Lloyd Strickland

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LEIBNIZ REINTERPRETED

LLOYD STRICKLAND

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Abbreviations

References to works by Leibniz are abbreviated as follows:

A *Sämtliche Schriften und Briefe* (ed. Akademie der Wissenschaften), multiple volumes in 6 series, cited by series (reihe) and volume (band), Berlin: Akademie Verlag, 1923–.

AG *Philosophical Essays* (trans. Roger Ariew and Daniel Garber), Indianapolis: Hackett, 1989.

BC *Hauptschriften zur Grundlegung der Philosophie* (ed. A Buchenau), 2 volumes, Hamburg: Verlag von Felix Meiner, 1906.

BH *Die Leibniz-Handschriften der Königlichen Öffentlichen Bibliothek zu Hannover* (ed. Eduard Bodemann), Hanover: Hahn, 1895.

C *Opuscules et fragments inédits de Leibniz* (ed. Louis Couturat), Paris: Félix Alcan, 1903.

CWR *System of Theology* (trans. Charles William Russell), London: Burns and Lambert, 1850.

D *De Summa Rerum* (trans. G. H. R. Parkinson), New Haven: Yale University Press, 1992.

DM *Discourse on Metaphysics* (various translations in AG, L, P, S, cited by § number).

Dn *The Philosophical Works of Leibnitz* (trans. George Martin Duncan), New Haven: The Tuttle, Morehouse & Taylor Company, 1908 (2nd edition).

E *Opera Philosophica* (ed. J. E. Erdmann), Berlin: Eicher, 1839–40.

FB *Réfutation Inédite de Spinoza* (ed. Louis Alexandre Foucher de Careil), Paris: Ladrange, 1854.

FC *Lettres et Opuscules Inédits de Leibniz* (ed. Louis Alexandre Foucher de Careil), Paris: Ladrange, 1854.

G *Die Philosophischen Schriften von Gottfried Wilhelm Leibniz* (ed. C. I. Gerhardt), 7 volumes, Berlin: Weidmann, 1875–90.

GM *Mathematische Schriften* (ed. C. I. Gerhardt), 7 volumes, Berlin: A. Asher, 1849–63.

Gr *Textes inédits* (ed. Gaston Grua), 2 volumes with successive pagination, Paris: Presses Universitaires de France, 1948.

GW *Briefwechsel zwischen Leibniz und Christian Wolf* (ed. C. I. Gerhardt), Halle: H. W. Schmidt, 1860.

H *Theodicy* (trans. E. M. Huggard), Chicago: Open Court, 1990.

L *Philosophical Papers and Letters* (trans. Leroy E. Loemker), Dordrecht: D. Reidel, 1969 (2nd edition).

LC *The Labyrinth of the Continuum* (trans. Richard Arthur), New Haven: Yale University Press, 2001.

LNS *Leibniz's 'New System' and Associated Contemporary Texts* (trans. R. S. Woolhouse and Richard Francks), Oxford: Clarendon Press, 1997.

ML *Malebranche et Leibniz* (ed. André Robinet), Paris: Librairie Philosophique J. Vrin, 1955.

Mon *Monadology* (various translations in AG, L, P, S, cited by § number)

NE *New Essays On Human Understanding* (trans. Peter Remnant and Jonathan Bennett), Cambridge: Cambridge University Press, 1996.

P *Philosophical Writings* (trans. Mary Morris and G. H. R. Parkinson), London: Dent, 1973.

Pr *Protogaea* (ed. Jean-Marie Barrande), Toulouse: Presses Universitaires du Mirail, 1993.

R *The Political Writings of Leibniz* (trans. Patrick Riley), Cambridge: Cambridge University Press, 1972.

S *Monadology and Other Philosophical Essays* (trans. Paul Schrecker and Anne Martin Schrecker), Indianapolis: Bobbs-Merrill, 1965.

SLT *Shorter Leibniz Texts* (trans. Lloyd Strickland), London: Continuum, 2006.

W *Leibniz Selections* (trans. P. Wiener), New York: Scribner, 1951.

Note: The pagination of my own *Shorter Leibniz Texts* was not known at the time this book went to press. Therefore when quoting from that volume I do so by citing chapter (I – VI), subsection (A – C) and number (1 – 9).

When quoting, I provide wherever possible the following information: original language source followed by English language translation of that source. Where a text from my *Shorter Leibniz Texts* is also available in another English anthology of Leibniz texts I give a three-part reference: the first gives the original language source, the second a reference to my translation from *Shorter Leibniz Texts*, and the third a reference to a translation from another English anthology of Leibniz texts. In all such cases the translation used is my own, and I provide a reference to another English anthology purely for the sake of convenience.

Where I have cited a translation published by someone other than myself, I have occasionally modified it without notice.

1

Introduction

No one better epitomizes the golden age of theodicy that straddled the seventeenth and eighteenth centuries than Gottfried Wilhelm Leibniz (1646–1716). To the age-old problem of how to reconcile God's supreme goodness and perfect justice with the evil of this world, Leibniz provided a clear and straightforward answer: our world is in fact the best of all possible worlds, and therefore God cannot be impugned for failing to make a better one. From a twenty-first-century perspective, it is easy to wonder why such a notable thinker was drawn to adopt such a counter-intuitive position. For while the claim that ours is the best of all possible worlds may go a long way towards absolving God from the charge of being unjust or unworthy of worship, the trouble with it is that it does not appear to be a *prima facie* plausible claim, since our world just does not *seem* to be the best of all those possible. Yet in the late seventeenth century and first half of the eighteenth century the belief that ours was the best of all possible worlds, i.e. the doctrine of optimism, was a very popular one, and Leibniz was by no means alone in holding it. Among Leibniz's contemporaries notable optimists included Henry More,[1] Ralph Cudworth,[2] Lord Shaftesbury,[3] William King,[4] Lord Henry Bolingbroke,[5] Alexander Pope[6] and Christian Wolff.[7] Even two post-Leibnizian thinkers who were later to become bitter opponents of optimism were initially enthusiastic supporters of it, namely Voltaire[8] and Immanuel Kant.[9] In fact there was a whole optimistic tradition running back all the way to Plato, who endorsed a form of optimism in his *Timaeus*.[10] Like many of his fellow optimists from the seventeenth and eighteenth centuries, Leibniz was strongly influenced by this tradition, having been introduced to it by his university teachers.

But the fact that contemporaries and eminent ancients nailed their colours to the optimist mast does not in itself explain why Leibniz did so. By common consent, Leibniz was a universal genius, a man of uncommonly rare insight. As one of his earliest English translators, Charles William Russell, put it:

> [Leibniz] was one of those extraordinary men whom, at rare and distant intervals, nature sends into the world, in the prodigal exercise of her creative powers, and as if to display their wondrous versatility. With a compass of intellect which falls to the lot but of a favoured few, he cultivated every branch of human knowledge, and excelled in all.[11]

To the modern mind it no doubt seems odd that a man of such singular genius and insight should argue that the world was unimprovable when to most it seems so obviously capable of being improved. In fact Leibniz, probably more so than the other optimists mentioned above, was acutely aware that in and of itself optimism was counter-intuitive. He frequently conceded that, on a casual consideration, our world indeed seemed not to be the best, but he just as frequently argued that a more in-depth consideration would in fact reveal the opposite. Leibniz thus drew a sharp distinction between appearance (the world is improvable) and reality (the world is unimprovable). From this it is evident that, for Leibniz, our world was not best in any particularly obvious sense, such as being the one in which there is no evil, or in which there exist only happy or virtuous individuals, which is what modern philosophers seem to have in mind when they speak of the best possible world. This raises the question of what exactly Leibniz meant when he claimed that our world was the best. The object of this book is to answer this very question. While many other attempts to answer this question have been made over the years by various Leibniz commentators, we shall see in what follows that these previous efforts have all fallen somewhat wide of the mark. There are several reasons for this. For one thing, Leibniz's conception of the best possible world is usually treated in brief, either in a journal article or a book chapter of comparable length. Yet Leibniz's understanding of the best possible world is so intricate that such a short treatment cannot possibly succeed in doing it justice. Another problem is that some of Leibniz's key pronouncements on this issue have been ignored, while other key texts have been misinterpreted, misread, or have had their meaning obscured by mistranslation. As this work unfolds it will become clear exactly where I think these errors have occurred; it will also become clear exactly where my interpretation of Leibniz's optimism differs from previous interpretations, and the reasons why I believe it has to differ. I hope that by comparing previous interpretations of Leibniz's optimism with my own the reader will be better placed to judge the plausibility of the rival interpretations. Ultimately, of course, I hope to persuade the reader that what I offer accurately captures Leibniz's vision of the best possible world. In the next chapter I shall examine Leibniz's grounds for holding that this is the best of all possible worlds; the question of what Leibniz meant when he called our world the best will be the focus of the remaining chapters, so resistant is it to a simple answer.

Before immersing ourselves in Leibniz's philosophy of optimism, however, it is important to note a number of issues which bear on any work of Leibniz scholarship. First, Leibniz was one of the great systemizers in the history of

philosophy, and consequently the various parts of his philosophy interweave and quite often draw support from each other. His doctrine of optimism, which forms part of a much wider collection of doctrines, is no exception. Second, like most thinkers, Leibniz occasionally changed his mind. Although he never wavered from his belief that our world is the best one possible, his conception of the best world, and his understanding of some of the ideas that underlie that conception, did undergo some slight modification over the course of his life. Third, Leibniz was a prodigious writer and left around 50,000 papers after his death, comprising books, articles, letters, personal essays and reading notes, which together total around 200,000 pages. Of these, a fair proportion has still to be published. Of those that have been published, some have yet to be accurately dated while others are only currently available as fragments.

Clearly all of these burdens must be carried by anyone looking to undertake a serious study of any aspect of Leibniz's thought, but there are ways to minimize the strain they could potentially place on such a study. As a consequence of the first issue, for instance, it is common for exegetes of Leibniz to make frequent references to other aspects of his philosophy, for even though these other aspects are not part of the exposition proper, they do nevertheless throw light on it. I shall therefore make such references where necessary. In response to the second issue, Leibniz's commentators sometimes give the dates of composition for most or all of the passages they cite. However, even where this is done, it is still difficult to plot with certainty all the diachronic changes that may have occurred in a given area of his thought, simply because there are so many of his writings still unavailable in whole or in part, and others whose date is uncertain. So far as can be made out, however, Leibniz's optimism did not undergo any radical revision throughout his lifetime, which relieves the need to make the present study a full-blown work of history. I shall therefore not give the dates of the texts cited as a matter of course, but only when I feel it would be helpful, e.g. to plot changes in his thinking, or to establish the plausibility of an interpretation. For those interested in dates, I have provided an index locorum at the end of the book, to which all citations may be crosschecked. As for the third issue, which as I have just noted impacts on the second, we should note that in many studies of Leibniz's philosophy it is in fact common to find a degree of hesitancy regarding the interpretation being put forward, and hopefully the very nature of the third issue – the fact that many of Leibniz's papers have yet to be published – will make it clear why the present study can be no exception. However, the wider the range of material we use, the more confident we can be about what we attribute to him. We will therefore look at a great number

of texts, including many that have been overlooked, misinterpreted or mistranslated by other Leibniz scholars who have attempted to expound his doctrine of the best possible world.

A fourth difficulty, and one no less troublesome than the others, concerns Leibniz's sincerity. Ever since Bertrand Russell's monumental study of Leibniz's philosophy in 1900, questions have been raised over whether Leibniz in fact had two philosophies, a public one that he revealed in his published writings, and a private one that emerged only in his unpublished writings and was divulged to a select few of his acquaintances. But while there is little doubt that Leibniz was sometimes less than upfront about his true beliefs in his published writings, this insincerity, if we can call it that, does not appear to have extended to his doctrine of optimism. That Leibniz was an optimist there can be little doubt. His belief that ours is the best of all possible worlds is to be found in an enormous number of writings, from very early in his career until the end of life. What is more, Leibniz declares his optimism in a wide range of texts – it is the centrepiece doctrine of the only philosophical book he saw fit to publish within his lifetime, the *Theodicy* (1710), and it is affirmed in a large number of private letters, notes and jottings written only for himself, as well as in many private reading notes. But even if the question of Leibniz's sincerity on the broad matter of optimism does not arise, it does unfortunately rear its head in connection with a related issue, as we shall see in Chapter 7.

A fifth and final problem concerns Leibniz's influences. For Leibniz, of course, did not work in a vacuum, and was no less influenced by the intellectual landscape of his time than any other philosopher one cares to mention. He appropriated a number of ideas and concepts that were common currency in his day, not just among optimists, and in some cases wove these into his picture of the best possible world. Because these ideas and concepts were in some cases so commonplace and widely accepted, Leibniz did not generally feel the need to explain their origin, which of course is unsurprising, given that his writings were intended for him and his contemporaries, and not a twenty-first-century readership unfamiliar with the philosophical landscape of his day. But in order for us to get a truly accurate picture of Leibnizian optimism, it will be necessary from time to time to see which parts of the intellectual soup of the late seventeenth and early eighteenth centuries he used as ingredients in his recipe for the best of all possible worlds.

Notes

1. More (1987), p. 189 (*The Immortality of the Soul*, originally published 1659).
2. Cudworth (1964), p. 874 (*The True Intellectual System of the Universe*, originally published 1678).
3. Shaftesbury (1999), p. 164f (*An Inquiry concerning Virtue or Merit*, originally published 1699).
4. King (1978), p. 54f (*An Essay on the Origin of Evil*, originally published 1702).
5. Bolingbroke (1841), p. 365ff (*Fragments or Minutes of Essays*, originally written between 1725–44).
6. Pope (1963), p. 501ff (*An Essay on Man*, originally published 1733–34).
7. See Wolff (1978), § 382ff (*Natural Theology*, originally published 1737).
8. Voltaire (1949), p. 74f (*A Treatise on Metaphysics*, originally published 1736).
9. Kant (1992), p. 71ff ('An attempt at some Reflections on Optimism', originally written 1759).
10. In the *Timaeus* Plato argued that our world is the best that the demiurge (Plato's craftsman-God) is capable of making, but Plato did not claim that it is the best possible *per se*.
11. C. W. Russell (1841), p. 394–5.

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2

The Grounds for Optimism

God's choice of the best

Before we embark on our study of Leibniz's conception of the best of all possible worlds, we need to consider the source of his confidence that our world is indeed the best one possible. Leibniz offered one straightforward argument for optimism – this world must be the best because God exists, and his nature ensures that he would produce nothing but the best. This two-part argument is, in essence, the answer Leibniz gave throughout his life to the question of why we should suppose our world to be the best. But as we will see, he interpreted it in two different ways.

The first part of Leibniz's argument for optimism is: God exists. It has been said of Leibniz that he 'never met a proof for the existence of God that he didn't like', and this is a fair assessment.[1] To prove God's existence Leibniz employed forms of the ontological argument, the cosmological argument, the argument from eternal truths, and even one of his own devising, the argument from the pre-established harmony (which is often portrayed by scholars as a kind of teleological argument). By employing the first of these proofs, the ontological, Leibniz secured to his satisfaction not only the existence of God, but a concept of God as an absolutely perfect being, i.e. as a being in whom all possible perfections are united (cf. A VI iii 579/D103). And this led Leibniz to the second part of his argument for optimism, namely that God must make the best. As he wrote in 1671: 'Since God is the most perfect mind ... it is impossible for him not to be affected by the most perfect harmony, and thus to be necessitated to do the best' (A II i 117/L146). The argument seems obviously valid – God, being perfect, cannot but want to do the best he can, therefore he necessarily creates the best world possible. But Leibniz had a love-hate relationship with this argument, flirting with it in two later texts, one from the early 1690s (Gr336), the other from 1706 (Gr493/SLT III.B.5), while more often disassociating himself from it, denouncing it as 'an opinion so bad' (G VI 217/H234) and 'an error so pernicious' (Gr486/SLT III.A.3) on the grounds that if God was necessitated to create the best then he would not be worthy of worship or praise. To preserve his worthiness in these regards, Leibniz commonly invoked the freedom of God's will and accordingly amended the second part of his argument for optimism to state

that, so far from being driven to create the best out of necessity, 'God *freely chooses* the most perfect' (A VI iv 1452/SLT III.B.2, emphasis mine). While this alteration neutralizes the concern about God's praiseworthiness, it does lead us back to the question of how Leibniz was able to be confident that our world is the best one possible. For what guarantee do we have that a free God will plump for the best?

Leibniz didn't talk of providing a guarantee, only that 'we can regard it as certain that everything is done by God in the most perfect way' (A VI iv 1656/P109). For even when Leibniz rejected the idea of God creating the best possible world out of necessity, he continued to believe that the perfect nature of God ensures that God will produce nothing but the best. Thus he tells us that, 'God wills the best through his own nature' (A VI iv 1447/AG20), 'as his perfection requires of him' (Gr485/SLT III.A.3, cf. Gr479/SLT III.A.3, Gr580/SLT V.C.2/R84) and consequently that his will 'is indefectible and always tends towards the best' (G VI 386/H387). On the basis of remarks such as these one could be forgiven for thinking that Leibniz did not in fact stray at all from the view that God creates the best out of necessity. But there *was* a shift in Leibniz's thinking, and if it appears subtle this is because at the times Leibniz denied that God is forced to create the best out of metaphysical necessity (which we would today call logical necessity), he did not exempt the actions of God from *all* forms of necessity. Specifically, Leibniz considered God to be subject to what he called *moral necessity*, 'whereby a wise being chooses the best, and every mind follows the strongest inclination' (G VII 389/L696, cf. G VI 255/H270, G VI 333/H345). In other words, a moral necessity is a requirement to do whatever is most fitting, or at least to do what one deems to be most fitting. To understand how strong a necessity this is, we need to delve into Leibniz's concept of the will.

The nature of the will

As is well known, Leibniz endorsed the view of the will handed down by the Greeks, which holds that the will always aims at what it considers best (cf. A VI iv 1456). This view satisfied the demands of what was arguably Leibniz's most famous axiom, the principle of sufficient reason, which states that nothing happens without a reason, or that there must be a reason why things happen thus and not otherwise. With no exceptions to the principle of sufficient reason permitted, Leibniz insisted that no will could ever act 'for no reason' and indeed every will must invariably be drawn towards the option it

perceives as the most attractive (cf. A VI vi 186/NE186). For the more attractive a particular option, the greater the reason to favour it over rival options, with the most attractive choice giving the will the strongest (sufficient) reason to act. In Leibniz's view, every act of every will could be explained this way, even evil acts. For as he saw it, men and other rational creatures invariably follow the course perceived by them to be the best, but as they do not always have a proper and clear perception of what is truly best, they can and frequently do act in ways contrary to it. God, however, on account of his supreme wisdom, is not similarly hampered, and so can never be ignorant of what is best or more perfect. Consequently 'God cannot fall into error in choosing, and therefore always chooses what is most fitting' (G VI 441/S117, cf. G III 59/W182).

But although God's will (like all wills) is under a moral necessity to choose only that which it considers best, according to Leibniz 'this is so little opposed to his freedom that it rather renders it more perfect' (G VI 441/S117–118, cf. A VI iii 135, G VI 258–259/H273, G VII 390/L697). Behind this claim lies the compatibilist conception of free will that Leibniz favoured throughout his life. Following Aquinas, Leibniz argued that an agent acts freely when he acts in accordance with his own nature and is not constrained by external factors (cf. A VI iv 1406/SLT III.A.1, G VII 110/SLT III.A.2, Gr481/SLT III.A.3, G VI 128/H148). An unfree action, on the other hand, is one that an agent is compelled or constrained to perform by factors outside himself. A being is thus more free the more the stimulus for its actions comes from its own will rather than from anything outside it. And God, having nothing outside him at all which could constrain his will, has the highest degree of freedom possible, or *absolute* freedom:

> It can even be said that substances are all the more free when they are removed from indifference and determined by themselves. And the more they approach the divine perfection the less need they have to be determined from the outside. For God, being the most free and most perfect substance, is also the most determined by himself to do the most perfect. (G VII 110–111/SLT III.A.2, cf. A VI iv 1454/SLT III.B.2, G VII 304/SLT I.A.3/P139, G VI 385/H386)

So as a confirmed compatibilist, Leibniz did not deny that rational beings up to and including God were *determined* to choose the actions they choose. But for him, as for all compatibilists, what matters when assessing the freedom of an action is whether the final determination for that action comes from the agent himself or from something outside him. But Leibniz was well aware that

in order to convince doubters that God's choice of the best was genuinely free and not necessitated, it would be necessary to show that an unconstrained God could have acted otherwise. And he believed that this could be done:

> God does not fail to choose the best, but he is not constrained to do so; nay, more, there is no necessity in the object of God's choice, for another sequence of things is equally possible. (G VI 128/H148, cf. G VI 255/H270, G VI 333/H345)

So for Leibniz, the crux of the matter was this: if what God does not choose is still possible, then he could not have been necessitated in his choice, for if he had been, nothing but the object of his choice would have been possible. Yet we know that other things are indeed possible,

> for since there are many things which have never happened and never will happen, and which nevertheless are clearly conceivable, and imply no contradiction, how can one say they are absolutely impossible? (G VI 257/H272, cf. A VI iv 1449)

'That which does not imply contradiction' was Leibniz's customary definition of 'possible' (A VI iv 867), and conceivability (or intelligibility) was Leibniz's usual test for it in any given case (cf. A VI iii 128, G III 558). So in Leibniz's view, if the concept of a thing could be conceived then the thing itself must be possible, because if it contained or implied a contradiction then it would literally be inconceivable or unintelligible. And given that it is possible to conceive of any number of people and places that have never existed (and presumably never will exist), and events that have never happened (and presumably never will happen), there must, following Leibniz's reasoning, be any number of people, places and events that are still possible despite not featuring in this world. In Leibniz's view, the fact that there are unactualized possibles demonstrated that there could not have been just one course open to God, i.e. it demonstrated that he could not have been necessitated. For these possibles, *qua* possibles, are objects of God's *power*, if not actually his will, which is another way of saying that he *could* make them, because on account of his omnipotence he 'can produce everything that is possible or whatever does not imply a contradiction', but won't, because on account of his will, he will only 'produce what is the best among possible things' (G VII 409/L709, cf. A VI iv 1452/SLT III.B.2). Thus to those who pressed the point that God could only bring about the best,[2] Leibniz responded by saying that they had confused 'the will of God with his power', and overlooked all the possibles

that God had left unrealized (G VII 409/L709). As these things are possible, and thus fall under the scope of his omnipotence, God *could* produce them, and this very fact was proof enough that he could not have been necessitated. And on the strength of this, Leibniz felt perfectly at liberty to say that God's choice is made 'between several possible courses' even though it is certain that he will choose only the best of them (G VI 256/H271). Or, to summarize using Leibniz's own words:

> *all concepts that do not imply contradiction are possible. I concede that God could act in another way. But it was certain that he would not do so; it is precisely for this reason that he is free, because there is more than one possible system.* (Gr493)

The standards of goodness

While it is now clear why Leibniz thought our world must be the best, it might seem that his position is not free from all traces of ambiguity. Specifically, when he insists that 'God freely chooses the most perfect' (A VI iv 1452/SLT III.B.2) it is possible to construe him as making either of two claims: (a) that God freely chooses to create that world which is the most perfect according to whatever objective standards of goodness pertain to world-making, or (b) that God freely chooses what the most perfect will be, i.e. what the standards of worldly goodness will be, and then selects from the full range of possible worlds the one that best answers that description. The fact that Leibniz wrote of God *choosing* the best rather than deciding which world would qualify as best suggests that (a) is a more likely explanation of his position than (b), i.e. that he believed his notion of the best possible world was determined objectively and not by a whim of God. However, Andrew Carlson has argued that 'in Leibniz's Christian world, there are no ... transcendent standards of goodness to which God might refer',[3] and so prior to choosing a world, Leibniz's God first had to choose the standards of goodness by which all things and actions would henceforth be judged. Although Carlson does not seem to realize it, such a claim imputes to Leibniz the view that God could act without reason, for if perfection was not determined independently of God then God could not have rationally adopted one definition of perfection over another. For if each definition of perfection was of equal value to all the others (and it would be absurd to say that one or more of the possible definitions was 'better' or 'more perfect' than the others before God had even decided which definition of perfection would

apply!), then there could be no sufficient reason for God to prefer it over the claims of its rivals. The Leibniz who wrote of God that he chooses the best 'since he does nothing without acting in accordance with supreme reason' would have been horrified! (G VI 107/H128, cf. Gr580/SLT V.C.2/R84)

But there is an even stronger reason to reject Carlson's claim, namely that it is flatly contradicted by Leibniz's many assertions that the standards of goodness *are* determined independently of God, who merely recognizes them:

> I am far removed from the opinion of those who maintain that there are no rules of goodness and of perfection in the nature of things or in the ideas God has of them, and that the works of God are good only for the formal reason that God made them ... Thus to say that things are good by no rule of goodness but only by the will of God alone is to thoughtlessly destroy, it seems to me, all the love and glory of God. For why praise him for what he has done if he would be equally praiseworthy for doing the opposite? (A VI iv 1532–3/DM §2, cf. R46–8, G VI 219/H237)

We must now consider what these objective standards of goodness are, and how they determine which possible world will be the best.

Notes

1. Sleigh (2001), p. 167.
2. E.g. Samuel Clarke. See G VII 385/L694.
3. Carlson (2001), p. 644, cf. pp. 15 and 97. The claim was first made by Gale (1976), p. 87.

3

The Perfection of Things

The varieties of perfection

In the *Monadology* Leibniz explains that the reason for God's choice of world out of all those possible 'can only be found in the *fitness* or in the degrees of perfection that these worlds contain, each possible world having a right to claim existence in the measure of the perfection which it enfolds' (G VI 616/ Mon §54, cf. Gr492). It is therefore proper to begin the analysis of his conception of the best of all possible worlds by examining the notion of 'perfection' he employed. In this chapter I shall concentrate on what Leibniz meant by the perfection of individual things, while in the next two I shall consider how these are spun together to give rise to the perfection of worlds.

Leibniz identified three major forms of perfection – moral, physical and metaphysical. He characterized these as follows:

> *Metaphysical* good or evil, in general, consists in the perfection or imperfection of all creatures, even those not endowed with intelligence ... *Physical* good or evil is understood as applying especially to the advantage or disadvantage of intelligent substances. An example of this is the *evil of punishment*. *Moral* good or evil is attributed to the virtuous or vicious actions of those substances, for example the *evil of guilt*. (G VI 443/ S120, cf. G VI 242/H258)

It is notable that whenever Leibniz talked of perfection without specifying any particular kind, he almost always meant metaphysical perfection, and this can be seen by looking at the many places where he attempts to define the notion of perfection (e.g. A VI iii 392/D45, A VI iii 577/D99, A VI iv 867, A VI iv 1430, A VI iv 1531/DM §1 etc.). The other two kinds of perfection are usually either referred to in full as physical perfection and moral perfection, or more frequently by the words 'pleasure' and 'happiness' for the former, and 'virtue' for the latter. We shall examine each of these in turn.

Metaphysical perfection

In an unpublished note from March 1676, Leibniz gave the following as a definition of metaphysical perfection:

> Perfection is an affirmative absolute attribute, and it always contains everything of its own genus, for there is nothing that limits it. (A VI iii 392/D45)

In a paper written eight months later, he identified perfections as 'absolute positive qualities' (A VI iii 575/D97), before adding the stipulation that to qualify as a perfection an attribute or quality must also be simple (i.e. non-analyzable):

> I term a perfection every simple quality which is positive and absolute, or, which expresses without any limits whatever it does express. (A VI iii 577/D99, A VI iii 578/D101)

The 'or' here is the Latin 'seu' (often best translated as 'or rather', 'i.e.' or 'that is'), which reveals that Leibniz is equating 'absolute' and 'an expression without limit'.[1] The former expression takes the place of the latter in another attempt at defining perfection, this time from the mid-1680s: '*A perfection* ... is that which is positive and absolute in essence' (A VI iv 556). Here there is no mention of attributes or qualities, just essence, and the requirement for simplicity is absent too.

Despite appearances to the contrary, Leibniz did indeed have a consistent idea of what metaphysical perfection was, and the differences in expression are in fact just that – differences in expression, with the underlying concept remaining the same.[2] Among the definitions cited there are many terms that Leibniz clearly treated as synonymous. I have already mentioned the equation of 'absolute' with 'an expression without limit', but in addition 'positive' and 'affirmative' are evidently interchangeable, as are 'attribute' and 'quality', 'which taken together at the same time ... constitute *essence*' (A VI i 271/L89). So 'essence' is little more than a plurality of attributes.[3] Elsewhere we are told that 'absolute' and 'affirmative' are identical (A VI iii 519/D79), and that qualities 'modified by limits ... are not affirmative, but are in a way negative' (A VI iii 396/D49). This suggests that 'absolute', 'an expression without limit', 'positive' and 'affirmative' are all alternative expressions of the same thing, namely a complete absence of limits. For the sake of simplicity I shall henceforth use

'positive' as a catchall term for all these expressions. And speaking of simplicity, what are we to make of the fact that it appears in only one of the four definitions? There is reason to suppose that it too can be subsumed under the umbrella of 'positiveness', not because Leibniz thought that 'simple' means 'positive', but because he thought simplicity is entailed by positiveness. For after Leibniz wrote 'I term a perfection every simple quality which is positive and absolute, or, which expresses without any limits whatever it does express' (A VI iii 577/D99, A VI iii 578/D101), he continued:

> But since a quality of this kind is simple, it is therefore indefinable or unanalyzable. For otherwise it will either not be one simple quality, but will be an aggregate of several, or if it is one it will be enclosed by limits, and so will be understood by the help of negation, contrary to the hypothesis; for it was assumed to be purely positive. (A VI iii 577/D99, cf. A VI iii 578/D101)

What he seems to be saying here is that a quality which is not purely positive will also not be simple. His reasoning is a little obscure but seems to be this: if a simple quality is analyzable then it can be analyzed into the quality itself and a limit, in which case it is not positive, because positiveness precludes limits. So a positive quality must also be simple by virtue of its being positive, but a simple quality need not be positive.

This leaves us with a definition of metaphysical perfection something like 'an attribute or quality which is positive' (the requirement for simplicity is omitted because it follows from positiveness anyway). But this was not Leibniz's final word on the matter. For under this definition, which has a lack of limits as its only requirement, many qualities will qualify as perfections that are quite obviously not the sorts of things that any self-respecting theist would want to recognize as perfections, e.g. number, which is certainly capable of expression without limit. Leibniz eventually became aware that his definition of metaphysical perfection allowed for these unwanted results, and this prompted him to carefully tweak his definition to rule them out; in the *Discourse on Metaphysics* of 1686 he presented what was to be his settled notion of perfection from then on:

> We must also know what a perfection is. A fairly sure mark of one is this: those forms or natures which are not susceptible of a highest degree are not perfections; for example the nature of number or figure. (A VI iv 1531/DM §1)

The requirement here is that for a quality or attribute to be elevated to the status of a perfection, it must admit of an ultimate degree, whereas before it had been that a quality just be unmodified by limits. Of course a quality could satisfy both requirements, as qualities admitting of an ultimate degree would also be unmodified by limits. But the converse is not necessarily true; to be unmodified by limits means only that the quality in question is not subject to any limits. This does not guarantee that it has an ultimate degree (as we have seen, this is the case with number, which is free from limits but has no highest degree). Given the attributes that Leibniz went on to identify as perfections, which we shall examine shortly, it is clear that he intended both these requirements to be met by genuine perfections. So Leibniz's definition of perfection in the *Discourse* can be seen to introduce a qualification not explicit in his previous definitions; the requirement for positiveness remains, and is joined by a further requirement for an ultimate degree.[4] So far as I am aware, this subtle shift in definition has gone unnoticed by even the most heavyweight of Leibniz exegetes.[5]

Although this definition seems to leave us no closer to identifying any qualities that might serve as plausible candidates for perfections, Leibniz believed it was sufficient for him to pick out several clear examples. He went about this in an ingenious way. Rather than wading through all possible attributes to determine which might admit of an ultimate degree, Leibniz reasoned that all such positive attributes must be compatible with each other on account of their simplicity, and would therefore be united in the one subject – God – who by definition has all possible perfections (cf. A VI iii 519/D79). So if we want to know which qualities are perfections, we need look no further than those of the divine being. Occasionally, however, he gave the impression of having arrived at this result by a less direct method, for instance in the same passage from the *Discourse on Metaphysics* that we have already met:

> We must also know what a perfection is. A fairly sure mark of one is this: those forms or natures which are not susceptible of a highest degree are not perfections; for example the nature of number or figure. For the greatest number of all (or rather the number of all numbers) implies contradiction, as does the greatest of all figures, but the greatest knowledge and omnipotence involve no impossibility. (A VI iv 1531/DM §1)

One might be forgiven for thinking that the argument here is somewhat inchoate, and indeed it is, though it is the closest Leibniz comes to providing any justification for his choice of attributes that qualify as perfections. The fact that he made no attempt to argue for the claim that the notions of

omniscience and omnipotence 'involve no impossibility' suggests that he considered such notions to be self-evidently coherent. However, one prominent Leibniz scholar, Robert Adams, has suggested that omniscience falls short of being purely positive on Leibniz's own terms. For Leibniz states that God's omniscience allows him to know all the possibles, and therefore, Adams argues, this attribute must include 'knowledge of what is not, as well as what is'.[6] According to Adams, this entails that God's perfect knowledge has an object that 'involves limitation and negation' because it includes 'knowledge that the non-actual systems of possibles are less perfect than the actual system'.[7] The upshot, suggests Adams, is that it is difficult to conceive how omniscience can be a 'purely positive attribute'.[8]

It is somewhat odd that Adams restricts his focus to omniscience, because the very same reasoning has the power to rob omnipotence of its positiveness too. We have already seen, in Chapter 2, that Leibniz was happy to claim that God has the power (if not the will) to produce any series of possible things, even the imperfect ones, by virtue of his omnipotence. Omnipotence, then, like omniscience, must have as its object a huge number of things that involve limitation and negation because it bestows on its bearer the power to do the worse as well as the best. I am uncertain as to why Adams overlooks this.

In any case, Leibniz held that both omniscience and omnipotence are purely positive attributes, and that they enable God to know or produce things that are not purely positive, which strongly suggests that he did not see the problem Adams identifies. The reason for this is that, for Leibniz, what those purely positive attributes enable a bearer to know or do is of no consequence so far as their positiveness is concerned, as is clear from the following remark on omniscience from the *Causa Dei*: 'Since this wisdom is the most perfect possible, it comprehends every idea and every truth, that is, everything, simple or complex, which can be an object of the understanding' (G VI 440/S116). So in saying that omniscience is a positive attribute, Leibniz did not mean that the bearer of the attribute knows only the most perfect things that can be known. As is indicated in the above passage, and indeed from the very notion of positiveness, an attribute is positive if it is in itself not subject to limits. So it is the possession of complete knowledge *per se* that gives omniscience its positive characteristic, and not the positiveness of the actual objects of knowledge. Hence the limitedness (or otherwise) of the things known does not spill over to contaminate the positiveness of the actual knowledge of the things. This applies to the attribute of omnipotence also, which derives its positiveness from what it allows the bearer to do, irrespective of whether it is good, bad or neutral. Thus while Leibniz evidently took

'positive' to mean only that there is nothing lacking (i.e. there are no limitations or negations) in the attribute itself, Adams construes it to mean that there is also nothing lacking in the *objects* of the attribute. This interpretation enjoys no textual support at all so far as I am aware.[9] In fact it would be surprising if it did, given that Leibniz's commitment to theism required him to accept both omnipotence and omniscience as perfections.

In fact Leibniz usually identified three, not two, separate qualities that together, in their ultimate form, constitute perfections, and these are power, wisdom and goodness (cf. G VI 107/H127, G VI 602/L639, G VI 615/Mon §48). These he called the 'three perfections of God' (G VI 199/H217).[10] The attribute of goodness, however, is sometimes just referred to as 'will'; in fact for Leibniz goodness just *is* will, and it is common to find him using the latter expression in place of the former, for example in a letter from 1698 he explains that there are in God 'three formalities: power, knowledge and will' (Gr139, cf. Gr126/SLT I.A.5). Leibniz did occasionally add to this list,[11] and sometimes shortened it too,[12] but was normally content with the three enumerated above.

It might seem that our discussion thus far has been somewhat beside the point. After all, the only metaphysical perfections we have identified have been those found in God, and since Leibniz, like most theists, held that 'there is but one God' (G VI 613/Mon §39), it would seem to follow that metaphysical perfection cannot be predicated of anything other than God. But although Leibniz recognized only one bearer of the qualities he identified as metaphysical perfections, he was unwilling to restrict metaphysical perfection to God alone. In order to understand why Leibniz thought that metaphysical perfection could be attributed to things other than God, we need to delve into his ontology.

The origin of things from God and nothing

It is well known that in his mature metaphysics Leibniz granted reality only to indivisible, soul-like entities he called 'monads' which, in aggregation, manifest as corporeal substance, i.e. bodies. While a detailed analysis of Leibniz's doctrine of monads reveals it to be not quite the 'fantastic fairy tale' that Bertrand Russell initially believed it to be,[13] there is nevertheless no need for it to figure in this study, nor its precursor in Leibniz's thought, namely the doctrine of substantial forms. For Leibniz in fact held on to a more fundamental metaphysics during his time promoting the claims of the

substantial form and later the monad, and common to both accounts is a deeper ontology that is of much greater relevance to our survey of Leibnizian optimism. We can reach it, and thus go beyond the monads and substantial forms, simply by asking: what is the source or ground of all created things?

There is good reason to believe that for much of his philosophical life Leibniz held that all creatures are fundamentally nothing more than the manifestation of God's own essence. If this is correct then we can properly impute to Leibniz a form of monism whereby every creature is made of 'God-stuff'. This was not an uncommon view during Leibniz's time, and had its source in the theology of many of Plato's followers. First woven into mainstream Christian theology by Augustine, the Neo-Platonic creation doctrine maintains that God's goodness is so great that it overflows, spilling out his essence and thus generating the world and all that is in it. The process of essence-diffusion was held to occur without any loss to God of this essence, and although the products of this great effusion possessed a certain measure of the divine essence they were considered to be nevertheless very much separate from God (though inextricably linked in the same way that the light emitted from the sun and the heat produced by a fire contain something of their sources despite remaining distinct).

Evidence that Leibniz accepted the Neo-Platonic view of creation is plentiful in texts from the mid-1680s onwards, though there is some evidence that he embraced it even earlier than that. For instance in a paper from 1671 Leibniz wrote, 'Mind and God do not differ except that one is finite and the other infinite' (A VI ii 288). Seven years later Leibniz wrote a similar passage in a short dialogue on religion, his spokesman declaring: 'It can be said that the difference between God and man is only one of more or less, though the ratio is infinite' (A VI iv 2234/L218).[14] As suggestive as these passages are, however, they seem to fall some way short of an outright endorsement of the Neo-Platonic doctrine of creation.[15]

Much stronger evidence of this doctrine is to be found in Leibniz's later writings. For instance, in *c.*1686 he wrote:

> the necessary being ... is the ultimate reason for things, insofar as they contain realities or perfections. And since the full reason for a thing is the aggregate of all primitive requisites ... it is clear that the causes of all things can be resolved into God's attributes themselves. (A VI iv 1618/LC307)[16]

A similarly frank betrayal of his Neo-Platonic sympathies can be found in a text from *c.*1690, *On the true mystical theology*, in which he insists:

> Every perfection flows immediately from God, as essence, power, existence, spirit, knowledge, will ... The divine perfections are concealed in all things. (L367, cf. G VI 449/S128–9, G VI 602–3/L639, G VI 615/Mon §48)

So although the attributes of omnipotence, omniscience and perfect goodness (omnibenevolence) can only be truly ascribed to God, Leibniz did not regard them as attributes that are either possessed in their entirety or not at all. Rather, he considered them to be attributes that can be possessed absolutely, as in the case of God (and only God), or partially, as in the case of non-Godly creatures which possess the same attributes as God but to a much lesser degree. Hence:

> The perfections of God are those of our souls, but he possesses them without limits; he is an ocean, of which we have received only drops; there is in us some power, some knowledge, some goodness, but in God they are all in their entirety. (G VI 27/H51)

Yet there is something odd about Leibniz's remarks here, for he is not just saying that created beings share the same attributes as God, but also that they have perfections too. The insistence that 'The perfections of God are infinite, and ours are limited' (R48), i.e. the very insistence that lesser beings than God have perfections at all, appears to smack of a contradiction on Leibniz's part. For after taking great pains to establish, as we have already seen, that a perfection is an attribute that 'expresses without limits whatever it does express' (A VI iii 577/D99, A VI iii 578/D101), it seems slightly perverse that he is also willing to use the term to refer to a limited degree of these same attributes. Moreover, the attribution of perfections to created beings obviously involves a deviation from the etymological sense of 'perfect' (as well as its cognate terms) which applies to something *complete* or *finished* (from Latin 'perficio'). In the original sense of the term, the attributes of God, i.e. maximal knowledge, power and goodness, can legitimately be said to be perfect as they are complete. But to say, as Leibniz does, that created beings are endowed with some perfection, or a degree of perfection, even though none of their attributes are complete in the sense that God's are, is to treat 'perfection' in an entirely different way, as something approximating to 'value'. In fact from time to time he used precisely this term ('value') to refer to 'a certain degree of created perfection' (GM VII 239/SLT I.A.4). We should thus understand, as indeed Leibniz's contemporaries would, that for a creature to have a perfection is for it to have some measure or value of an attribute which is found in its fullest extent in God. Thus knowledge *itself* is a

perfection, even when it is possessed in a very limited degree; likewise power and goodness. Consequently 'perfection' refers to these attributes themselves, rather than only the highest degree of them. For Leibniz, then, God is the source of all perfections in creatures, and since God is defined in terms of his omnipotence, omniscience and omnibenevolence, non-Godly creatures derive whatever perfection they have from their own particular (finite) combinations of power, knowledge and goodness.[17]

The distribution of these perfections among created things is not equal, however. Some beings possess more power or knowledge or goodness than others, and are accordingly more perfect. Not surprisingly, Leibniz identified rational creatures as the most perfect type of being (cf. G IV 479/SLT II.B.2/LNS13). Hence angels are more perfect than men, men more perfect than animals, animals more perfect than plants, etc., though Leibniz was often at pains to stress not only the limitation of creaturely perfection *vis-à-vis* God but also the *extent* of that limitation *vis-à-vis* God (e.g. R48). That is, Leibniz made plain the distinction between the finite perfections of creatures and the infinite perfection of God, and even provided the following note by way of helpful illustration:

> every substance has in itself a certain participation in divine omniscience and omnipotence, even though its knowledge is confused, and its action diffused by things acting in contrary ways. (A VI iv 1400/LC249, cf. G VI 604/L640)[18]

What we do not yet know, however, is how created things are constructed from God's own attributes. For an answer to that we have to return, first of all, to *On the true mystical theology*. There Leibniz explains:

> All creatures derive from God and from nothingness. Their self-being is of God, their nonbeing is of nothing (Numbers too show this in a wonderful way, and the essences of things are like numbers[]]. No creature can be without nonbeing; otherwise it would be God. Angels and saints must have it. (L368, cf. Gr371, G VI 613/Mon §42)[19]

How are we to understand the claim that every creature derives from God and nothingness? And how do numbers shed light on it? Leibniz does not explain either in *On the true mystical theology*, but elsewhere he suggests that there is an analogy between 'the origin of things from God and nothing' and 'the origin of numbers from 1 and 0' (Gr371, cf. A VI iv 158/P2). For greater detail on this we have to turn to a letter to Johann Schulenburg from 1698, to whom Leibniz explained:

> And this is the origin of things from God and nothing, positive and privative, perfection and imperfection, value and limits, active and passive, form (i.e. entelechy, endeavour, energy) and matter or mass which is in itself inactive, except insofar as it has resistance. I have made those things clear to some extent by the origin of numbers from 0 and 1, which I have observed is the most beautiful symbol of the continuous creation of things from nothing, and of their dependence on God. For when the simplest progression is used, namely the dyadic instead of the decadic or quaternary, all numbers can be expressed by 0 and 1, as will be evident in the table I have added, and in this genesis of numbers, which is especially suitable for nature, many things lie hidden that are wonderful for contemplation. (GM VII 239/SLT I.A.4, cf. A VI iv 158/P2)

0	0
1	1
10	2
11	3
100	4
101	5
110	6
111	7
1000	8

As Leibniz clearly intends God to be the analogue of 1, and nothingness the analogue of 0, there are two ways he could be understood here. If we follow the way numbers are constructed in the binary table, and assume that created things are formed in the same way,[20] we arrive at the view that God produces things that equal or surpass him. Hence God produces things with ever-greater quantities of essence than he himself possesses, via the sort of repetition used to build up the higher binary numbers. But since Leibniz holds that 'there is but one God' (G VI 613/Mon §39), and recognizes nothing greater than God, this evidently is not how he wants to be understood. The second way to make sense of the analogy between numbers and created things is to take Leibniz's claim that 'all numbers can be expressed by 0 and 1' (GM VII 239/SLT I.A.4, cf. A VI iv 158/P3), and suppose that every created thing can somehow be similarly expressed by God and nothing. But what does Leibniz mean by 'expressed by'? Presumably that any number can ultimately be reduced to 1s and 0s, or, which is much the same thing, translated, converted or resolved into 1s and 0s (cf. A VI iv 1618/LC307). Again, though, there is a serious disanalogy here between created things and numbers, as created things are not obviously reducible to or resolvable into God and nothing; if they were, they would presumably be greater than God.

The analogy is obviously far more complicated than Leibniz thought. The problem is that in the binary system, 0s and 1s are the elements from which higher numbers are created through a process of simple conjunction. Thus

any product, i.e. any number that is generated from these elements and is neither 0 nor 1, is going to be larger than 1. In the case of created things a different process must be envisaged, for although God and nothing are the elements out of which all other created things are formed, any product, i.e. anything generated from God and nothing that is neither all-God nor all-nothing, is somehow part God and part nothing. The term Leibniz evidently wants is 'derivation', which is sufficiently woolly to permit a very loose analogy to turn on it. Hence it would allow him to say that just as numbers somehow derive from 0s and 1s, created things somehow derive from God and nothing, in that, in both cases, a wide variety of other things can be formed or derived from these two elements (numbers in the first case, created things in the second). The moment the process of derivation is enquired into, the analogy between numbers and created things breaks down. Evidently, though, as Leibniz considered created beings to fall somewhere between God and nothingness, since they contain part of each, a better analogue for these things would be the fractions between 1 and 0. So the binary table and resulting analogy, which Leibniz obviously considered capable of greatly illuminating the matter of the origin of created things, in fact obscures it utterly!

Which leaves us with the following problem: given that God's essence comprises maximal power, knowledge and goodness, how is God able to achieve the variety of created beings he does, given that each is comprised of the perfect divine essence and non-being, or nothingness? Robert Adams has observed that, if Leibniz allows God to employ only the operators of 'negation and conjunction' in the construction of creatures (as Adams supposes is plausible on the grounds that qualities for Leibniz are usually constructed this way), then he is left facing two unacceptable choices:

> either the finite things have that same perfect power that God has, or they have the negation of it ... If the finite things have the negation of the primordial divine power, it is hard to see what property they can have that is constructed from that power by negation and conjunction except absolute powerlessness. But they are not supposed to be absolutely powerless. On the other hand, if they have that very property that is pure primordial power, unmodified by negation, then it seems they have one of the perfect attributes of God ... But finite things are not supposed to have any of these perfect attributes.[21]

Adams's Dilemma, as we might call it, rests on the assumption that Leibniz is to be taken at face value when he claims that creatures are the product of God

and nothingness. To understand Leibniz this way, however, is to impute to him the curious view that nothingness is the logical opposite of God's essence, a sort of 'anti-essence' if you will. If this is indeed how nothingness is to be understood then it is self-evident that God will not succeed in making any finite creatures at all, as the only choices available to him will be to make other Gods or nothing. However Leibniz was too consummate a thinker to make such an elementary mistake, though at times he was rather careless with his language, such as when he explained the matter to André Morell:

> there are in him [God] three primacies: power, knowledge and will; the result of these is the operation or creature, which is varied according to the different combinations of unity and zero. (Gr126/SLT I.A.5)

By appealing to 'the different *combinations* of unity and zero' Leibniz appears to walk straight into the problem identified by Adams, that the combination of God (1) and nothing (0) cannot give rise to anything between these two extremes. But if we let him finish, we will find that he goes on to give Morell an account that does not fall foul of this problem:

> there are in him [God] three primacies: power, knowledge and will; the result of these is the operation or creature, which is varied according to the different combinations of unity and zero; or rather of the positive with the privative, for the privative is nothing other than limits, and there are limits everywhere in a creature, just as there are points everywhere in the line. However, a creature is something more than limits, because it has received some perfection or power from God, just as the line is more than points. For ultimately the point (the end of the line) is nothing more than the negation of the progress beyond which it ends. (Gr126/SLT I.A.5)

Much the same is said elsewhere too:

> Without doubt boundaries or limits are of the essence of creatures, but limits are something privative and consist in the denial of further progress. (GM VII 239/SLT I.A.4, cf. Gr371, Gr412, Gr486/SLT III.A.3, G VI 613/Mon §42)

Adams's understanding is that when Leibniz's God produces a creature he divests the full amount of his essence to that creature along with the negation of this essence, which leaves the creature with no essence or properties at all. It is clear, however, that Leibniz envisages a different process, whereby God

divests a finite portion of his essence to the creature and then *stops*, the stopping point marking the limit of the creature. Strictly speaking, then, nothingness is not an element of the creation process as such; it is merely a poetic way of referring to a limit, the fact that a creature contains some of God's essence but not all. We should therefore not construe a creature as literally a mixture of God-stuff and nothingness, but rather as a finite instantiation (or dilution) of the former.

While it requires no great stretch of imagination to understand how creatures can have a limited part of God's perfect power and knowledge, it is less easy to see how creatures can be said to possess some but not all of God's perfect goodness, given that this is identified with will. As we know, the line Leibniz takes on the will is that it always aims towards what the agent perceives as best. On the basis of that it might seem that every creature has the full measure of God's goodness as God too aims at what he perceives to be the best. The only difference between God and creatures is that the former always aims right while the latter often do not. But for Leibniz this is the crucial difference. For as he saw it, the extent to which any being's will is perfect depends on the extent to which it aims at the true best. This itself is determined by the degree of wisdom possessed by the owner of a will, since 'to will is to be brought to act through a reason perceived by the intellect' (G IV 362/L389). If wisdom is lacking, the will acts on bad reasons which it mistakenly judges to be good (cf. A VI vi 180/NE180). And in creatures wisdom is always lacking to some extent, in that it never matches up to the omniscience of God. Thus creatures are only as good as they are wise, i.e. their wills are only as perfect as the knowledge that drives them. So taking the perceived best course is no guarantee of goodness at all, and certainly not perfect goodness, as taking the perceived best course is merely what every creature does.

Thus the composition of creatures as part God and part nothingness (or 'perfection and limitation' as he more helpfully puts it at Gr371) allowed Leibniz to claim that while creatures 'are the sparks of the divine image' (G VI 452/S134) and contain 'a footprint or reflection ... of God' (L368),[22] they are still essentially limited and therefore distinct from God. Moreover, as '[e]very creature is limited in this sense, that its greatness, power, knowledge and all its other perfections are limited or restricted' it is easy to see how Leibniz intends to explain the presence of moral evil (sin), for while 'there is no perfection or positive reality [in the creature] which is not due to God' the creature does not possess the full extent of these perfections (G VI 449/S129, cf. GW50, G VI 614/Mon §47). It can therefore easily fall into sin because it has insufficient wisdom to always know what the right actions are:

> For we must consider that there is an *original imperfection in the creature* before sin, because the creature is limited in its essence; from which it follows that it cannot be all knowing, and that it can deceive itself and commit other errors. (G VI 115/H135)

By holding that 'the root of evil lies in nothingness', Leibniz saw himself as continuing a line of argument that could be traced back to Augustine 'and others' (A VI iv 1577/DM §30, cf. A VI iv 2358/SLT VI.C.1/CWR5, Gr364–5/AG114–15).[23] We shall address this later in the chapter, when we examine Leibniz's notion of moral perfection.

One last point deserves our attention. So far I have said that God diffuses his essence to creatures, and in most texts in which the creation doctrine is discussed this is precisely what Leibniz says. But in a passage we have already seen, it is clear that he wishes to go further than this:

> the necessary being ... is the ultimate reason for things, insofar as they contain realities or perfections. And since the full reason for a thing is the aggregate of all primitive requisites ... it is clear that the causes of all things are resolved into God's attributes themselves. (A VI iv 1618/LC307)

It is interesting to note here that Leibniz is not just recognizing God's attributes of power, wisdom and goodness in all creatures, but in *all created things*. This is also evident in another previously quoted passage:

> Every perfection flows immediately from God, as essence, power, existence, spirit, knowledge, will ... The divine perfections are concealed in all things. (L367)

This marks a clear break with the creation doctrine as found in Plotinus and Augustine, both of whom held that there is in fact one created thing to which these attributes were not granted – matter. But Leibniz drew no distinction between creatures and created things, because for him all created things *are* creatures. Even the bodies of creatures, he maintained, are composed of other creatures in turn: the body of every animal and of every plant is composed of other animals and of other plants, or of other living and organic beings (G VI 235/H252). And as there is, he argued, 'no part of matter which is not actually divided and does not contain organic bodies' (G VI 545/L590), then there can ultimately be nothing in the universe beyond the attributes of God manifested in creatures. Riding on the coat tails of Leibniz's version of the Neo-Platonic creation story, then, is a form of vitalism, for if everything in the universe

possesses some measure of God's essence, and this essence is to be understood as the divine attributes of power, wisdom and knowledge, then everything in the universe is presumably not just organic, in the sense that a carbon molecule is today understood to be organic, but *alive* (which seems to follow on account that power, wisdom and goodness are attributes that can only meaningfully be predicated of living beings). So Leibniz's belief that all created things are constructed from 'God-stuff' inevitably leads to panorganicism which, being a model of consistency, he was more than happy to endorse:

> not only is there life everywhere ... but there are also infinite degrees of it. (G VI 599/L637, cf. G VII 344/AG319, A VI iii 565/LC209)

(The matter of there being infinite degrees of life is an important one and shall be examined in much greater detail in the following chapter.) Although many might have considered such panorganicism an unwelcome consequence, Leibniz on the other hand revelled in it, and even considered it a selling point of his philosophy on the grounds that it meant that 'there is nothing fallow, sterile, or dead in the universe' (G VI 618/Mon §69), that is, nothing without life.[24] Which means, of course, that everything in the universe has some degree of metaphysical perfection.

Physical perfection

I claimed at the start of this chapter that physical perfection is simply pleasure and happiness. This was perhaps an oversimplification, for in the *Theodicy* Leibniz denies that physical good lies solely in pleasure because it can also lie in a 'middle state' such as health and 'all the sensations [that are] not unpleasing to us, [and] all the exercises of our powers that do not incommode us' (G VI 266/H281). Nevertheless, as Leibniz reserved most of his remarks on physical perfection for pleasure and happiness, which he considered to be much greater examples of this perfection than mere 'middle states', the oversimplification was perhaps defensible. To understand physical perfection, then, we need to grasp the relationship between pleasure and happiness, a task for which few passages are better suited than this one, from a paper entitled *On Wisdom*:

> *Happiness* is a state of permanent joy ... *Joy* is a pleasure which the soul feels in itself. *Pleasure* is the feeling of a perfection or an excellence, whether

> in ourselves or something else. (G VII 86/L425, cf. Gr588/SLT V.C.3, A VI iv 2803/W568)

Thus the path to happiness starts with a feeling or perception of perfection, and this very feeling is pleasure. But as Leibniz notes, pleasures are sometimes mixed with pains since the mind is able to feel both at the same time, though if the former outstrip the latter in intensity then the result is joy, which is little more than a net balance of pleasure over pain (cf. A VI iv 2760).[25] Hence:

> JOY *is the total pleasure that results from everything the soul feels at once.* This is why one can have joy in the midst of great pains, when the pleasures that one feels at the same time are sufficiently great and capable of blotting the pains out. (Gr582/SLT V.C.2, cf. Gr589/SLT V.C.3, A VI vi 166/NE166, A VI vi 204/NE204)

Now properly speaking it is joy rather than happiness that minds aim at, i.e. 'something in the present' (A VI vi 90/NE90), though if a mind succeeds in maintaining moments of joy over a prolonged period then it attains happiness. In the above passage from *On Wisdom* Leibniz of course stipulates that happiness is *permanent* joy, but this is seemingly not to be taken literally, for in the same text he also writes 'the happy man does not, it is true, feel this joy at every instant' (G VII 86/L425); in fact, as Leibniz carries on to explain, the happy man's joy can be interrupted from time to time without depriving him of his happiness. This accords with what he says elsewhere, that joy need only be 'enduring' (A VI iv 1358/SLT VI.B.1, A VI iv 2842, A VI 1993/L280), 'durable' (A VI iv 2761, A VI iv 2803/W568) or 'lasting' (Gr582/SLT V.C.2, A VI vi 90/NE90) to qualify as happiness, which again is presumably a slightly less stringent requirement than outright permanence. Though how long joy must last to be called happiness, and how many interruptions it can bear before happiness becomes an improper description of it, are matters that so far as I know Leibniz left unresolved. These are minor issues, however, and need not concern us here.

Returning to the concept of pleasure, then, we find that Leibniz considered the recognition or appreciation of anything falling under one of the three main categories of perfection (viz. metaphysical, physical and moral) to be sufficient to bring about pleasure, and therefore (potentially) happiness. Moreover, he considered the process to be proportional, i.e. the greater the perfection perceived, the greater the pleasure gained from perceiving it. According to Leibniz, however, not all pleasures should be sought for their own sake, for not all are productive of happiness. He cautioned against

indulging in the pleasures of the senses, for instance, referring to this type of pleasure as 'the confused perception of some perfection'. The reason why one should shun sensual pleasures is because they can be productive of 'greater imperfections ... as a fruit of pleasing taste and nice smell can conceal a poison' (Gr579–80/SLT V.C.2/R83, cf. Gr582/SLT V.C.2, Gr589/SLT V.C.3, G VI 267/H282). The risk of strychnine and other concealed imperfections aside, Leibniz explains that pleasures of sense leave very little by way of lasting impression on the mind, so the source of a sensual pleasure must be returned to constantly. Therefore, he advises,

> we must strive for those clear and pure pleasures, whose perfection lies not only in the sense, but also in the intellect, and these we call the pleasures of the mind, in which it is clear that evils cannot lie hidden. (Gr589/SLT V.C.3)

The 'pleasures of the mind' referred to here are those that arise from 'knowledge of reasons' or 'universal and eternal truths' (Gr580/SLT V.C.2/R83), which is to say those 'pleasures ... which occur in the knowledge and production of order and harmony' (A VI vi 194/NE194). Although it is not immediately clear, what Leibniz is talking about here are the pleasures that arise from knowledge of God. As God is supremely perfect in every way, and consequently the greatest source of perfection there is (or can be), he is an inexhaustible source of pleasure for finite minds (cf. G VI 282/H297, G VI 605/L641).[26] However, as creatures 'only know him through his emanations' (Gr580/SLT V.C.2/R84), it is these emanations, i.e. the things he has created, that creatures need to study in order to secure knowledge of God. Such study is not mere data-gathering either; it involves 'applying reasons to facts'. That is, one must not just seek to know 'the wonders of nature' (Gr581/SLT V.C.2/R84), but their reasons too:

> By understanding the laws or the mechanisms of divine invention, we shall perfect ourselves far more than by merely following the constructions invented by men. For what greater master can we find than God, the author of the universe? (A VI iv 1994/L280, cf. A VI iii 157/W62, Gr91)

Adopting the finest clothes of the natural theology movement, Leibniz argues that one can even be assured of the existence of God through a simple examination of a plant or animal, whose 'wonderful structure ... shows that the author of nature has taken care with it and adjusted it down to the least parts' (A VI iv 2722/SLT V.B.1). And what is true of the smallest parts of

nature is true of the greatest parts as well. In fact, the whole of nature and its laws, Leibniz explains, are 'rays of the divine perfection' (Gr91), and contain traces of God's greatness, goodness and wisdom, and so to not study them is not just to remain in ignorance of God, but to neglect our own happiness also.

Leibniz continues to explain that our knowledge of God is further enhanced by knowledge of eternal truths, which 'makes us return everything to the final reason of things, that is to God, who is the source of our happiness' (Gr583/SLT V.C.2, cf. Gr580/SLT V.C.2/R84). The eternal truths Leibniz has in mind are those of 'numbers, shapes, good or evil, justice and injustice' (Gr581/SLT V.C.2/R84). Unlike Descartes, Leibniz denied that God produces these truths, i.e. that God makes them true by an act of will, but he did hold that they are objects of God's understanding, and that his existence is required if they are to be true at all:

> For it is, in my opinion, the divine understanding which gives reality to the eternal truths, although its will has no part in it. All reality must be founded on something existent ... without God, not only would there be nothing existent, but there would be nothing possible. (G VI 226–7/H243, cf. A VI iv 1617/LC307, A VI vi 447/NE447, G VI 614/Mon §§43–4)

The eternal truths are thus a window into the mind of God, and the more one discovers about them, the more one discovers about their 'first source', namely God (G VI 227/H243). But in order to gain any happiness from such truths it is crucial that one recognize their source. As Leibniz acknowledged, atheists can be just as good at geometry and logic as theists, i.e. they can discover the 'divine truth' (A VI iv 695) without knowing God (cf. G VI 227/H243). But because the latter relate this truth to its source (God) and the former do not, theists presumably make much happier geometers and logicians than do atheists.

In Leibniz's view, knowledge of God obtained via the discovery of eternal truths opens up another pathway to happiness:

> the more a mind desires to know the order, the reason, the beauty of things that God has produced, and the more it is moved to imitate this order in the things that God has left to its management, the more it will be happy. (Gr581/SLT V.C.2/R84)

Therefore, in men, happiness can also arise from aiming 'at the good and at perfection so far as is possible' and therefore 'imitat[ing] divinity, in so far as human nature is capable' (R58, cf. G VI 432/H438). Consequently, another

piece in the jigsaw of happiness is a life of virtue for 'virtue itself consists in a pleasure of the mind' (A VI vi 162/NE162). The connection between virtue and happiness will be investigated in the next part of this chapter; for now it is sufficient for us to acknowledge Leibniz's view that happiness proceeds from virtue, and that virtue proceeds from wisdom, i.e. knowing the true moral laws (which number among the eternal truths). Consequently, discovering the eternal truths does not just lead to knowledge of God by proxy, but also enables creatures to act like him insofar as that is possible.

This gives us three possible routes to happiness – knowledge of facts and their reasons, knowledge of eternal truths, and a life of virtue. Given that the latter can only be achieved by knowing the true moral laws, it is clear that the role of wisdom in the procurement of happiness is a vital one, for happiness depends on the amount and quality of one's knowledge. And given that 'The wiser one is the happier he is' (A VI iv 2805/W569), a life of science, philosophy, theology and virtuous living is obviously a good choice for the seeker of happiness. It is certainly Leibniz's recommendation.[27] This prompts him to remind us 'that we are the most perfect and happiest of all known creatures, or at least that it only takes us to become so' (A VI iv 2240/L220). This remark comes at the end of a short dialogue, after Polidore has been convinced by Theophile (Leibniz's spokesman in the debate) that his unhappiness is due to his not pursuing 'the knowledge of truths and ... the exercise of virtues' (A VI iv 2239/L219). The moral is that unhappiness, where present, arises deservedly as a direct result of one's free choices, and the remedy is simply to increase one's knowledge. Therefore 'we shall be happy in it [the world] if we wish to be' (G VI 232/H248, cf. A VI iii 135–6) and conversely, 'there is no misery unless someone wants it' (A VI iii 140). To clinch the point, Leibniz baldly claimed that:

> I know no one happier than I am, because God gave me this understanding, as a result of which I envy no king; and I am certain that God takes special care of me, that is, that he has destined my mind for immense joys, in that he has opened to me such a certain and easy way of happiness. (A VI iii 477/D31)

Since others can discover and reflect on truths, can perceive perfection and exercise virtue, 'no one in the world need ever be wretched unless he wills it to be ... All things are good for him who believes, who loves God, who trusts in God' (A VI iii 476/D29).

But is it really so clear-cut? In another short (and probably unfinished) dialogue from the mid-1690s, Leibniz appears to tell a different story. After

Leibniz's mouthpiece, Theophilus, has finished giving definitions of happiness and joy, and explained that the path to happiness lies in the pleasures of the intellect, Charinus, his interlocutor, responds by saying 'I fear that your definitions themselves show that happiness is outside of our power.' Charinus then goes on to give a catalogue of ills which routinely affect men's ability to attain happiness:

> How many changes there are in the fortunes of men, how often men are vexed by men, and even if you assume that savage enemies can be appeased by wile to some extent, how often we experience nature herself as unfriendly, indeed deaf and inexorable! How many men are seized by public misfortune, swallowed by waters, or crushed by earthquake, not to mention the seeds of perpetual sickness received from birth and external attacks and other sources of personal evils! What use is the knowledge of happiness to those who are deprived of the means of obtaining it? (Gr590/SLT V.C.3, cf. G VI 419/H424–5)

Theophilus offers two responses. The first is that, 'If all our life, which we pass in this arena, were contained in a brief space of years, there could be no reply to your observation.' The implication, of course, is that Theophilus feels that an adequate reply *is* available because our life is *not* confined to a few years. The point is left undeveloped in the dialogue however, though it crops up at some length elsewhere, and we shall address it in Chapter 7. Theophilus's second response is to say that, through the Leibnizian rules for happiness,

> at least we shall come as close to happiness as will be allowed, and when we are acquainted with the sources of joy, the greatest part of which is within us, we shall draw from them as much joy as will be permitted to be set against chance evils. (Gr590/SLT V.C.3)

Hence the route to happiness that Leibniz maps out is, by his own admission, not a guarantee of happiness, as events may conspire to prevent us achieving it, but it still ought to be followed as much as possible so that we may be as happy as we can possibly be.

Moral perfection

The final type of perfection identified by Leibniz is moral perfection.[28] He equates this with virtuousness, or piety, which he defines as 'the habit of acting in accordance with wisdom' (Gr579/SLT V.C.2/R83, Gr581/SLT V.C.2). Or rather, the habit of following the objective and eternal 'natural law', of which Leibniz identifies three degrees: '*strict right* in commutative justice, *equity* (or charity in the narrower sense of the term) in distributive justice, and finally *piety* (or probity) in universal justice' (G III 387/SLT V.A.1/L422). Only the third of these need concern us here,[29] as Leibniz tells us that 'Every moral virtue ... is contained within universal justice, which is absolute. These are perfect laws, prescribing every duty of virtue to man.'[30]

Unfortunately Leibniz does not provide a list of virtues, preferring instead to subsume them all under 'wise charity', 'justice' or 'generosity', all of which amount to a sort of very general friendship that Leibniz calls universal benevolence (cf. G VII 549/SLT V.B.2). As one might expect, the man who acts out of universal benevolence does all he can to increase the perfections of others, i.e. their metaphysical, physical and moral perfections, and thereby bring about as much good as he possibly can. With one qualification – he will attempt to increase the perfection of others in strict proportion to their worth:

> when one is inclined to justice, one tries to procure good for everyone, insofar as one reasonably can, but in proportion to the needs and merits of each person; and even if one is also sometimes obliged to punish the wicked, it is for the general good. (Gr579/SLT V.C.2/R83)

In so doing, the virtuous man acts like God, who also aims to bring about as much good as he can, and to distribute it proportionally according to desert (cf. G III 388/SLT V.A.1/L422). And of course this is where wisdom enters the equation (virtue, as we have just noted, is defined by Leibniz as the habit of acting in accordance with wisdom). For the man who acts with an indiscriminate benevolence is not acting wisely, like God, and is therefore not as virtuous, in Leibniz's view, as the one who proportions his good actions in favour of those most deserving. A reckless benevolence may in fact lead to more harm than good, if it benefits those who do not deserve to be benefited. So wisdom is required not only to know that true virtue involves the careful targeting of benevolent acts, but also to put this targeting into practice, for it is only when one knows the worth of others that one can give to each his due. Not to mention, of course, that to successfully perpetrate many benevolent acts itself requires a certain degree of wisdom, such as expertise in a particular

field. The role of wisdom in the Leibnizian notion of virtue should therefore not be under-stressed. In the matter of discerning the rules that a virtuous man should follow, Leibniz is even prepared to state that wisdom is more important than Scripture. He does say, of course, that 'the law of nature and of the nations should follow the teachings of Christianity', i.e. that men should follow 'the divine positive law contained in the sacred Scriptures' (R174). But Leibniz quite often considers the dictates of revealed Mosaic law to be necessary only for those who are incapable of reasoning effectively; in order to determine the laws by which we should live 'it suffices to have good sense' (A VI iv 2721/SLT V.B.1, cf. Gr139). Thus pagans are just as able to live virtuously as the devout, if they are wise enough (cf. A VI vi 502/NE502, Gr501). To clinch the point, he proposes a simple method by which all could live virtuously: think carefully before acting:

> How many of us have not heard these sayings a thousand times: *why are you doing this?*, or *consider the result*, or *watch what you are doing*? And still, it is certain that with one single such thought, perceived correctly and set constantly in front of one and made inviolable as if by certain laws and stern punishments, every single man as if in the blink of an eye, by an *instant metamorphosis*, would become infallible, prudent and blessed – beyond everything in the Stoic paradoxes of the wise man. (A VI iii 135, cf. Gr581/SLT V.C.2, G IV 362/L388, A VI vi 196/NE196)

The reason why such reflection will be efficacious is due to our being born (Leibniz thinks) with a small number of moral principles engraved in the mind, from which all other ethical truths can be derived by a strict process of deduction (cf. A VI vi 88–95/NE88–95). A careful use of one's insight and reasoning will therefore furnish anyone with the rules by which they should act. Leibniz acknowledged, however, that such an exhortation for careful reflection will only strike a chord with those wise enough to realize its benefits, so this tip for virtuous living will only find favour with those likely to be virtuous anyway. Which only serves to underscore his point that to act virtuously is to act wisely.

We should be careful, however, not to draw the conclusion that Leibniz located virtue purely in actions, or even in their consequences. Although at times he appears to come perilously close to saying this (e.g. Gr139), in his more careful moments he advises that it is not enough simply to act in a benevolent way or bring about good results; one must also do so for the right reason. As he writes in *The elements of true piety*: 'I talk of *piety*, not merely of moral virtues, because anyone is able to live rightly merely on account of

human causes, such as education, custom, public peace, personal safety, and good repute' (A VI iv 1357/SLT VI.B.1). Living rightly for these reasons does not make one morally upright, a good person. To achieve that, and have true moral perfection, one must will to do good for its own sake, and this requires *love*. Moreover, Leibniz has a kind of self-love in mind as the motivating force behind virtuous actions:

> Self-love produces all the vices and all the moral virtues, according to whether it is well or badly understood, and although it is true that men never act without interests it is also true that there are respectable and lasting interests. (A VI iv 2733)

So Leibniz does not recognize a truly Fénelonian kind of disinterested love, which requires complete renunciation of oneself and one's own interests in favour of those of the beloved. Instead, Leibniz holds that all love is essentially self-love, or interested love, as men never act for any other reason than their own interests. Nevertheless there are good and bad varieties of self-love, according to Leibniz. The bad kind is what is normally understood by the term selfishness, i.e. a man acting out of this kind of self-love will act only to please himself and will not consider the interests of others at all. No virtue resides in the one who acts on this kind of self-love. The second kind is dubbed 'pure love' by Leibniz and is characterized as 'being delighted by the happiness of someone, or experiencing pleasure from the happiness of another' (A VI iv 1357/SLT VI.B.1), and elsewhere as being 'disposed to take pleasure in the perfection, well-being or happiness of the object of one's love' (A VI vi 163/NE163, cf. A VI iii 116, Gr579/SLT V.C.2/R83, G VII 546/SLT V.B.2). So the motive of an act performed out of pure love is both selfless (because it benefits others deliberately rather than by accident) *and* selfish (because the end result of it is very much in the virtuous man's interest). By dint of the latter, pure love qualifies as self-love. But there is a clear difference between a selfish act, which is directly in our interests, and one performed out of pure love, which is only indirectly in our interests (because it first has to benefit someone else before it can benefit us). Moreover, the benefit one gets from an act of pure love 'only consists in the pleasure which is given by the sight of the perfection and happiness of the object loved, without considering any other good or profit which we can get from it' (G VII 547/SLT V.B.2). So if person A were to enlighten person B, his action would be virtuous if done for its own sake, i.e. if the only profit for A is an increase in his happiness that derives from the recognition of B's increased perfection, but non-virtuous if A's aim is to receive any other profit

beyond that, e.g. monetary payment, career advancement, enhanced reputation, etc. So although 'the happiness of the beloved is part of our own happiness' (A VI iv 1357/SLT VI.B.1, cf. G VII 549/SLT V.B.2), the one who acts out of pure love is driven to direct his efforts exclusively to bring about an increase in the perfection of others, albeit in the knowledge that he will benefit thereby; and this, in Leibniz's mind, is the mark of true virtue.

The relationship between virtue and happiness that I mentioned earlier is now laid bare, as it follows from Leibniz's notion of virtue that acts performed out of pure love will be rewarding for those that do them as well as those on the receiving end of them. That is, if A performs a selfless act that increases, say, the happiness or virtue of B, A will thereby increase B's own measure of perfection, from which A may take pleasure. Consequently,

> pleasure is essentially part of the *notion of love*, so that the one who truly loves with a pure love places his pleasure in the good, happiness and perfection of the other. Thus pure love can be detached from our mercenary interests, but not from our good. (Gr208)

There are occasions when this connection between virtue and happiness fails, however, for as Leibniz notes, 'even virtues are among the causes of future unhappiness, not because anyone suffers on account of justice ... but in general, i.e. adverse events arise that are no more from sin than from virtue' (Gr373/SLT VI.C.2). Thus the recipe for virtuous living is no guarantee of happiness; it is possible to be virtuous and unhappy, if unfavourable events occur that turn a virtuous act into a source of unhappiness for the one who performs it (which could simply involve being in the wrong place at the wrong time). Nevertheless Leibniz does not retreat from his position that virtue is its own reward, noting that God – because of his own perfect moral goodness – will ultimately see to it that justice is served in the universe, with the virtuous made happy and the wicked unhappy (cf. G III 389/SLT V.A.1/L423).

In order to gain a proper understanding of the three kinds of perfection identified by Leibniz, it is important to round off our discussion of them by saying a few words about how they are all interrelated. For Leibniz evidently didn't consider one type of perfection to be independent from the others. We have already seen how he thought moral perfection relates to the physical kind, and how wisdom (a metaphysical good) underlies them both. To briefly recap, a creature boasting a high degree of wisdom will know (amongst other things) many eternal truths, which will enable it to be happy and virtuous. And by acting virtuously it is able to increase its happiness still further.

Conversely, a creature with a relatively low degree of wisdom will struggle to be happy (because it lacks knowledge of God) and virtuous (because it is unlikely to know many of the true moral laws). We now need to consider how the other metaphysical perfections of power and goodness relate to physical and moral perfection. In the case of power, Leibniz remarks:

> It is obvious that the happiness of mankind consists in two things – to have the power, as far as is permitted, to do what it wills and to know what, from the nature of things, ought to be willed. (A VI i 459/L131)

The more power a creature has, the more it is able to do, and more importantly, the more it is able to achieve what it wills to do by overcoming outside factors that would otherwise frustrate it. But the more a creature is passive and not in control of its own fate, the less opportunity it will have to act virtuously and thereby draw happiness from that. A lack of power will also thwart a creature's desire for happiness in another way, by impacting on its ability to engage in studies of nature. For Leibniz construes this as very much an active process – armchair philosophizing might be able to furnish a creature with the eternal truths, but not the truths of nature. Power is therefore a requisite for physical and moral perfection no less than is wisdom.

Which leaves us with the metaphysical perfection of goodness. At first glance this might appear to be the same thing as moral perfection, i.e. that moral perfection just *is* the metaphysical perfection of goodness. But if we remind ourselves that the latter is identified with the will, we will realize that it cannot also be identified with moral perfection, which is 'a habit of acting in accordance with wisdom' (Gr579/SLT V.C.2/R83, Gr581/SLT V.C.2). Acting thus certainly requires good intentions, but it quite clearly requires good actions as well (cf. A VI iv 2378/CWR35, Gr114), which the will by itself cannot bring about without the attribute of power (which is no more than the ability to carry out the instructions or wishes of the will). Since the will can supply the good intention to act but not the power to translate this intention into action, a creature with a high degree of metaphysical goodness will not necessarily have a high degree of moral perfection. So moral perfection is, like physical perfection, a product of the combination of all three metaphysical perfections – in this case, wisdom produces a good will, the aims of which are realized by power. Therefore the metaphysical attribute of goodness is nothing more than the *propensity* to obtain moral perfection, rather than moral perfection itself.

From our brief discussion on the interconnections between the three kinds of perfection, we can infer that metaphysical perfection is logically prior to

the other two kinds, as creatures require some wisdom, power and goodness (will) in order to attain any physical or moral perfection. Moreover, the degrees of physical or moral perfection a creature can attain will depend largely on the degree of metaphysical perfection it possesses (the other factor being favourable or unfavourable events).

The richness of the Leibnizian universe

Now that we know what the three types of perfection are, it remains for us to determine how prevalent Leibniz thinks they will be in the best of all possible worlds. One might suppose that in the best world there will be as much of each as there could possibly be, and at times Leibniz certainly seems to promote such a view. For example, he writes in the *Theodicy* that 'God, altogether good and wise, must have produced all the virtue, goodness, happiness whereof the best plan of the universe is capable' (G VI 259–60/H274). Later in the same work, Leibniz tells us that God 'has attained the utmost good possible, provided one reckon the metaphysical, physical and moral goods together' (G VI 264/H279). Passages such as these have convinced some commentators, for example Parkinson, Brown, Blumenfeld and Rutherford, that for Leibniz the best possible world contains the maximum possible amounts of the three types of perfection or good.[31] But a close examination of the above passages will reveal that Leibniz falls some way short of saying exactly that. The second passage, which says that God 'has attained the utmost good possible, provided one reckon the metaphysical, physical and moral goods together', is remarkably short on detail and says nothing about the amounts of each good that God has procured. What it does say is that, taking these goods together, this world is superior to other worlds. There is sufficient looseness in this claim for us to wonder if other possible worlds might be inferior to the best overall, but contain a great deal more of one or two of the goods than does ours. The first passage is no different. In saying that our universe contains 'all the virtue, goodness, happiness whereof the best plan of the universe is capable' Leibniz should not be construed as saying that the universe actually contains the greatest possible amounts of the three goods, only that it contains as much of them as the best plan will permit. This is hardly a guarantee that all three kinds of perfection are at an absolute maximum in the best possible world, because for all we know at this stage the best plan does not involve this.

But intuitively we may feel that it should. And from what we know

already, we can see how the simultaneous maximization of the three forms of perfection could be achieved: all God need do is maximize metaphysical perfection, and then, because of the interrelationships between metaphysical, physical and moral perfection, this would result in the maximization of physical and moral perfection also. But Leibniz's vision of the best possible world is more complicated than this, and as will become apparent in the following chapters, it does not obviously involve the maximization of *any* of the three kinds of perfection. Instead we are informed that:

> God chose the world that is the most perfect, i.e. the one that is simultaneously the simplest in hypotheses and richest in phenomena. (A VI iv 1538/DM §6)

And:

> of all the possible ways to make the world, one has to be preferred to all the others – one which ... in a word, is the simplest and the richest. (A VI iv 2231)

The task before us now is to understand what these statements mean.

Notes

1. In Gr371 he treats 'absolute' and 'limited' as opposites, which strengthens the case for supposing that 'absolute' does indeed mean 'an expression without limit'.
2. This seems to be the view of G. H. R. Parkinson. See D132n4.
3. Also: 'An *Essence* is ... the aggregate of all attributes' (A VI iii 574/D95).
4. It is likely, of course, that Leibniz always intended 'positive' to mean unmodified by limits *and* capable of an ultimate degree, as he would hardly have looked kindly on the suggestion that he countenanced the identification of number as a perfection. But to the best of my knowledge he did not make this dual requirement explicit until the *Discourse on Metaphysics*. Prior to that, 'absolute', 'positive', affirmative', etc., were just employed in the sense of 'not modified by limits'.
5. For example it is not mentioned by Rutherford (1995), nor Adams (1994). The latter in fact seems to take 'highest degree' to mean 'unlimited in degree' (1994, p. 121). It is highly questionable that the two expressions are identical however.
6. Adams (1994), p. 122.
7. Adams (1994), pp. 122–3.

8. Adams (1994), p. 123.
9. The source of Adams' misinterpretation can be traced back to his construal of Leibnizian positive attributes (i.e. perfections) as those 'that ... involve no negation at all' (Adams (1994), pp. 113 and 142). Leibniz would concur with that analysis, so long as 'involve' is taken to mean 'contain' and not 'somehow connected or associated with', which is how Adams takes it.
10. Of course in the passage from the *Discourse on Metaphysics* quoted above, Leibniz mentions only omnipotence and omniscience in a discussion of God's perfections. Although goodness is not mentioned explicitly as a perfection, Leibniz does continue to remark that God 'acts in the most perfect manner not only in the metaphysical sense, but also morally speaking' (A VI iv 1531/DM §1), a statement in which God's perfect goodness is heavily implied.
11. For instance, when he remarks that God 'is absolutely ubiquitous, or omnipresent; [and he] is absolutely enduring, i.e. eternal' (A VI iii 520/D79). Leibniz does sometimes list justice among God's attributes as well, but 'since justice, taken in its most general sense, is nothing but goodness conforming with wisdom', it is clear that justice is analyzable into these two attributes (G VI 602/L639).
12. For example in one text Leibniz singles out greatness and goodness as 'two perfections' predicable of God. This is a curious view, as it turns out, for he continues to explain that God's 'greatness can be considered under two main headings, God's omnipotence and his omniscience' (G VI 439/S114). This would suggest that power and knowledge are not perfections in themselves, but in combination form the perfection of greatness.
13. Russell (1937), XVII.
14. And again, this time in a letter to Antoine Arnauld from 1687: 'For one may say that created spirits differ from God only in degree, or as finite to infinite' (G II 125/L346).
15. In a penetrating study of Leibniz's early metaphysics, Christia Mercer claims that Leibniz endorsed the Neo-Platonic creation doctrine from very early on in his philosophical career. Much of the evidence she cites attempts to support this claim indirectly by showing that, in his early theological writings, Leibniz accepted much of the Neo-Platonic tradition, which would have likely entailed his acceptance of the doctrine of creation. She finds further supporting evidence in the fact that Leibniz's theological statements were consistent with the Neo-Platonic account of creation, even though he makes no outright endorsement of it (e.g. Mercer (2001), pp. 239, 428). Many of the passages cited by Mercer are indeed consistent with the Neo-Platonic doctrine of creation though few, considered in themselves, and without Mercer's guiding comments that often say what Leibniz does not, offer direct proof that Leibniz endorsed the theory in the formative stage of his philosophical career. The following is a good example of how Mercer's commentary guides the reader to a position he or she might otherwise not have reached:

> Leibniz writes 'The whole world is one vortex for God.' Within this context, Leibniz's claim that the divine 'mind, like a soul, exists ... in the whole body of the world,' suggests that the divine mind emanates its perfect vitality out of which the individual creatures are made. (Mercer (2001), p. 416; the Leibniz quotes are from A VI iii 480/D37 and A VI iii 474/D25.)

I am not convinced that either quote, even in context, unequivocally suggests what Mercer says it does. In fact both appear to be quite pantheistic in tone. This is not to suggest that Mercer is wrong to attribute the Neo-Platonic creation doctrine to the young Leibniz, only that the evidence for that doctrine is scant, and largely implied, in his early work. In fact it is not until April 1676 and the short paper *On the origin of things from forms* (A VI iii 518–22/D75–83) that conclusive evidence for his acceptance of that doctrine starts to mount.

16. Leibniz also sometimes refers to God as the *principle* of all other creatures, e.g. A VI iii 392/D45, A VI iv 1402/LC251. Compare Plotinus (1991), V.2.1.
17. In one text, however, Leibniz informs us that, 'In God alone there is understanding, willing, having power. In us there is intellect and will, but no power' (A VI iv 1461/LC263). Such a view follows from his denial of transeunt causation (i.e. inter-substance causation), each substance or creature instead bringing about its own changes according to an internal blueprint of development that he calls 'appetite'. As the rejection of transeunt causation is not strictly part of his notion of the best of all possible worlds I shall opt not to discuss it further.
18. Leibniz is not to be understood here as suggesting that creatures actually possess the attribute of omniscience. He explains elsewhere that none of God's attributes are strictly communicable in themselves (cf. Gr425), so by 'a participation in divine omniscience and omnipotence' he means only that creatures have some knowledge and power (or 'some vestige of omniscience and omnipotence' as he puts it at A VI iv 1618/LC309). The issue is blurred somewhat by his insistence that 'Each soul knows the infinite, knows everything, but confusedly' (G VI 604/L640). The doctrine of confused omniscience stems from his conviction that there is a sympathy between all parts of the universe, with each thing having an effect on everything else (cf. A VI iii 524/D85). All these effects register in every mind, though almost all of them are registered unconsciously. Hence each thing knows of everything else in the universe, but each thing knows of most other things only confusedly, whereas God knows everything distinctly.
19. Even a thinker like Descartes, who was less inclined towards Neo-Platonism than Leibniz was, saw things in much the same way. He wrote 'I am, as it were, something intermediate between God and nothingness, or between supreme being and non-being.' Descartes (1984), p. 38.
20. This appears to be how Dennis Plaistead interprets the matter, as he writes that the formation of things from God and nothingness is 'much like in binary arithmetic where all numbers are formed by combinations of 1's and 0's'. Plaistead (2003), p. 331.

21. Adams (2001), p. 10.
22. A description favoured by Neo-Platonists, cf. Henry More's assertion that 'every thing [is] a picture, shadow, or footstep of the Divinity'. More (1966), p. 703.
23. See, for example, Augustine (1961), VII.12; Augustine (1963), XIV.13, XV.21; Aquinas (1967), 1q48a1; Aquinas (1956), III.4–9.
24. Leibniz makes a similar claim in a dialogue on continuity and motion: 'the supreme creator of things ... has bequeathed us nothing sterile, nothing fallow, nothing unadorned' (A VI iii 566/LC211, cf. A VI vi 72/NE72, G II 126/L348, GM III 565/AG171).
25. Leibniz sometimes forgets this and claims that '*Joy* consists in the sensing of perfections' (Gr667/SLT V.B.3), which is too close to the definition of 'pleasure' for comfort.
26. In *The Philosopher's Confession* Leibniz even goes so far as to state that God is the *only* source of pleasure for minds (A VI iii 116–117).
27. In advocating a life of science, philosophy, theology and virtue, Leibniz's recipe for happiness might seem very similar to Aristotle's prescription for eudaemonia, which is also primarily centred around the 'eternal' truths of logic and mathematics and virtuous actions (cf. Aristotle (1984), 1178a9–12). The important difference between them is that while Aristotle identifies the contemplation of eternal truths as the greatest single source of happiness, Leibniz instead stresses the joys of discovering truths. It is true that he does suggest in several texts that happiness can arise from contemplation (cf. A VI iii 117, Gr92, G VII 86/L425), but there are many more in which truth discovery is promoted at the expense of contemplation: 'Thus our happiness will never consist, and ought not to consist, in a complete joy, in which there would no longer be anything to desire, and which would make our mind stupid, but in a perpetual progress to new pleasures and new perfections' (G VI 606/L641, cf. A VI vi 490/NE490).
28. In at least one text Leibniz identifies omnipresence as another of God's perfections and suggests that created things possess it in some measure 'when they are said to be somewhere' (A VI iii 519/D79, cf. A VI iii 520/D81). However, this claim was rarely repeated.
29. For good accounts of Leibniz's theories of justice, equity and charity see Rutherford (1995), pp. 54–62, and Riley (1996), especially chs. 4 and 5.
30. Quoted in Riley (1996), p. 200, cf. R60, G III 389/L423.
31. E.g. Parkinson (1965), pp. 114–15; Brown (1988), p. 590f; Blumenfeld (1995), p. 404f; Rutherford (1995), pp. 15 and 46ff.

4

The Perfection of Worlds I: Richness

A brief history of plenitude and continuity

Leibniz does not provide a great deal of argument when identifying the features that go to make up a rich universe. What we find instead are statements that are accompanied by only the briefest of supporting arguments or, more often, none at all. The reason for this was that there was no pressing need for him to do so: in identifying richness as a merit-conferring property of the world, Leibniz was saying nothing his contemporaries had not heard before. The idea of worldly richness, which generally traded under the name of *plenitude*, was in fact ancient even in Leibniz's time, having been introduced by Plato by way of Plotinus and other Neo-Platonists and preserved, with minimal amendment, by Abelard and Aquinas amongst others. The upshot of this is that a proper understanding of this aspect of Leibniz's thought cannot adequately be derived from a consideration of his writings alone, but requires at least a glance at the philosophical landscape of preceding ages.

The roots of the idea are to be found in the *Timaeus*, where Plato writes of God, 'He was good, and in the good no jealousy in any matter can ever arise. So, being without jealousy, he desired that all things should come as near as possible to being like himself',[1] that is, he wished 'that all things should be good and, so far as might be, nothing imperfect'.[2] To achieve this end the demiurge (Plato's craftsman-God) used as his template for creation the perfect world of Forms or Ideas, which in Plato's philosophy represent every possible type of thing. It was necessary for the demiurge to make mundane copies of every single Form in order that his work was not marred by incompleteness. Hence the Platonic demiurge made the world 'whole and complete' so that there was 'nothing ... left over, out of which such another might come into being'.[3] This was taken to mean, by those whose voices were destined to be heard in the centuries that followed, that the creator would fail to be perfect if he did *not* create all the types of thing that it was possible to create. These voices of course belonged to the Neo-Platonists, and the interpretation they bequeathed was this: if God failed to produce a particular type of thing he would not necessarily be jealous of that thing by denying it the privilege of existence, but rather of the perfect complete whole of which that thing was a necessary part. Therefore, as a

non-jealous God could not reasonably deny existence to any kind of thing, all of the ideas in the World of Forms were copied into the temporal realm. Developing this point, Plotinus argued that, to the power of the supreme being

> we cannot impute any halt, any limit of jealous grudging; it must move for ever outward until the universe stands accomplished to the ultimate possibility. All, thus, is produced by an inexhaustible power giving its gift to the universe, no part of which it can endure to see without some share in its being.[4]

The consequence, as Plotinus observed, was that 'this universe holds everything'.[5] It was this very idea of the world containing not just every kind of thing but *everything* it possibly could that gave the doctrine of plenitude its name. Almost one millennium later the concept of plenitude had become tightly woven into the fabric of everyday philosophical thought, largely due to the influence of Plotinus and the Neo-Platonists that followed him. In the work of Abelard it is even still possible to detect traces of its Platonic roots:

> Could God make more than He does, or better things than He does, or cease in any way from doing what He does? ... to say that God could take these various courses we imply detriment to His goodness. To say that he is able to take these courses, but does not do so, is to hint at His being jealous or unjust.[6]

Both Plotinus and Abelard took Plato's doctrine to its ultimate conclusion, that worldly plenitude arose as a direct and inevitable result of the nature of the most perfect being. For both, the production of everything possible was bound up so intimately with divine goodness, it was inconceivable that God could do anything other than produce everything he could. This led both to abandon the notion of creation and all that it entails, e.g. intelligent choice, which is clearly expressed in the *Timaeus*. The means of production was instead taken to be *emanation*, where God's goodness 'overflows', via necessity not will, to continually produce reality and perfection. Not that this was a view shared by all, however. Augustine insisted that God freely chose to create, while Aquinas put forward a novel synthesis of the two extremes, arguing that God freely chose to emanate.[7] Or perhaps 'freely decided to communicate' would be more accurate, since for Aquinas God's aim in creating was to impart his own likeness to the world in the most befitting

manner available to him. Despite the different premises, Aquinas found himself in full agreement with the conclusion of those Neo-Platonists who made explicit what Plato had only implied – that if every type of possible thing had been actualized then the world must exemplify maximal variety in its parts. Thus while Plotinus observed that creation 'bring[s] about differentiation to the uttermost degree',[8] St Thomas was also happy to affirm 'manyness in things',[9] as it arose as a direct result of God's desire to communicate his goodness to created things: 'it must be said that no created nature, since it is finite, represents the divine goodness as perfectly as a multitude of nature does ... consequently there ought to be many natures in the universe'.[10] The upshot of this was that, as 'God made things manifest his own goodness in their various levels, he instituted as many levels of being as nature could carry'.[11]

A clear drawback to this idea, as many of its proponents realized, is that, by itself, it could easily imply a messy and disorganized creation, an indiscriminate granting of existence to things that had no relation to each other and in fact seemed to get in each other's way. In short, it could imply something unworthy of God, and hardly a fitting representation of his own perfect nature. This concern was raised by Plotinus:

> The animals devour each other: men attack each other: all is war without rest, without truce: this gives new force to the question how Reason can be author of the plan and how all can be declared well done.[12]

What the doctrine of plenitude needed, and eventually got, was some way of making sense of the infinite variety that had been produced. It was Aristotle who unwittingly brought order to possible chaos via the principle of continuity, introduced in his *Metaphysics*. He writes there, 'I call things "continuous" when their limits touch and become one and the same and are contained in each other.'[13] While Aristotle did not suggest there to be any inherent continuity in nature (for him continuity belonged in mathematics) his principle naturally fitted into the idea of plenitude,[14] for if the world contains the maximum variety of things, and this variety was limitless, then between any two types of thing there must be found some intermediate type of thing, and so on *ad infinitum*.

As a result of this, the clothes in which the notion of plenitude were usually dressed were those of the *scala naturae*, or ladder of being, which held a respected position in the paradigm of seventeenth-century metaphysical thought, as it had for some centuries beforehand. The *scala naturae* was, as its name suggests, essentially a hierarchy of being, with all the various kinds of

things forming part of a graded and graduated scale from the least perfect up to the most perfect. Plotinus has a strong claim to be identified as the source of this hierarchical vision of reality.[15] He writes:

> The Universe is a thing of variety, and how could there be an inferior without a superior or a superior without an inferior? ... where there is variety and not identity there must be primals, secondaries, tertiaries, and every grade downward.[16]

However it was only midway through the first millennium AD, when Neo-Platonic thinkers, writing after Plotinus, tangled the concept of plenitude with Aristotle's writings on the principle of continuity, that the notion of the scale, and its embodying order through the relative value of its parts, emerged fully formed. It would be unwise to give Aristotle all the credit for providing the finishing touch to the great chain, however, for Aquinas, at least, was happy to find confirmation for the view that nature expressed an ordered hierarchy in a source even more palatable to orthodox Christians than Aristotle: 'the Apostle says in Romans XIII [1]: "The things which are from God are ordered." '[17] Aquinas, like Plotinus and others, therefore held that the multitude of things God had created possessed a determinate order, whereby all member species were ranked in relation to each other so that the position any given species of thing occupied in the scale was a measure of its relative perfection. The value attached to each point in the scale allowed one, it was thought, to proceed through the scale by infinite degrees from the lowest member to the highest. Aquinas brings this out nicely:

> the diversity of forms requires different grades of perfection. This is quite clear to one who observes the natures of things. He will find, in fact, if he makes a careful consideration, that the diversity of things is accomplished by means of gradations. Indeed, he will find plants above inanimate bodies, and above plants irrational animals, and above these intellectual substances. And among individuals of these types he will find a diversity based on the fact that some are more perfect than others, inasmuch as the highest members of a lower genus seem quite close to the next higher genus; and the converse is also true, thus, immovable animals are like plants ... Hence, it is apparent that the diversity of things requires that not all be equal, but that there be an order and gradation among things.[18]

So while the general thrust of the doctrine of plenitude was that the world was complete, on account of it containing as much as it possibly could, and as

many kinds of things as it possibly could, to many this entailed a continuous ordering of the infinite variety of species or kinds that this completeness demanded.

Leibniz and plenitude

The doctrine of plenitude continued to prove attractive to many thinkers throughout the Middle Ages, Renaissance and into the Enlightenment. Among its many advocates were Palingenius, Fontenelle, Locke and Giordano Bruno, and to this chorus praising the hymn of plenitude, Leibniz added his voice.[19] But as we shall see, he didn't sing from quite the same hymn sheet as everyone else. However, on the question of how much God had created, Leibniz took the orthodox line that he had produced as much as possible, so that 'the greatest possible number of things exist' (A VI iv 1442/SLT I.A.1, cf. A VI iv 1364/SLT VI.B.1, A VI iv 2231, A II i 478/L211, G II 98/AG87). Moreover, Leibniz was able to claim that the number of things remained stable throughout the history of the world, thanks to his adherence to the then-vogue theory of preformationism. Following Leeuwenhoek, who was the first to observe sperm cells under a microscope, Leibniz held that all animals (men included) that were to develop throughout the course of the universe began as spermatic animalcules, that is, miniature versions of the animals they were to become, that were present in the semen of all previous generations of animals. It is, he stated, 'doubtful that an entirely new animal is ever produced but that living animals as well as plants exist in miniature in the seeds before conception' (G VI 543/L589). Moreover, Leibniz held that death was simply this process in reverse, and that animals never truly die in the sense that they are wholly extinguished. Hence 'an animal ... does not end naturally; thus death ... will be nothing other than an involution and diminution of the animal, when it returns from the state of a large animal to the state of an animalcule' (G VII 330/SLT II.A.4). As Leibniz applied this hypothesis to every kind of creature and not just animals (cf. G VI 517), he was able to draw the conclusion that no creature is ever lost – those created at the start of the world remain in it, in one form or another, throughout its history. As nature has been formulated in such a way as to preserve the number of things in it, God is relieved of the need for a series of fresh creations to keep the number of things topped up. Consequently Leibniz was decidedly lukewarm about the doctrine of emanation – which was typically taken to be an ongoing process – and favoured instead a straightforwardly Augustinian

creatio ex nihilo,[20] arguing that everything had been produced freely *by* God rather than flowing necessarily *from* him.[21]

God, then, creates only once, and in that single act he produced as much (i.e. as many things) as was possible. This inspired Leibniz to draw a conclusion that many of his predecessors had not – that if God had produced as much as he could, then the universe must be a plenum, because any empty spaces could potentially be filled with something (cf. A VI iii 473/D23).[22] He reached the same conclusion via the principle of sufficient reason too, arguing that if God had left a space – a vacuum – then there must have been a reason why he did so. But since it was better to fill all spare space rather than leave it empty (since any created thing would have some perfection and an empty space would have none) he could have had no reason to leave any spaces, and consequently the universe must have been created at the limit of its capacity:[23]

> let us fancy a space wholly empty. God could have placed some matter in it without derogating in any respect from all other things; therefore he has actually placed some matter in that space; therefore there is no space wholly empty; therefore all is full. (G VII 378/L691)

As to the point of this supreme abundance, Leibniz was in perfect agreement with Aquinas, arguing that God merely desired to express his perfect nature:

> God, in designing the world, purposed solely to manifest and communicate his perfections in the way that was most efficacious, and most worthy of his greatness, his wisdom and his goodness. (G VI 144/H164, cf. G VI 253/H269)

And in keeping with the good doctor's prescription for creation, Leibniz argued that the best way for God to communicate himself was to fill the world with diverse things:[24]

> perfection is not to be located in matter alone, that is, in something filling time and space, whose quantity would in any way have been the same; rather, it is to be located in form or variety. So it follows that matter is not everywhere alike, but is rendered dissimilar by its forms; otherwise it would not obtain as much variety as it can. (G VII 290/P146)

And so, ever keen to follow the well-trodden paths of the ancients, Leibniz accepted one of the chief corollaries of the doctrine of plenitude, and endorsed

infinite diversity in the universe (cf. G III 403/W483). But diversity of what, exactly? Individuals, species, or both? There is no doubt that Leibniz would have accepted that the world contains the greatest possible diversity of individual things because '*there cannot be in nature two individual things different in number alone*' (A VI iv 1645/SLT I.B.5/P88, cf. C8/P133, G IV 514/L506). For according to his celebrated principle of the identity of indiscernibles, if two things have precisely the same properties or predicates (i.e. they are indiscernible), then they are in fact one and the same thing (i.e. they are identical). So if God creates the greatest *number* of things possible, then he must thereby also bring about the greatest *diversity* of things possible.

Yet this does not seem to be what Leibniz means when he wrote, in the passage cited above, that 'matter ... is rendered dissimilar by its forms; otherwise it would not obtain as much variety as it can', as he was certainly enough of a Platonist to take 'forms' as meaning 'sorts' or 'types' of things rather than individual things. This also seems to be his meaning when he broaches the subject of variety in the *Theodicy*:

> Midas found himself less rich when he had only gold. And besides, wisdom must vary. To multiply only the same thing, however noble it may be,[25] would be superfluity, and poverty too: to have a thousand well-bound Virgils in one's library, to sing always the airs from the opera of Cadmus and Hermione, to break all the china in order only to have cups of gold, to have only diamond buttons, to eat nothing but partridges, to drink only Hungarian or Shiraz wine, would one call that reason? (G VI 179/H198)

Although Leibniz initially appears to be advocating a variety of *things*, by suggesting that it is superfluous to multiply the same thing, he quickly moves on to advocating a variety of types or sorts of thing, and ultimately argues that the principle being defended – that variety is good in itself – accounts for the existence of 'animals, plants, inanimate bodies', i.e. various *kinds* of thing (G VI 179/H198). Leibniz also seems to mean the variety of kinds of thing in *On the ultimate origination of things*, where he refers to 'the variety of forms' (G VII 303/SLT I.A.3/P138). In fact Leibniz generally reserves the term 'variety' for kinds of thing rather than individual things, though as I have already noted he also believed the best world contains the greatest possible number of individual things, no two of which are the same, which entails a commitment to the greatest possible variety of individual things too.[26] Leibniz thus affirms both that there is the greatest number (and hence variety) of individual things, and that there is the greatest variety of kinds of thing, i.e. species. Later in this chapter we shall address the question of

whether Leibniz believed there to be a link between the greatest number of things and the greatest variety of species, but for now we need to understand a little more about the latter claim.

We have seen that Plotinus and St Thomas, not to mention numerous thinkers that followed them, held the view that within the great diversity of species that God had realized there was a hierarchical ordering, and the order inherent within this scheme was sufficient to absolve God from the charge of bringing about a chaotic mess. The extent to which Leibniz was happy to follow this line of thinkers in adopting the notion of the *scala naturae* is brought out nicely in a letter to Varignon, which is worth quoting at some length:

> I have good reasons for believing that all the different classes of beings whose assemblage forms the universe are, in the ideas of God who knows essentially their essential gradations, only like so many ordinates of the same curve whose unity does not allow us to place some other ordinates between two of them because that would be a mark of disorder and imperfection ... Now the Law of Continuity demands that *when the essential determinations of one being approximate those of another, as a consequence, all the properties of the former should also gradually approximate those of the latter.* Hence it is necessary that all the orders of natural beings form but a single chain in which different kinds like so many links clasp one another so firmly that it is impossible for the senses and imagination to fix the exact point where one begins or ends; all the species which border on or dwell, so to speak, in regions of inflection or singularity are bound to be ambiguous and endowed with characters related equally well to neighbouring species. Thus, for example, the existence of Zoophytes, or as Buddaeus calls them *Plant-Animals*, is nothing freakish, but it is even befitting the order of nature that there should be such. So great is the force of the Principle of Continuity in my philosophy, that I should not be surprised to learn that creatures might be discovered which in respect to several properties, for example, nutrition or reproduction, could pass for either vegetables or animals. (BC II 558–9/W187–8)[27]

Although Leibniz's remarks here are restricted to the continuity of what would nowadays be termed kingdoms (animal, plant, etc.), elsewhere he asserted the 'gradual connection of species' also:

> although in some other world there may be species intermediate between man and beast ... and although in all likelihood there are rational animals, somewhere, which surpass us, nature has seen fit to keep these at a

> distance from us ... I speak of intermediate *species*, and I would not want to handle this matter in terms of human *individuals* who resemble brutes, because it is likely that what they suffer from is not a lack of faculty [of reason] but an impediment to its being exercised. So I believe that the stupidest man ... is incomparably more rational and teachable than the most intellectual of the beasts. (A VI vi 473/NE473)

Although Leibniz undeniably accepted the continuity of species or forms, it is not yet clear what he meant when he used the term 'species' in this context. In the *New Essays* he identified two possible ways of defining species, mathematically and physically, though he expressed dissatisfaction with both methods. With the mathematical method, 'the tiniest difference which stops two things from being alike in all respects makes them of different species' (A VI vi 308/NE308). According to Leibniz's celebrated principle of the identity of indiscernibles, however, there cannot be two things alike in all respects. So if species were defined in this mathematical sense, there would be as many of them as there are non-identical individuals and 'species' would, for him, simply be another way of saying 'individual'. This was unacceptable: 'since I believe that no two individuals ever resemble each other perfectly, I should have to say that no two individuals belong to the same species, which would not be accurate' (G IV 566/L581). The second way of defining species, the physical method, is nothing more than a human taxonomic enterprise, where men group creatures together on the basis of appearance, generation or pedigree. Leibniz found that this produced unsatisfying results also, because these attributes 'only determine the name' and at best allow only a 'provisional and conjectural' judgement about species (A VI vi 324/NE324). The chief problem with men's attempts to determine species, he argued, was that they only judge on what they see, and this is not necessarily reflective of what is really integral to a species: 'It is true that we cannot judge accurately, for lack of knowledge of the inner nature of things' (A VI vi 325/NE325). This suggests that a third definition of 'species' was in play; one, moreover, that Leibniz accepted, and which I shall call the metaphysical definition. This definition clearly turns on the inner nature of things, so that what is essential to a species, what it is that marks it out as that species distinct from all others, is something internal, not how it looks or how it is generated. Developing this line, Leibniz claimed that an increase in our acuity would lead us to find 'for each species a fixed set of attributes which [a]re common to all the individuals of that species and which a simple living organism always retain[s] no matter what changes or metamorphoses it might go through' (A VI vi 310/NE310). Thus the species-defining inner nature is 'unchanging'

and is 'varied only by the addition of accidents' (A VI vi 325/NE325). He conceded that in the case of most species we do not know much, if anything, about their unchanging inner nature, and so do not truly know what differentiates them from other species. The one exception to our almost universal ignorance of inner natures is that pertaining to ourselves:

> as we know the inner essence of man, namely reason, which resides in the individual man and is present in all men, and as we find among us no fixed inner feature which generates a subdivision, we have no grounds for thinking that the truth about their inner natures implies that there is any essential specific difference among men. (A VI vi 326/NE326)

Mankind, then, is a distinct species, one of an infinity defined as such by their inner natures of which, on the whole, very little can be known. It is worthwhile to note that Leibniz's admitted ignorance of where the species boundaries lay did not in any way interfere with his belief that they formed a continuous series in the world.[28, 29]

The law of continuity

Leibniz rather shamelessly claimed the credit for being the first to formulate the law of continuity (e.g. FC227/SLT IV.B.3, G IV 568/L583, G VI 321/H333), conveniently forgetting in the process that Aristotle had beaten him to the punch by more than 2,000 years. But Leibniz's formulation was undoubtedly a little sharper than that given by the Greek, continuity demanding (in his view) that 'any change from small to large, or vice versa, passes through something which is, in respects of degrees as well as parts, in between' (A VI vi 56/NE56). Or more precisely:

> *when the difference of two cases can be diminished below any magnitude given in the data or in what is posited, it must also be found diminished below any magnitude given in what is sought or in what results from it*, or to speak more familiarly: *when the cases (or data), continually approach each other and one finally merges into the other, then the results or outcomes (or what is required) must do likewise.* (G III 52/SLT IV.B.1/L351, cf. G IV 375/L397–398)

Despite these solid definitions, Leibniz often summed up the law of continuity rather pithily as 'nature never makes leaps', or something similar (e.g.

ML320, FC227/SLT IV.B.3, GM VI 248/L447, G II 168/L515), though this was not on account of any lack of esteem for it; on the contrary, like many of his predecessors, he saw the usefulness in not confining continuity to mathematics:

> The universality of this principle in geometry soon informed me that it could not fail to apply also to physics, since I see that in order for there to be any regularity and order in Nature, the physical must be constantly in harmony with the geometrical. (BC II 556/W185)

Leibniz enjoyed considerable success by utilizing the law of continuity in physics. He famously demonstrated that Descartes's laws of the collision of bodies were false because they permitted discontinous changes in the behaviour of bodies and therefore a hiatus in nature, which was at odds with common experience (cf. G III 53/SLT IV.B.1/L352, G IV 382/L412). Buoyed by this, Leibniz started to find continuity elsewhere in nature, which inspired him to famously claim that God was a divine geometrician who employed mathematical principles to construct the world in an orderly way (cf. A VI iv 1536/DM §5, A VI iv 1616–17/LC305). The fact that the law of continuity seemed to be adhered to everywhere ('it lurks in *every process in Nature*', GM VII 25/W211), gave him the confidence to apply it beyond mathematics and physics into the realm of metaphysics. Corresponding to these extensions of application, Bertrand Russell and others have correctly identified three forms of the law of continuity in Leibniz's thought – spatio-temporal continuity, continuity of forms and continuity of cases,[30] though only the first two are of interest to us here (the third belongs to mathematics). Spatio-temporal continuity involves the continuity of space and time themselves and also of that which is in space and time. This entails, *inter alia*, that all changes, whether from state to state or place to place, happen smoothly and via all intermediate points (cf. G II 168–9/L515–16), and that there will never be a gap or vacuum in space, which would leave 'sterile and uncultivated places, places in which something additional could have been produced' (GM III 565/AG171). One consequence of spatio-temporal continuity, then, is that nature will forever preserve the plenum that God established in the beginning, i.e. every part of space will always be filled with something (cf. G VI 598/L636). We have already seen what Leibniz understood by the continuity of forms, or rather species (i.e. that between any two species there is always an intermediate species), so it is not necessary for us to dwell on it again here.

Leibniz's wide use of the law of continuity has seemed to a number of commentators to carry with it the view that it applies as much to individual

things as it does to species, so that it is not just all orders of species that are actualized but all possible degrees of *perfection*. Laurence Carlin claims that:

> Where the Neoplatonic and Christian Aristotelian tradition held merely that there is a 'top to bottom' ordering of *types* of being (species), Leibniz claimed that in addition there is an ordering among *individual* substances such that each degree of perfection is instantiated by exactly one substance.[31]

This position is also attributed to Leibniz in commentaries by Bertrand Russell, Nicholas Rescher and Donald Rutherford.[32] The latter argues, for instance:

> By observing the principle of continuity in his creation of the world, God is able to realize the most complete series of beings possible: one in which there are no gaps between successive degrees of perfection. As a result, God is able to create both the greatest variety of beings and the greatest total perfection or 'quantity of essence'. The principle of continuity thus functions in a transparent way as a principle of optimal order: It suggests how to order created beings relative to one another such that the greatest total variety can be realized in a world. The design solution God favors is to actualize as many beings as can be accommodated according to a continuous ordering of degrees of perfection – an ordering to which nothing further can be added.[33]

Rutherford identifies two theses which he believes give rise to this view: that each individual possesses 'different degrees of perfection' and that each degree of perfection 'can only be instantiated once in the world'.[34] There is little doubt that Leibniz endorsed both:

> nature is fundamentally uniform, although there is variety in the greater and the lesser and in degrees of perfection. (G III 343/LNS221, cf. G III 340/LNS205–6, A VI vi 71/NE71, A VI vi 490/NE490, GW46)
>
> The essences of things are like numbers. Just as two numbers are not equal to each other, so no two essences are equally perfect. (A VI iv 1352)

Rutherford then argues that the two theses taken together 'commit Leibniz to the position that any two numerically non-identical individuals must be distinguished by their degrees of perfection'.[35] I think this is right. However it does not seem to entail, as Rutherford supposes it does, that there is one existing

creature per possible degree of perfection. After all, every creature could still differ in perfection even if between them they did not exhaust all possible degrees of it. So the fact that no two creatures are equally perfect cannot be taken as evidence that individuals are continuously ordered according to the degrees of perfection they possess. Nevertheless Rutherford ploughs on to argue that God recognizes 'the principle of continuity as a principle of general order ... [and] orders the degrees of perfection in accordance with it'.[36] Oddly enough, to support this claim, Rutherford quotes a portion from the letter to Varignon that we have already cited in this chapter:

> I have good reasons for believing that all the different classes of beings whose assemblage forms the universe are, in the ideas of God who knows essentially their essential gradations, only like so many ordinates of the same curve whose unity does not allow us to place some other ordinates between two of them because that would be a mark of disorder and imperfection. (BC II 558/W186–7)

It seems somewhat unnecessary to point out that Leibniz is here referring to 'classes of beings', i.e. *kingdoms*, rather than individuals![37] Bertrand Russell makes precisely the same mistake; in a discussion on Leibniz's use of the law of continuity, he mysteriously moves from discussing continuity of forms to continuity of individual things, asserting that continuity 'is held by Leibniz to apply also in the passage from one substance to another'.[38] The only textual evidence he provides for this view is the very same passage from the letter to Varignon also quoted by Rutherford, in which Leibniz clearly states that he is talking about 'classes of beings' rather than individual creatures. The same passage is cited also by Nicholas Rescher, though bizarrely when quoting it he replaces 'classes of beings' with 'monads'![39] How he would propose to justify this I cannot even guess.

Laurence Carlin reaches precisely the same conclusion as Rutherford, Russell and Rescher – that all possible degrees of perfection are instantiated in the Leibnizian universe – but by a different route. He takes the conclusion to be entailed by the following two theses: '(a) no two substances possess the same degree of perfection; (b) there is no vacuum of perfection'.[40] We have seen already that Leibniz accepted (a), and Carlin argues that there is evidence he accepted (b) in a letter to Wagner from 1710:

> those who deny souls to brutes and all perception and organism to other parts of matter, do not sufficiently recognize divine majesty, introducing something unworthy of God and uncultivated, namely a vacuum of

> perfections or ['seu' = that is] forms, which you may call a metaphysical vacuum and which must be rejected no less than a vacuum of matter or a physical vacuum. (G VII 531/W508)

Now Carlin evidently takes the claim that there is no 'vacuum of perfections' to mean that, for any given degree of perfection, there will be something in this world that possesses it. This is *prima facie* a plausible reading of the above passage, but is also one that will not stand up to scrutiny. To understand what Leibniz does mean by there being no vacuum of perfections, we need to recall a point made in the last chapter, that for Leibniz everything that exists is organic or alive and contains some measure of the divine perfections. Bearing this in mind, it seems to me that Leibniz's point to Wagner is that, if it were denied that some parts of matter are organic, then some things would exist that have no perfection at all, as creaturely perfection is defined in terms of power, knowledge and will, and only organic beings can have such attributes. Consequently the 'vacuum of perfections' to which Leibniz refers is simply the existence of things without any power, knowledge or will at all. In the above passage Leibniz merely observes that it would be as senseless for God to produce such things as it would be for him to create a physical vacuum, since in both cases a thing with some measure of perfection could have been created to replace either the perfection-less thing or the physical gap (since both would class as 'uncultivated' parts in his favoured sense of being 'fallow, sterile, dead'). So there is no vacuum of perfections in the Leibnizian universe only in the sense that everything in it is organic and contains a degree of the divine attributes, that is, some degree of perfection; but this of course does not entail that for any given degree of perfection, there will be something in this world that possesses it.[41]

So far as I know, there are no texts in which Leibniz claims that all degrees of perfection are instantiated in the world, or that the law of continuity somehow preserves this arrangement. No doubt a world featuring every possible degree of perfection would be an impressive achievement on God's part, and much more impressive than one featuring just a continuous ordering of species. But Leibniz apparently only committed himself to the latter, and it should become clear over the course of the next three chapters exactly why it was not open to him to accept the former.

So far, the picture we have painted of Leibniz's vision of plenitude and the *scala naturae* is scarcely different from that conceived by a multitude of other thinkers both before and after him. But as we will now see, a clear difference emerges when we canvass his opinion on the completeness of both the universe and the scale.

Compossibility and incompossibility

Historically, of course, the ladder of being, springing as it did from the doctrine of plenitude, was always considered as something complete, featuring everything it possibly could, so that there were no unactualized species. Although Leibniz's abhorrence of vacua equalled that traditionally attributed to nature (there could, he wrote, be 'a vacuum of forms existing no more than a vacuum of bodies' (G II 125/L347)), this was not a position he was prepared to accept. Where Leibniz deviated from the common vision of the *scala naturae* was in his belief that, although the chain of being had no missing links, nevertheless not every possible species was represented in it. What drew him to this view was his conviction that not all possible species could be actualized in the same world, that is, some of them were *incompossible* with others:

> Able philosophers have addressed themselves to this question of whether there is a vacuum among forms, that is, whether there are possible species which do not actually exist, so that nature might seem to have overlooked them. I have reasons for believing that not all possible species are compossible in the universe, great as it is; not only with regard to things existing at the same time, but also with regard to the whole succession of things. My view, in other words, is that there must be species which never did and never will exist, since they are not compatible with that succession of creatures which God has chosen. But I believe that the universe contains everything that its perfect harmony could admit. It is agreeable to this harmony that between creatures which are far removed from one another there should be intermediate creatures, though not always on a single planet or in a single planetary system. (A VI vi 307/NE307)

In a series of personal notes Leibniz defined 'compossible' as 'that which does not imply contradiction with another' (A VI iv 867), which makes it plausible to suppose that 'incompossible' refers to that which *does* imply a contradiction with another (the term clearly refers to things both possible yet somehow incompatible, as the above passage makes clear). Accepting that not all species could coexist in the same world, the obvious question to ask is this: if there is no *vacuum formarum*, and hence no gaps between the species of this universe, where could the omitted incompossible species have fitted? Leibniz provided the following intriguing answer: 'The *Law of Continuity* states that nature leaves no gaps in the orderings which she follows, but not every form or species belongs to each ordering' (A VI vi 307/NE307). What Leibniz suggests here is that there is not a single great chain of being, as other

champions of plenitude argued, but many different possible chains, each comprising a selection of species that 'belong' to it.[42] As Leibniz nowhere gives any indication that two or more of the possible orderings are realizable in the same universe, it seems reasonable to impute to him the view that only one of the various possible orderings has been realized (and we know that it must be the fullest possible ordering of species that has been realized, given Leibniz's view that the best world contains the greatest variety of species). So we should understand Leibniz's claim that the chain or ordering realized in our world is free from gaps as meaning that every species proper to it is present and correct here, and all unactualized species do not belong to this ordering but to other possible orderings, other 'great chains'.[43] The ordering in our world can therefore be said to be complete *in itself*, in that every species belonging to it is realized, despite not being absolutely complete. And there is presumably no ordering that is absolutely complete since 'not all possible species are compossible in the universe'.

However it is not just at the species level that incompossibility emerges – in Leibniz's view, there is incompossibility among individual creatures too. As he saw it, the fact that any two given species are compossible does not entail that all possible creatures from those species are also compossible. Mankind, for instance, as a species is obviously compossible with all the other species of this world. According to Leibniz, however, not all possible humans will feature in this world because some are simply not compossible with other things found within it. His favourite examples were of the fictional characters and events related in novels, which qualify as genuinely possible by virtue of being conceivable and free from contradiction, but are nevertheless incompatible with everything else in this world (cf. A VI iv 1663–4/AG100, G III 572/L661). As far as I can tell, Leibniz seems not to have thought that humans were unique in this, and he almost certainly held that some members of other existing species were also incompossible with the order of things chosen by God. The matter of *why* some things are incompossible with others is an interesting one, and a proper discussion of it shall be deferred until Chapter 6; for our purposes now, it is sufficient simply to note Leibniz's view that some things *are* incompossible with others.

The number of things and the variety of kinds of thing

Bearing all this in mind, we ought to get clear about what exactly Leibniz meant by the 'richness' of the universe. We know already Leibniz's claim that

God produces 'the richest composite', but we also know that this does not involve the actualization of all possible species, or even of all possible individuals from those species that are actualized. What it does seem to involve, however, is the actualization of all relevant species from one of the various possible 'great chains', and as many individual things from those species as are compossible. Leibniz's modification to the doctrine of plenitude, then, was to view the richest world not as containing the actualized form of every single possible and type of possible, but as comprising that set of possibles which, actualized together, produced more than did any other set; that is, a world in which 'the maximum production of possibles takes place' (G VII 304/SLT I.A.3/P139). Or as he put it in a late letter to Bourguet: 'the universe is only a collection of a certain order of compossibles, and the actual universe is the collection of all the existing possibles, that is to say, of those which form the richest composite' (G III 573/L662). The richest universe is therefore very far from being complete, as many possibles and types of possibles just could not fit in it, though it can be said to be complete in the restricted sense that it is full and holds as much as any world can. We find in this a marked shift from other expressions of plenitude, for Leibniz was happy to concede that 'there are many possible universes, each collection of compossibles making up one of them' (G III 573/L662). And what he meant by this, of course, was that none of the infinity of things and types of thing comprising this plethora of other universes was to be found in our world, for if anything else could have been included then it would have been. Therefore our world contains an infinitesimal fraction of what is possible *per se*. The Leibnizian universe may well be rich, but it is now clear that it is a rather poor cousin to the universes of Abelard and Plotinus, which literally hold everything.

Nevertheless it does contain the greatest number of compossible things and greatest variety of compossible species (kinds of thing). But what is the connection between the two? David Blumenfeld suggests that by 'the greatest number of things' Leibniz might in fact have meant 'the greatest number of types of things', though he makes this suggestion seemingly on the grounds that it is more convenient for the Leibniz commentator to suppose that Leibniz was talking about one thing rather than two.[44] But there is absolutely no reason to suppose that Leibniz did take 'the greatest number of things' to mean 'the greatest number of types of things', and the two are not obviously alternative expressions that capture the same idea, in fact quite the opposite. Because of this I think we can safely dismiss Blumenfeld's suggestion that the relationship between the number of things and the variety of species is one of identity. How, then, does Leibniz come to affirm the greatest of both? One

possibility is that there is no connection at all between the number of things and the variety of species, and it is just a coincidence that the greatest number of things is realizable alongside the greatest variety of species. But fortuitous coincidences like this do not generally feature in Leibniz's philosophy, and I find it wholly implausible to suppose that he would have countenanced the idea that the greatest number of things *just happens* to be realizable along with the greatest variety of species, or vice versa. Assuming, then, that Leibniz did think of the two as somehow connected, what is the connection between them? Or why should he suppose that the best world could contain both the greatest number of things *and* the greatest variety of species?

Although Leibniz does not address this question directly, so far as I know, it seems likely that he would have identified some entailment relation between 'the greatest number of things' and 'the greatest variety of species'. This relation would be one of the following:

(1) The greatest number of things entails the greatest variety of species.
(2) The greatest variety of species entails the greatest number of things.
(3) The greatest number of things and the greatest variety of species entail each other.

If one of these does capture Leibniz's belief on the matter then it would certainly explain why he thought that both were realizable in the best world, as he clearly did, without invoking the most un-Leibnizian idea of a fortuitous coincidence. But what evidence is there that Leibniz actually held one of the above three entailments? There is no direct evidence, unfortunately, but there is some indirect evidence that he accepted option (2) above. To see it, we should first of all note that Leibniz generally does not assert the existence of the greatest number of things in the same place as he asserts the existence of the greatest variety of species. Instead, when giving his formulation of the best world he tends to assert one or the other, e.g. the greatest number of things at A VI iv 1364/SLT VI.B.1, A VI iv 1442/SLT I.A.1, A II i 478/L211, A VI iv 2232, G VII 304/SLT I.A.3/P139, and the (greatest) variety of things at A VI iv 1537/DM §5, G VII 290/P146, G VII 303/SLT I.A.3/P138, G VI 179/H198, G VI 603/L639. Moreover, the texts in which Leibniz refers to the greatest number of things nearly all date from 1677–80 (the one exception being a text from 1697), while those in which he refers to the greatest variety of things all date from 1686–1714. Although this might initially suggest that Leibniz abandoned one claim in favour of the other, this interpretation is ruled out by the fact that Leibniz continued to affirm, albeit indirectly in most cases,[45] the existence of the greatest number of things in many texts after

1680.[46] Why, then, did he stop referring to the greatest number of things and start referring to the greatest variety of species (i.e. kinds of thing)? I suggest that it may well be because he came to believe that the greatest variety of species entailed the greatest number of things. In making this suggestion I cite a previous precedent. We will recall from the last chapter that in formulating his definition of perfection for things Leibniz often gave positiveness as the only requirement, and generally neglected to mention that he believed simplicity (i.e. non-analyzability) was a requirement too. I noted there that Leibniz tended to omit the criterion of simplicity because he thought it was entailed by positiveness, so that as the criterion of positiveness included (by entailment) the criterion of simplicity, the latter did not need to be stated separately. Given that we have a prior incidence of Leibniz modifying a formulation of perfection to remove a criterion that was entailed by another criterion, it seems not implausible to suppose that much the same happened in the case under discussion, with Leibniz deciding somewhen between 1680 and 1686 that the greatest number of things was entailed by the greatest variety of species, thus obviating the need for him to include both criteria in his definition of worldly perfection. Although I accept that the evidence presented does not conclusively show that Leibniz did believe that the greatest number of things was entailed by the greatest variety of species, I recommend that interpretation on the basis that it explains why he thought both were jointly achievable. In Chapter 6 I shall show how this interpretation fits neatly within another aspect of Leibniz's optimism.

We are now, I believe, in a position to say that the chief feature of the richest world is that it holds the greatest number of compossible things (and by extension, the greatest variety of compossible things), which in Leibniz's view must be arranged to fill the universe so that it has no scope for further additions. In order to achieve this, God selects the fullest chain of being, i.e. the one offering the greatest possible variety of (continuously ordered) species.

Notes

1. Cornford (1935), p. 33 (*Timaeus* 29e).
2. Cornford (1935), p. 33 (*Timaeus* 30a).
3. Cornford (1935), p. 52 (*Timaeus* 33a).
4. Plotinus (1991), IV.8.6.
5. Plotinus (1991), VI.7.11.
6. Quoted in McCallum (1948), p. 93.
7. See Blankenhorn (2002) for the textual evidence.

8. Plotinus (1991), III.2.16, cf. III.2.11, VI.7.10
9. Aquinas (1956), 3.97.11.
10. Aquinas (1949), p. 97, cf. 1956, 3.97.2; 1967, 1a47.1.
11. Aquinas (1993), p. 184. Elsewhere Aquinas stops some way short of the conclusion that maximal variety was a corollary of God's desire to communicate his own being: 'But, if it be granted that God wills to communicate, in so far as is possible, His goodness to creatures by way of likeness, then one finds in this the reason why there are different creatures, but it does not necessarily follow that they are differentiated on the basis of this or that measure of perfection, or according to this or that number of things.' Aquinas (1956), 3.97.13.
12. Plotinus (1991), III.2.15.
13. Aristotle (1984), 1069a5–6.
14. Although Aristotle did claim in the *History of Animals* that the boundaries between plants and animals were continuous (1984, 588b4–17), he also stated in the *Metaphysics* that there are unactualized possibles (1984, 1003a2 and 1071b13), which suggests that for him nature as a whole could not be ordered continuously.
15. In the *Timaeus*, Plato does in places imply that some kinds of thing, e.g. men, are better than others, e.g. snakes, and he would also accept that every possible type of thing is made actual. Nevertheless, he does not make explicit mention of a hierarchy or chain of being even though his premises allow for it.
16. Plotinus (1991), III.3.7, III.3.3.
17. Aquinas (1949), p. 91. Also in 1956, 3.97.10 he finds further support from the book of *Wisdom* 11.21 ('Thou hast ordered all things in measure, number and weight').
18. Aquinas (1956), 3.97.3, cf. Augustine (1963), XI.16, XII.5
19. The classic treatment of the history of plenitude and the great chain of being is of course that given by Arthur Lovejoy. While Lovejoy correctly establishes Leibniz as an advocate of plenitude and the great chain hypothesis, he appears to misinterpret Leibniz on occasion, overlook some of the nuances of his thought, and even attribute to him views that he did not hold. As will become clear throughout the course of Chapters 4 and 7, I part company with Lovejoy's interpretation in a number of places.
20. For more information on creation in Leibniz see Cook (forthcoming).
21. However, in several texts Leibniz does appear to support emanationism, for example when he remarks that 'we would only know him [God] through his emanations' (Gr580/SLT V.C.2/R84), and when he states, even more suggestively, that God 'is the originating centre from which all else emanates' (G VI 553/LNS106, cf. G III 72/LNS132, G III 345/LNS222, G VI 614/Mon §47). However, it would be wrong to suppose that Leibniz is endorsing the notion of emanation in these passages, at least in the sense that Neo-Platonists typically took it, as he typically associated it with the doctrine of conservation, i.e. the idea that God has to continually conserve or recreate the world at each moment to stop it passing out of existence: 'Now it is clear, first of all, that created substances depend on God, who conserves them, and even continually produces them by a kind of emanation' (A VI iv 1549/DM §14). Thus for

Leibniz, 'emanation' involved an ongoing *re*creation (conservation) rather than an ongoing creation.

22. It is interesting to note that Leibniz seems to identify plenitude with the plenum, i.e. the fact that God has left no empty space. See his essay *On the Plenitude of the World* (A VI iii 524–6/D85–9).
23. I address the issue of the best world's capacity in the next chapter.
24. It might seem that, as there could be no better manifestation of God's own perfect nature than his own perfect nature, God ought to create clones of himself rather than a world of things less perfect than him. But Leibniz denied that this was possible – there just could not be, he maintained, several completely perfect substances (cf. G VI 235/H251–2).
25. This part of the sentence is omitted from Huggard's translation.
26. It should be noted that sometimes Leibniz uses 'variety' in an entirely different sense, which relates to his doctrine that 'all souls are in essence representations or living mirrors of the universe, following the scope and the point of view of each'. As each soul represents or mirrors the entire universe, but from its own unique perspective, 'It is as if God has varied the universe as many times as there are souls, or as if he has created as many universes in miniature' (G III 347/LNS225, cf. Gr554, G VI 538/L559–60, G VII 567/SLT II.C.2, G VI 616/Mon §58). In places Leibniz even argues that by varying the universe so many times over through the differing perspectives of its component parts, God has given 'to the universe all the perfection of which it is capable' (G VI 538/L560, cf. G VI 616/Mon §58). What this boils down to, I think, is that the more unique representations of the universe there are, the more perfect the universe is, which itself boils down to the view that the more unique things there are in the universe, the more perfect it is (since each representation or mirroring belongs to one thing and one thing alone). And so by identifying the perfection of the universe with the number of times it is varied in perception, Leibniz is merely saying that the more things there are the better. Although the doctrine of universal expression is interesting in itself, I have elected not to discuss it at any length here, and I instead point the reader to other treatments of it, e.g. Rutherford (1995), ch. 7.
27. It should be noted that the authenticity of this letter has been called into question, though for our purposes it matters little whether it is genuine or not. As will become clear, Leibniz's belief in the *scala naturae* emerges from a number of texts other than this one, most notably the *New Essays on Human Understanding* (cf. A VI vi 306–7/NE306–7). For more information on the authenticity of the letter to Varignon see Wilson (1994).
28. Nor, it seems, did it prevent him from locating man's position in the *scala naturae*:

> It is reasonable also that there may be substances capable of perception below us as there are above; and that our soul, far from being the last of all, is in a middle position, from which one may descend and ascend; otherwise there would be a lack of order which certain philosophers call a *Vacuum formarum*. (G VI 543/L588)

It was in fact common practice among seventeenth-century thinkers to grant man the middle position in the chain, largely on the grounds that he occupied the point marking the end of those species which were merely animal and the start of those better characterized by rationality of intellect. The mediocrity of man's position was, it seems, so evident that it had been spotted long before Leibniz's age. Plotinus, for instance, had observed that 'humanity, in reality, is poised midway between gods and beasts' (1991, III.2.8). Even on the brink of the age of enlightenment it is interesting to note that mankind viewed itself as imperfect as it had some 1,500 years before.

29. Leroy Loemker, one of Leibniz's better editors, has argued that, 'In the later decades of his life his inclination to break the great chain of being, or at least to talk as though it did not exist, became more pronounced' (from his 'Introduction: Leibniz as philosopher', L37). This is an odd claim to make since it is precisely the opposite of what we do find. The passages I have quoted thus far, in which Leibniz endorses the great chain hypothesis, were largely written during the last two decades of his life (1702–05). Even in the *Theodicy* we find Leibniz claiming that 'There are degrees among creatures: the general order requires it' (G VI 173/H193), and that 'God was right to create every kind of species, some more perfect than others' (G VI 317/H330). And in a late letter to Bourguet (1715), Leibniz insisted that 'there is a definite order of descent in nature from animals to plants. But perhaps there are other beings between these two' (G III 581/L664). See also Leibniz's letter to Electress Sophie from February 1706 (G VII 567/SLT II C.2).
30. Cf. Russell (1937), p. 63; Broad (1975), pp. 43–4.
31. Carlin (2000a), p. 135.
32. Russell (1937), pp. 64–5; Rescher (1967), pp. 53 and (1979), p. 63; Rutherford (1995), p. 30. A similar view is imputed to Leibniz by George Martin Duncan in a series of notes at the end of his volume of English translations (Dn404), though he offers no supporting evidence at all.
33. Rutherford (1995), p. 30.
34. Rutherford (1995), p. 25.
35. Rutherford (1995), pp. 41–2.
36. Rutherford (1995), p. 30.
37. The only other passage cited by Rutherford in support of his interpretation clearly involves the application of continuity to species rather than individuals, i.e. G II 168/L516.
38. Russell (1937), p. 64.
39. Rescher (1967), p. 53n19 and (1979), p. 67n9: 'Consequently we find Leibniz saying that the monads are ordered "comme autant d'Ordonnées s'une même Courbe, dont l'union ne souffre pas, qu'on place d'autres entre deux, à cause que cela marqueroit du désordre et de l'imperfection".'
40. Carlin (2000a), p. 135.
41. Carlin refers to a number of other texts in support of his interpretation, i.e. G II 98/AG87, G II 125/L347, A VI iv 1624/LC319, though all refer either to the

continuity of species or the view just detailed, that everything in the universe is organic and therefore a bearer of perfection.

42. Laurence Carlin advances a completely different interpretation, arguing that in the passage in question Leibniz is referring to orderings such as speech capability (so his point would be that not all species belong to that ordering). It is possible that this is Leibniz's meaning, but if so it must be said that it's an entirely irrelevant point for him to be making during a discussion on the incompossibility of species. Moreover, it's also doubtful that Leibniz would have recognized the law of continuity as applying to apparently arbitrary orderings such as that of speech capability. If he did, then he would presumably have had to accept continuity of swimming ability, jumping ability, body size, number of legs, and many other orderings too ludicrous to mention (most of which are not obviously governed by the law of continuity at all). See Carlin (2000a), p. 145.
43. Although Lovejoy correctly notes Leibniz's claim that not all species are compossible, he curiously overlooks Leibniz's novel suggestion that there are many possible chains of being. This leads him to argue – erroneously – that Leibniz 'had affirmed the reality of a *vacuum formarum*'. Lovejoy (1936), p. 181.
44. Blumenfeld (1973), p. 164.
45. The exception being G VII 304/SLT I.A.3/P139, from November 1697.
46. He does so via his claim that the universe has been varied as many times as possible through the different perspectives of its constituent parts, a claim made, amongst other places, at G VI 538/L559–60, from 1702, and G VI 616/Mon §58, from 1714. As I pointed out in note 26 above, each perspective or mirroring is taken by Leibniz to belong to one thing and one thing alone, so if the universe has been varied as many times as is possible through representation then that implies that the universe contains as many things as are possible.

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5

The Perfection of Worlds II: Simplicity

Simplicity of means

Now we will recall that richness of phenomena was only one of the elements in Leibniz's characterization of the most perfect world, the other being simplicity, or simplicity of hypotheses. By identifying simplicity as a criterion of worldly perfection Leibniz appropriated another idea already in circulation, this time incurring a debt to his contemporary Nicolas Malebranche; for the doctrine is present in many of Malebranche's works, from the sprawling *Search after Truth* (1674) onwards, though it was in that work that Leibniz apparently first came upon it.[1]

Interestingly, Malebranche touted the idea of simplicity for precisely the same reason that some earlier thinkers had promoted the idea of plenitude: it was the best way for a completely perfect being to express itself. In Malebranche's view, God 'acts only for His glory', and is therefore 'determined to will that work which could be produced and conserved in those ways which, combined with that work, would honor Him more than any other work produced in any other way'. Therefore, 'He formed the plan which would better convey the character of His attributes, which would express more exactly the qualities He possesses and glories in possessing.'[2] The qualities Malebranche had in mind were omniscience and omnipotence. As he saw it, these qualities would be displayed in God's work more so through its workings than through what or how many things he chose to include in it. With God thus seeking to reveal his infinite wisdom and power principally through the *operation* of the world, Malebranche argued that he would act through laws of nature (general wills) rather than caprice or whim (particular wills). The former would better bear the character of an infinitely wise and powerful being than the latter since 'An excellent workman should proportion his action to his work; he does not accomplish by quite complex means that which he can execute by simpler ones.'[3] Or to put it another way, as 'the simplest ways are the wisest, he always follows them in the carrying out of his plans'.[4] And what this actually meant, in Malebranche's view, was that God would act economically, because 'Simplicity consists in employing only very few means in order to carry out what it is one wants to do.'[5] So an infinitely wise and powerful being would certainly instantiate laws of nature,

but would not use more laws than is absolutely necessary to produce the desired effect. Consequently God 'brings about an infinity of marvels through a very small number of wills'.[6] In order to achieve this nomic frugality, such a being would fashion laws that are 'constant and immutable' and are thus 'general for all times and for all places'.[7] Or in other words, he would fashion laws that are universal, i.e. that apply everywhere, and uniform, i.e. that apply always.[8] Moreover, the sort of laws that would appeal to God would possess two further characteristics, according to Malebranche: they would be 'extremely simple',[9] yet 'fecund'[10] or 'fertile',[11] i.e. capable of producing a great variety of effects despite being of great simplicity themselves. So God always acts in ways that are 'simple, uniform, constant and general, and in a word, worthy of his Wisdom and his other attributes'.[12]

On this matter Malebranche found in Leibniz a staunch ally, who was happy to put forward a very similar account of the simplicity of God's ways. In the *Theodicy* he bluntly declared, 'I agree with Father Malebranche that God does things in the way most worthy of him' (G VI 240/H256). And like Malebranche, Leibniz understood this to mean that God would act in a way that best expresses his perfect nature:

> There is no doubt that when God resolved to act outside himself, he made choice of a manner of action which should be worthy of the sovereignly perfect Being, that is, which should be infinitely simple and uniform, and yet of an infinite fecundity. (G VI 238/H254–5)

By acting uniformly God reflects his own regular or orderly nature. In a late letter to Wolff, Leibniz explains that 'Nothing is more regular than the divine intellect, which is the source of all rules, and produces the most regular, that is, the most perfect system of the world' (GW171/AG233, cf. G VI 241/H257). But God looks to reflect in his ways not only his own regularity, of course, but his supreme wisdom too (cf. Gr492–3), and hence he acts in an 'infinitely simple' way. Leibniz takes this to mean that God makes as few expenditures as possible, for 'where wisdom is concerned, decrees or hypotheses are comparable to expenditures' and 'reason demands that we avoid multiplying hypotheses or principles' (A VI iv 1537/DM §5). Consequently God will make the fewest number of decrees he can get away with, and as 'everything that is done on the basis of wisdom is done on the basis of general laws, that is to say, by rules or principles', he will achieve this by establishing laws of nature (ML202–3). But in order to minimize the number of decrees he makes, God will not establish any superfluous laws. Hence there are, claims Leibniz, 'only a few free primitive decrees that

regulate the course of things, decrees that can be called laws of the universe' and hence only a 'few hypotheses to explain phenomena' (G II 40/AG71). Consequently 'nature usually does as many things as possible with the smallest possible number of assumptions, that is, it operates in the simplest ways' (A VI iv 158/P2).[13] And to achieve this, Leibniz urged, God must of necessity opt for those rules that do not, within themselves, have exceptions. That is, rules that are truly universal and uniform,[14] for this removes the need for any laws beyond whatever number of them is absolutely necessary; if there were exceptions to a law then another law would be required to govern the gaps left by the first. Hence in Leibniz's view 'The wise mind always acts *according to principles*; always *according to rules*, and never *according to exceptions* ... there are never any *original exceptions*' (G VI 315/H328, cf. ML202–3).[15] Another feature of these laws is that they are simple (cf. A VI iv 1782). But what does it mean for a law to be simple? One possibility, and perhaps the most obvious one, is that a law is simple when it is mathematically uncomplicated, i.e. involves very few terms. However Donald Rutherford has argued against this interpretation, stating that 'There is little reason to think that he [Leibniz] associates this simplicity with the mathematical form of the laws of nature, for example with their being simpler in algebraic degree.'[16] But this interpretation is difficult to square with the texts. Consider the following passage:

> Just as there is no line freely drawn by hand, however irregular it may appear, which cannot be reduced to a rule or definition, likewise the whole series of God's actions makes up a certain completely regular disposition, without any exception. And what is more ... it is the most perfect one possible, or the most simple, just as of all the lines which can pass through the same points, one is the most simple. (A VI iv 2657)

In addition to universality, Leibniz is obviously thinking here of mathematical simplicity as a property of the laws of nature, as he surely is when he also suggests that 'God chooses those [rules] which are ... easiest to explain' (G VI 241/H257).[17] It is undoubtedly unhelpful that Leibniz refers to both God's ways *and* his laws as being simple (as did Malebranche in fact), but I think it is clear enough that he means, in the first case, that God establishes the smallest possible number of laws, each of which is uniform, universal and simple, and in the second that the laws are mathematically the simplest ones possible, and hence the easiest ones for a rational being to fathom. Unfortunately this distinction has been overlooked by just about every commentator who has written on this aspect of Leibniz's thought. Most Leibniz scholars construe

'simplicity' to apply to *laws* rather than God's ways, even though the majority of Leibniz's remarks on simplicity take it to be a feature of God's ways, or a characteristic of God's actions. This has led to some rather peculiar mistakes.[18] Given the obvious potential for confusion, it is important that we carefully distinguish between the two senses of simplicity. But although the distinction is clear enough in itself, we still need a way to refer to the *product* of God's simple ways, as to say that his simple ways just give rise to simple laws is obviously inaccurate. So how should we refer to the laws that God produces? A remark in the *Theodicy* offers a helpful suggestion; Leibniz writes there that 'the laws God established were the most excellent that could be established' (G VI 328/ H340). Following this passage, then, and what we know about these laws, I shall term a law 'excellent' if it is (a) universal, (b) uniform and (c) simple. So to say that God acts in the simplest ways is to say that God creates the smallest possible number of excellent laws. As we shall shortly see, however, for Leibniz it actually means a little more than this.

Definition of perfection for worlds

We should remind ourselves of the definition of worldly perfection that triggered off the discussions on richness and simplicity over the last two chapters: 'God chose the world that is the most perfect, i.e. the one that is simultaneously the simplest in hypotheses and richest in phenomena' (A VI iv 1538/DM §6). We now have to consider what is meant here.

One of the more influential interpretations of this passage in recent years has been that proposed by Nicholas Rescher, who takes Leibniz to be adopting a 'two-factor criterion of variety and richness of phenomena on the one hand and lawfulness or order on the other'.[19] On the basis of the passage from the *Discourse on Metaphysics* above Rescher determines that it must be in fact 'a *conflict-admitting two-factor criterion*', and argues for that interpretation as follows:[20]

> The immediately striking feature of [the variety/simplicity] criterion is that the two factors are *opposed* to one another and pull in opposite directions. On the one hand, a world whose only metal is (say) copper, or whose only form of animal life is the amoeba, will obviously have a simpler structure of laws because of this impoverishment. On the other hand, a world whose laws are more complex than the rules of the astrologers demands a wider variety of occurrences for their exemplification. Clearly,

> the less variety a world contains – the more monotonous and homogeneous it is – the simpler its laws will be; and the more complex its laws, the greater the variety of its phenomena must be to realize them. Too simple laws produce monotony; too varied phenomena produces chaos.[21]

On the basis of this apparent opposition of the principles of richness (which Rescher interprets rather narrowly as variety) and simplicity (which Rescher interprets, again rather narrowly, as simplicity of laws), Rescher argues that the best world is that which embodies the most ideal trade-off between the two, a position illustrated in Figure 5.1.[22] God, then, is faced with a multitude of worlds, each bearing simplicity and richness in differing degrees, and it is his task to weigh each world to determine which has the optimal trade-off of these two opposing goods.

A slightly different interpretation has been put forward by George Gale. Although Gale accepts much of Rescher's analysis, such as the opposition of the principles of simplicity and richness, he instead argues that the best world is that which exemplifies the optimal *ratio* of one to the other, i.e.

$$\text{'Perfection} = \frac{\text{richness of phenomena}}{\text{simplicity of laws'}}[23]$$

One benefit of this interpretation, Gale argues, is that it fits well with Leibniz's many statements that God is a mathematician. The 'complex dimension' of ratios is more suited to a divine mathematician than merely trying to pack as many things in to a world as is possible.[24]

The accounts given by Rescher and Gale of this definition of perfection are both fatally flawed however. For one thing, by 'simplicity of hypotheses' Leibniz does *not* mean 'simplicity of laws', as both suppose. A brief glance at the *Discourse on Metaphysics* (from where the disputed definition of worldly perfection comes) reveals that this is so, for he there identifies 'hypotheses' with God's decrees. This entails that 'simplicity of hypotheses' means 'simplicity of decrees' (which, as we know, means that God will make the smallest number of decrees); this interpretation is further confirmed by the fact that §§5–6 of the *Discourse* are concerned with the simplicity of God's *ways*, not laws. Now even if we give Rescher and Gale the benefit of the doubt, and assume that they intended to say 'means' or 'ways' rather than 'laws', we find that their accounts of worldly perfection are still fatally flawed. We have already seen passages in which Leibniz states that our world is the richest one possible, and now we ought to consider these, which affirm that the means adopted by God are also the simplest available:

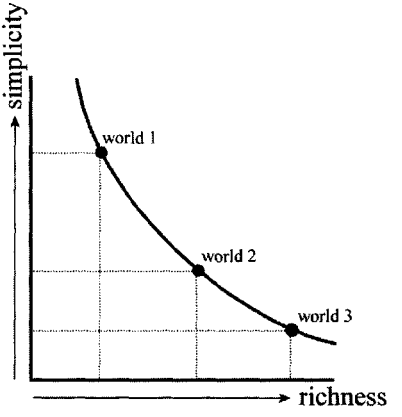

Figure 5.1

> God always produce[s] his effect by the simplest and most determinate ways. (A VI iv 1563–4/DM §21)
>
> The ways of God are those most simple and uniform. (G VI 241/H257)

It would seem, then, that both maximal simplicity and richness are jointly realizable. Indeed, even in the passage from the *Discourse on Metaphysics* (A VI iv 1538/DM §6) that both Rescher and Gale use to develop their respective accounts, it is clearly and unequivocally stated that the most perfect world is 'the one that is *simultaneously* the simplest in hypotheses and richest in phenomena' (emphasis mine). Leibniz's choice of language can therefore only support the interpretation that both occur *together* and there is no competition between the two at all. This passage seems to have misled Andrew Carlson also, for he argues that, 'Doubtless, there are many cases where simplicity and diversity do make ... conflicting claims',[25] even though their simultaneous realization unequivocally rules out any suggestion of conflict or opposition between the two.

Catherine Wilson has argued that this simultaneous realization of the simplest ways and phenomenological richness in the most perfect world must be considered some kind of cosmic fluke, a strange quirk of things where the simplest ways (which she also takes to be physical laws) just happen to be compatible with the richest phenomena. She argues that, 'it would seem a kind of accidental good fortune if this maximum set [of phenomena] happened to entail precisely the set of physical laws which optimism requires'.[26] In fact, Leibniz argued that the entailment was the other way around – it was the simplicity of God's ways that entailed the richest composite:

> the wisest being chooses the simplest means to achieve the greatest results. (A VI iii 466/D13)
>
> A necessary being acts through the simplest means. For out of the infinitely many possible means, some are the simplest; but the simplest are those which provide the most. (A VI iii 587/D113, cf. A VI iv 2232, G VI 241/H257, G VI 603/L639)

This is an aspect of his thought that has so far escaped adequate treatment in the literature.[27] Which is perhaps not surprising, given that Leibniz was more disposed to state that the simplest ways/means were maximally productive than actually explain why they were so. Nevertheless I think we can shed some light on the connection between simplicity of ways and maximal richness.

The Malebranchian fecundity of the laws of motion

It makes sense to begin by returning once again to Malebranche. Although he didn't make quite the same grandiose claim about the ways of God entailing maximal richness that Leibniz did, he did nevertheless assert that the laws of God's choosing were *fécond*: 'I am fully convinced that God makes and conserves everything, and that his ways are very simple and very fecund, that by constantly following very few laws he produces an infinity of admirable works.'[28] There were two laws that Malebranche identified as both simple and fecund:

> the first, that moved bodies tend to continue their motion in a straight line; the second, that when two bodies collide, their motion is distributed in both in proportion to their size, such that they must afterwards move at an equal speed.

According to Malebranche, from these two laws comes 'all the motions which cause that variety of forms which we admire in nature'.[29] In order for this to happen, he argued, the theory of preformationism must be true, and 'we must believe that the seed of a plant contains in miniature the plant which it engenders, and that in its womb an animal contains the animal which should come from it'. And so on, right back to the first generation. By having plants and animals contained within each other like Russian dolls, the laws of motion alone 'are sufficient to cause all those wonderful works, all of which

God formed in the first days of the creation of the world, to grow insensibly and appear in due time'.[30] Thus, according to Malebranche, the variety of creatures that we see around us is a direct consequence not of miracles or constant interventions by God, but only of the general laws of motion, which make things already preformed grow and develop. In this way, the laws of motion can be said to be *fécond*, as their normal operation gives rise to the 'infinite number' of forms in the world.[31]

Proving what a good student of Malebranche he was, Leibniz offered a remarkably similar analysis, disagreeing only on a few points of detail. For instance, although he accepted that bodies tend to continue their motion in a straight line (e.g. G II 252/L531), he rejected, as we already know from the last chapter, the Cartesian law of collision that Malebranche favoured, which states that the quantity of motion is always conserved. In its place, Leibniz substituted a number of other laws:

> There is conserved the same quantity of total and absolute force or of action, also the same quantity of relative force or of reaction, and finally, the same quantity of directive force. (G VI 603/L639, cf. G IV 505–6/L499)

Moreover, although Leibniz endorsed much the same preformationist theory as Malebranche, he argued that if males were to retain their eminence over females the preformed animal could not be contained in the seeds or eggs, as Malebranche supposed, but must be found in the sperm (cf. A VI vi 317/NE317). But Leibniz deemed neither of these disagreements to be sufficient to prevent him from viewing the laws of motion as the cause of the variety of plants and animals that we see around us:

> As for the motions of the celestial bodies and even the formation of plants and animals, there is nothing in them that looks like a miracle except for their beginning. The organism of animals is a mechanism which supposes a divine preformation. What follows upon it is purely natural and entirely mechanical. (G VII 417–18/L715, cf. G VI 543/L589, G VI 152/H172)

Although it is not fully explicit, Leibniz's point seems to be the same as Malebranche's, namely that the creatures that exist now, together with those that have existed and will exist, are the product of the laws of motion acting on preformed creatures. If this is right, and I cannot see how else the above passage could be interpreted, then Leibniz could term his laws of motion 'productive' in precisely the same way Malebranche did. But unlike Malebranche, Leibniz was not content for the simplicity of God's ways to

be merely productive; as we have seen, he stressed also that they were *maximally* productive, in that they bring about the richest composite. So if we assume that by 'ways' or 'means' Leibniz was referring to the laws of motion that God establishes, why did he think that these laws were not just *fécond*, but maximally so?

Perhaps the most obvious answer is that, in Leibniz's philosophy, God has created the maximum number of things. This seems to follow, because the laws of motion are only productive, in the Malebranchian sense of productive, in that they bring about the unfolding of creatures already preformed, so the larger the number of creatures to be unfolded the more productive the laws of motion can be said to be. Perhaps, then, the reason why Malebranche did not claim his laws of motion to be maximally productive was because he did not believe that God had created the maximum number of things, and the reason why Leibniz deemed his laws as more productive than Malebranche's was simply because they had more things to work on. This interpretation seems plausible enough on the surface, though it does have one rather unfortunate drawback: there is no text, so far as I am aware, in which Leibniz actually says that the laws of motion are maximally productive simply because they work on, or unfold, the maximum number of already pre-existing things. However he does claim, as we have seen, that there are only a 'few hypotheses to explain phenomena' (G II 40/AG71), and also that God employs 'a simple, fecund, regular plan' (G VI 244/H260). The latter remark comes from the *Theodicy*, during Leibniz's defence of Malebranche against Bayle, and his use of Malebranchian terms suggests that Leibniz did indeed consider the laws of motion to be productive in the way that Malebranche did.

Metaphysical mechanics

However, other texts hint at an entirely different way of understanding the idea of maximal productivity. Consider, for example, the following passage from a letter to Malebranche (1679):

> We must also say that God makes the most things he can, and what obliges him to seek simple laws is precisely the necessity to find a place for as many things as can be put together; if he made use of other laws, it would be like trying to make a building with round stones, which make us lose more space than they occupy. (A II i 478/L211)

Now this passage is notable for several reasons. First, it is the only time, so far as I know, that Leibniz refers to simple *laws* being maximally productive. Most of the time he takes the simplicity of God's *ways* to be maximally productive instead. I suppose it is possible that his reference to 'laws' is just a slip of the pen, and he intended to write 'ways' (or 'means' or 'hypotheses' or 'decrees'); not only would this be more in keeping with all the other references to simple ways being maximally productive, but immediately prior to the passage quoted above he had been discussing 'the simplicity of God's decrees' (A II i 477/L210). As we cannot be certain what Leibniz's intention was, I shall, for the time being, leave it an open question as to whether he intended to say that God's simple ways or simple laws were maximally productive. The second notable point about the above passage is the suggestion that simple laws/ways enable God 'to find a place for as many things as can be put together'. This is certainly a different sense of 'maximally productive' than that which we were working with earlier. Here it is suggested that simplicity of laws/ways is to the key to finding a place for the maximum number of things, whereas before, building on Malebranche's notion of 'fecund laws', we had supposed that laws were productive in the sense that through their normal operation they unfold things from a preformed state. So the task before us now is to determine how God is able to fit together the maximum number of things just by using simple ways/laws. A possible answer emerges from *On the ultimate origination of things*:

> the situation is like that in certain games where all the spaces on the board are to be filled according to certain rules, and where, unless you use some skill, you will in the end be excluded from certain spaces and forced to leave more spaces empty than you could have or wished to. But there is a definite rule through which the maximum number of spaces is most easily filled.... [O]nce it is assumed that being prevails over non–being, i.e. that there is a reason why something should exist rather than nothing, or that there is to be a transition from possibility to actuality, it follows that even if nothing further is determined, there exists as much as is possible in accordance with the capacity of time and space (or of the order of possible existence); in short it is just like tiles that are arranged so that as many as possible occupy a given area. From these considerations it is now wonderfully evident how a certain divine mathematics or metaphysical mechanics is employed in the very origination of things, and how a determination of the maximum holds good. (G VII 303–4/SLT I.A.3/P138–9)

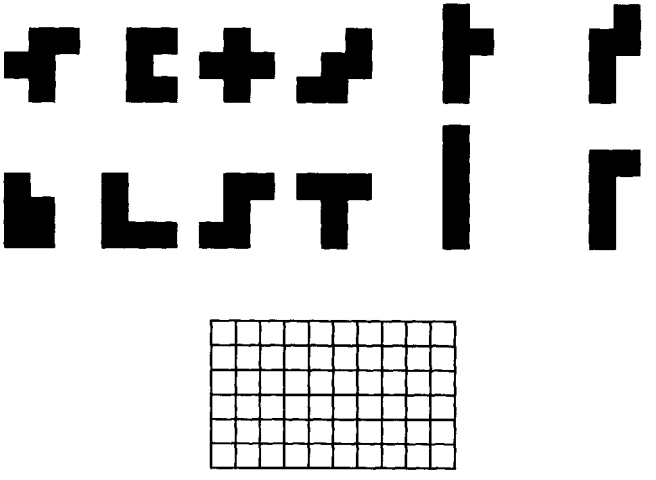

Figure 5.2

Here Leibniz certainly seems to be describing how 'to find place for as many things as can be put together', i.e. how to fit possible things together in such a way as to ensure that they can all be accommodated, which suggests he is developing the idea mentioned in the Malebranche letter. Unfortunately he does not say much about the 'definite rule' for fitting these things together, but he says enough for it to be clear that he has in mind some kind of strategy or algorithm that God adopts for arranging them. To shed some light on this, we ought to examine the board game that Leibniz uses as an analogy for world-creation. It seems likely that the game he has in mind is something like pentominoes, which involves the player having to fit twelve different five-block shapes into a grid of a certain size (see Figure 5.2). Each piece can be rotated and flipped as one sees fit, but can only be used once. The object of the game is to fit every piece into the grid without leaving any space. Therefore this game is similar to the one described by Leibniz in that 'unless you use some skill, you will in the end be excluded from certain spaces and forced to leave more spaces empty than you could have or wished to'. To put it another way, a poor arrangement of the pieces will result in one or more of them being unable to fit into the specified grid. In the example above, where the grid is 6×10, there are 2,339 ways of placing the pieces together so that they all fit. One of these ways is shown in Figure 5.3.

However if a grid of 3×20 is used, there are only two ways of arranging the pieces so that they are all accommodated. Now there are simple computer programs, little more than scripts, that can generate solutions to pentomino problems from scratch, even for pentomino problems given in three

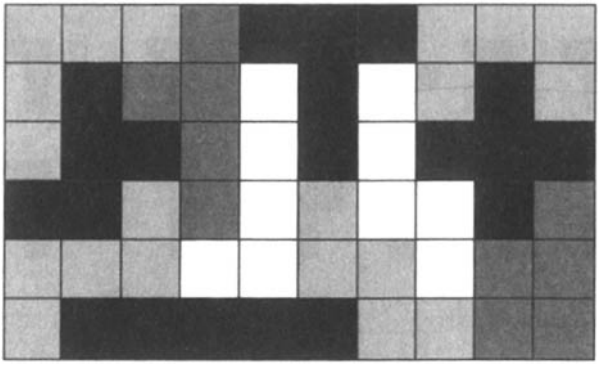

Figure 5.3

dimensions rather than two. Most of these employ a backtracking algorithm, which is little more than a trial-and-error procedure, though it is possible to write an algorithm that maps out the steps to one of the available solutions by a more direct route (i.e. one involving just 12 steps, where each step involves placing a piece on the grid in the correct place). Even though pentominoes is too modern a game for it to be the one Leibniz used as an analogy for world-creation, it is similar enough to the one that he does describe for us to be confident that the latter is as susceptible to an algorithmic solution as the former. The principal difference between the two cases, it seems to me, is that the game Leibniz describes has but one 'definite rule through which the maximum number of spaces is most easily filled', while pentominoes has many such rules (taking 'rule' in the sense of 'formula'). To illustrate this let us first define a few terms. A 'solution', let us say, is a correct arrangement, however obtained, of all the pieces in either pentominoes or the board game described by Leibniz. The 'easiest solution', on the other hand, is a correct arrangement of the pieces obtained by using the fewest possible number of steps (and by 'step' I mean the placement of one piece on the grid). In pentominoes there are, as I have noted, 2,339 different solutions, that is, ways of arranging the pieces together in a 6×10 grid so that they all fit. Now each of these solutions can be reached easily, in just 12 steps, or in a more complicated way, in which more than 12 steps are used.[32] A 12-step solution involves each one of the 12 shapes being placed on the grid in the right place from the outset, while a solution using more than 12 steps involves one or more of the 12 shapes being initially placed incorrectly, with further moves then required to correct this mistake before the solution is reached. However the game described by Leibniz appears to have just one solution, and therefore only one easiest solution, though in saying that 'there is a definite rule through which the maximum number of spaces is most easily filled' he

seems to acknowledge that there will be many more ways of reaching the solution in a more complicated way, i.e. by initially placing some of the pieces on the board wrongly, and then correcting these mistakes in later steps. So although Leibniz does not actually give the formula or rule for the easiest solution, we can at least suppose that the algorithm that gives it will use the fewest number of steps possible. Let us call this kind of algorithm, the kind that uses the fewest number of steps possible to reach the solution, an 'efficient algorithm', and let us call the kind that uses more than the fewest number of steps to reach the solution an 'inefficient algorithm' (so an inefficient algorithm is by and large the same as the efficient algorithm, but with an additional number of redundant steps). Those algorithms that do not lead to a solution at all we shall term 'bad algorithms'.

Now according to Leibniz, world-creation is very much like solving the sort of board game we have been discussing, for in the best world 'there exists as much as is possible in accordance with the capacity of time and space ... in short it is just like tiles that are arranged so that as many as possible occupy a given area'. It seems clear from this that he is thinking of an efficient algorithm for fitting together compossible things; his reference in the same text to a 'definite rule' suggests that he is not thinking of a backtracking algorithm, but rather one that gives specific instructions as to how these things should be arranged, and his characterization of this rule suggests that it cannot be an inefficient or bad algorithm either. Could this efficient algorithm be the way 'to find place for as many things as can be put together' referred to in the letter to Malebranche? It certainly seems to be so, though we must remember that, in the letter to Malebranche, Leibniz claimed that God is obliged to make use of simple *laws* in order to fit things together. Yet the efficient algorithm outlined above seems to be more accurately described as a rule than a law. Does this not undermine the analysis I have given thus far? I am not convinced that it does, for it is worthwhile to bear in mind that Leibniz often treated 'law' and 'rule' as synonymous terms,[33] so the fact that an algorithm would be termed more of a rule than a law in modern English does not mean that Leibniz would not have thought of it as a law.

Assuming, then, that Leibniz *was* thinking of an efficient algorithm in both the letter to Malebranche and *On the ultimate origination of things*, what else can we say about the role of this algorithm in the process of world-creation? As with the board game he describes, Leibniz seems to hold that there is only one way to fit the maximum number of compossible things into the available space, and therefore only one easiest solution. In the case of world-creation, however, he appears to deny that there are more complicated routes to the

same solution, because he tells Malebranche that other algorithms would 'lose more space than they occupy'. So of all the possible algorithms that there are for arranging the maximum number of compossible things, only one leads to the solution while all the rest lead to failure because the procedures they offer result in one or more possible things failing to fit in the available space. In other words, there is only one efficient algorithm and an unspecified number of bad algorithms. But by following the efficient algorithm God is able to fit together the maximum number of compossible things in such a way as to fill the world to its capacity.[34]

But, we might ask, what does Leibniz mean when he refers to the capacity of the world? Why should he even think that the world has a particular capacity, given that God could presumably make it as large as he likes? The answer, I think, is much the same as we would get if we asked why a pentomino grid has the capacity that it does. In this case, it is the fact that the 12 pieces use up 60 blocks between them that defines the grid-capacity at 60 blocks (6×10, 3×20). To define the grid capacity at, say, 400 blocks (e.g. 20×20), would be wholly arbitrary. With the world, it is the fact that the maximum number of things can fit into a certain smallest amount of space that defines the capacity for that world, since space, or place, is cited by Leibniz as one of the expenditures in creation. Thus 'the world is made by God in the most perfect way; and a maximum outlay is achieved with minimum expenditure of place, time, and matter' (A VI iv 1395/LC239, cf. G VII 303/SLT I.A.3/P138). As God must keep his expenditures to a bare minimum – which is one of the hallmarks of acting wisely – we can surmise that the least amount of space into which the maximum number of compossible things can fit becomes *eo ipso* the capacity of the best world. Possible worlds with a smaller number of things would presumably have a lesser capacity because their contents can be accommodated in less space.

Now it seems to me that the thrust of Leibniz's argument is that even though the best possible world (like all possible worlds) has a certain capacity, determined by the number of things it contains, this in itself does not necessarily mean that its designated contents have to be arranged so as to fit it. Just like the pentominoes player, God could arrange things badly and end up with some things not being able to fit, and also some unused space. If he had done this, he would have taken the ingredients for the best world and ended up with a world that is less than the best, by failing to fit the greatest number of compossible things into the available space. That God has not done this is confirmed in many of Leibniz's texts, though few are so clear as this passage, which is from a short text entitled *Metaphysical definitions and reflections*, written between 1678 and 1681:

> the world is made by God in the most perfect way; and a maximum outlay is achieved with minimum expenditure of place, time, and matter. And of the various ways of forming things, those are preferred which exclude the fewest things from existing, in the same way that a wise architect joins stones in such a way that they take up no more space than they fill, lest they take away space for others. (A VI iv 1395/LC239)[35]

This passage confirms that in the creation process God employs what I have dubbed the efficient algorithm. There is no suggestion at all that Leibniz is thinking of the laws of nature as somehow involved in finding 'a place for as many things as can be put together', nor is there any reason to suppose that he has in mind any other kind of rule or law here.[36] So when he spoke of 'simple laws' to Malebranche, he did not mean simple laws of nature, i.e. the laws of motion, but a formula or algorithm that could fit the greatest number of compossible things into the available space (or rather formula*e* or algorithm*s*, since he referred to simple laws in the plural, though for the sake of simplicity – no pun intended – I shall continue to refer to it in the singular).

What is not yet clear, however, is why Leibniz thinks that the efficient algorithm is simpler than any of the bad algorithms. *Prima facie* this might seem like an odd claim, since the bad algorithms presumably do not contain instructions relating to the placement of every member of the largest set of compossibles. Rather, because the bad algorithms only find a place for *some* members of this set, it seems likely that they would only contain instructions about how to arrange these members. The efficient algorithm, meanwhile, would appear to contain instructions about how *all* members of this set are to be arranged, since it alone succeeds in placing them all within the capacity of the best world. This would suggest that the efficient algorithm involves more terms or steps than the bad algorithms, and if this is so then it is surely less simple.

This need not be the case, however. If we were to consider an algorithm for getting from a car park to a shopping centre, for instance, it might contain 50 instructions to 'walk forward one step' then an instruction to 'turn right', followed by another 50 instructions to 'walk forward one step'. Such an algorithm would have 101 steps. Yet these could easily be condensed into three – 'walk forward 50 steps', 'turn right', 'walk forward 50 steps'. The latter algorithm would qualify as simpler than the former on Leibniz's own terms (i.e. because it is algebraically simpler), even though its instructions are no clearer than those of the former. The point to draw from this is that the execution of one instruction from an algorithm can lead to the same result as the execution of multiple instructions from a different algorithm. In the case

of world-creation, it is therefore possible that the efficient algorithm employed by God does not literally contain instructions to 'place object A in location B', 'place object C in location D' etc., but a series of instructions, each of which finds a place for more things than one. Unfortunately Leibniz does not provide any detail as to why the efficient algorithm is able to be simpler than its bad counterparts, but as he does draw an analogy with 'a geometric line whose construction would be easy but whose properties and effects would be very remarkable and of a wide reach' it seems likely that he thought it would work more like the three-step algorithm described above than the 101-step (A VI iv 1538/DM §6).

Now even if we accept that the efficient algorithm is what Leibniz had in mind when he wrote of simple laws being maximally productive, we surely have only part of the story. For the process we have described seems to have a kind of timeless aspect to it, with God just fitting together as many possible things as can fit in the available space without any regard to how this combination will form a world in which things will undergo change. Thinking back to our example of pentominoes, the one dimension which this analogy likewise did not capture was time, since the aim was merely to arrange the shapes into the grid so that they all fit. But God's aim in creation is not simply to pack the greatest number of things together and then leave them frozen in one timeless instant, like the pieces in a pentomino puzzle. Instead his aim is to pack the greatest number of things together into a world in which these things will take up more space at one time than they will at another, due to their augmentations and diminishments. Are all of these evolutions and involutions factored in to the efficient algorithm? It seems likely that they are, given Leibniz's belief that in the best world preformed creatures are contained within the bodies of other creatures, which is an arrangement that the efficient algorithm would no doubt have been responsible for (since preformation enables a large number of things to be packed into a very small space, which is precisely what the efficient algorithm seeks to do). But while the algorithm produces a world in which countless creatures are enfolded with the bodies of others, does it also bring about the unfolding of these creatures? None of Leibniz's writings on this issue lead me to suspect that it does; this algorithm or formula seems to dictate how things should happen in the best world, but it does not actually make them happen. But clearly something must unfold these creatures given that they were not included in the best world merely to remain in their preformed state.[37] So evidently God must look beyond the efficient algorithm if he is to fully execute his plan for the best world. How, then, does he ensure that the arrangement of things specified by the efficient algorithm is not just followed at the first

instant, i.e. at the moment of creation, but at every instant thereafter? He could, of course, intervene at each moment to ensure that everything happens precisely as the efficient algorithm says it should, but this would clearly involve a great many interventions, each of which would presumably count as a decree. The 'constant intervention' option would thus not satisfy Leibniz's insistence that God should act with great wisdom and minimize the number of decrees used. Given that 'everything that is done on the basis of wisdom is done on the basis of general laws, that is to say, by rules or principles', a more likely scenario is that God establishes laws that will carry out the plan contained in the efficient algorithm (ML202–3). But in keeping with Leibniz's insistence that a supremely wise being will make as few expenditures as possible, we know that God will instantiate only the smallest number of laws to bring about the desired effect.[38] And we also know that, to achieve this, God will instantiate what we have termed excellent laws, i.e. those that are universal, uniform and simple. And hence we come back to the Malebranchian notion of productivity.

If we look back at some of the passages considered throughout this chapter, Leibniz's meaning should now be clear. When he refers to 'simple laws' in the letter to Malebranche from 1679, he is thinking not of the laws of nature but what we have called the efficient algorithm, which dictates how to pack the greatest number of compossible things into the smallest space. This is also what he is thinking of in *On the ultimate origination of things* and *Metaphysical definitions and reflections*. However, it is only part of what he is thinking of when he claimed that 'the wisest being chooses the simplest means to achieve the greatest results' (A VI iii 466/D13), and that God employs 'a simple, fecund, regular plan' (G VI 244/H260). What Leibniz primarily understands by these statements is that God will employ the fewest possible number of decrees in order to execute the best plan, and these include the decree to find a place for the greatest number of compossible things using the efficient algorithm, and further decrees to establish excellent laws of nature which unfold these compossibles from the preformed state in which they were originally created. Hence with just a handful of decrees, God is able to establish not just a rich but static arrangement of compossibles, but a rich *world* – the best of all possible worlds.

A summing up is in order. We will recall Leibniz's claim that worldly perfection is determined by the simplicity of hypotheses and richness of phenomena. It should hopefully now be clear from the foregoing discussion what this means, namely that the perfection of the best world is not merely defined by the fact that it contains the richest composite, but also by how God brings this richest composite about. And as we have seen, he brings it about

by using the smallest number of decrees. Consequently, the 'simplicity' referred to in the definition of worldly perfection is *not* the simplicity of the laws of nature, but of the ways or means God employs to bring about the richest composite. This is nicely confirmed in Leibniz's last letter to Malebranche (January 1712) in which he declares:

> In fact, when I consider the work of God, I consider his ways as a part of the work, and the simplicity of the ways joined with fecundity form a part of the excellence of the work. (G I 360)

So again, it is the simplicity of *God's ways*, the very fact that he uses the fewest number of decrees, that counts towards the perfection of the best world, not the simplicity of the laws of nature.

Alternative definition of perfection for worlds

In what seems to have been a deliberate attempt to complicate matters for his future commentators, Leibniz frequently offered another definition of worldly perfection: 'perfection is being insofar as it is understood to differ from nonbeing, or as I should prefer to define it, *perfection* is degree or quantity of reality or essence' (A II i 363/L177, cf. A VI iv 1358/SLT VI.B.1, A VI iv 1395/LC239, A VI iv 1429–1430, G VII 303/SLT I.A.3/P138), and similarly, 'The more perfect is that which has more of reality or of positive entity' (A VI iv 867). These are variations on a theme rather than two separate definitions, with reality, essence and entity being synonymous terms.

Now we will recall from Chapter 3 that 'essence' is nothing more than a combination of qualities or attributes, with perfections being the divine attributes of power, wisdom and goodness (or will). So it might seem at first glance that 'perfection is degree of reality/essence/entity' is simply Leibniz's definition of perfection as applied to things rather than worlds, since 'In things which have limits, that is, in finite things, ... perfection has to be strictly interpreted as the quantity of positive reality within their given limits' (G VI 613/Mon §41). But the following remark shows that Leibniz did not take this definition of perfection to be restricted to individual things, but applicable to worlds as well:

> Hence it is very clearly understood that out of the infinite combinations of possibles, and possible series, there exists one through which the greatest

> amount of essence or possibility is brought into existence. (G VII 303/SLT I.A.3/P138, cf. A VI iv 1359/SLT VI.B.1)

Let us call this definition of worldly perfection P2, and that equating worldly perfection with maximal richness and simplicity P1.

Interestingly, P2 has sometimes been ignored or sidelined by some Leibnizian scholars; Nicholas Rescher, for instance, argues that it is misleading to suppose that worldly perfection refers to 'a single quantity'.[39] And George Gale dismisses it outright, remarking that in passages where Leibniz is clearly and unequivocally stating 'perfection is nothing but quantity of essence' he is 'either confused, inconsistent or sloppy'.[40] But Leibniz stated P2 often enough for it to be clear that he took it very seriously. And it should not be overlooked that he was hawking P2 as early as 1677 (A II i 363/L177). So Leibniz was happy to equate worldly perfection with reality/essence/entity around the same time that he became convinced that simplicity was also a feature of worldly perfection, as well as afterwards. Now unless we suppose that Leibniz had two completely different ways of determining a world's perfection, which seems a little unlikely, we are led to the conclusion that P1 and P2 are strongly linked. And the way in which they are linked should be obvious from what we have learned over the last two chapters. For we know that God aims to grant existence to as many different things as he can so that 'the most things possible exist' (A VI iv 1364/SLT VI.B.1), i.e. so that the world contains as many different *bearers* of perfection as possible. This maximizes reality/essence/entity, in other words richness (P2). And the way to maximize the world's richness is for God to act in the simplest ways (P1). And in a summary that nicely brings out the link between P1 and P2, Leibniz tells us that God will choose 'the simplest or most beautiful way to make the universe', i.e. the way

> through which the most things or the more perfect things succeed, or through which the most essence and the most perfection is obtained that it is possible to obtain together; for the most beautiful and the simplest is that which yields the most with the least difficulty. (A VI iv 2232)

Given that P2 was used more frequently as a definition for worldly perfection even after P1 had been formulated, we ought to suppose that P2 was Leibniz's primary definition of worldly perfection, i.e. it expressed in a more fundamental way what he thought the perfection of a world consists in. So Leibniz held that the most perfect world was that featuring the greatest

amount of reality/essence/entity, and from 1675 onwards he held that the means to achieve this was through the simplest ways.

Happiness and virtue: two missing goods

However, we have not, as yet, got the complete picture of the best of all possible worlds, at least as Leibniz understood it, for we have not yet considered how the perfections of happiness and virtue fit into the best plan, if indeed they do at all. It is the view of George Gale, for instance, that Leibniz just defined the best possible world by richness and simplicity alone, with no account taken of moral or physical perfection.[41] It is true that Leibniz often defined worldly perfection only in terms of richness and simplicity, or more often in terms of quantity of reality/essence/entity, but we have seen other passages (at the end of Chapter 3) in which Leibniz makes specific reference to the best possible plan for the universe as containing happiness and virtue as well. There are plenty of passages like this around too, e.g.:

> It follows from the supreme perfection of God that he has chosen the best possible plan in producing the universe, in which there is the greatest variety together with the greatest order: the best arranged situation, place, and time: the greatest effect produced by the simplest ways; the most power, the most knowledge, the most happiness and goodness in creatures which the universe could allow. (G VI 603/L639)[42]

It is clear from this that richness and simplicity are not the only criteria for worldly goodness. But the structure of this passage is quite revealing, because Leibniz initially seems to be giving the definition of worldly perfection we have already examined. The statements 'the greatest variety together with the greatest order', 'the best arranged situation, place, and time' and 'the greatest effect produced by the simplest ways', all separated by colons, appear to be merely alternative ways of expressing the same underlying idea. However, the statement made after the semicolon ('the most power, the most knowledge, the most happiness and goodness in creatures which the universe could allow') appears to be an entirely different idea, and not just another way of rendering the first. If we take this statement by itself, and Leibniz's punctuation suggests we should, then it seems to be saying that the best world contains the most happiness and goodness (virtue) not in an unqualified sense as meaning 'unsurpassable',

but in the sense as meaning 'the best that could be obtained in the circumstances'. On the basis of this, and what we know thus far of Leibniz's concept of the best possible world, we perhaps ought to take as our working hypothesis the idea that there is in the best world only as much physical and moral perfection as is consistent with the greatest amount of reality/essence/entity (i.e. as is consistent with maximal richness and simplicity).[43] We shall follow up on this later.

Notes

1. Catherine Wilson (1989), p. 281, claims that Leibniz first discovered the doctrine of simplicity in Malebranche's *Christian Conversations*, and cites his notes on that work made in 1675 as evidence. However, the notes in question have been dated by the Academy editors to 1678, and they relate to the 1677 edition of the work (cf. A II i 442–454), so it is more likely that Leibniz was first exposed to the doctrine in the *Search after Truth*, which he apparently had read shortly after its publication.
2. Malebranche (1997), IX.X, cf. (1960), p. 557.
3. Malebranche (1992), I.XIII.
4. Malebranche (1967), VII.XV.
5. Malebranche (1960), p. 583.
6. Malebranche (1992), I.XVII.
7. Malebranche (1992), I.XVIII, cf. (1992), I.XIX; (1960), p. 583.
8. At times Malebranche suggests that the universality and uniformity of the laws of nature reflect God's own immutable nature. See Malebranche (1960), pp. 428 and 558; (1966), p. 744. In this Malebranche was following the lead of Descartes, who had argued in the *Principles of Philosophy* (1644) that the unchangeable character of the natural laws was a direct result of God's own immutability. See Descartes (1985), p. 240.
9. Malebranche (1967), VII.IX, cf. (1992), I.XVIII.
10. Malebranche (1960), p. 557.
11. Malebranche (1997), IX.XI, cf. (1992), I.XVIII.
12. Malebranche (1967), XI.XVI, cf. VII.XV, (1992), I.XXII, (1997), IX.X.
13. This is overlooked by David Blumenfeld, who takes Leibniz to make a wholly different claim, that God will instantiate the *greatest possible number* of laws, rather than the fewest. This interpretation clearly conflicts with Leibniz's belief that 'reason demands that one avoids multiplying hypotheses or principles' (A VI iv 1537/DM §5). In another text Leibniz refers to the 'economy' of God's actions (G IV 524/L497). It would be rather perverse if this economy actually involved the creation of the greatest possible number of laws! See Blumenfeld (1995), p. 389f.

14. Although Leibniz seems to have borrowed wholesale the notion of simplicity from Malebranche, the foundation of it was present in his thought several years before the publication of Malebranche's *Search after Truth*. In a discussion on Occam's razor from 1670, Leibniz gives his unqualified approval to the dictum '*the simpler a hypothesis is, the better it is*', remarking that 'in accounting for the causes of phenomena, that hypothesis is the most successful which makes the fewest gratuitous assumptions. Whoever acts differently by this very fact accuses nature, or rather God, its author, of an unfitting superfluity.' He then goes on to apply the razor first in defence of nominalism, and then to the laws governing celestial motion, arguing in the latter case that the hypothesis with the 'fewest presuppositions' is to be preferred to the one which 'needs many orbs intertwined to explain the heavens' (A VI ii 428/L128). His target here is presumably Ptolemy. So far as I know, however, the suggestion that God should exclusively establish laws that are also uniform and universal was not explicitly made until after he had read Malebranche. It could be argued that, since uniformity and universality are strictly derivable from non-superfluity, Leibniz would have eventually attained his notion of simplicity even without Malebranche's help. But this is speculation.
15. This is not to say that there are no exceptions at all, only that those that do arise do so on account of conflict with other laws: 'wisdom always acts through principles, that is, through rules, and never through exceptions, except when rules interfere with one another, and one rule limits another' (GW167/AG231).
16. Rutherford (1995), p. 27.
17. Leibniz also contrasts his idea of simplicity with 'more intricate processes' (G VI 241/H257), which strongly suggests that for a law to be simple it must itself be uncomplicated.
18. E.g. Rutherford (1995), p. 27, claims that 'Leibniz equates the simplicity of laws with their degree of universality, or freedom from exceptions'. As we have seen, however, he does no such thing. It is the fact that God acts in simple ways that leads him to establish universal laws. Meanwhile, Blumenfeld (1995), p. 383, identifies 'simplicity of hypotheses' with 'simplicity of laws'. However, Leibniz's remarks from A VI ii 428/L128, discussed in note 14 above, clearly show that this is not an identification he would be prepared to accept.
19. Rescher (1981), p. 4, cf. (1979), p. 33.
20. Rescher (1981), p. 10.
21. Rescher (1981), p. 11.
22. Rescher in fact illustrates his position with two different graphs, one in (1969), p. 167, the other in (1981), p. 9. My graphical representation of Rescher's position is closer to the latter than the former.
23. Gale (1976), p. 72. This interpretation is endorsed by Brown (1987), p. 197f.
24. Gale (1976), p. 81.
25. Carlson (2001), p. 84. Nicholas Jolley makes precisely the same mistake. He writes:

> the best possible world is the one that achieves the optimal balance between these conflicting criteria [of richness and simplicity]. Other possible worlds are richer in phenomena than ours – for instance, there are worlds which contain an even greater number of species of insects – but they pay a steep price for such richness in terms of the simplicity of their laws: the laws in such a world are extremely complicated and inelegant. Conversely, there are other possible worlds which are governed by simpler laws than ours – laws that are comprehensible to even the meanest of intelligences – but they pay a steep price for such simplicity in terms of variety of phenomena: such worlds are, as it were, much more boring and monotonous than our own (Jolley 2005, pp. 165–6).

Jolley's evidence for this view is the heading of §5 of the *Discourse on Metaphysics*, which he gives as: 'the simplicity of means is balanced against the richness of ends'. Given that the French reads 'la simplicité des voyes est en balance avec la richesse des effects' a more accurate translation would be 'the simplicity of ways is in balance with the richness of effects' (A VI iv 1536/DM §5). And given that in §§5–6 of the *Discourse* Leibniz goes on to explain what he means by these two factors being 'in balance', i.e. that they are simultaneously maximized, it seems odd to construe him as meaning in the heading to §5 that they are in conflict.

26. Wilson (1983), pp. 775–6.
27. For instance, discussions on this area of Leibniz's thought can be found in Rescher (1967, 1979, 1981), Wilson (1983, 1989), Brown (1987), Roncaglia (1990), Adams (1994), Nadler (1994), Rutherford (1995) and Blumenfeld (1995), though all construe Leibnizian simplicity to mean simplicity of laws, rather than means, and therefore they all miss the subtlety of his position.
28. Malebranche (1967), VII.XXI.
29. Malebranche (1992), I.XV, cf. (1967), VII.VIII.
30. Malebranche (1997), X.III. cf. X.VII, XI.II.
31. Malebranche (1997), X.V. It is likely that Malebranche did hold that there were an infinity of forms, even though on occasion he seemed to employ 'infinite' in the sense of 'a very large number', e.g. 'Irrigating the fields as a consequence of the laws of nature and with an element as simple as water, yields an infinity of plants and trees of different natures from the ground' (1997, X.VII). Other passages suggest that he used 'infinite' in its normal sense at least some of the time however, e.g. those at 1992, I.XVII, 1997, X.VII, X.V.
32. Technically, of course, there are many ways of rendering the easiest solution, as it is of no importance at all which piece should be placed first or second, etc. But in order to simplify the ensuing discussion I have elected to overlook this and suppose that there is only one form that the easiest solution can take.
33. For instance, see G VI 241/H257 where he uses 'rules' and 'laws' as interchangeable terms.

34. It is interesting to note that the efficient algorithm is not only the means to the realization of the maximum number of compossible things, but also gives rise to the plenum. As I noted in the last chapter, the plenum is an aspect of Leibniz's understanding of richness.
35. See also the *Discourse on Metaphysics*, where Leibniz tells us that God is like 'a learned author who includes the greatest number of realities in the smallest possible volume' (A VI iv 1536/DM §5).
36. Donald Rutherford has suggested that when Leibniz refers to the productivity of 'simple laws' in the letter to Malebranche, he is referring to the law of continuity:

> By observing the principle of continuity in his creation of the world, God is able to realize the most complete series of beings possible: one in which there are no gaps between successive degrees of perfection. As a result, God is able to create both the greatest variety of beings and the greatest total perfection ... The principle of continuity thus functions in a transparent way as a principle of optimal order: It suggests how to order created beings relative to one another such that the greatest total variety can be realized in a world. The design solution God favors is to actualize as many beings as can be accommodated according to a continuous ordering of degrees of perfection – an ordering to which nothing further can be added. (1995, p. 30)

Although this is an interesting suggestion, it is almost certainly false. First, it is anachronistic – Leibniz 'discovered' the law of continuity in the mid-1680s, several years *after* his letter to Malebranche about 'simple laws'. Second, Leibniz nowhere suggests that the law of continuity has a role in the origin of the world. Third, as we saw in the last chapter, Leibniz nowhere claims, or even suggests that there is 'a continuous ordering of degrees of perfection' in the world, 'an ordering to which nothing further can be added'. Rutherford's only evidence for this, as we saw in the last chapter, was a passage in which Leibniz claimed that 'classes of beings' are ordered.

37. Leibniz does allow that some creatures might never develop from their seed state (e.g. G III 558–9), but he seems to hold that the vast majority do so develop.
38. Leibniz seems to hold that each law requires one decree, since 'general laws ... are the decrees of the divine will' (A VI iv 1367). Evidently, then, multiple laws require multiple decrees, and God cannot establish several laws just with one decree.
39. Rescher (1981), p. 11.
40. Gale (1976), p. 81.
41. Gale (1976), pp. 81–2.
42. For the sake of accuracy I have modified Loemker's translation slightly, and have strictly adhered to Leibniz's use of colons and semicolons (which Loemker does not do). The original French reads: 'Il suit de la Perfection Supreme de Dieu,

qu'en produisant l'Univers il a choisi le meilleur Plan possible, où il y ait la plus grande varieté, avec le plus grand ordre: le terrain, le lieu, le temps, les mieux menagés: le plus l'effect produit par les voyes les plus simples; le plus de puissance, le plus de connoissance, le plus de bonheur et de bonté dans les creatures, que l'Univers en pouvoit admettre' (G VI 603).

43. This seems to be the position of Rescher (1967), p. 141, and Wilson (1983), p. 776. Russell (1937), p. 199, also hints at it.

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6

The Harmony of Things

Harmony and the best world

Over the course of the last few chapters we have encountered one or two passages in which Leibniz refers to the notion of harmony. Given that it appears in only a tiny fraction of the passages we have cited, it might seem that harmony was not a particularly important feature of his notion of the best possible world. But this is not in fact the case, as the following two passages demonstrate. The first is from a letter to Wedderkopf from May 1671, the second from a series of personal notes made in February 1676:

> God wills the things which he understands to be best and most harmonious and selects them, as it were, from an infinite number of all possibilities. (A II i 117/L146)
>
> After due consideration I take as a principle the harmony of things: that is, that the greatest amount of essence that can exist, does exist. (A VI iii 472/D21)

Both reveal that harmony is at the heart of Leibniz's notion of the best possible world. The first even suggests that the best world just *is* the most harmonious world, while the second identifies 'the harmony of things' with Leibniz's chief definition of worldly perfection (i.e. that 'perfection is nothing but quantity of essence'). We might therefore hope that an understanding of what Leibniz meant by harmony will contribute to an understanding of his notion of the best possible world.

The varieties of harmony

Leibniz put forward a number of definitions of harmony, such as 'diversity compensated by identity' (A VI i 484, A VI ii 283, A II i 174/L150, A VI iii 116), 'unity in multiplicity' (A VI iii 122), 'unity in variety' (A VI iv 1358/SLT VI.B.1), 'simplicity in multiplicity' (A VI iii 588/D113) and 'unity in plurality' (G VII 87/L426). So far as one can tell, however, the differing

locutions do not represent different concepts of harmony, but are merely alternative modes of expression.[1] In the absence of any reason to do otherwise, I shall therefore treat 'diversity', 'variety' and 'multiplicity' as synonymous terms, and likewise 'identity', 'unity' and 'simplicity'.

According to Leibniz, harmony abounds in the universe. For as 'it is of the essence of God's wisdom that all should be harmonious in his works' (G VI 152/H172), the world 'is as harmonious as possible' (GW171/AG233), which probably ought to be taken to mean that in all those features of the world where there could be harmony God has ensured that there is harmony. This certainly fits in with Leibniz's assertions that God has instantiated 'infinite harmonies' (GW171/AG233) and 'the most perfect of harmonies' (G VI 44/H68). So although there is only one concept or 'kind' of harmony, it applies (in Leibniz's view) to many different aspects of the world. Of these various applications, though, which is the one intimately bound up with Leibniz's notion of the best possible world, referred to in the texts from 1671 and 1676 I quoted earlier? One possibility is that it is what Leibniz generally calls the pre-established harmony, which holds that soul and body do not causally interact but follow their own laws that lead to mutually corresponding states. Although Leibniz certainly held that the pre-established harmony was a feature of the best world, it is unlikely to be the 'harmony of things' referred to in the letter to Wedderkopf, as the theory of pre-established harmony had not been developed by May 1671, the time that letter was written.[2] However, there are other ways in which harmony can be realized, according to Leibniz, and one of these he calls universal harmony. This involves a connection or sympathy between all parts of the universe, such that what happens in one part ripples through to affect the whole (the effect diminishing with distance). Although an early form of universal harmony appears in a text from 1669/1670 (cf. A VI i 438), Leibniz elsewhere stated that it is a feature of every possible world, not just the best, so we need not pursue it here (cf. G VI 107/H128, G VI 148/H168). Another example of harmony identified by Leibniz is that of 'the realm of grace with the realm of nature' (G VI 446/S124). Again, though, this does not seem to be what we are looking for, as we are looking for a harmony of *things* which is somehow connected to the realization of the greatest amount of essence.

Now if we combine these clues with elements of our survey of Leibnizian optimism thus far, we are led to an intriguing possibility: perhaps the harmony of things in the Leibnizian best possible world is nothing more than God's own essence diversely manifested in the creatures of this world. This characterization squarely satisfies the requirement for 'unity in variety', for as we will recall, Leibniz adopted the (Neo-) Platonic view that, in creating and

populating the world, God diffuses a finite portion of his essence to all created things. Thus every created thing possesses a certain degree of this 'God stuff', and nothing else besides (we will recall that Leibniz stated the only difference between God and created beings is one of magnitude, God being infinite and creatures being finite). If the essence of God, diversely manifested, is ultimately all there really is in the world then this obviously entitles Leibniz to identify a unity, or basic sameness, in all things.[3] And if, as Leibniz maintained, no two creatures possess the same essence, i.e. the same degree of perfection, then the world will exemplify the variety that, together with its underlying unity, gives rise to harmony. So far as I know, the only other commentators to construe harmony this way are Donald Rutherford and Christia Mercer.[4] However, the former construes it as just one harmony among many, and does not accord it any special status within Leibniz's optimism, while the latter calls this doctrine 'emanative harmony', which is perhaps an unfortunate name given Leibniz's aversion to the idea of emanation (at least as it was understood by the Neo-Platonists).[5] I shall instead choose to follow Leibniz's lead and simply call it 'the harmony of things'.[6]

Now the fact that this conception of harmony seems to fit in with (and indeed follow from) other aspects of his philosophy does not necessarily mean, of course, that Leibniz accepted it, or that it was what he had in mind when he spoke of the harmony of things. To be certain that we have hit upon a conception of harmony that Leibniz actually did hold, we need some textual evidence. And fortunately he left some; at the end of an oft-neglected text called *On man, beatitude, God and Christ* he wrote: 'All things are returned to one, i.e. to God; this is to conceive the harmony of things' (Gr98). Now the Latin term 'referre', which I have here translated as 'returned', can also be translated as 'brought back' or 'traced back'. This suggests that Leibniz's point in this passage is that to conceive the harmony of things is to understand that all things have the same underlying unity, i.e. they are all composed of 'God stuff'. And all things, as we know, vary in their degree of perfection, i.e. in the amount of this 'God stuff' that they possess. If we unpack the passage thus, we are led to the following conclusion: the great diversity of things in the world has as its underlying unity God, and thus forms a harmonious whole of 'diversity compensated by identity'. This remark cannot be explained by any of the other harmonies identified by Leibniz; other passages too (e.g. A VI iv 2804/W568) only make sense if the doctrine of the harmony of things, as I have outlined it above, is assumed. This conception of harmony, then, is certainly not a commentator's fiction or a fanciful interpretation of Leibniz's thought – it is something he clearly accepted.

Now the way in which this kind of harmony is related to the realization of the greatest amount of essence should already be clear, but it is worth taking a few moments to work through Leibniz's thinking here. In the *Elements of natural law* Leibniz makes the point that something can be more or less harmonious: 'Harmony is greater when diversity is greater, which is nevertheless reduced to identity. (For there cannot be degrees in identity, but in variety)' (A VI i 479, cf. A VI iv 1359/SLT VI.B.1, GW171/AG233). Thus harmony comes in degrees, the more unified variety there is in something, the more harmonious it is. In the kind of harmony we are considering, what this amounts to is that the more variety there is in a world, the more harmonious it is. For as Leibniz claims elsewhere, no matter which possible world God had chosen to actualize, the basic constituent of its contents, namely the divine essence, would have been the same: 'There is the same variety in any kind of world, and this is nothing other than the same essence related in various ways' (A VI iii 523/D83). As all possible worlds can boast the same underlying unity, these worlds will be more or less harmonious depending on how much variety they contain (that is, the harmony of a world is a function of the number of non-identical things in it). And as the best possible world contains the greatest number of non-identical things, that is, the greatest possible variety of things, then this will entail that 'the most perfect system of the world ... is as harmonious as possible' (GW171/AG233). Consequently the most perfect world could only be made more harmonious if God could squeeze a few more things into it that differ from the rest of its contents. What prevents him from doing so, of course, is the fact that many possible things are not compossible, i.e. jointly realizable in the same universe. As this incompossibility clearly puts an upper limit to how much harmony and perfection the best possible world can admit, it would be helpful if we could determine what exactly brings it about.

The compossibility of things

Our study of compossibility begins, as most do, with the following passage from 1680, in which, it is often claimed, Leibniz expresses despair of finding a basis for the incompossibility of things:

> But it is as yet unknown to men, whence arises the incompossibility of diverse things, or how it can happen that diverse essences are opposed to each other, seeing that all purely positive terms seem to be mutually compatible. (A VI iv 1443/SLT I.A.1)

Before we examine this passage, we ought to note that the first part of it has quite often been erroneously rendered as 'But it is as yet unknown to me ...'. This seems quite a puzzling error, given that the Latin 'hominibus' ('to men') cannot obviously be mistaken for 'mihi' ('to me'). Quite likely it is a typesetting error, the 'n' of 'men' being omitted by accident (though it is odd that the same error has turned up in the work of so many commentators).[7] Now even those not hamstrung by wayward printers construe Leibniz as saying here that compossibility is a mystery to him.[8] But I don't think it is too much of a strained reading to interpret him as saying something completely different, namely that compossibility is a mystery to *others*.[9] Indeed it would be odd indeed if Leibniz was himself mystified by it in 1680, given that he had drawn on the idea of incompossibility in a number of texts written prior to 1680 (such as A VI iii 128, from 1672/1673, and A VI iii 581/D105, from December 1676). So to construe the above passage as Leibniz expressing his own mystification about the source of incompossibility, is tantamount to saying that Leibniz had beforehand freely made use of an idea without having any clue whether there was any basis for it or not. I am not convinced that this would be a plausible claim to make. I will assume, then, that Leibniz knew precisely what he meant when he claimed that certain things and types of things were incompossible.

Now in the above passage Leibniz claims that 'all purely positive terms', i.e. the attributes or perfections of God, are 'mutually compatible'. Strictly speaking this is the only position open to him as a theist; if it were denied, then God, understood as an omnipotent, omniscient and perfectly good being, would be rendered impossible on the grounds that he would have incompatible attributes. The upshot of this, however, is that any two creaturely essences, and consequently any combination of creaturely essences, must be compatible (that is, compossible) if they are considered solely in themselves. That is, the source of the incompossibility of some of these essences must lie outside the essences themselves. If that is so, then God could clearly choose to realize all possibles in the same world, if he wanted to.[10] So why would he not want to? I think it is plausible to suppose that it is because God 'cares about the harmonies' and wants to make everything as harmonious as possible (GW172/AG234, cf. A II i 117/L146, G VI 446/S124, GW171/AG233). If this is right, then the source of incompossibility among things is the harmony of things, or rather God's choice to instantiate a harmony of things. There is evidence that this is indeed the case. Consider, for instance, the following passage from *The Philosopher's Confession*:

> Therefore, if the essence of a thing can be conceived clearly and distinctly (for example, a species of animals with an odd number of feet, also an immortal animal) then surely it must be considered possible, and its contrary will not be necessary although, perhaps, it will be contrary to the existing harmony of things ... and by consequence it will never have a place in the world. (A VI iii 128)

Now Leibniz is not merely saying here that unactualized possibles are incompatible with the existing series of things, or with certain members of the existing series of things, but with the *harmony* of things. This suggests that it is not the things of this world *per se*, but the fact that they form a harmonious series, that renders unactualized possibles incompossible with them. A similar point is made in the *New Essays*; during one of Leibniz's rare forays into the murky world of incompossibility, he states: 'I believe that the universe contains everything that its perfect harmony could admit' (A VI vi 307/NE307). Let us suppose, then, that incompossibility is somehow bound up with the harmony of things. That is, because God has a preference for a harmonious world, and is unwilling to violate this harmony, incompossibility arises as a result of that.

Now I accept that there initially seems to be an absence of plausibility in this suggestion. That is, it might explain why God does not instantiate multiple copies of the same thing, but not why he omitted things which are not obviously mere duplicates of existing things. For instance, according to Leibniz, 'King Arthur of Britain, Amadis of Gaul, and Dietrich von Bern' are all unactualized possibles (A VI iv 1654/P106). Moreover, they are all apparently different to the possibles that have been actualized in this world. So if King Arthur, for instance, *were* added to this world, then it seems that the harmony of the world would not be spoiled at all, but rather increased, since the variety of things in the world would be increased. How, then, could harmony, or rather God's preference for harmony, be the source of incompossibility? To find the answer to this question we need to recall how the things of this world are varied:

> nature is fundamentally uniform, although there is variety in the greater and the lesser and in the degrees of perfection. (G III 343/LNS221)
>
> all things everywhere ... vary only in their degree of magnitude and perfection. (GW46, cf. G III 340/LNS205–6, A VI vi 71/NE71, A VI vi 490/NE490)

So the variety that constitutes the world's harmony lies in the degrees of

perfection that things possess, not in a mere nominal or numerical difference between things. In order for the world to be as harmonious as possible, then, everything in the world must possess a different degree of perfection to everything else ('the harmony of things does not allow all minds to be equally perfect', A VI iv 2804/W568). It is worthwhile to note that whenever Leibniz stated that things differ in their degree of perfection, he was speaking of how things are *in this universe*, and therefore referring to things that exist rather than non-existent merely possible things. Yet it is quite clear from a number of texts that he was comfortable with the idea that some possibles would possess identical degrees of perfection if actualized (e.g. A VI iv 1442/SLT I.A.1, A VI iv 2231, G VI 425/H430, G VII 374/L688–9). So we can surmise that in the realm of possibility, God finds a number of things that would be of the same perfection if actualized. Yet he knows that the harmony of the world would be impaired, no matter how slightly, if it contained two things of an identical degree of perfection.[11] Given God's unswerving commitment to harmony, any two possibles that are equally good can be said to be incompossible as neither could be actualized together.

So far so good. But this analysis, while promising, is a little simplistic as it stands, since it ignores Leibniz's view that things change in perfection throughout the course of their existence. Generation, for instance, increases the perfection of a thing, while death reduces it (cf. G VII 530/W506). But Leibniz did not think that changes in perfection are caused solely by generation and death; in the *New Essays* he even goes so far as to say of creatures that 'Their changes of state never are and never were anything but changes ... from more perfect to less perfect, or the reverse' (A VI iv 58/NE58). So creatures do not just change degrees of perfection from time to time, but *all the time*.

In light of this, there seems to me to be two ways to construe Leibniz's belief that creatures form a harmony of things. The first is to say that if the best world is perfectly harmonious, then it must be harmonious at every moment of its existence. This means that God must choose and arrange creatures in such a way as to ensure that no two of them ever possess the same degree of perfection at the same time. The second way is to say that the changes in perfection that creatures undergo throughout their lives are irrelevant so far as the harmony of things is concerned, and what matters is that each creature has a sum total of perfection (calculated over the entire course of its existence) that differs from the sum total possessed by every other creature. So on the first account the harmony of things is realized temporally, while on the second it is realized atemporally (as the harmony would only be apparent to a being that could 'see', in an instant, the sum total of every

creature's perfection).[12] It is possible, of course, and even perhaps quite plausible, that Leibniz would have accepted both accounts and insisted that the best world must be perfectly harmonious both temporally and atemporally. I take it that he endorses the first when he writes 'two men similar to each in all respects cannot exist at the same time' (A VI iv 1349), as this says, in effect, that there cannot be two *equally perfect* men existing at the same time (which implies that two men *can* possess the same degree of perfection, so long as it is at different times). But if only the temporal kind of harmony is realized, then although the world will be harmonious at every moment of time, it could still be atemporally disharmonious. This does not seem to sit easily with Leibniz's claim that the best world is 'the most harmonious it is possible to conceive' (G VI 137/H157). As I have already suggested, such a claim ought to be construed as saying that if there is an aspect of the universe that has the scope to be made harmonious, then God has ensured that it has been made so. Therefore in what follows I shall assume that Leibniz's best world is harmonious in both the temporal and atemporal senses described above.

Coming back to incompossibility, then, we can see that if God desires a harmonious universe then he will be restricted to actualizing those creatures whose degrees of perfection do not clash, whether temporally or otherwise. So if there are two or more possible creatures that would possess an overall identical degree of perfection if actualized, then only one of them can be actualized. Likewise, if there are two or more creatures that would possess an identical degree of perfection at the same time, only one can be actualized. So given God's overriding wish that a perfect harmony be established, possible creatures that would, either temporally or atemporally, be of an identical degree of perfection if actualized, can be considered incompossible.

The compossibility of species

Now we will remember from Chapter 4 that Leibniz held there to be incompossibility not only among possible individuals but among possible species too. Is it plausible to suppose that our account of individual incompossibility might also be extended to account for species incompossibility? I believe it is. Early indications are promising, as it is clear that Leibniz thought of the ordering of species as a kind of harmony: 'it is agreeable to this harmony that between creatures which are far removed from one another there should be intermediate creatures, though not always on a single planet

or in a single [planetary] system' (A VI vi 307/NE307).[13, 14] For more direct evidence, consider the following passage from the appendix to the *Theodicy* about Archbishop King's *The Origin of Evil*. Leibniz describes the following as 'my principles':

> God is indifferent to the choice between men of equal perfection, or between equally perfect species of rational creatures ... and as species that are of equal perfection harmonize more or less with others, God will choose those that agree best together. (G VI 425/H430)

The obvious way to read this, it seems to me, is as saying that individuals and species of equal perfection are not realized together, but are in competition for existence (for God would only be indifferent to the claims of equally perfect things or types of things if he has to choose between them). And when God does come across possible individuals and species that are equally perfect (or would be if actualized), he plumps for whichever fits best with other things, i.e. whichever forms part of the most varied set of things (individuals/species).

But what could Leibniz possibly have meant by species being of equal perfection? We already know that the individuals of a species change their degree of perfection throughout their lives, so it hardly seems likely that Leibniz could have held that possible species have 'a' degree of perfection as such. More plausible is that every possible species has a set of essential characteristics (the 'unchanging inner nature') that defines the *limits* of perfection for individual members of that species. Leibniz appears to say as much in the *Theodicy*; for although 'the laws of motion do not prevent man from being more perfect ... the place assigned to man in space and in time limits the perfections he was able to receive' (G VI 317/H330). I take it that Leibniz's point here is that men are not prevented from attaining the sort of perfection normally associated with higher beings like angels by anything external to them, but by their own inner (human) natures.[15] If this is right, then individuals vary in perfection within strict boundaries defined by the species to which they belong.[16] It would thus be true to say that the inner natures that define species determine the *spread* of perfection proper to any given species, rather than a single degree of perfection that all individual members of that species must possess.

We can say, then, that just as with individuals, if God finds two or more species of equal perfection (in the sense just outlined), then because of his desire for a harmonious ordering of species, he is restricted to actualizing only one of them. Such species can thus be said to be incompossible for precisely the same reason that I suggested individuals are incompossible.

It is worthwhile to pause here for a moment in order to highlight some

consequences of this position. First, it is interesting to note the doubling-up of harmonies, as Leibniz's best world will contain a harmony of individual things embedded within a harmony of species. This fits in nicely with his comments about there being multiple harmonies, which we met at the start of this chapter. Second, and in a sense following on from the first, it should now be clear why Leibniz believed – as I suggested he did in Chapter 4 – that the greatest number of compossible things is entailed by the greatest variety of species. To illustrate, let us suppose a simplified example involving two possible orderings of species, two great chains. The first ordering contains ten species, the second contains five. Now as we have said, possible individuals vary in perfection within strict boundaries defined by the species to which they belong. Let us represent these boundaries by numbers. If we take the ordering of ten species, we shall say that every possible member of the first species varies in perfection between zero and one (these numbers representing the limits of perfection), while every possible member of the second species varies between one and two, every possible member of the third species varies between two and three, etc. (see Figure 6.1). Hence each species from the ordering has limits in perfection, beyond which the individual members of that species cannot cross. For the sake of simplicity I have assumed that the limits of species perfection do not overlap, so that the best possible individual from species 3, for instance, will always be worse than the worst possible individual from species 4. I have also assumed that the boundaries of perfection are the same size for each species. Now let us turn to our second ordering, which contains five species. Although each one of these species is different from all of those from the first ordering, they nevertheless have identical spreads of perfection to some of those in the first ordering, and because of this the two orderings are incompossible. We can represent the second ordering as in Figure 6.2. Now if we suppose that God wants to create the most harmonious ordering of individual things, that is, the greatest number of possible things that never possess the same degree of perfection as anything else, then clearly he is going to have to use ordering 1 rather than ordering 2. That is, the way to achieve the most harmonious ordering of

Species 1 >0 but <1	Species 2 >1 but <2	Species 3 >2 but <3	Species 4 >3 but <4	Species 5 >4 but <5
Species 6 >5 but <6	Species 7 >6 but <7	Species 8 >7 but <8	Species 9 >8 but <9	Species 10 >9 but <10

Figure 6.1: Ordering 1

Species 1	Species 2	Species 3	Species 4	Species 5
>0 but <1	>1 but <2	>2 but <3	>3 but <4	>4 but <5

Figure 6.2: Ordering 2

individual things, and hence the greatest number of compossible things, is to select the fullest chain of being, i.e. the one with the greatest variety of species.

Now certain aspects of this example may not, of course, tally with what Leibniz actually believed. For instance, he may have accepted that the limits of species perfection do overlap (although this seems to conflict with the basic idea of the great chain and the rigid separation of species whose members can approach the limits of other species but not cross them), and he may well have held that some species are defined by a much narrower band of perfection than others. But it has to be said that he does not give us much to go on in this regard, so it is hard to tell if he would have considered the above example excessively oversimplistic, or a good illustration of the way things work. Yet even if he did think it excessively oversimplistic, the general principle behind it, i.e. the greater the overall range of perfection from which individual things are drawn, the more compossible individuals can be realized, still holds good. Thus we can see that God is able to achieve the greatest harmony of things (i.e. the greatest number of compossible things) simply by making his selection of individuals from the most harmonious ordering of species (i.e. the fullest chain of being, featuring the greatest variety of species).

It should be clear from all this that incompossibility is entirely preventable – all God need do is remove the condition that the universe be harmonious, and more species and individual things, in short more *essence* and *perfection*, could be included in it.[17] Although the desire for as much harmony as possible explains why God does not actualize everything despite being able to, it also gives rise to a further question: why does God want a harmonious world that omits an enormous number of things rather than a non-harmonious world that contains everything? Or to put in another way, why does he value harmony so highly that he is willing to let it restrict the number of things and kinds of things that a world can hold?

The value of harmony

Throughout history, of course, harmony has typically been prized as an aesthetic good. Indeed, definitions of harmony identical or near identical to

Leibniz's own are to be found in the aesthetic writings of many great thinkers prior to Leibniz. In fact, the concept of harmony he endorses derives from the Pythagoreans, who also regarded harmony as a property of a whole or system containing parts that were arranged in an orderly way. Augustine also attached great importance to harmony, defining it as the tendency 'to equality and unity either by the similarity of equal parts or by the gradation of unequal parts'.[18] Augustine's view was that when parts are properly related, harmony, order and unity are the results, which in combination comprise the beautiful. Aquinas likewise prized harmony, identifying it as one of the three elements of beauty (the other two being integrity and clarity).[19]

Leibniz, however, located all beauty in harmony. For instance, in one text, immediately after offering a definition of harmony ('unity in plurality'), he claimed that 'there flows from this harmony the order from which beauty arises' (G VII 87/L426, cf. A VI iii 588/D113). In order that we might grasp the direction of Leibniz's thought here we shall examine further his understanding of beauty.

As Leibniz derived much of his aesthetics from the Pythagoreans (by way of Plato and his followers), it is no surprise that he conceived beauty mathematically. Hence:

> Music charms us, although its beauty consists only in the agreement of numbers and in the counting, which we do not perceive but which the soul nevertheless continues to carry out, of the beats and vibrations of sounding bodies which coincide at certain intervals. The pleasure which the eye finds in proportions are of the same nature, and those caused by other senses amount to something similar, although we may not be able to explain them so distinctly. (G VI 605–6/L641)

Elsewhere he calls such agreement 'order'; for example:

> Everything that emits a sound contains a vibration or a transverse motion such as we see in strings; thus everything that emits sounds gives off invisible impulses. When these are not confused, but proceed together in order but with a certain vibration, they are pleasing ... Drum beats, the beat and cadence of the dance, and other motions of this kind in measure and rule derive their pleasurableness from their order, for all order is an aid to the emotions. (G VII 86–7/L425–6)

Consequently beauty is to be found in systems or wholes, not individual things (unless these are themselves systems or comprised of parts). Single

sounds or sense impressions can be said to be devoid of beauty, for if they have no relation to any other sounds or sense impressions they cannot be in agreement with anything outside themselves. This follows from Leibniz's assertion that beauty arises from order, as order is a property of multiple things rather than individuals considered by themselves. But what does Leibniz mean by order? He tells us that

> order is the relation of several things, through which any one of them can be distinguished from any other. (BH124)
>
> order is simply a distinctive relation of several things; confusion is where several things are present, but there is no way of distinguishing one from another. (G VII 290/P146, cf. A VI iv 866, A VI iv 868, BH70)

Order, then, is present in a system of parts where each part is distinguishable or distinctly conceivable. Where all parts are distinguishable, there is maximal order, which gives rise to maximal intelligibility; that is, all parts can be identified by a thinking being. It thus follows from the fact that the existing world is the most harmonious world that 'that series has prevailed through which there arises the greatest amount of what is distinctly thinkable'. In Leibniz's view, then, the most beautiful world is also the most intelligible world, for 'Distinct cogitability gives order to a thing and beauty to a thinker' (G VII 290/P146).

This gives us two possible explanations for why God prefers a harmonious world that contains some possibles over a non-harmonious world that contains them all, i.e. because the former is (a) much more beautiful and (b) much more intelligible than the latter. From these, a third explanation arises, as Leibniz notes that the order that gives rise to beauty and intelligibility is in some sense a prerequisite for happiness in that it 'delights perception, makes it easier, and extricates it from confusion' (GW171/AG233). In other words, in order to derive any pleasure from perceiving the perfection of a thing (which is, we will recall, the first step on the road to happiness), a creature first has to be able to distinguish that thing from other things. And this requires a harmony of things. But curiously enough, creaturely happiness does not seem to be the motivating factor behind God's choice of a harmonious world. Instead, Leibniz explains that:

> Since God is the most perfect mind ... it is impossible for him not to be affected by the most perfect harmony. (A II i 117/L146)
>
> everything is regulated in things once for all with as much order and agreement as possible, since the supreme wisdom and goodness can only

> act with a perfect harmony. (G VI 604/L640, cf. A VI iii 146, G VI 142/H162)

Why is it that God can only act harmoniously (i.e. to produce harmony)? In a series of ethical notes from the early 1700s, Leibniz elaborates:

> The end or aim of God is his own joy or love of himself. God created creatures, and especially those endowed with mind, for his own glory or from love of himself. God created all things in accordance with the greatest harmony or beauty possible. (A VI iv 2804/W568)

It is notable that in this passage Leibniz appears to take the creation of harmony and beauty to follow from God's aim of acting for his own glory. The reason for this emerges in a discussion on why God chose to make rational creatures:

> If God had no rational creatures in the world, he would still have the same harmony, but simply without an echo, and the same beauty but simply without reflection and refraction or multiplication. (A VI i 438)

To understand Leibniz's thinking here, we need to delve a little into the Neo-Platonic assumptions that underlie it.

The idea that God is himself harmonious was a staple of Neo-Platonist thought. Many medieval thinkers believed that, although God was perfectly simple, he contained within himself all possible ideas or essences. This idea was embraced by the Schools and summed up in the popular Scholastic dictum 'quicquid est in Deus, est Deus' ('whatsoever is in God, is God').[20] Or as Henry More put it, God is 'all things, yet but one'.[21] The belief behind this was the Aristotelian view that if a mind thinks of a thing, then that thing is in some sense contained in the thinking mind.[22] Hence as God thinks of all things (i.e. as all things reside in his understanding), he can be said to contain ideally all the forms or possibles within his own being. And as his very being was itself perfectly simple and unified, God was, in this sense, a unity in variety, that is, harmonious. Leibniz, too, often equated the harmony of things with God; indeed on occasion he actually called God 'the harmony of things' (e.g. A VI i 499, A VI iii 129, 134).[23] In so doing, he apparently had precisely the same idea in mind as the Scholastics and others, namely that the 'possibilities or ideas of things coincide ... with God' (A II i 117/L146), that is, 'All things are in God' (Gr356, cf. A VI ii 283).[24] Or as he put it elsewhere, 'the divine mind consists of the ideas of all things ... In God there are infinite,

really diverse substances, yet God is indivisible' (A VI i 511–12/L118, cf. G VII 305/SLT I.A.3/P140, G VII 566).[25]

Another staple of Neo-Platonist thought was that, in the act of creation, God seeks to reflect or imitate himself in the world. Following Plato's insistence that the creator 'desired that all things should come as near as possible to being like himself',[26] it became a popular belief that God's aim in creation was to communicate himself by producing, as far as was possible, a mirror image of himself. This idea should be familiar from Chapter 4, as should the fact that Leibniz accepted it. Now if God is harmonious and beautiful, and wishes to create an echo of himself in the world, to make the world reflect his own nature, then the resulting world will also be harmonious and beautiful. In creating a harmony of things, then, God's aim was not to create the conditions conducive to creaturely happiness, strictly speaking, nor to create beauty or intelligibility *per se*, but to create the best possible echo or reflection of himself in the world.

The harmony of things

This answers our question as to why Leibniz's God values a harmonious universe over a universe that contains everything, but it does so apparently at the cost of undermining our explanation of incompossibility. That is, if all things subsist in God, and there is no disharmony in God (a reasonable assumption to make, as Leibniz was hardly likely to have confirmed the opposite), then presumably there is no disharmony among things either. Yet we have argued that, for Leibniz, it is the disharmony among things that gives rise to their incompossibility. Thus if our analysis is not to result in attributing to Leibniz a rather obvious inconsistency, we need to explain how he could hold that all possibles subsist harmoniously within God, but yet when God comes to create a world he can only create a harmony by actualizing some of these possibles rather than all of them. First of all we need to be clear about what Leibniz means by saying that God is harmonious on account of his containing all things. Recall a passage we met back in Chapter 4: 'The essences of things are like numbers. Just as two numbers are not equal to each other, so no two essences are equally perfect' (A VI iv 1352). The crucial notion involved here is that of essence. For Leibniz, an essence is an aggregation of attributes or predicates (cf. A VI i 271/L89, A VI ii 499, A VI iii 574/D95), or, in short, that without which a thing would not be that thing. In Leibniz's view, all *possibilia* have essences, not just existing things (cf. A VI

iv 1362/SLT VI.B.1, A VI iv 1443/SLT I.A.1, A VI iv 1445/AG19, Gr390). So King Arthur has an essence as much as does, say, Socrates. Thus when Leibniz states that 'no two essences are equally perfect' he should be understood as saying that no two *possible things* are equally perfect.[27] Now as these essences subsist in the mind of God, it should be reasonably clear that in saying that no two of them are equally perfect Leibniz means this in an atemporal sense. A modern analogy will help make this clear. Consider an individual creature as a motion picture, a complete film, all plotted out in its entirety. To keep the analogy close to Leibniz's concept of a possible creature, further consider that every advance of the film's story, every twist of the plot, has a value attached to it and makes the film better or worse than it was before. Now suppose that God thinks of this film; on account of his omniscience, clearly these advances and twists will not play out in God's mind in real time. Rather what God sees in his own understanding is something akin to a delayed exposure snapshot of the whole film, a photograph that somehow captures the entire contents of the film if you will. From this snapshot God can see not only every detail of the film, but also how good it is *on the whole*, i.e. by considering everything that happens in it *at once*. And this is precisely how God 'views' possible creatures too – all the changes they undergo if actualized, all their increases and decreases in perfection, are present to God in one instant, like a delayed exposure snapshot. For God 'penetrates all things at one stroke' and so 'he has no need of time for seeing the connexion of things' (G VI 230/H247). But essences are not just seen by God as atemporal snapshots, they are also contained in him in the same way. Indeed it could not be otherwise, for in Leibniz's view there is no time and space in God at all, and so possible essences no more move about in God than they do change (cf. G VII 402–3/L705). Thus when Leibniz claims that 'no two essences are equally perfect', he can only mean that each of these essences has a different *overall* degree of perfection, summed up in these divine snapshots. And as all these essences differ in their overall degree of perfection, it should be fairly clear that, in God, all these essences form what we have termed an atemporal harmony.

This, then, is how Leibniz understood the idea of God's own harmony. And it is clear that we were right to suppose that, for Leibniz, there is no disharmony in God at all. What we need to explain now is why all these possibles, which subsist in God to form the most perfect possible harmony, cannot simply be translated into existence to form a world that is just as harmonious as God. Or to put it another way, from where does the disharmony among possibles arise? And I should think that the answer to this question is now apparent: although all *possibilia* form a perfect harmony in

God because they subsist timelessly in him, these possibles will not be actualized as God sees them or contains them – with all their states captured in one timeless snapshot – but as beings that change *in time* and *over time*. So if God is to create a temporal harmony of things he must consider all possibles not in the way that they subsist in him, but in the way they would exist in a world that allows their changes to play out ('all things are present to God as it were, and he embraces everything in himself. Nevertheless the execution requires time', A VI iv 1642/SLT VI.B.2). And this is the crux of the matter. We will recall that a perfect harmony of things emerges when all individual beings have differing degrees of perfection. So a perfect atemporal harmony requires all individuals to have different overall degrees of perfection, while a perfect temporal harmony requires that all individual things never have the same degree of perfection at the same time. But the fact that any two given possibles have differing overall (atemporal) degrees of perfection does not in itself entail that if both are actualized together they will not have the same degree of perfection at a particular moment (or moments) of their temporal existence. If they do, then although the two possibles are atemporally harmonious, they will be temporally disharmonious, and if God seeks to establish a harmony of things that is temporal as well as atemporal, then these two possibles will be incompossible. Thus to form a harmony in God, all possibles need only be atemporally harmonious, but to form a perfect harmony in the world they have to be temporally harmonious as well. And as we have seen, Leibniz did not believe that all possibles were temporally harmonious.

So the fact that God looks to echo or mirror his own perfect harmony in the world does not conflict with our assertion that incompossibility emerges because of God's desire for a harmonious world. However, we do now know that things cannot be incompossible because of any atemporal disharmony among them, for, as we have just seen, it was Leibniz's view that every possible essence has a different overall degree of perfection from all the others, and on that account all possible essences are atemporally harmonious. Thus it is the fact that some of the possible essences would be temporally disharmonious, if actualized, that explains their incompossibility.

The relationship between harmony and richness

Before leaving the subject of harmony we should say a few words about how harmony relates to richness. We know from Chapter 4 that the best world

features the richest composite on account of it containing the greatest number of compossible things and the greatest variety of compossible species. And we now know that compossibility is determined by God's demand for harmony, that is, God's stipulation that no two possible things with the same (temporal) degree of perfection can coexist in the same world. This link between richness and harmony allows us to deduce that the richest composite must also be the most harmonious composite. This is so because harmony determines what is and is not compossible; in fact 'compossible' just *means* 'is harmonious with'. So if A is compossible with B, then A is harmonious with B. As a result of this, every set of compossible things must be harmonious (since things and species are only compossible if they are harmonious). But this does not mean that all sets of compossibles are equally harmonious; in fact it follows that the richer a set of compossible things is, the more harmony it contains. So the richest set of things will also be the set that offers the greatest harmony of things, since it contains the greatest number of compossible things, i.e. things that are harmonious with each other. Hence if God chooses the richest set, i.e. the one containing the maximum number/variety of compossible things/species, he thereby brings about the greatest possible harmony of things too. And the fact that Leibniz insists that the best world is both as harmonious *and* as rich as possible confirms that the two goods are simultaneously realizable.

We should not forget, of course, that worldly richness does not just require the greatest number of compossible things, etc.; it also requires these things to be arranged in a particular way, i.e. in a plenum. How does this aspect of richness relate to God's drive for harmony? On the surface it would seem that it doesn't, since the most harmonious set of things would still be the most harmonious set whether they are arranged in a plenum or not. Likewise, a plenum would still be a plenum even if its parts were not harmoniously ordered. Leibniz appears to agree with this analysis, telling us that 'the plenitude of the universe is consistent with the harmony of things' (A VI iii 467/D13). As I have noted previously,[28] Leibniz identified 'plenitude' with the plenum, and so what he is saying here is that the *plenum* is consistent with the harmony of things. So this aspect of richness neither contributes to nor detracts from the world's harmony, though it is obviously required if God is achieve the richest world possible as well as the most harmonious world possible.

It should be clear that our study thus far has revealed that Leibniz's notion of the best possible world is primarily defined in terms of harmony and richness. As we have seen, these are manifested at all times – the best world is *always* maximally harmonious and *always* maximally rich. It seems to follow from this that the best world is just as excellent at one time as it is at another,

as no increases in harmony or richness are possible. Yet there does seem to be scope for improvement, not in harmony or richness, of course, but in one or more of the three kinds of perfection. For although the best possible world contains the greatest number of compossible things, these things, as we know, continually change in their degrees of perfection. This appears to leave room for the possibility that, taken as a whole, the best world might contain more perfection as time goes on, while still being perfectly harmonious and rich. We thus turn to an issue that is sorely neglected in the Leibniz literature: whether the best possible world increases in perfection.

Notes

1. A view shared by Laurence Carlin (2000b), p. 101.
2. The standard view is that Leibniz did not develop the theory of pre-established harmony until the 1680s or thereabouts. This has been challenged in recent years by Christia Mercer, who argues that the doctrine is present in Leibniz's philosophy in 1671, though she offers a number of answers as to when in 1671 it was developed. She argues, for instance, that Leibniz invented the pre-established harmony 'Sometime between May and November 1671' (2001, p. 300), 'by the second half of 1671' (2001, p. 344) and 'by the end of 1671' (2001, p. 300). Elsewhere she makes a different claim, 'that Leibniz had invented all the sub-theses of Preestablished Harmony by the summer and autumn of 1671' (2001, p. 341). Now to say that all of the sub-theses of the doctrine were in place by the summer of 1671 is not the same as saying that the doctrine itself was in place at that time. Although the theses that Leibniz was committed to in May 1671 may have committed him to what he would later call pre-established harmony, the question is whether he realized that at the time. And Mercer's evidence for that is inconclusive, as she seems to concede (cf. pp. 340, 344). In any case, Leibniz did not consistently apply the term 'harmony' to this doctrine until the phrase 'pre-established harmony' was coined in 1696. Prior to that he generally spoke of a 'concomitance', 'correspondence' or 'conspiration' between the states of body and soul.
3. The identification of what constitutes the unity in things has stumped Laurence Carlin, amongst others. At the end of his long examination of Leibniz's concept of harmony he admits to finding 'perplexing' Leibniz's talk 'of harmony as involving a unity of a collection of entities' given that 'certain collections of entities do not obviously constitute one object or thing'. Carlin (2000b), p. 125.
4. Rutherford (1995), p. 32; Mercer (2001), p. 213f.
5. See Chapter 4, note 21.
6. I should point out that Leibniz did not always consistently refer to the doctrines I

have called 'the harmony of things' and 'universal harmony' by the names I have given them. In at least one text, for instance, he apparently uses the expression 'universal harmony' to refer to the doctrine I have called 'the harmony of things' (A VI iv 1586/DM §36). More often than not, however, Leibniz simply wrote about 'harmony' without specifying which type he had in mind.

7. E.g. D'Agostino (1976), p. 128; M. Wilson (1999), p. 445; Cover and O'Leary-Hawthorne (1999), p. 138.
8. E.g. Lovejoy (1936), p. 171; Hacking (1982), p. 192; Rutherford (1995), p. 182.
9. Hidé Ishiguro translates the first part of the passage as 'Until now nobody has known where the incompossibility of different terms comes from' (Ishiguro (1972), p. 47). Although this translation appears to remove the ambiguity inherent in the Latin as to whether Leibniz is saying that compossibility is a mystery to him or everyone but him, Ishiguro nevertheless interprets it as saying the former.
10. This conclusion is drawn by Broad (1975), p. 162.
11. If this sounds implausible, suppose that God actualizes a harmonious world containing 1,000 things, all different from each other but featuring an underlying unity, and then adds to this 1,000 identical copies of one of the things already in the world. In this example, it is clear that adding so many non-varied things to a system that was previously perfectly varied *does* impact on the original harmony of that system. As the original harmony of the system would also be spoiled if God only added, say, 100 identical copies of a thing already present within it, or 50, it must be the case that the addition of any number of identical things would negatively affect the harmony of the system (though the negative effects will be less noticeable if a small number of identical things is added than they would be if a large number was added).
12. As God is apparently able to do, cf. G VI 230/H247.
13. Interestingly, Donald Rutherford construes this passage as saying that 'there will be a continuous ordering of degrees of perfection, from the lowest "brute" monads to the most elevated rational minds' (1995, p. 200). Yet further on in the *New Essays*, when Leibniz harks back to the passage in question, he makes it quite clear that he was referring to the '"gradual connection" of species' (A VI vi 473/NE473).
14. Other thinkers with Platonist leanings held the universe to be harmonious in precisely this sense, that it contained a harmonious ordering of species. For instance, Ralph Cudworth stated in *The True Intellectual System of the Universe* that 'were there but one kind of thing, (the Best) thus made; there could have been no *Musick* nor *Harmony* at all, in the World for want of *Variety*.' Cudworth (1964), p. 881.
15. Animals appear to have their limits too: 'the stupidest man ... is incomparably more rational and teachable than the most intellectual of all the beasts' (A VI vi 473/NE473).
16. It could be that Leibniz envisioned the inner nature or essential characteristics of a species as only defining an upper limit of perfection for each species and not a lower limit, although the passage cited in note 15 above does suggest a lower limit, at least for humans.

17. It should be noted that this conception of Leibnizian incompossibility is completely different from both of the two competing explanations of it that dominate the literature on this topic, which are critically examined in a nice article by Margaret Wilson (1999), pp. 442–54. It would take too long to assess the respective merits of each account here, and I refer the interested reader to Wilson's paper because she notes that neither of the two popular explanations of incompossibility is without its problems. What she overlooks, however, is that both of the popular accounts of incompossibility focus solely on how *individual things* could be incompossible. Neither account addresses species incompossibility, an issue that appears to have been completely ignored in the literature, and neither account seems to me to be equipped to explain it.
18. Augustine (1953), p. 252.
19. Aquinas (1967), 1q39a8.
20. Cited as a 'Scholastick notion' by Cudworth (1964), p. 563.
21. More (1969), p. 77.
22. Aristotle (1984), p. 431a-b.
23. And just to make matters more confusing, Leibniz sometimes referred to God as 'universal harmony' too! (A II i 174/L150, A VI iii 117).
24. See also Leibniz's critical notes on Spinoza from 1707: 'The essences of things are coeternal with God, and the very essence of God comprehends all other essences, to the extent that God cannot perfectly be conceived without them' (FB22/AG273).
25. Christia Mercer notes that Leibniz's university professor, Jacob Thomasius, held God to be harmonious in this sense too (cf. Mercer (2001), p. 213).
26. Cornford (1935), p. 33 (*Timaeus* 29e).
27. Cf. G VII 303/SLT I.A.3/P137, where he identifies 'possible things' as 'things expressing an essence or possible reality'.
28. See Chapter 4, note 22.

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7

Does the World Increase in Perfection?

Three models of worldly perfection

In a letter to Louis Bourguet written on 5 August 1715, a little over a year before his death, Leibniz suggested that, on the question of the world's perfection, 'Two hypotheses can be formed, one that nature is always equally perfect, the other that it always increases in perfection' (G III 582/SLT VI.B.5/L664). He then proceeded to split the second option into two further hypotheses, first that the world has been increasing in perfection since its inception at a first moment, and second that it has been increasing in perfection from all eternity. He illustrated these alternatives by means of the diagrams below (see Figure 7.1) (G III 582/SLT VI.B.5/L665).

Here, rectangle A corresponds to the hypothesis that the world remains equally perfect at all moments of its (eternal) existence, hyperbola B to the hypothesis that the world has been increasing in perfection from eternity, and triangle C to the hypothesis that the world had a beginning and has increased in perfection since then.

Before we attempt to ascertain which of the three hypotheses got Leibniz's support, we need to be clear about what he meant by saying that the world increases in perfection. I would concur with George Gale's analysis that the total perfection of the world at any given moment is the sum of the perfection of every substance in that world at that moment.[1] From this it is easy to see that an increase in the world's perfection would manifest as it having a larger total for this sum at one time than it did at a previous time. But what, exactly, could bring this about? As I see it, there are two ways in which the perfection of the world could be increased in a Leibnizian universe. The first is that there

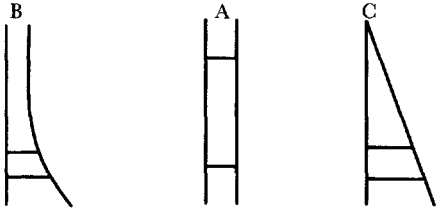

Figure 7.1

are *more* creatures at time *t* than there were at a time before *t*. The second is that there are *better*, i.e. more perfect creatures at time *t* than there were at a time before *t*. The first option is ruled out by Leibniz's insistence that the total number of creatures remains the same over time, which is entailed by the following two theses: (1) that God created the maximum number of creatures that he could, leaving no spaces into which others could be added, and (2) that every creature always has a physical presence in the universe, even before birth and after death. So if there is going to be an increase in the perfection of the Leibnizian universe then it will have to come from the fixed number of individual creatures themselves becoming more perfect over time. This can happen in one of three ways: firstly, by some or all creatures increasing in perfection over time and none actually decreasing; secondly, by some creatures increasing in perfection and others decreasing, where these changes always lead overall to a net increase in perfection (i.e. the increases are consistently greater than the decreases); and thirdly by a *reculer pour mieux sauter*, where there would be periods of time when the total perfection of the world actually decreases, and others when it increases, with the increases outweighing the decreases over the course of time (though this third option appears to conflict with the triangle and hyperbola hypotheses, both of which seem to call for a smooth continuous increase in perfection without any retrograde steps).

The hypothesis of the rectangle

Returning, then, to the matter at hand, that of whether Leibniz accepted or rejected the notion of a universe increasing in perfection, we discover that immediately after laying out the competing hypotheses of the triangle, rectangle and hyperbola, Leibniz went on to inform Bourguet that he could 'not see a way of showing demonstratively by pure reason which of these we should choose' (G III 582/SLT VI.B.5/L664). The matter remained under discussion throughout the rest of their communication of 1715–16, though most of Leibniz's subsequent remarks were just concerned with clearing up some of Bourguet's misunderstandings. However, in another of these exchanges, after putting Bourguet right on the question of whether the hyperbola hypothesis entails the necessary existence of the world, Leibniz reiterated his stated view that 'it is not that easy to decide between the three hypotheses, and we must still engage in a lot of meditation in order to come to any conclusion about them' (G III 589/SLT VI.B.6). We find similar doubts expressed in the *Theodicy*, written between 1707 and 1710:

> It might be therefore that the universe became even better and better, if the natures of things were such that it was not permitted to attain the best all at once. But these are problems of which it is difficult for us to judge. (G VI 237/H253–4)

Interestingly, however, Leibniz did express a preference elsewhere, for the rectangle hypothesis in fact. In an early letter to Magnus Wedderkopf (1671) he explained that, 'whatever has happened, is happening, or will happen is best' (A II i 117/L147). Now by applying the term 'best' to the past, present and future, Leibniz was saying more than that the series as a whole is best, taken over its entire history. In fact he was suggesting that the universe is as perfect as it can be *at every moment of its being*, and passes from one moment to the next under the burden of being unimprovable. For clearly 'whatever has happened' would not be best on either of the two meliorist hypotheses (the triangle and the hyperbola), as on those models the world increases in perfection over time, each state of the universe being better than the previous one. Thus Leibniz's statement about things having always been the best would sit uneasily with either the triangle and hyperbola hypotheses, and must be considered as approval for what he would later call the rectangle hypothesis.

There is further evidence for this view. In a short, oft-neglected paper entitled *Whether the world increases in perfection*, dated by Gaston Grua to 1694–96, the opening words are these:

> The question is whether the whole world increases or decreases in perfection, or whether in fact it always preserves the same perfection, as I rather think, even if the different parts variously exchange perfection between themselves, so that it is mutually transferred. (Gr95/SLT VI.B.3)

The words 'as I rather think', while not exactly a ringing endorsement of the hypothesis of the rectangle, nevertheless suggest that, even during his mature period, Leibniz viewed the hypothesis favourably.[2] Despite the recent resurgence of interest in his theodicy, this paper seems to have gone largely unnoticed by Leibniz scholars,[3] and consequently also the fact that he leans towards the rectangle hypothesis in it.

A change of heart: Leibniz's melioristic phase

On the basis of the passages considered thus far we might want to tentatively argue that Leibniz favoured a statically perfect world until becoming uncertain on the matter by around 1710 at the latest (possibly three years earlier, since the *Theodicy* was begun in 1707). What upsets this hypothesis are a number of passages in which Leibniz clearly rules in favour of cosmic melioration. The first of these comes from a short paper that the Academy editors have appropriately titled *On the continuous increase in the perfection of the world*:

> All things considered, I believe that the world continuously increases in perfection and does not go around in a circle as if by a revolution ... The universe is similar to a plant or animal, in that it tends towards maturity. But this is the difference, that it never comes to the greatest degree of maturity, and also that it never goes back or falls into decline. (A VI iv 1642/SLT VI.B.2)

Interestingly, the Academy editors have tentatively dated this text to 1689–90, and if this is right then in 1671 Leibniz rejected meliorism, in 1689–90 he accepted it, in 1694–96 he rejected it again, and from 1707/1710 onwards he was agnostic about it.

If that was not complicated enough, there are a further series of texts in which Leibniz clearly states that the world does increase in perfection. Curiously, these were written between 1696 and 1706, and therefore *after* his rejection of meliorism in *Whether the world increases in perfection* and *before* his ultimate agnosticism in the *Theodicy* and correspondence with Bourguet. This suggests that during two distinct periods of his life (1689–90 and 1696–1706) Leibniz rejected meliorism, during another two periods (1671 and 1694/1696) he accepted it, and during another period (1707/1710–16) he was agnostic about it! I shall try to make sense of these apparent upheavals in Leibniz's thought shortly; before that, however, we need to consider some of the passages from 1696–1706 in which Leibniz endorses meliorism. We must proceed carefully here, however, as some of the passages that have been mooted as evidence of Leibnizian meliorism are susceptible of entirely different (and non-melioristic) interpretations. The best examples of meliorism, in my view, are two that have so far been overlooked in the literature. The first is from a letter to André Morell (May 1698), the second from a series of notes regarding a conversation with Gabriel Wagner (March 1698):

> I think, moreover, that everything is animate, that all minds except God are embodied, and that the universe always develops for the better, or if it worsens it is only in order to make a better leap. (Gr127/SLT I.A.5)
>
> It cannot be denied that some things sometimes become worse. Nevertheless on the whole the universe always increases in perfection. (Gr391)

In both of these passages Leibniz is clearly endorsing neither of the two meliorist accounts he later developed, the triangle and hyperbola hypotheses, both of which call for a smooth increase in the perfection of the world. Instead, he argues for a *reculer pour mieux sauter*, that is, an overall increase punctuated by times when the perfection of the world actually decreases.

Now consider a famous passage from *On the ultimate origination of things* (1697), of which the first part is this: 'Furthermore, it must be recognized that there is a perpetual and most free progress of the whole universe towards a consummation of the universal beauty and perfection of the works of God' (G VII 308/SLT I.A.3/P144). This passage crops up in every discussion I have seen on whether Leibniz believed the world increases in perfection, though I am not entirely convinced that it is advancing an ameliorative position at all. Part of the problem lies in the way the passage has been translated by various commentators. Arthur Lovejoy, for instance, translates it as 'A cumulative increase of the beauty and universal perfection of the works of God, a perpetual and unrestricted progress of the universe as a whole must be recognized',[4] which is a much more clear-cut statement of cosmic meliorism than in the above translation (which is my own).[5] Nevertheless, it may be argued, although in the above passage Leibniz does not say outright that the world increases in perfection, he does say that there is a progress of the whole universe, and that this progress consummates the world's perfection. Clearly, then, the world must be increasing in perfection. But it would be wrong, I think, to construe the passage this way. For to do so would be to suggest that the Leibnizian universe increases in perfection until it reaches the highest degree of perfection attainable. But in neither the triangle hypothesis nor the hyperbola hypothesis is it suggested that the world increases in perfection for a time and then stops because it can go no further.[6] In both hypotheses the perfection of the world is considered to increase without end, and thus if the universe does increase in perfection then it never reaches a limit. Indeed, if there is a limit to how perfect the world could be, it would have struck Leibniz as odd that God did not just create the world at that limit in the first place: 'If it cannot happen that a perfection is given which cannot be increased, it follows that the perfection of the universe always increases; for thus it is more perfect than if it did not increase' (Gr95/SLT VI.B.3, cf. G VI

237/H253–4). Clearly cosmic improvement only made sense to Leibniz when understood as being a process without any end.

We need now to consider more of the passage from *On the ultimate origination of things*:

> Furthermore, it must be recognized that there is a perpetual and most free progress of the whole universe towards a consummation of the universal beauty and perfection of the works of God, so that it is always advancing towards greater cultivation. Just as now a great part of our earth has received cultivation, and will receive it more and more .... And as for the objection that could be made: that if this were so the world should have become a paradise before now, the response is at hand: although many substances have already attained great perfection, nevertheless on account of the divisibility of the continuum to infinity there always remain in the abyss of things parts that are still asleep, which are to be awakened and driven on to greater and better things, and in a word, to better cultivation. And hence progress never comes to an end. (G VII 308/SLT I.A.3/P144)

To my mind, the progress referred to here is tied to the continuous unfolding of the universe, that is, the maturation of animalcules to fully-grown creatures (this certainly accounts for the remark about substances being awakened that have hitherto been asleep, and that about parts of the world being cultivated). But while this process undoubtedly leads to an increase in the measure of perfection a creature has, since a fully-grown creature invariably has more perfection than it did when in an animalcule state, the reverse process (from fully-grown creature back to an animalcule) does the opposite. For as is clear from elsewhere in the Leibnizian corpus, death brings about a lessening of a creature's perfection (cf. G VII 530/W506), so while some parts of the universe are increasing in perfection other parts will be decreasing. And it is notable that in *On the ultimate origination of things* Leibniz does not argue that these increases outweigh the decreases. Thus it is possible that Leibniz could be employing a value-neutral conception of progress here, as is for example the progress (or advance) of time or the development of a story, i.e. a progression from state to state that has no obvious overtones of improvement or an increase in value. If so, the world can be said to progress in that as time goes on, more and more creatures will awaken and 'come to a great perfection'. And this can be said to be the finishing touch (i.e. the consummation) of the world's perfection, since it is hardly consistent with the perfection of the world that it contains the maximum number of things, most or all of which remain perpetually uncultivated and in seed form.

We need not concern ourselves with this any further, as whether cosmic melioration is advocated in *On the ultimate origination of things* or not, Leibniz did elsewhere clearly advocate it. In addition to the two texts from 1698 that I have already cited, the following are sometimes mooted as containing an endorsement of meliorism. The first is a letter to Electress Sophie from November 1696; the second is another letter to Electress Sophie, from February 1706:

> because there is nothing outside the universe which could prevent it, it must be that the universe continually advances and develops. (G VII 543/SLT II.C.1)
>
> there are grounds to think that the universe itself develops more and more, and that everything tends towards some goal (since everything comes from an author whose wisdom is perfect). (G VII 568/SLT II.C.2)

It has to be said that neither is a clear-cut endorsement of meliorism: 'advancement' and 'development' do not necessarily mean 'improvement', and it is possible that in both Leibniz simply wants to say that the universe continues to unfold, accumulating changes as it does so. With that said, I believe that the second text, at least, *is* intended to be melioristic in tone; we shall see more of that text later in this chapter, where its melioristic tone will become clear. I shall leave it an open question here as to whether the first of the above two texts also contains evidence of meliorism.[7] For our purposes all we need note is that there is a series of texts in which Leibniz either openly advocates meliorism or appears to advocate it, and these all fall between 1696 and 1706 (see Table 7.1).

Table 7.1

1671	Letter to Wedderkopf	Rejects meliorism
1689/1690	*On the continuous increase in the perfection of the world*	Accepts meliorism
1694/1696	*Whether the world increases in perfection*	Rejects meliorism
1696–1706	Letter to Morell, Notes on Wagner, etc.	Accepts meliorism
1707/1710–16	*Theodicy*, Letters to Bourguet	Agnostic about meliorism

(Note: The boundary dates are only approximate, corresponding as they do to texts that in some cases have not been dated accurately.)

Such a flip-flopping of views on a single matter is not characteristic of Leibniz at all, and it's very possible that something is amiss with the account as outlined above. Of the texts mentioned, only two have not been accurately dated – *On the continuous increase in the perfection of the world*, tentatively dated to 1689–90, and *Whether the world increases in perfection*, tentatively dated to 1694–96. Now the Academy editors note that they assign the date of 1689–90 to the first of these texts on the basis of watermark evidence, but also note, on the basis of internal evidence (i.e. what Leibniz actually says in the text), their lack of confidence in this dating. They suggest that the text could in fact have been written after 1690, or even after 1700. In other words, it could well have been written between 1696 and 1706, that is, in the decade in which there is solid evidence that Leibniz was in favour of meliorism.

I think it quite likely that such a date for *On the continuous increase in the perfection of the world* is right, if for no better reason than that it spares us from having to attribute to Leibniz frequent radical shifts in his thought which are wholly out of character. For if we redate *On the continuous increase in the perfection of the world* to somewhen between 1696 and 1706, or thereabouts, we get another picture of Leibniz's views (see Table 7.2). Although this account still involves puzzling changes in thought that require explanation, at least it does not impute to Leibniz several bizarre back-and-forth shifts in thinking.

However, there is only so much convenience that can be bought by taking the date of composition of *On the continuous increase in the perfection of the world* to be somewhen between 1696 and 1706. Specifically, we now have to face the

Table 7.2

1671–94/6	Letter to Wedderkopf, *Whether the world increases in perfection*	Rejects meliorism
1696–1706	Letter to Morell, Notes on Wagner, *On the continuous increase in the perfection of the world*, Letter to Electress Sophie, etc.	Accepts meliorism
1707/1710–16	*Theodicy*, Letters to Bourguet	Agnostic about meliorism

(Note: the boundary dates are only approximate.)

problem of the different *types* of meliorism that Leibniz endorsed during that decade. As we have seen, in *On the continuous increase in the perfection of the world* Leibniz argues that the world always gets better and never gets worse. In at least two of the texts from 1696–1706 that I have cited, however, Leibniz opts for a *reculer pour mieux sauter* explanation of progress, that is, an overall increase in perfection punctuated by occasional periods where things actually get worse. Hence the type of meliorism advocated in *On the continuous increase in the perfection of the world* does not fit with the type of meliorism Leibniz advocated during at least some of the period 1696–1706. This suggests that *On the continuous increase in the perfection of the world* might not be from that melioristic decade after all. But if it is not, it is hard to identify a particular period of Leibniz's career to which it *does* belong. We thus have two choices: first, accept the Academy's tentative dating of that text (1689–90), and consequently accept that Leibniz veered from rejecting meliorism to accepting it, then rejecting it again and then accepting it again before ultimately falling into doubt on the matter; or second, accept that the text was written during the decade in which Leibniz was an avowed meliorist, and consequently accept that during that decade he entertained two distinct kinds of meliorism. While neither option is particularly appealing from a commentator's point of view, on account of the fact that neither can be easily explained, the second seems more intuitively plausible in itself as well as more in keeping with Leibniz's character, which was not prone to radical back-and-forth shifts in opinion.

So with due wariness I suggest the following account of Leibniz's view on whether the world increases in perfection: an initial period of belief in a statically perfect universe lasted from around 1671 until around the mid-1690s, and then gave way to an ameliorative view until some time around the mid-1700s, after which he fell into uncertainty on the matter. While a number of commentators have ascribed an ameliorative philosophy to Leibniz,[8] none seem to have noted that his thought on this matter went from one extreme (the universe does not get more perfect) to the other (the universe does get more perfect) before settling on an agnostic position.[9]

Three conceptions of Leibnizian progress

The question before us now is this: by what mechanism did Leibniz suppose that the world increases in perfection during the decade or so he would have counted himself as a meliorist? A number of suggestions have been made by

way of answer to this question. We shall deal with three of them only briefly; the fourth (physical evolution) is more complex and will require a much longer discussion.

Catherine Wilson construes Leibniz's remarks on the improving universe as referring to social and cultural progress. This seems to be largely due to her translating the Latin term 'cultum' in *On the ultimate origination of things* as 'culture' rather than 'cultivation', so that she takes Leibniz to be referring there to things being driven on to a 'better culture'. However, there is a good reason to doubt that Leibniz had social or cultural progress in mind in *On the ultimate origination of things*, since by Wilson's own admission such social and cultural progress was hardly apparent in Leibniz's day. In fact she can find only one example of it in Leibniz's work – 'Father Spee's successful struggle against the persecution of witches' (mentioned in G VI 157/H177).[10] It seems somewhat unlikely that a melioristic philosophy could be founded on this single example of cultural progress.

Another interpretation has been put forward by Juan A. Nicolas, who argues that, for Leibniz, 'The realisation of the best of worlds does not ... take place all at once; it is rather a matter of an historic process, with its progressions and regressions, and in which man plays an important role.'[11] Nicolas offers no textual support for this view other than Leibniz's claim in *On the ultimate origination of things* that 'progress never comes to an end'. If Nicolas's interpretation is right, Leibniz's talk of 'substances being awakened' must be taken figuratively rather than literally, to refer to advancements in knowledge and understanding (which presumably would lead to Wilson's idea of improvement coming about via social and cultural progress). However, it seems something of a stretch to interpret it this way.

A third possible answer emerges from the notes Leibniz made on a discussion with Gabriel Wagner:

> the perfection of any monad whatever endures once acquired by its imperishable character, even if it may not be able to be perceived distinctly, so that endeavours impressed on the body are never erased, but are only added together with the others. (Gr398)

(For our purposes, it is better to substitute 'creature' for 'monad'; the change does not affect the meaning of the passage in any significant way.) This passage could be interpreted as saying that creatures that have developed a certain degree of perfection do not lose it in death. If this is what Leibniz believed in 1698, then it would certainly account for the melioristic hypothesis he held at that time, for if creatures could only increase in perfection or

preserve the degree of perfection they had at the point of death, the world would continually increase in perfection so long as there were always more creatures to emerge from their animalcule state (which is confirmed in *On the ultimate origination of things*). The problem with this interpretation, of course, is that it conflicts with Leibniz's stated view in the same text that the world sometimes gets worse. If creatures could only ever increase in perfection, or preserve their degree of perfection, then this would be impossible. It seems to me that the Wagner passage is merely making the point that if a creature attains a particular degree of perfection, then although it will go on to lose most of it in death, the potential for it to be restored at some later time is there. So when God resurrects creatures, he can bring them back with exactly the same degree of perfection they had when they died.

The hypothesis of evolution

By far the most intriguing of all the suggestions made as to how Leibniz understood the improvement of the universe is that put forward by Arthur Lovejoy. In his seminal work *The Great Chain Of Being* he argues that Leibniz's vision of the universe was one of 'endless Becoming', and pins this belief to a large extent on the picture of Leibniz as someone who accepted the occurrence of 'phylogenetic advance', that is, the transformation, the evolution, of species.[12] For example, in the *Protogaea* (1690–91), according to Lovejoy, Leibniz explains that, it is 'worthy of belief that in the course of the vast changes [which have taken place in the condition of the earth's crust] even the species of animals have many times been transformed'.[13] I say 'according to Lovejoy' here as it is highly doubtful that Leibniz does endorse a transformationist account in the *Protogaea*. For instance, in §6 Leibniz draws back from an outright endorsement of at least one evolutionary hypothesis, cautioning against the view that animals were once all aquatic before becoming amphibious and moving on to the Earth, because it 'disagrees with the Holy writers, to depart from whom is a religious offence' (Pr26/SLT IV.C.2).[14] And in §26, from which Lovejoy's quote comes, Leibniz considers the question of why there seem to be so many 'species in stones' which cannot now be found anywhere, and answers that they probably *are* still around. He takes the example of a kind of large ammonite that had been found in fossils yet apparently was no longer present in the sea. He then asks the rhetorical question, 'But who has fully explored its hidden recesses, or the subterranean abysses?' (Pr90/SLT IV.C.2), before going on to explain that fossils are swept

up by floods from distant places, which accounts for why they are found in places where there are no living animals of the same species. Likewise the 'whirlpools of the sea' account for why some fossils seem to collect only in one place, 'such as in Malta alone we wonder at the huge number of shark's teeth which we call glossopetrae', while even now storms 'throw up kinds of molluscs onto our coasts which fishermen do not find in the nearby sea' (Pr92/SLT IV.C.2). Leibniz thus envisions a variety of natural processes to explain why one can look in vain for living members of species that have been found in fossils, and why one may not find a fossil record of species that are common today.

But what of the passage cited by Lovejoy that we considered above, where Leibniz appears to view transformation among species as 'worthy of belief'? This can be attributed to an error on Lovejoy's part, as the passage is more accurately translated as 'It is quite credible that during those great changes the species of animals have still remained mostly unchanged' (Pr90/SLT IV.C.2).[15] Lovejoy appears to have been confused by the Latin word 'immutatas' which can mean 'changed' or 'unchanged', but had he taken account of the context in which the word appears he would have been drawn to the correct translation of the term, as in the *Protogaea* Leibniz is clearly unimpressed by the evolutionist argument.[16]

Despite this, there certainly does seem to be evidence that in his later writings Leibniz advocated at least a limited form of evolution among creatures. For example, in a letter to Thomas Burnett of 1696, he explained that, 'species can be greatly changed by length of time, just as by the interval of places, witness the differences between American animals and ours' (G III 184).[17] While this seems pretty clear-cut, I believe we should reserve judgement on it until we have considered Leibniz's remarks on species change from the *New Essays on Human Understanding* (1704). Leibniz writes there that 'Various cat-like animals, such as the lion, the tiger and the lynx, may once have been of the same race and may now amount to new subdivisions of the ancient cat species' (A VI vi 317/NE317). This remark appears during a discussion about the mixing and crossbreeding of species to produce viable offspring that are different from both parents. While Leibniz acknowledged the existence of these hybrids, his preference was to place them within the current range of species (as a subdivision) rather than considering them to belong to a wholly new and previously unactualized species. This approach is adopted again when Leibniz switches his attention from cats to dogs:

> There are such great differences amongst dogs that mastiffs and lap-dogs can very well be said to be of different species. Yet it is not impossible that

> they are the remote descendants of the same or similar breeds, which we would find if we could go back a long way, and that their ancestors were similar or the same, but that after much change some of their descendants became very large and others very small. (A VI vi 325/NE325)

He then proceeds to throw doubt on the suggestion that different breeds belong to different species, as 'it would not be offending against reason to believe that they have in common an unchanging specific inner nature which is not further subdivided in our world' and 'which is further varied only by the addition of accidents' (A VI vi 325/NE325). Here Leibniz relies on the notion of a 'natural species', that is, a species fixed by God. If all species are natural in this sense, as Leibniz seems to imply, then there is a species called 'cat', another called 'dog', etc., and each is defined by an unchangeable inner nature that all individual members must possess no matter what their accidental properties might be.[18] Leibniz extends the argument to show that 'Negroes, Chinese and American Indians' likewise do not belong to different species in spite of their obvious outward differences, but are all in fact human on the grounds that they all possess reason, which he takes to be the defining feature of the human species. He then observes that 'as we find among us no fixed inner feature which generates a subdivision, we have no grounds for thinking that the truth about their inner natures implies that there is any essential specific difference among men' (A VI vi 326/NE326). Leibniz would thus no doubt have agreed with Aristotle's dictum that 'man generates man',[19] though he did allow that within species boundaries there can be vast differences between individuals, even differences that accumulate over time (and in many cases because of human intervention) to produce animals with different accidental properties to those that have come before. This, I think, is what Leibniz was getting at in his communication with Burnett cited above, as his remarks in that letter were prompted by the discovery of an 'elephant-like' fossil. With regard to this fossil, which was in fact a fossilized skull fragment, Leibniz tells Burnett that he has

> no doubt at all that it is from the animal kingdom, and if it is not from an elephant it is still from an analogous animal, either from elephants or similar animals that have formerly lived in these countries, or that there were amphibious sea animals of the nature of the elephant when a large part of the globe of the Earth was still submerged. (G III 184)

The interesting thing here is that whether the skull fragment turns out to be from a kind of elephant that is already known, or is from some previously

unknown amphibious creature, Leibniz still considers it to be from the species 'elephant'. Obviously if it turns out that the skull fragment *was* from an elephant then Leibniz would say that it comes from the elephant species, but the interesting thing is that he seems prepared to make exactly the same classification even if it turns out that the skull fragment belonged to some unknown amphibious creature. For as he says, if the fragment is not from an elephant then it is from 'amphibious sea animals of the nature of the elephant'. What Leibniz is saying in the Burnett letter, then, is that the elephant species may turn out to be broader than was previously thought, as it might contain a sub-variety of elephant that is amphibious. The reason for this should be clear from his view, stated in the *New Essays*, that all species are defined by a 'fixed inner nature'. So as the elephant species, like all species, is defined by its own 'inner nature', and this inner nature is fixed, the only scope for change is in the accidental properties of those animals within the species group, as the inner nature itself cannot change. In fact, given Leibniz's view that all species are defined by a fixed inner nature, it would have made no sense at all to him to suppose that species themselves undergo change.

Lovejoy appears to ignore all this and argues that, so far as Leibniz was concerned, in earlier ages 'the number of [natural] species was obviously vastly reduced [from what it is today], and the descent of most forms commonly regarded as of different species from common ancestors differing very greatly from most of their descendants is implied'.[20] But we have seen that this is not implied at all: the individuals representing a species might differ from generation to generation and eventually form sub-varieties, but species themselves do not change. Thus it is important to note that Leibniz nowhere suggests that the *number* of species around today is greater than the number of species existing in the past. In fact he advocates the very opposite view in a letter to Wagner from 1710: 'a soul or an animal before birth or after death differs from a soul or an animal living the present life only by conditions of things and degrees of perfections, but not by entire genus of being' (G VII 530/W506, cf. A VI vi 305/NE305). To fully understand this we need to recall Leibniz's acceptance of the theory of preformationism which, as we have already seen, led him to consider that

> [an] animal only comes into being at the same time as does the world, and that it only changes and develops by generation ... that it must endure as long as the world, and that death is only a diminution and envelopment of the animal. (G VII 568/SLT II.C.2)

So what he told Wagner is that before birth, a creature in an animalcule state

already belongs to a particular species, and it remains a member of that species even after it dies (or falls into slumber, as Leibniz often put it). With the total number of creatures fixed for all eternity it follows that the total number of species will be too, and there is thus no scope for any increase in the number of the latter nor, consequently, for phylogenetic advance.

Even if the number of species does not change, perhaps the fact that Leibniz allowed there to be new hybrids, cross-breeds and sub-varieties *within* species is sufficient to support Lovejoy's claim that improvement in the Leibnizian universe comes about via evolution? Before we assess whether this is so, it is worth getting clear what we mean by 'new' here. After all, we must remember that in Leibniz's view there were lap-dogs, for instance, in an animalcule state long before the first lap-dog was ever born, their seeds being contained in the bodies of creatures belonging to a different sub-species (but same species). Technically, then, the sub-species of lap-dog has always been present in the physical universe, even before the first member of that sub-species achieved 'large animal' state in the world. Therefore when Leibniz wrote about the sub-species of lap-dog being new, what he was referring to is the moment when the first lap-dog animalcule developed into a 'large animal', that sub-species being new only to the physical world of our day-to-day experience and not the physical world *per se*. So this limited form of evolution can only be the driving force behind the universe's meliorism if intra-species change, understood in the way described above, gives rise to more perfect 'large animals'. But nowhere does Leibniz say that the process of intra-species change makes the world better, or more perfect, or that new breeds/sub-varieties are better than those already in existence (or those that have perhaps died out). While Lovejoy needs Leibniz to claim that his restricted version of evolution leads to there being either more things or better things, Leibniz in his stubbornness claimed only that it leads to variation within the strictly defined species groups.

But might it not perhaps be argued that there is a presumption of improvement here? That intra-species change, even understood as the limited doctrine I have presented above, entails either the triangle or hyperbola hypotheses? Such an assertion would be unwarranted. In fact, when discussing the rectangle hypothesis with Bourguet, Leibniz argued that if the hypothesis is true then 'change is appropriate, in order that there should be more kinds or forms of perfection, even if they would be equal in degree' (G III 593/SLT VI.B.7).[21] Lovejoy employs this passage to bolster his own case, thereby ignoring the context in which it arises, which is only to illustrate the point that change is consistent with, and perhaps even required by the hypothesis of the rectangle.[22] Leibniz made a similar point in the *Theodicy*,

when he considered the suggestion that the best possible world would be an eternal substance that could not change. There his reply is this: 'the best may be changed into another which neither yields to it nor surpasses it'. The point is illustrated by the transition from

> enjoyment of music to enjoyment of painting, or *vice versa* from the pleasure of the eyes to that of the ears, [where] the degree of enjoyment may remain the same, the latter gaining no advantage over the former save that of novelty. (G VI 237/H253)

So while change has occurred, it is not necessarily the case that the universe has become any better on account of it.

We now need to consider a short open letter to Christian Spener that Leibniz published in the first volume of the journal *Berlin Miscellanea* of 1710, in which, according to Lovejoy, Leibniz 'suggests that it is probable that the earliest animals were marine forms, and the amphibia and land-animals were descended from these'.[23] The passage he has in mind seems to be this one:

> As for the animals unknown in this world, of which we have discovered vestiges, further enquiry must be made as to whether or not the majority were aquatic or amphibious; especially since it can be believed that some terrestrial animals have ultimately descended from marine or amphibious animals which have now been deserted by the sea, and which have changed over a long period of time so that they can no longer bear the water. (Pr204/SLT IV.C.3)

Here Leibniz not only actively considers the possibility that 'terrestrial animals have ultimately descended from marine or amphibious animals', but even seems to find it plausible. It ought to be noted, however, that he calls for further research to establish whether or not the hypothesis is true. Moreover, later in the same piece he gives the same explanation for the existence of fossils of unknown species as he had given almost 20 years earlier in the *Protogaea*, saying 'I would certainly not deny that terrestrial animals have been carried to distant shores and piled up elsewhere by the force of the waters' (Pr206/SLT IV.C.3). Leibniz, then, was by no means certain in 1710 that terrestrial animals had descended from sea-dwelling animals. This notwithstanding, Leibniz nowhere comes closer to accepting what at face value appears to be a very modern notion of evolution. Yet it is unlikely that he does have a modern form of evolution in mind here, that is, a form of *species* evolution, because he seems to be considering the very same idea raised in his letter to Burnett,

albeit more broadly applied. To Burnett he made the suggestion that prehistoric elephants were amphibious, but still members of the elephant species for all that; in the letter to Spener he raises the possibility that the prehistoric members of a number of species, not just elephants, were aquatic or amphibious, though as with the Burnett letter Leibniz does not appear to construe this as involving actual *species change*, even though to the modern mind the descent of terrestrial animals from aquatic or amphibious animals would seem to involve that. In any case, nowhere in the letter to Spener does Leibniz suggest that this change brings about an improvement in the world.[24]

However, the clinching point that demonstrates that evolution was not Leibniz's vehicle for cosmic melioration is this: by the time Leibniz warmed to the idea of intra-species evolution he had become uncertain on the question of whether the world increases in perfection. That is, Leibniz appears to become more favourable to the idea of intra-species evolution as time goes on, through the letter to Burnett (1696), *New Essays* (1704), and the letter to Spener (1710), yet this does not mirror his attitude towards cosmic melioration, which had cooled to the point of agnosticism by 1707–10. If intra-species evolution was taken by Leibniz to be the cause of the world increasing in perfection, we would expect to find him becoming more and more certain about the best world being melioristic in nature the more he warmed to the idea of evolution. But we don't, which is the deciding factor against Lovejoy's hypothesis.

Happiness, beatitude and damnation

We still need, then, an answer to the question of how Leibniz thought the world increases in perfection during the times in which he believed it did so. The following passage, from the February 1706 letter to Electress Sophie that we considered earlier, gives a clue:

> And just as there are grounds to think that the universe itself develops more and more, and that everything tends towards some goal (since everything comes from an author whose wisdom is perfect) it can likewise be believed that souls, which endure as long as the universe, also proceed to get better and better (at least physically), and that their perfections carry on growing; although more often than not this happens only insensibly, and sometimes after large steps backwards. (G VII 568/SLT II.C.2)

Here, Leibniz appears to be saying that the world continually increases in perfection because *creatures* continually increase in perfection. More specifically, he ties the improvement of the world as a whole with the fact that creatures continually increase in *physical* perfection, i.e. happiness. The belief that physical perfection is subject to an unending increase over the course of time is one Leibniz returns to at various points throughout his career. For instance, in the *Principles of Nature and Grace* (1714), he says

> our happiness will never consist, and ought not to consist, in a complete joy, in which there would no longer be anything to desire, and which would make our mind stupid, but in a perpetual progress to new pleasures and new perfections. (G VI 606/L641, cf. A VI iv 1642/SLT VI.B.2, GW18)

Two things ought to be noted about this claim. Firstly, the start of the continuous increase is deferred to 'the future' (G VI 447/S125), in 'another life' (R51) after 'the books are balanced' (A VI iv 2234/L218). Secondly, the perpetual increase only applies to *some* creatures, not all. A small minority will experience ever-increasing happiness, while an unfortunate majority will become ever more unhappy (cf. A VI iii 139). It is clear from this, I think, that Leibniz was looking to the afterlife to trigger this twin escalation of happiness and unhappiness, and the event that initiates it is the administering of divine justice, where some souls are saved and elevated into God's presence for eternity while others are damned and shut out from his presence forever (and perhaps cast down to hell).

Leibniz's best of all possible worlds thus comprises two distinct stages. The first stage is the mortal world we know, where creatures are born, live and then fall into slumber. The second stage sees the simultaneous re-awakening of all sleeping creatures in order for justice to be administered, some creatures being saved and granted an eternal communion with God, others being damned and forced to eternally wallow in their own misery. Leibniz clearly considered both stages to be part of the same world as he defined the world as 'the whole succession and the whole agglomeration of all existent things' (G VI 107/H128, cf. G VI 440/S116).

One might wonder why all this is relevant; after all, the fact that a creature's physical perfection may increase without end in the second stage of the universe is not the same thing as saying that its metaphysical perfection increases. But as we know from Chapter 3, it *is* the same thing, as any increase in physical perfection can only come about through a prior increase in metaphysical perfection, as is clear from the following remark in the *New Essays*:

> I doubt that a greatest pleasure is possible; I am inclined to believe that it can increase *ad infinitum*, for we do not know how far our knowledge and our organs can be developed in the course of the eternity which lies before us. So I would think that *happiness* is a lasting pleasure, which cannot occur without a continual progress to new pleasures. (A VI vi 194/NE194)

What Leibniz reveals here is that happiness increases because of an increase in knowledge, and knowledge, as we know, is one of the attributes that determines a creature's overall degree of metaphysical perfection. So the more knowledge a creature has, the happier it becomes, and if a creature's happiness increases *ad infinitum*, as Leibniz confirmed it would in some cases, then this is because its metaphysical perfection is increasing *ad infinitum*. It thus follows, then, that blessed creatures experience a continual increase in perfection (metaphysical and physical) while the damned suffer a continual decrease in perfection.[25] In the case of the former, the continual increase comes about via the beatific vision, or direct acquaintance with God (cf. A VI iii 140, Gr95/SLT VI.B.3), which ensures that the happiness of the elect 'cannot ever be full, because God, being infinite, cannot ever be known entirely'. Thus the happiness of the elect 'will never consist, and ought not to consist, in a complete joy, in which there would no longer be anything to desire ... but in a perpetual progress to new pleasures and new perfections' (G VI 606/L641). The damned, meanwhile, are apparently so unregenerate as to continue sinning even after being damned, thus attracting further punishment (a process that presumably goes on for all eternity since Leibniz tells us that the damned 'damn themselves again and again', A VI iii 139). Thus in continuing to sin, the damned not only ensure that they stay damned, but they make it worse for themselves by continually increasing their own damnation (cf. A VI iii 139, G VI 142/H162, G VI 186/H205).

Now we know that Leibniz believed in a statically perfect universe for at least some of his philosophical career. We can now see that such a universe will have to preserve a particular degree of perfection throughout both stages of its existence. That is to say, the universe must remain as equally perfect throughout the whole of the first stage as it must throughout the whole of the second stage, for only then can it truly be said to remain equally perfect at all times. This view thus entails that, when the second stage of the universe begins, after divine judgement has been meted out, the increases in perfection enjoyed by the blessed are equal to the decreases in perfection suffered by the damned. In *Whether the world increases in perfection*, Leibniz concurred with this analysis: 'If the perfection of the world remains the same, some substances cannot continually increase in perfection without others continually

decreasing in perfection' (Gr95/SLT VI.B.3). This, then, was Leibniz's opinion during the time he believed in a statically perfect universe. Clearly, though, it could not have been his opinion after 1696 or thereabouts, when he ceased to believe that the universe was statically perfect. Given what we now know about the two-stage universe, and the fact that continuous increases in perfection are only possible for creatures in the second stage (since no creature can continually increase in the first stage), it is plausible to suppose that Leibniz came to reject the idea that the perfection of the universe remained static in this second stage. So what we might hope to find in Leibniz's later writings is a consideration of the possibility that the universe might increase in perfection during this second (post-judgement) stage. And in the *Theodicy* this is precisely what we do find:

> For it is possible, and even a very reasonable thing, that the glory and the perfection of the blessed may be incomparably greater than the misery and imperfection of the damned, and that here the excellence of the total good in the smaller number may exceed the total evil which is in the greater number. (G VI 378/H379, cf. G VI 47/H70–1)

What Leibniz is considering here is whether the increases in perfection experienced by the elect might outweigh the decreases in perfection suffered by the damned. If that does indeed occur then the world can be said to increase in perfection, at least in the second of its two distinct stages. But Leibniz only considers this to be 'possible' and 'reasonable', and he falls some way short of actually endorsing it, which is perhaps to be expected given that by the time of the *Theodicy* he was uncertain about meliorism. Nevertheless his speculation on this matter, and his reluctance to unequivocally endorse it, ties in with his documented uncertainty on the question of whether the world increases in perfection, and offers a plausible explanation as to why he became uncertain about that. Therefore I suspect that during his time as a meliorist he was of the opinion that in the second stage of the universe the increases by the blessed *will* outweigh the decreases by the damned, though unfortunately I know of no texts from that period where he actually says this (though it must be borne in mind that many of his writings from the 1690s onwards have yet to be published). It is, however, the most likely explanation of Leibnizian meliorism, given his belief that if the universe can improve then it must *always* improve.

Why, though, did Leibniz come to think that the increases in perfection of the blessed might outweigh the decreases in perfection of the damned? In an early work, *The Philosopher's Confession* from 1672–73, he had this to say on the matter:

> the blessed ... experience delight incessantly ... because without perpetual novelty and progress there is no thinking and hence no pleasure ... [yet] those who are furiously against the nature of things ... they will be continually irritated by new objects of indignation, of hatred, of jealousy and, to say it in a word, of madness. (A VI iii 139)

Yet almost 40 years later in the *Theodicy*, Leibniz was not so quick to state that the damned continually get worse, arguing instead that in their descent they would eventually reach or at least approach a lowest possible limit:

> The blessed draw near to divinity through a divine Mediator, so far as can belong to these created beings, and make such progress in good as is impossible for the damned to make in evil, even though they should approach as nearly as may be the nature of demons. God is infinite, and the devil is finite; good can and does go on *ad infinitum*, whereas evil has its bounds. (G VI 378/H379)

It might seem odd that the later Leibniz was so certain that the blessed undergo an unlimited increase in perfection and the damned a limited decrease in perfection, while remaining uncertain on the question of whether the universe as a whole increases in perfection. But it is not really odd at all, for with the fates of an infinity of creatures to take into consideration even a superlative mathematician like Leibniz was at a loss to calculate whether the infinite gains made by the minority of creatures either balanced or outweighed the finite losses incurred by the majority of others. And this, I suspect, was ultimately why he informed Bourguet that he could see no way of demonstrating which one of the rectangle, triangle and hyperbola hypotheses was true.

Reculer pour mieux sauter

I have already suggested where Leibniz believed the overall improvement in the universe came from during his decade-long flirtation with meliorism, namely the increases of perfection experienced by the blessed outweighing the decreases in perfection experienced by the damned. Clearly this can at best be part of the answer though, as it does not explain why he should have thought that there were times when the universe is subject to deterioration (which it would be under the *reculer pour mieux sauter* brand of meliorism). To account

for this we need to return to the idea of the two-stage universe. The division of creatures into the blessed and damned and the increase in perfection that I suggest Leibniz believed (for a decade) ensued therefrom, is clearly characteristic of the second stage only. So unless it is to be supposed that Leibniz held that from time to time the increases in perfection experienced by the blessed *are* outweighed by the decreases in perfection experienced by the damned, which strikes me as unlikely, the source of his preference for the *reculer pour mieux sauter* brand of meliorism must be found in the first stage of the universe (the stage of generation, development and death). And I suspect the source of this *reculer pour mieux sauter* in the first stage of the universe is likely to be rather mundane, e.g. that with an infinity of creatures in the universe, some of which are increasing or decreasing in perfection at any given time, there will be times when the sum of these changes lead to an increase in the world's perfection and other times when they lead to a decrease. This gives us an answer as to why Leibniz seemed to plump for a *reculer pour mieux sauter* during his melioristic years. For in the first stage of the universe, the perfection of the world will sometimes increase and sometimes decrease, and in the second stage it will just continually increase. So on this model the perfection of the world will undergo some regressions, but overall will be subject to an increase. I accept that there is a fair degree of speculation involved here, which could well turn out to be unfounded when more of Leibniz's texts are published. But until it is otherwise demonstrated, I submit that we have before us a plausible account not only of his meliorism, but also of why his thinking on that subject underwent the convulsions that it did.

Universal salvation

Before we leave this subject, we need to consider a related explanation of Leibnizian meliorism put forward by both Alison Coudert and Andrew Carlson. They suggest that progress in the Leibnizian universe is to be understood in terms of salvation, or rather in the increase of the numbers saved over eternity; for, in Carlson's words, 'over endless time ... even the worst sinners will eventually be inclined to give up their hatred of God and enter onto the path of righteousness'.[26] Such a belief, if Leibniz did indeed hold it between 1696 and 1706, would certainly explain his melioristic position during that time, because if everyone is saved then after the time of judgement everyone increases in perfection for all eternity. The question, then, is whether Leibniz

did indeed endorse universal salvation during that time. Unfortunately Carlson offers no grounds for supposing that he did. Coudert, however, does. She claims that by the mid-1690s Leibniz was under the influence of Francis Mercury van Helmont, a follower of the Kabbalah, and as a result of this influence Leibniz embraced universal salvation, which was one of the core Kabbalistic beliefs. However, according to Coudert the doctrine of universal salvation was not a popular one during Leibniz's lifetime, and in order to preserve his reputation he not only had to keep secret his belief in universal salvation but also his other points of agreement with van Helmont's Kabbalism. Hence Coudert claims that 'Leibniz fully accepted the doctrine of universal salvation, even though he was unwilling to advocate it publicly',[27] and on this basis attributes a melioristic philosophy to Leibniz from the mid-1690s onwards.[28] Now if a belief in universal salvation was the reason why Leibniz endorsed a melioristic universe during those times when he did so, we would expect to find some unequivocal evidence of this in some of his private papers even if not in his public writings. But we find precisely the opposite. In some reading notes from 1691–95, when Leibniz was either on the cusp of meliorism or a recent convert to it, he is unequivocal that salvation is not granted to all:

> And so it must be established whether it was indeed possible for all men to be saved, and the fall of Adam prevented, but that has not happened, because God, according to the nature of perfect wisdom, has willed to choose the most perfect out of the infinite series of possibles. But the nature of possible things makes it so that that series which contains an Adam who does not fall, and in which all men are saved, is not the most perfect; I judge this to be so from the outcome, because by that very fact that series was not chosen. (Gr340–1)

In reading notes from 1705 Leibniz claims that 'no one is excluded by God unless first excluded by himself' (Gr252), which betrays his belief that some people *are* excluded by God, i.e. that not all people are saved. In another set of reading notes, again from 1705, Leibniz writes this:

> God wills simply and in earnest that all be saved and that all use grace rightly, but does not will with the highest degree of will, that is, to speak in a human manner, he does not will with the greatest effort. Otherwise all would in fact be saved. (Gr255)

Again, Leibniz leaves no room for doubt that he does *not* believe that salvation is granted to all. In another set of reading notes, this time on Bayle's

Reply to the Questions of a Provincial that Leibniz made no earlier than January or February 1706, Leibniz again appears to assert that not all men are saved because he agrees with Bayle's assertion that God does not want the salvation of all men (cf. Gr493).[29] It is worth stressing that the question of Leibniz's sincerity just does not arise with any of the four texts just mentioned, as they were all private reading notes and therefore not texts that anyone else was likely to see. There is thus no reason why Leibniz should have been cautious about revealing his true views on universal salvation in them. Interestingly, Leibniz's public views on this matter accord perfectly with his private views, as in the *Theodicy* too, Leibniz suggests that those whom God does not save do not then go on to achieve salvation at some later time (cf. G VI 275/H290). So in texts written around the time of his melioristic phase, during his melioristic phase, as well as after it, Leibniz consistently *denies* universal salvation by asserting that not all men are saved. Coudert's suggestion that Leibniz's meliorism was driven by his belief in universal salvation is therefore completely at odds with the textual evidence.

We must now look to sum up our analysis of Leibniz's concept of the best possible world.

Notes

1. Gale (1976), p. 75.
2. In the *Theodicy* Leibniz does say that 'One cannot even wish that things may go better, when one understands them' (G VI 180/H199), though this remark seems intended to apply to the series as a whole, and therefore probably does not count as evidence for his favouring the rectangle hypothesis in that work.
3. E.g. it is not mentioned at all in Rutherford's examination of Leibniz's theodicy (1995). And Andrew Carlson, in his sizeable work on a similar topic (2001), does not quote from *anything* found in either of Grua's two volumes. The only commentators who seem to be aware of the paper are Nicholas Rescher, who evidently misses Leibniz's denial of cosmic melioration in it (cf. 1967, p. 158n29; 1979, p. 162n48), and Alison Coudert (cf. 1995, p. 126), who does not.
4. Lovejoy (1936), p. 257.
5. In fact my translation is quite close to that found in P144. Oddly enough, this sentence has been the subject of vastly differing translations. For instance:

   > Ariew and Garber: 'In addition to the beauties and perfections of the totality of the divine works, we must also recognize a certain constant and unbounded progress in the whole universe, so that it always proceeds to greater development' (AG154). [It should be noted that Daniel Garber, in

private communication, has indicated that he is now dissatisfied with this translation.]

Weiner: 'And in addition to the general beauty and perfection of the works of God, we must recognize a certain perpetual and very free progress of the whole universe, such that it advances always to still greater improvement' (W354). [This is identical to the translation in the volume by Duncan aside from Duncan ending the sentence with 'refinement' rather than 'improvement' (Dn113).]

Loemker: 'As the crown of the universal beauty and perfection of the works of God, we must also recognize that the entire universe is involved in a perpetual and most free progress, so that it is always advancing towards greater culture' (L490–1).

Schrecker and Schrecker: 'As the climax of the universal beauty and perfection of God's works, it must also be recognised that the total universe is engaged in a perpetual and spontaneous progress, so that it always advances towards greater culture' (S93).

It is interesting that the translations by Ariew and Garber, Wiener and Duncan all suggest that progress is something *in addition to* the perfection in the universe, by which I assume they mean that progress takes place without adding to or detracting from the world's perfection; whereas in Loemker's translation it is suggested that we (men) are 'the crown of the universal beauty and perfection of the works of God', and progress in the universe is just something we must recognize (an interpretation apparently shared by Schrecker and Schrecker, though their translation is somewhat more obscure). However, all of these translations are almost certainly inaccurate. The Latin is:

> In cumulum etiam pulchritudinis perfectionisque universalis operum divinorum, progressus quidam perpetuus liberrimusque totius universi est agnoscendus, ita ut ad majorem semper cultum procedat. (G VII 308)

6. It is for this reason that I think it unlikely that 'cumulum' is to be translated as 'peak', 'summit' or 'crown'.
7. In Strickland (2006) I discuss in detail the November 1696 letter to Electress Sophie, arguing that Leibniz probably did not endorse meliorism in it. The paper was written in November 2003, and I am not as confident about this non-melioristic reading as I once was.
8. E.g. Lovejoy (1936), pp. 255–62; Rescher (1967), pp. 158–9, and (1979), p. 158; Wilson (1989), pp. 290–93; Coudert (1995), p. 113ff; Carlson (2001), p. 643. A more tentative position is taken by Rutherford (1995), p. 52.
9. And, of course, as I have noted, it may even be more complicated than this if *On the continuous increase in the perfection of the world* was written around 1689–90, as the Academy editors have tentatively suggested.
10. Wilson (1989), p. 291. As Wilson notes elsewhere (1995, p. 461f), the idea that the world increases in perfection because of social and cultural progress is found

in the work of one of Leibniz's posthumous supporters, Gotthold Lessing. She further notes that this was a Wolffian sentiment, but does not repeat her earlier claim that it is to be found in Leibniz as well.

11. Nicolas (1992), p. 168.
12. Lovejoy (1936), p. 259.
13. Quoted from Lovejoy (1936), p. 256. Originally from Pr90.
14. In the so-called 'B' manuscript of the *Protogaea*, this sentence continues with Leibniz claiming that, in addition to being theologically disagreeable, 'the [evolutionary] hypothesis suffers from immense difficulties in itself' (Pr26). Unfortunately he does not go on to explain what these 'immense difficulties' are.
15. The Latin is: 'Et credibile est per magnas illas conversiones etiam animalium species plurimum immutatas' (Pr90).
16. I note in passing that Lovejoy is not the only one who has been misled as to the true meaning of this passage on account of Leibniz's use of 'immutatas'. In his book *The Dark Abyss of Time*, Paolo Rossi translates the passage in question from *Protogaea* thus: 'And is it not presumable that, in the great upheavals that the Earth has undergone, a great number of animal forms have been transformed' (Rossi (1984), p. 62). E. P. Hamm (1997, p. 81) likewise interprets Leibniz to be in favour of species change in §26 of the *Protogaea*. In defence of my own translation I note not only Leibniz's general anathema to an evolutionary hypothesis in the *Protogaea*, but also the fact that he consistently uses throughout that work and others the Latin term 'muto' and its derivatives to refer to change. So far as I know, he nowhere uses the word 'immutatas' to refer to change (and in at least one text – A VI iv 1397/LC 243 – he uses the cognate word 'immutantur' to mean 'they do not change').
17. Lovejoy overlooks this particular reference.
18. Leibniz does say that we cannot be sure if the natural species fixed by God correspond with the division of species biologists make in their tables of classification, so consequently the question of whether the word 'cat', for instance, denotes a true species in its own right, is open to conjecture. Nevertheless we know species boundaries to be fixed because God takes care 'to ensure that the species should be immortal, since the individual cannot be so' (G VI 409/H414).
19. Aristotle (1984), 646a35 and 1032a25.
20. Lovejoy (1936), p. 366.
21. And in another letter to Bourguet, he states that, on the hypothesis of the rectangle, 'Even if the universe were always equally perfect, it will never be sovereignly perfect, for it always changes and gains new perfections, although it loses some old ones' (G III 589/SLT VI.B.6).
22. In fact Lovejoy assumes the passage is saying that there should be more 'species or forms of perfection', but the word 'espèce' was typically used by Leibniz to mean 'kind' or 'sort', and it would only be defensible to translate it as meaning a biological species if the context was squarely biological or zoological, which is not the case here.
23. Lovejoy (1936), p. 256.

24. For a rather fanciful interpretation of Leibnizian evolution, which makes it out to be the precursor to the kind later endorsed by Henri Bergson and Pierre Teilhard de Chardin, see van Peursen (1969), p. 109.
25. Moral perfection likewise increases and decreases, as the wiser one is the more virtuous one is, and vice versa (cf. G VII 88/L426).
26. Carlson (2001), p. 643.
27. Coudert (1995), p. 115.
28. It is notable that Coudert believes Leibniz's endorsement of meliorism lasted from the mid-1690s *until his death*, and she ignores the remarks he made on the subject in the *Theodicy* and in the correspondence with Louis Bourguet, where he claimed that he was agnostic about whether the world increases in perfection or not. Quite why Coudert ignores these remarks is not clear. A theme of her book *Leibniz and the Kabbalah* is that Leibniz consistently played down his links to van Helmont and the Kabbalah, even to the extent that he lied about his true beliefs in some of his published work and correspondence (i.e. in writings that others were meant to read). He did this, according to Coudert, in order not to damage his reputation, and to that end he routinely covered up those beliefs that would be deemed offensive or heretical by orthodox thinkers. It is possible, then, that in Coudert's view Leibniz was simply not being sincere when he wrote in the *Theodicy* and to Bourguet that he wasn't sure if the world increased in perfection or not. If this is her view then it is a puzzling one. It is certainly true that in the *Theodicy* Leibniz was keen not to flaunt doctrines that might be deemed offensive, as his aim was for the book to be accepted by those from across the religious spectrum. So if he had identified meliorism as a doctrine likely to cause offence then that might explain his unwillingness to endorse it outright in that book, no matter what his real views on meliorism might have been at the time (though against that it must be said that, if Leibniz *had* identified meliorism as a doctrine likely to cause offence, then it is odd that he should have expressed agnosticism about it in the *Theodicy* when an outright denial of it in that work would have been more likely to win widespread approval). The suggestion that Leibniz was insincere on this matter in the *Theodicy* might have some force if it were not for the fact that Leibniz took exactly the same agnostic stance on meliorism in his correspondence with Louis Bourguet, from 1715–16. During that correspondence, Bourguet actually revealed himself to be a meliorist (cf. G III 588), and if Leibniz was genuinely of the meliorist camp at that time then he could quite easily have revealed himself as such without any risk of offending his correspondent or being seen as unsound. The fact that he did not do so is very telling, and suggests he was sincere in his claim that he did not know whether the world increases in perfection or not.
29. The dates here are significant. Leibniz, as we have seen, endorsed meliorism in the February 1706 letter to Electress Sophie (cf. G VII 568/SLT II.C.2), and suggested in the notes on Bayle from around the same time that not all people are saved. This in itself would make it extraordinarily difficult to argue that Leibniz's meliorism was in any way connected to universal salvation.

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Conclusion

Harmony, richness and simplicity vs. the three kinds of perfection

Although Leibniz left us no clear-cut answer as to whether the best world increases in perfection, he presumably did have a view as to the overall quantities of the three kinds of perfection that can be found in it. So before we bring our study to a close, we ought to determine what these are, and how they are affected by the fact that the best world is the most harmonious and contains the richest composite brought about by the simplest ways.

As I noted back in Chapter 3, a number of influential commentators, including Parkinson, Brown, Blumenfeld and Rutherford, have argued that in the Leibnizian best world all three kinds of perfection (metaphysical, physical and moral) are at a maximum.[1] Yet our study has revealed that at least one of these kinds, the metaphysical, cannot be at a maximum. To maximize this, God would need to create every single possible thing. But this, as we have seen, would bring about disharmony, because some possible individuals are temporally disharmonious with others (or rather they would be if actualized). Thus there is a clear conflict between two of God's aims; on the one hand he wants to make a harmonious world, and on the other he wants to bring about as much metaphysical perfection as possible. But both aims cannot be realized simultaneously, and as the realization of a perfect harmony of things is God's primary objective in world making,[2] a position that follows from my analysis of incompossibility, he leaves unactualized those possibles that do not fit into this harmony. Contrary to the claims of Parkinson, Brown, Blumenfeld and Rutherford, then, metaphysical perfection cannot be maximized *per se* in the best world.

We can therefore say that in planning the best of all possible worlds God imposes the condition that the net result be as harmonious as possible, and with that in mind he then chooses as many creatures as this plan will admit. This will lead to the most metaphysically perfect world as is achievable given the condition that the world be as harmonious as possible. Does this plan lead to (or permit) the maximization of either of the other two goods we discussed earlier, namely physical and moral perfection? It would seem not, for the very fact that only a tiny fraction of possible beings are chosen for actualization

means that many beings that might have added to the sum total of the world's happiness and virtue are left unactualized. Moreover, another side effect of a worldly harmony, of course, is that it involves the actualization of creatures with varying degrees of perfection – or varying degrees of imperfection if you like. And this seems to guarantee a certain quantity of moral and physical evil. For as Leibniz explains it:

> men are chosen and ranged not so much according to their excellence as according to their conformity with God's plan, just as it may turn out that a stone of lesser quality is made use of in a building or in a group because it proves to be the particular one for filling a certain gap. (G VI 161/H181)

Sin and unhappiness are thus the inevitable result of God's drive to fill out the world with creatures of varying degrees of perfection. But Leibniz urged that this would not deflect God from his goal of producing a harmonious universe:

> nature preserves the utmost order and beauty ... there is no reason to suppose that God, for the sake of some lessening of moral evil, would reverse the whole order of nature. (G VI 168/H188)

Leibniz identified a further drawback with the enormous variety required for the most perfect harmony – things will inevitably get in each other's way. In a world of such variety, there will be creatures, for example, whose very existence causes unhappiness in others, such as disease-causing organisms (cf. G VI 242/H258). It would seem, then, that God's preference for harmony restricts not only the number of creatures that can exist in the best world, but also the virtue and happiness of those creatures that do exist in it. So God's preference for a harmonious system has knock-on effects for the quantity of happiness and virtue that the best possible world can contain, as well as for its richness and the quantity of metaphysical perfection.

But there is yet another factor that reduces the amount of the physical and moral goods the best world can contain: the excellent laws that God establishes as a result of his simple ways. As Malebranche noted time and again, the universality and uniformity of the laws of motion leads to rain falling uselessly in the sea while the land experiences drought,[3] the birth of deformed 'monsters',[4] and other evils such as near-sightedness in men.[5] All are obvious causes of unhappiness, as Leibniz realized. Moreover, universal and uniform laws have a role to play in immoral free actions too: if a would-be killer puts a gun to his victim's head and pulls the trigger he will do so in the fairly certain knowledge that the laws of ballistics will ensure his intended

result comes to pass. It is possible to provide countless examples of how the inflexibility of the world's laws allows wayward souls to commit their sins (and, *a fortiori*, that wayward souls actually *rely on* and *utilize* this inflexibility for their nefarious ends). Faced with the obvious question, why doesn't God change these laws, or at least interrupt their functioning when their normal course will lead to sin and/or unhappiness, Malebranche answered that to do so would be to spoil the simplicity of the ways which, we will recall, God favours because they are most in keeping with his perfect nature. Leibniz was in full agreement with Malebranche that God should not disturb his ways to prevent an undesirable outcome, and for precisely the same reason:

> He [Malebranche] is nevertheless right to say that God must not disrupt the simplicity of his ways in order to prevent a monster, a sterility, an injustice. (ML203, cf. G VI 261/H276)[6]
>
> Must God spoil his system, must there be less beauty, perfection and reason in the universe, because there are people who misuse reason? (G VI 172/H191)

Moreover, Leibniz denied that God could 'devise universal decrees' that were as simple as those he has chosen, but which would be 'capable of excluding all particular evils' (A VI iv 1782). Evils are thus a necessary by-product of the excellent laws that are bound up with the richness of the best world.

These are all quite revealing admissions on Leibniz's part, and it would require no small argument to square them with the position attributed to him that happiness and virtue are maximized in this world. Rather than attempt such an argument, Leibniz instead flatly admits that this world does *not* contain the greatest possible amounts of happiness and virtue:

> [there are] possible worlds without sin and without unhappiness ... but these same worlds again would be very inferior to ours in goodness. (G VI 108/H129)
>
> God (so they say) could have given happiness to all ... But should he? Since he does not do so, it is a sign that he had to act altogether differently. (G VI 177/H196, cf. G VI 324/H337)

We already have some indication of what Leibniz might mean by 'God had to act altogether differently', i.e. he had to create a world of the greatest possible harmony and richness, and with as much metaphysical perfection as is consistent with this (from now on I shall generally take 'richness' to include 'simplicity', i.e. God's simple ways, and so shall not always state them

separately). Two things emerge from this: first, harmony and richness both seem to be in conflict with physical and moral perfection, such that if the former pair are maximized, then neither of the latter pair can also be maximized; and secondly, that given these conflicts God has opted to focus exclusively on harmony and richness, and has not compromised on either to allow for more physical and moral good. And Leibniz confirms both of these points; in a discussion on why all men have not been granted happiness, he explains:

> he [God] could do the good we desire; he even wishes it, taking it separately, but he must not do it in preference to other greater goods that are opposed to it. (G VI 177/H196)
>
> Therefore it happens that the unhappiness of some of these creatures may come about by concomitance, and as a result of other greater goods. (G VI 170/H189)

A similar explanation is given as to why the world does not contain only virtuous creatures:

> it may be said that God can cause virtue to be in the world without any mixture of vice, and even that he can do so easily. But, since he has permitted vice, it must be that that order of the universe which was found preferable to every other plan required it. (G VI 178/H197)[7]

The message is clear – the reason why this world is *not* that which contains the greatest sum of happiness or virtue is because more happiness or virtue is only achievable by compromising other, more important, features of the world, i.e. those contributing to its harmony and richness. Consequently, there is less virtue and happiness in the best of all possible worlds than there is in other worlds that are inferior only by dint of being less harmonious and less rich. If this is right, then the dizzy claim attributed to Leibniz by Parkinson, Brown *et al.*, that the best world features the most metaphysical, physical and moral perfection, is squarely false (and, to pardon the pun, overly optimistic).

The conflict between virtue and happiness

But the conflicts between goods do not end there. In a series of notes on one of Bayle's later works, Leibniz identified another:

> There is some opposition between physical and moral goodness. It was necessary to have consideration for both of them, and more for an infinity of moral goodness. And wishing to produce the most that is possible of both, he [God] achieved this by allowing some moral evil and some physical evil. (Gr492)[8]

Unfortunately no explanation is given as to why physical and moral perfection are in conflict. It is all the more puzzling given that Leibniz claimed throughout his career that virtue gives rise to happiness, both in the one who acts virtuously and the one who benefits from it (as we will recall from Chapter 3). Others might argue that the two are opposed because acting virtuously requires one to overcome temptations, i.e. to forego doing something that would bring one happiness. However, this does not appear to be a position that Leibniz actually held (nor is it obviously consistent with his views of happiness or virtue). It is possible that his identification of a conflict between happiness and virtue had an *a posteriori* basis, as he observed that 'God permits, for reasons unknown to us but doubtless very wise, and founded in a greater good, that there be many evil [persons who are] happy in this life, and many good [persons who are] unhappy' (R51). Hence the data, as he saw it, pointed to a conflict between happiness and virtue, though the reason for it cannot be discovered by mere mortals. However, the two presumably cannot always be in conflict, for in the second stage of the universe (we are told) God will ensure that the virtuous will be happy and the wicked unhappy. Thus any conflict between happiness and virtue is a feature of this life only, and does not infect the afterlife.[9] At any rate, whether this correctly captures his view on the matter or not, it is clear that Leibniz saw a conflict between physical and moral perfection, and that as a result of this conflict God would give precedence to the latter over the former.

Summary: how to create the best of all possible worlds

What all this suggests is that, in producing the best of all possible worlds, God is faced with a series of conflicting goods which cannot all be maximized together. His overall aim, as we know, is to mirror himself in the world in the best way possible. In order to achieve this end, he makes it his priority to establish the greatest possible harmony of things, which requires the actualization of the greatest possible number of compossible things, which in turn requires that God choose things from the fullest possible ordering of

kinds of things, i.e. species. By realizing maximal variety of both individual things and kinds of things God is part way to realizing a rich world too, and finishes the task by arranging these things in the most perfect way, i.e. in a plenum. God achieves this arrangement by using the simplest means (i.e. the fewest number of decrees), which requires *inter alia* excellent laws. And as this plan involves the greatest number of compossible things, Leibniz would also say that God has produced as much metaphysical perfection as he can, given the condition that the world be as harmonious as possible.[10] (I leave aside the question of whether metaphysical perfection increases over time or stays the same, because, as should be clear from Chapter 7, Leibniz did not have a consistent position on this.)[11]

Given all this, it might seem that the lesser goods of virtue and happiness cannot figure in God's calculations at all. It seems, in fact, that God will just have to accept whatever values of physical and moral perfection obtain when he has finished maximizing harmony and richness. While this is not an unfair summary of Leibniz's position – after all, he nowhere suggests that God will ever compromise on the harmony or richness of the world to allow for more virtue and/or happiness – it should not be overlooked that, by creating the greatest possible number of compossible things, God ensures that the best world will feature a great deal of moral and physical perfection too. But it would still be right to say that there is only as much happiness and virtue in the best possible world as is consistent with its other, more important features.[12]

So the excellence of the best world derives primarily from its harmoniousness and richness. It was Leibniz's view, as I have shown, that these place restrictions on how much metaphysical, physical and moral perfection the best world can contain. Consequently, in the Leibnizian best world, none of the three kinds of perfection can be said to be maximized as such. Only by removing the requirement for harmony could any of the three kinds of perfection be maximized.[13]

Leibniz thus recognizes a clear order of priority or value to the features or goods that the best plan involves; which are, in descending order of importance, (1) harmony, richness and simplicity, (2) metaphysical perfection, (3) moral perfection and finally (4) physical perfection.[14,15] The various conflicts between the four goods, and their relative rankings nicely explains the relative scarcity of moral and physical perfection, and the existence and quantity of moral evil (sin) and physical evil (unhappiness) in the best world. But Leibniz can appeal to an even better argument to explain why we humans are frequently misled into supposing that our world is not the best: the two most important goods of the four listed above are ones that, by

Leibniz's own admission, are not readily apparent to us, since to appreciate the harmony and metaphysical perfection of the universe it needs to be considered in its entirety. But as we humans are privy to but a tiny portion of the universe, we cannot observe – in any adequate way – its harmony and metaphysical perfection, at least at present (e.g. G VII 306/SLT I.A.3/P141–2, R51–2). In other words, we humans cannot observe the principal features of what makes our world best. And this fact certainly helps to explain why this world might not *seem* unimprovable to us. Which of course is exactly what an optimist has to do if he is to claim, with any plausibility, that our world is the best one possible.

Notes

1. Parkinson (1965), pp. 114–15; Brown (1988), p. 590ff; Blumenfeld (1995), p. 404f; Rutherford (1995), pp. 15 and 46ff. Less fantastic, but equally wrong as we shall see, is the claim that in the Leibnizian universe happiness is maximized by maximizing order and beauty. See Franklin (2002), p. 54.
2. In making this claim I take the opposite view to Rutherford (1995), p. 199.
3. Malebranche (1992), I.XIV; (1997), IX.XII. At G VI 187/H206 Leibniz makes exactly the same point.
4. Malebranche (1980), p. 117ff.
5. Malebranche (1980) p. 741ff.
6. Cf. Malebranche (1980), p. 665.
7. In light of this, Leibniz's occasional protestations that the world is 'the most perfect morally' (G VII 306/SLT I.A.3/P141), and that God 'chose the order of things ... in which the fewest possible sins would happen' (Gr374/SLT VI.C.2), seem somewhat hollow.
8. Leibniz seems to make a similar point in the *Theodicy* (G VI 215/H262), though it is dressed up in the example of the competing concerns of a prince who orders a city built.
9. 'And since experience shows us that God permits, for reasons unknown to us but doubtless very wise, and founded in a greater good, that there be many evil [persons who are] happy in this life, and many good [persons who are] unhappy, which would not conform to the rules of a perfect government such as God's if it were not redressed, it follows necessarily that there will be another life, and that souls do not perish at all with the visible body; otherwise there would be unpunished crimes, and good actions without recompense, which is contrary to order' (R51).
10. I accept the point made by David Blumenfeld that Leibniz appears to overlook the possibility that a smaller group of individual things might in fact have more

metaphysical perfection than the largest one. See Blumenfeld (1995), p. 406n12.

11. Though the fact that he was able to consider his notion of the best possible world both inside and outside of a melioristic framework, without changing that notion in any way, suggests that the best possible world could be the best whether it increases in perfection or not.
12. I suspect this is what Leibniz meant when he wrote: 'God, altogether good and wise, must have produced all the virtue, goodness, happiness whereof the best plan of the universe is capable' (G VI 259–60/H274).
13. But we can see how it would in any case not be possible to maximize all three together, as to maximize virtue would require the actualization of all those creatures whose existence would increase the sum total of virtue in the world, which is presumably not all of them. So virtue could not be maximized if metaphysical perfection were maximized (i.e. if all possibles were granted existence). The same is true for happiness – to maximize that, only those creatures whose existence would increase the sum total of happiness in the world would be actualized. On the assumption that not all possible creatures would do this, the maximum degree of physical perfection is not realizable in a world containing the maximum degree of metaphysical perfection.
14. It is ironic that Leibniz ultimately came to view happiness as the least important of all the goods, as early in his career he had identified it as the *most* important (cf. A VI iv 2235/L218, A VI iv 1587/DM §36). However, it is not clear that his early claims about creaturely happiness being top of God's agenda ought to be taken at face value. Consider the following remark from the *Discourse on Metaphysics*: 'we must not doubt that the happiness of minds is the principal objective of God and that he pursues it as much as the general harmony allows' (A VI iv 1537/DM §5). Although happiness here is cited as God's 'principal objective', the latter part of the passage reveals that it is nevertheless secondary to harmony, as God will only 'pursue it as much as the general harmony allows'! Thus it can be doubted that Leibniz was ever serious about creaturely happiness being God's main concern. In any case, he subjected that view to fierce criticism later in his career (e.g. G VI 169–70/H189).
15. A brief note is in order on Nicholas Jolley's interpretation of the ingredients of the Leibnizian best world. Jolley (2005, p. 165), argues that 'the best possible world is the one that achieves the optimal balance between moral and physical perfection'. While this might seem to be suggesting that the Leibnizian best world is the one featuring the best trade off of virtue and happiness, this is not what Jolley means at all. Rather unhelpfully, Jolley uses the expressions 'moral perfection' and 'physical perfection' in a different way to how Leibniz did; by 'moral perfection' Jolley means 'happiness', i.e. what Leibniz called 'physical perfection', and by 'physical perfection' Jolley means the metaphysical criteria of richness and simplicity. So Jolley's position is in fact that the Leibnizian best world is the one featuring the best trade off between richness and simplicity on the one hand and happiness on the other (the matter is further complicated by

the fact that Jolley also takes richness and simplicity to be in conflict and in need of trading off, as I have already noted in Chapter 5, note 25). While Jolley correctly notes that there is a conflict between richness/simplicity and happiness in Leibniz's philosophy, he evidently overlooks Leibniz's many statements to the effect that richness/simplicity is *maximized* in the best world, and therefore not traded off at all. Jolley in fact states, tentatively it must be said, that 'perhaps in the optimal balance the happiness of minds is weighted somewhat more heavily than the physical perfection [i.e. richness/simplicity] of nature' (2005, p. 164). As I have shown, however, it is the other way around – in Leibniz's view, the good of richness/simplicity is weighted much more heavily than happiness, such that God will not compromise on the world's richness or simplicity in order to obtain more happiness.

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