is so finely tuned.<sup>3</sup>

The cosmologist John Leslie illustrates both ideas with his story of a fly on the wall hit by a single bullet fired by someone from a great distance.<sup>4</sup> Normally we would think the likelihood of such a perfect shot too small to happen except by design. Only an exceptionally good marksman would be capable of such a shot. But of course our assessment changes completely, if we learn that thousands of riflemen were firing at the same wall simultaneously, or if we are told that the wall was covered with flies, so that it would have been nearly impossible to miss all of them. Here again, one way of looking at the obliterated fly seems to call for an explanation involving design; while another way does not.

My mention of the order problem derives neither from a general interest in cosmology nor from particular interests in techniques for displaying shoes or killing flies. My interest is in the problem of order in Leibnizian metaphysics, particularly in his cosmology, and I hope that it will be easier to recognize the problem in Leibniz as a result of having considered it first in more general terms.

The order problem runs like a fault line through Leibniz's cosmology. That is something I hope to establish here. Then, a little more tentatively, I wish to raise a question: Are we dealing only with a fault line, or is it an actual fault, an abyss, splitting Leibniz's metaphyiscs in two? In the final part of my paper I shall say why I think it may *not* be an abyss.

<sup>3.</sup> For an introduction to these methods of explaining order see Nick BOSTROM: "Fine-Tuning Arguments in Cosmology," http://www.anthropic-principle.com/preprints/fin/Fine-Tuning%20Arguments%20Cosmology.doc

<sup>4.</sup> John Leslie, Universes, London: Routledge, 1989, pp. 17ff et passim.

### I. Order as Harmony

The order-problem in Leibniz's metaphysics arises in connection with a special kind of order Leibniz calls harmony. The special name is warranted because it names an unusual thing. When you first begin to read Leibniz, it is hard to grasp exactly what he thinks harmony is. Then, when you get past that obstacle, you wonder why he thinks it necessary. Yet both matters must be understood before Leibniz's version of the order problem can be. So I'll try quickly to answer both questions: 1) What is Leibnizian harmony?, and 2) What is it good for?

Harmony is difficult to understand because it is primarily the property of what he calls "monads," and *they* are hard to understand. According to Leibniz everything is made of monads. The word itself is derived from the Greek *monas*, meaning solitary, which is strange because Leibniz thinks there are infinite numbers of them. Monads are solitary only in the sense that each one is causally independent of all the others. He sometimes describes them as "windowless," meaning that "neither accidents nor substances can enter a monad from outside."<sup>5</sup> In other words, each individual substance is completely unaffected by anything outside itself, except for God, who affects it only in creation.

If you knew only this much about monads, it would surprise you to discover that Leibniz believes you to be one. You and I, he thinks, are windowless in his special sense, and hence incapable of interaction. Every state we find ourselves in, including those we would normally describe as involving us with other beings, we have in fact brought upon ourselves, from within ourselves, relying entirely on our own resources.

Leibniz denies interaction – a denial that would strike everyone but a philosopher as *a priori* ridiculous. What could be more obvious than that we are in constant interaction with other people and other things? If, on Leibniz's account, such interaction is impossible, should it not be a grave objection to, if not an outright refutation of, his position? How, for example, could Leibniz explain away even so simple an event as our seeing one another on the street and shaking hands?

It is certainly not easy to explain interaction away. It is amazing Leibniz can do it. But even he cannot do it in an elegant or natural way. Interaction becomes for him no longer the simple matter, the bedrock experience of everyday life, that common sense takes it to be. It is relegated to the level of a mere appearance, and that appearance is due to an invisible cause of entirely different character. Harmony is part of the mechanism by which Leibniz explains apparent interactions away.

<sup>5.</sup> LEIBNIZ, Monadology, § 7.

Leibniz asks us to suppose that our souls or minds (there is no distinction for him) generate their own sequence of experiences (called perceptions) through an internal law of the succession of perceptions<sup>6</sup> (called appetite<sup>7</sup>). Bodies, on the other hand, generate their own sequence of physical states in an equally law-like manner. Each soul is coordinated with a body which, so to speak, acts out the things the soul is causing itself to experience. Each physical state of the body, in turn, is mirrored by a perception of that state in the soul assigned to it, though the body does not cause the soul to have that perception.

For example, if you stumble as you walk, it is not because of the uneven surface over which you are walking. It is because your body is programmed to make stumbling movements at just the moment at which you encounter that uneven surface. And if you notice you have stumbled it is because an idea of stumbling arose out of past states of your mind, not because the lurching of your body brought it to your attention. Thus states of your body and your soul are always appropriately synchronized, but never through interaction. Here is how Leibniz summarizes this picture late in his life, after he has fully accustomed himself to it:

[I]t is the nature of each substance to have perception, and its individuality consists in an abiding law which gives rise to the sequence of perceptions assigned to that substance. (...) The soul does not need to receive any physical influence from its body, just as the body, for its part, accommodates itself through its own laws to the wishes of the soul.<sup>8</sup>

At one point Leibniz finds a technological illustration for his idea of harmony, one that reflects early modern fascination with precisely engineered mechanical devices. He invites us to imagine two clocks which always keep exactly the same time. How can such perfect synchronization be explained? According to Leibniz, it must have come about in one of three ways. It might arise through the influence of one clock on the other, or because some independent third party kept adjusting them, or because they were built initially for this purpose and so carefully crafted that they simply never diverge from one another. The third way, says Leibniz, could be called "the way of pre-established harmony."<sup>9</sup>

The clocks whose harmony is pre-established illustrate what Leibniz thinks is really going on in cases of apparent interaction, such as when I see you and we shake hands. "I see you" translates in Leibniz's account into the claim that my body engages in recognition behaviour which may be supposed to include

<sup>6.</sup> LEIBNIZ, "Système nouveau," § 14, in *Philosophische Schriften*, vol. 4, ed. C.I. GERHARDT, Hildesheim: Olms, 1978 (henceforward abbreviated as "GP"), p. 484, and *Philosophical Papers and Letters*, ed. and trans. Leroy E. LOEMKER, Dordrecht: Reidel, 1976, (henceforward abbreviated as "L"), p. 456.

<sup>7.</sup> LEIBNIZ, Monadology, §15.

<sup>8.</sup> Leibniz, Theodicy, 291.

<sup>9.</sup> LEIBNIZ, "Postscriptum eines Briefes an Basnage de Beauval", GP IV, 498f = L, 459f.

even an image on the optic nerve, but all as a result of prior states of my own body. At just the same time, though, without any influence from your body or mine, an idea of you as present occurs to my mind as a result of my anterior mental states, following the law of the succession of perceptions, called *appetite*. This coordination of my mental and physical states is what Leibniz means by the "pre-established harmony,"<sup>10</sup> applied to persons, rather than clocks.

The explanation of how I am able to see you, complicated as it is, is simple in comparison to what is involved in our shaking hands. For that to happen my mental and physical state must be coordinated as before. But so must yours. Furthermore, both our minds must think we are shaking hands and both our bodies must be causing themselves to make hand-shaking motions. And finally, like the clocks in the Leibnizian illustration, your physico/mental states must also be perfectly synchronized with mine. Without synchronization you and I might resemble mad people, each going through hand-shaking motions and having hand-shaking perceptions, but without a partner. The adaptation and synchronization of all monads with one another goes by the name of universal harmony.<sup>11</sup>

It is not my purpose to examine Leibniz's pre-established and universal harmony critically. I hope I have said enough to allow you to see how he tries, at least, to save the phenomena of interaction, while denying its reality. The great point I hope to establish today does not concern any weakness there may be in reducing apparent interaction to harmonious automatism. I wish instead to show that even if we think Leibniz's reduction successful, it discloses a disturbing fault line in his cosmology.

Before I get there, however, there is one last introductory question I promised to answer: What could possess anyone to offer so complicated an explanation of simple interaction?

The answer lies in the fact that Leibniz came after Descartes. One important legacy of Cartesian psychology is that it makes the layman's simple assumptions about interaction seem problematic. Descartes, you will remember, argues persuasively that because body is extended, but unthinking, and mind is thinking, but unextended, they must be *really distinct*, a technical term for Descartes, meaning capable, at least in theory, of independent existence.<sup>12</sup> That part of Descartes' argument is usually conceded to be strong. However,

<sup>10.</sup> LEIBNIZ, Postscript to the "nouveau système," GP IV, 499 = L, 460: "la voye de l'harmonie pré-établie, par un artifice divin prevenant, lequel a formé dès le commencement chacune de ces substances [i.e., l'âme et le corps], qu'en ne suivant que ses propres loix qu'elle a receues avec son estre, elle s'accorde pourtant avec l'autre, tout comme s'il y avoit une influence mutuelle, …"

<sup>11.</sup> LEIBNIZ, *Monadology*, §59, "...cette harmonie universelle, qui fait que toute substance exprime exactement toutes les autres par les rapports qu'elle y a...".

<sup>12.</sup> DESCARTES, *Meditations*, Part VI, in *Oeuvres*, ed. Charles Adam & Paul Tannery, vol. 7, Paris: Vrin, 1996, p. 78.

Descartes also acknowledges that in us human beings mind and body are intimately intertwined.<sup>13</sup> Then, having made that admission, he finds it difficult to explain how such heterogeneous substances as mind and body can be intimately conjoined, let alone interact with one another. He does offer a half-hearted explanation in which the pineal gland acts as intermediary between mind and body, but even his devoted student, the Princess Elizabeth, smells a rat and tells Descartes so, albeit with her customary *politesse*. Others are more direct.<sup>14</sup>

Leibniz, who was probably the most perceptive reader of philosophy in his generation, also recognized this difficulty in Cartesian metaphysics, and even provided a diagnosis of it. "Descartes gave up trying [to solve the interaction problem]," Leibniz says, "as far as we can judge from his writings."<sup>15</sup> But Leibniz charitably says that Descartes would have solved it by discovering Leibniz's system of pre-established harmony, had he not been ignorant of the vectorial property of force. The connection may not be obvious, but Leibniz explains it quite concisely:

Descartes recognized that souls cannot impart any force to bodies, because the quantity of force in matter never changes. However he believed that the soul could change the direction of bodies. But that is because at his time no one knew the law of nature which entails the conservation of the same total direction in matter. If he had noticed it, Descartes would have hit upon my system of pre-established harmony.<sup>16</sup>

The passage I have just cited shows more than Leibniz's respect for Descartes. It shows that he realizes that his system of pre-established harmony only makes sense if we accept the impossibility of explaining mind-body interaction in any simpler way. Perhaps Leibniz is mistaken in thinking straightforward mind-body interaction to be impossible. But if we see the pre-established harmony against the background of the perceived failure of Cartesian psychology, we can at least understand Leibniz's motivation. That will permit us to move on to consider the implications of pre-established harmony in cosmology.

<sup>13.</sup> DESCARTES, Meditations, Part VI, p. 81.

<sup>14.</sup> DESCARTES, *Oeuvres*, ed. Charles ADAM & Paul TANNERY, (henceforward abbreviated as "AT") vol 3, letter 308, June 10/20, 1643, p. 684. Elizabeth diplomaticallyly saves Descartes' face by referring to her "stupidité, de ne pouvoir comprendre l'idée par laquelle nous devons iujer comment l'ame (non estendue & immaterielle) peut mouuoir le corps, par celle qu vous avez eu autrefois de la pesanteur; ..." The Great Arnauld is not so polite, "...vix intelligi possit, quomodo res incorporea copoream possit impellere." (AT 5, p. 215).

<sup>15.</sup> LEIBNIZ, "Système nouveau," § 12, GP 4, 483 = L 457.

<sup>16.</sup> LEIBNIZ, *Monadology*, § 80. He makes the same point frequently. E.g. Theodicy I, §60; and to Remond, Jan 10 1714, GP 3, 606.

### II. Leibnizian Cosmology

Leibniz's alternative to interaction, as I have already pointed out, is a universe of monadic beings each of which is perfectly attuned to all the others, but causally independent of them. The fine tuning is subtle, infinitely infinite in detail, because there is an infinity of substances, each with a body composed of an infinity of monadic parts. Each part, and each part of each part, is perfectly attuned to every other and to the whole. The probability of universal harmony arising by chance is therefore only infinitesimally greater than zero. And yet it has somehow arisen. That fact cries out for explanation.

If you apply Leibniz's reasoning regarding the clocks to the universal harmony of the cosmos, you would say that there are three possible answers. First, there is the answer of common sense, which says that harmony happens because the various parts of the universe are causally in commerce with one another. That is what Descartes tried to justify, but failed, according to Leibniz.

A second possibility would be that God, who created the universe, constantly keeps the parts of it adjusted. This is what Leibniz takes Malebranche and other "occasionalists" to have argued. While Leibniz acknowledges that their solution is possible, he points out that it is not worthy of God, because it makes him a poor artisan who must constantly be fixing the machines he creates. The only acceptable answer, therefore, is that of a pre-established harmony of every monad with its body, and a harmonious synchronization of every monad and body in the universe with every other. "Thus," Leibniz says,

there remains only my hypothesis, that is to say the *way of harmony, pre-established* by a prevenient artifice of God, one that formed each substance from the beginning so that, in following the laws which it received with its being, it is in accord with every other substance, just as it would be if there were mutual influence [the Cartesian and common sense model], or if God intervened over and above his general concurrence [the occasionalist model].<sup>17</sup>

Against this background I can now pose the counterpart of my earlier question about the shoe store: who, or what, accounts for the order we observe in the cosmos? The proprietor of the cosmic shoe store is of course God, and the orderly display is the infinite number of harmonious monads – each perfectly in tune both with its own body and with every other monad. Who or what accounts for the order that obtains among these causally independent beings?

When Leibniz first presents his harmony idea in print (1695) he calls it a "New System of the Communication of Substances and of the Union of Mind and Body." There he is quite categorical in claiming that the order of things is caused by God. He points out proudly, that the observed order offers us "a new proof of the existence of God: for the perfect agreement of so many substances

<sup>17.</sup> LEIBNIZ, Postscript to the "nouveau système," GP IV, 499 = L 460.

which have no communication whatever with each other can come only from a common cause."  $^{\mathrm{n}_{18}}$ 

Ten years later (again in print) he strongly reiterates the necessity of God's being the cause of the observed order of things:

My system of pre-established harmony furnishes a new proof (unknown until now) of the existence of God. For it is self-evident that the agreement of so many substances – each with no influence on any other – could only arise from a general cause on which they all depend, and that the cause they depend on would need to have infinite power and wisdom in order to establish all those agreements.<sup>19</sup>

There are also many other occasions on which Leibniz refers to his new proof of the existence of God with obvious satisfaction, both in unpublished writings and in letters to his correspondents. He always stresses the indispensability of God.<sup>20</sup>

That he insists on God is hardly surprising. The Leibnizian universe presents us with the *nec plus ultra* of what contemporary cosmologists call the fine-tuning problem. Each monad has a body composed of infinite parts and there is an infinity of monads. Thus the scale of fine-tunings is infinitely infinite. The chance of its coming to be on its own, as I have already mentioned, is not just low – it is virtually zero.

Or is it? We must ask that question again, exactly as with the shoe store example. For here too a case can be made for saying that God is not necessary after all, notwithstanding the infinitely delicate fine-tuning exhibited in the world. The strange thing is that in this case the argument to defeat fine tuning is also supplied by Leibniz himself. Stranger still, great logician that he is, Leibniz shows no awareness of the conflict the new argument introduces into his cosmology.

## III. Order as Mathematically Determined

The anti-fine-tuning argument arises in connection with Leibniz's doctrine of possible worlds, a doctrine he introduced for the very purpose of diminishing God's responsibility for the order of things.

Why would he want to do that? Because, just as the shoes in the shoe store tend of themselves toward disorder, so the occupants of our universe, as we all know to our chagrin, tend toward imperfection and evil. Now if God is not to

<sup>18. &</sup>quot;Système nouveau de la nature de la communication des substances, aussi bien que de l'union qu'il y a entre l'ame et le corps," in *Journal des savants*, June 27, 1695, GP IV, 485f = L 458.

<sup>19. &</sup>quot;Considérations sur les Principes de Vie, et sur les Natures Plastiques, par l'Auteur du Système de l'Harmonie preétablie," in *Histoire des ouvrages des savants*, May 1705, GP VI, 541 = L, 587.

<sup>20.</sup> See e.g., unpublished notes on François Lami, *Connaissance de soi-même*, 1699, in GP IV, 578; to Arnauld, GP II, 115; tTo Lady Masham, GP III, 341f.

be held responsible for the evil propensities of his creation, some other culprit must be found. The doctrine of possible worlds allows Leibniz to transfer a crucial part of the blame away from God and onto simple mathematics.

This shift of responsibility becomes most clear in the retelling of a parable of Lorenzo Valla, at the conclusion of Leibniz's *Theodicy*.<sup>21</sup> In that parable the tyrant, Sextus Tarquinus, complains to Apollo about the dismal future the oracle has foretold for him. But Apollo disclaims all responsibility, pointing out that he only foretells the future, he does not bring the future about. Jupiter is the one who brought all things into being, Apollo says.

On hearing this, Sextus immediately aquits Apollo. Foreseeing the future does not bring it about, Sextus realizes, any more than remembering the past brings the past about. The guilt must therefore lie with Jupiter, Sextus reasons; it must be Jupiter's fault that Sextus has the character he has.

Sextus may not be reasoning perfectly about Jupiter, but his reasoning is at least in keeping with the Leibnizian picture of pre-established harmony. If, in creating the world, Jupiter precision-engineered Sextus' body so that it would perform dreadful acts, and Sextus' mind to reflect the deeds of his body, then Jupiter, rather than Sextus, must surely be at fault, if Sextus's character and actions are defective. Sextus therefore goes to Jupiter to present that complaint.

But gods are wiser than mortals, and Jupiter has an unexpected reply. He sends Sextus to the temple of his daughter Athena, who takes him to the Palace of Destinies. There Athena shows Sextus the whole history, not just of the actual world, but of every possible world. Athena tells him that this breath-taking panorama of worlds is the very thing she showed to Jupiter at a time before all times, when he came to this palace and there reviewed the histories of all the possible worlds, seeing which one was most deserving of creation.

He chose the best possible world and created it. Sextus was part of that world and because of his evil character he would first do wicked things and later be punished for them. Of course, it is not *because of* Sextus that this world is best, but in spite of him. Nevertheless, he is an integral part of the best possible world and to leave him out would be to create a different world, one which, over all, would be worse than the best. So Jupiter chose the best world, the one that included Sextus. Can he be faulted for having chosen the best? Sextus admits that he cannot.

Neither, then, can the Christian God be faulted, Leibniz concludes. He created what his intellect told him was best, what his goodness inclined him to choose, and what his power enabled him to create. There is no fault here.

There is much wit and wisdom in Leibniz's tale. But he does not seem to notice that it clashes with the picture of God as the harmonizer of all things. In the possible worlds picture, it is crucial that the order in every possible world

<sup>21.</sup> Leibniz, Theodicy, III, §§ 405-417.

be established by something other than God, so that God does nothing more than actualize the world he perceives to be best. Only so can God be innocent of whatever local evils persist in the best overall design.

What, then, is responsible for the order found in the different possible worlds, if God is not a candidate? Unsurprisingly, it is mathematics. This idea is suggested in many places, including the *Monadology*, whose discussion I shall cite in full because it is both thorough and part of one of the canonical writings of Leibniz's mature period: *Monadology*:

 $\int$ **53**. Now since there is an infinity of possible universes among the ideas of God and only one of them can exist, there must be a sufficient reason for God's choice that determines him to pick one over another.

 $\int$ **54**. And that reason can only be found in the *fittingness* of the worlds, that is, in the degree of perfection they contain, each possible creature being entitled to seek existence to the degree that it contains perfection.

 $\int$ **55.** And that is what causes the existence of the best, that the wisdom of God makes it known, his goodness makes him choose it, and his power enables him to produce it.<sup>22</sup>

The picture of order here is wholly mathematical. An infinite number of worlds is ordered in a rising pyramid of perfection culminating in one that is best.<sup>23</sup> That is also how they appeared to Jupiter and Sextus in the parable from the *Theodicy*. Such a natural ordering of things by "degree of perfection" makes mathematics responsible for the order. God has nothing to do with ordering the worlds. He merely contemplates their antecedently existing order in the logical moment prior to creation.

Leibniz is here defending a version of what today's cosmologists call the "ensemble hypothesis," according to which the fine tuning of the universe does not require any special explanation, because universes of every degree of order and disorder are present. God has all possible universes before him, including an infinite number of universes that are badly tuned and disharmonious. Of course he does not choose to create a universe like that. He chooses the one that is perfectly harmonious, but the availability of universes of all degrees of perfection relieves us of the necessity of explaining where the exquisite harmonies of our own universe came from.

## IV. The Cosmological Divide

Did Leibniz realize he had two theories at work, one in which God engineers the harmony of the best possible world, and the other in which he does not?

<sup>22.</sup> LEIBNIZ, Monadology, §§ 53-55.

<sup>23.</sup> Leibniz does not explicitly argue for the pyramid structure here. But he does at *Theodicy*, Part I, § 8.

I have long been in doubt as to whether or not he was aware of this, but now incline to think he was not. The harmony argument and the possible worlds argument fall on opposite sides of the fault line of which I have been speaking, and I know of no place where Leibniz expressed any doubt about their compatibility.

If Leibniz had been aware of the tension in his cosmology, one place we might have expected him to acknowledge it would be in his discussion of the two clocks. You recall that there Leibniz claims that there are only three ways in which the clocks could be perfectly synchronized. This could happen, he says, because one clock influences the other, or because a third party constantly adjusts both clocks, or because a perfect artisan made them both to run in synch.

But surely Leibniz ought to have acknowledged a fourth possibility, the one presupposed in his famous notion of possible worlds. Even the most incompetent artisan could bring it about that there were two perfectly synchronized clocks, if all he had to do was choose them from an infinite array of clocks that included every possible design. For in so large a collection there would necessarily be found two or more clocks that kept the same time, though with different mechanisms.

The same point could be made with regard to the shoe store example. The shoes could appear in the proper order without anyone's effort, if the proprietor merely had to choose among a set of possible shoe stores that included one for every possible order the shoes could have.

I have another reason for thinking Leibniz never noticed the tension between his two accounts: In texts like the *Monadology* and the *Theodicy*, the harmonizing Engineer works side by side with the arms length Creator of the best possible world. For example, the discussion of possible worlds in the *Monadology*,  $\iint 53-55$ , cited above, leads seamlessly into a discussion of universal and pre-established harmony, culminating in Leibniz's proclamation in  $\int 79$ :

Souls act according to the laws of final causes by appetitions, ends and means. Bodies act according to the laws of efficient causes or movements. And the two kingdoms – efficient and final causes – are harmoniously adjusted to one another.

So the fault line exists and Leibniz seems not to notice. The final question is whether this constitutes only a fault line or a fault?

# V. A Kind of Conclusion

It would have been better if Leibniz had addressed this question, but I have found nowhere that he does. It is possible, however, to answer it on his behalf in a way that favours the integrity of his cosmology. Recall James Feibleman's interesting idea that material things are only distinguished from mathematical ones by their tendency to disorder. It is this thought that suggests a way forward to me, a way to make the divine craftsman who engineers a preestablished harmony compatible with the Creator who by a single *fiat* actualizes the best possible world.

Go back to the palace of destinies, in the eternal moment preceding creation, and contemplate the infinite array of possible worlds, each including every detail of all that would be, were that world made actual. Everything in every world is pre-ordained. Yet might it not still be the case that to actualize any one of these worlds, to make it real, is also to give scope to an inalienable tendency to disorder, a tendency to wander off course that must then be vigilantly held in check, if the world is to perform according to specifications?

In the hope of making what I am proposing a little clearer I'll call it "the Ikea Idea." If you buy furniture from Ikea, in a sense all your carpentry problems are solved. Items of furniture come to you unassembled, but in pieces that are made to fit together and they are accompanied by a plan that tells you how to assemble them.

At Ikea the pre-established harmony is for sale. Their products resemble the possible worlds Athena shows to her visitors in the Palace of Destinies. Beds and chairs and couches are available there, let us suppose, in every possible design.

And yet there is still, as they euphemistically say, "some assembly required." Moreover, as soon as you begin to assemble Ikea products, you often discover that effort and ingenuity is called for beyond anything exactly specified in the plans. You encounter the sheer cussedness of material things, the brute fact that the actual almost never conforms to the ideal. Material things have this tendency to disorder and you must overcome it, harmonizing piece with piece, until you get close to the ideal item you set out to assemble.

The philosophically interesting thing about your struggle, however, is that it enables you on the one hand to take full credit for choosing that piece of furniture and for anything that is attractive in it once it is assembled, while on the other hand disavowing responsibility for any imperfections that may arise from the cussedness of matter itself. The Ikea Idea not only permits you to play both the roles Leibniz attributes to God – that of the hands-on harmonizer and that of the arms-length chooser – it actually demands that you play them. And if it turns out that you can play both roles, then it must have been logically consistent for Leibniz to describe God as doing so.

The Ikea idea also agrees very well with Feibleman's suggestion that disorder and materiality go together. So it goes a long way toward showing why the fault line in Leibniz's cosmology never widens sufficiently to be considered a fault. The God who creates the Best Possible World by fiat can still have work to do in making it unfold harmoniously. But does that make Leibniz into an Occasionalist? Is Leibniz's God not having to tinker with everything now just as in Occasionalism? It certainly brings Leibniz closer to Occasionalism than he would like to be. But he can be saved from absorption into Occasionalism at least on a technicality.

Leibniz distinguishes between the primitive force of things, which is the law of all their actions, and the derivative force by which their actions are carried out. The Occasionalists say that God assists things at the level of derivative forces, whereas Leibniz can claim he confines his activities to the level of primitive forces alone. Leibniz's God simply makes sure that his laws are applied. A textual confirmation of just such a position could be taken from the *Specimen Dynamicum* (Loemker, p. 441):

I cannot agree with certain prominent men today, however, Leibniz says, who see the inadequacy of the popular concept of matter, but call in god *ex machina* and remove all force of action from things themselves (...). For although I should agree that they have shown clearly that there can be no distinct influx of one created substance into another, if the matter is taken in metaphysical rigor, and I also admit freely that all things arise by a continuous creation from God, yet I think that there is no natural truth in things, for which we must find the reason in the divine action or will, but that God has always put into things themselves some properties by which all their predicates can be explained. Certainly God has created not only bodies but also souls, to which the primitive entelechies correspond.

Even if you think there is some merit in my proposal, however, it raises a question that I will not be able to deal with here. The Ikea Idea, as I have presented it, ascribes to Leibniz a realist's commitment to material bodies. It is far from obvious, however, that realism of this kind *was* Leibniz's considered position. Particularly in the later writings it is hard to avoid attributing to him some kind of idealism with respect to bodies. So if the Ikea Idea relies on matter to explain imperfections, what use will it be, if, for Leibniz, there is no matter?

The fault line running through Leibnizian cosmology keeps going right on through his ontology as well. A full treatment of the problem would therefore have to deal with both aspects of it. I think it is possible to make the Ikea Idea work even if bodies are not real, but if you want to know how, you will have to wait for the inexhaustible monograph on Leibniz I ought now to be writing.

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#### SUMMARY

Leibniz has several ways to account for the infinite number of actual things. They may exist because God, by "fiat," brings them all into existence as secondary causes. Or they may all exist because they belong to the best possible world (BPW) which contains every entity compossible with every other entity. Or they may exist because God, like a craftsman, creates every being compossible with all he has already created, or means to create and install, in the BPW. It is not clear that these three accounts of the ultimate origin of things are compatible. The purpose of this essay is to show that they may be.

#### SOMMAIRE

Leibniz a maintes façons de rendre compte du nombre infini des réalités existantes. Elles peuvent exister par suite d'un «fiat» divin les ayant introduites dans le monde à titre de causes secondes. Ou encore elles peuvent toutes exister du fait de leur appartenance au «meilleur des mondes» dont fait partie toute entité pouvant coexister avec une autre, quelle qu'elle soit. Ou encore elles peuvent exister parce que Dieu, tel un bon artisan, crée tout être apte à coexister avec ce qu'il a déjà créé ou projette de créer et de poser dans le «meilleur des mondes». On peut se demander si ces trois façons de rendre compte de l'origine ultime des choses sont bien compatibles. Le présent essai vise à montrer qu'elles peuvent l'être.