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Leibniz's Metaphysics of Harmony

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Leibniz's Metaphysics of Harmony

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An abstract of a dissertation submitted to the Faculty of the James T. Laney School of Graduate Studies of Emory University in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Philosophy

2013

Abstract

Leibniz's Metaphysics of Harmony
By: Edward W. Glowienka

This dissertation examines the import the idea of harmony has for G.W. Leibniz's metaphysics. In the first half of the dissertation, I argue that there is significant development in Leibniz's conception of harmony during the 1670s. Leibniz shifts from defining harmony solely in terms of the mutual compensation of identity and diversity to defining it more narrowly in terms of the mutual obtaining of simplicity and maximal essence. I posit that Leibniz's refined conception of harmony provides him with a potent means for defending the centrality and ethical status of rational agents in a maximally harmonious, objectively good order of creation. In the second half of the dissertation, I argue that my interpretation of Leibniz's revised conception of the maximally harmonious world can account for how harmony functions in Leibniz's mature metaphysics. I explore specifically the interconnection between Leibniz's commitment to harmony as an architectonic principle governing the world, his defense of natural teleology, and his theory of causation, i.e., his hypothesis of the preestablished harmony between substances and between mind and body. Throughout the dissertation, I emphasize that harmony is for Leibniz a genuinely metaphysical principle, with real and unique metaphysical meaning, not simply a psychological or aesthetic principle.

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… non in vanum creavit eam:
ut habitaretur formavit eam…

Is. 45:18

Acknowledgements

The principal adjectives used to describe a Leibnizian monad—independent, non-interacting, windowless—are often apt to the life of one writing a dissertation. I would like to thank those particularly responsible for ensuring that throughout the writing of this dissertation I have experienced that other monadic quality: being in harmony with others.

I owe a deep debt of gratitude to my director, Ursula Goldenbaum, who first suggested to me the serious study of Leibniz. It has been remarked to me that Ursula *divined* that I would find in Leibniz a kindred philosophical spirit and this is only the slightest of exaggerations. Throughout this project, Ursula has been a continual and impressive source of knowledge, support, and fruitful admonition. Above all else, I have appreciated her generous spirit.

I have received support from many members of the Emory community. I am especially grateful to my committee members, Ann Hartle and Richard Patterson, for their advice and support in this project and even more so for the many ways they have prepared me to do research in the history of philosophy. Concerning the latter end, I would also like to thank particularly Jack Zupko and the late Steven Strange. I am grateful to Michele Benzi for his assistance with issues relating to Leibniz's mathematics and to Garth Tissol who has been instrumental in improving my facility with Latin. Finally, I must say that it has been personally rewarding to work on Leibniz in a graduate program founded by the renowned Leibniz scholar and translator Leroy Loemker. In tangible terms, his legacy has meant a wonderful collection of Leibniz resources at Emory and Emory Libraries deserves recognition for keeping these resources in top condition.

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Finally, thanks to the colleagues, mentors, friends and family members—too numerous to mention individually—who have offered invaluable support ranging from providing substantial philosophical criticism, to reassuring me that writing on harmony does not one a hippie make, to holding me accountable to a reasonable understanding of the word "soon." No form of support was without its efficacy or went unnoticed. It is obvious to me why each of you is a member of this best of all possible worlds.

The shortcomings of this work follow, of course, spontaneously from my own complete concept.

Contents

Abbreviations

A *G.W. Leibniz: Sämtliche Schriften und Briefe*. edited by the Deutsche Akademie der Wissenschaften. Berlin: Academy Verlag, 1923-.

AG *G.W. Leibniz: Philosophical Essays*. edited by Roger Ariew and Daniel Garber. Indianapolis: Hackett, 1989.

Clark *The Leibniz-Clarke Correspondence*. edited by H.G. Alexander. New York: Philosophical Library, 1956

CP *Confessio Philosophi: Papers Concerning the Problem of Evil, 1671-1678*. edited by Robert C. Sleigh, Jr. New Haven: Yale University Press, 2005.

D *Gottfried Wilhelm Leibniz: Opera Omnia*. edited by Ludovici Dutens. Hildesheim: Georg Olms Verlag, 1989.

DB *The Leibniz-Des Bosses Correspondence*. edited by Brandon C. Look and Donald Rutherford. New Haven: Yale University Press, 2007.

G *Die Philosophischen Schriften von Leibniz*. edited by C.I. Gerhardt. Berlin. 7 vols. 1875-1890.

GI *General Investigations Concerning the Analysis of Concepts and Truths*. edited by Walter H. O'Briant. Athens: University of Georgia Press, 1968.

GLW *Briefwechsel zwischen Leibniz und Christian Wolf*. edited by C.I. Gerhardt. Halle: 1860.

L *G.W. Leibniz: Philosophical Papers and Letters*. edited by Leroy E. Loemker. 2nd ed. Dordrecht: Kluwer, 1989.

LC *The Labyrinth of the Continuum: Writings on the Continuum Problem, 1672-1686*. edited by Richard W. T. Arthur. New Haven: Yale University Press, 2002

LP *Leibniz: Logical Papers*. edited by G.H.R. Parkinson. Oxford: Clarendon Press, 1966.

M *The Leibniz-Arnauld Correspondence*. edited by H.T. Mason. Manchester: Manchester University Press, 1967.

NE *New Essays on Human Understanding*. edited by Peter Remnant and Jonathan Bennett. Cambridge: Cambridge University Press, 1996.

DSR *De Summa Rerum: Metaphysical Papers, 1675-1676*. edited by G.H.R. Parkinson. New Haven: Yale University Press, 1992.

T *Theodicy: Essays on the Goodness of God, the Freedom of Man, and the Problem of Evil*. translated by E.M. Huggard. London: Routledge, 1952.

TS *Leibniz and the Two Sophies: The Philosophical Correspondence*. edited by Lloyd Strickland. Toronto: Iter, Inc., 2011.

WF *Leibniz's 'New System' and Associated Contemporary Texts*. edited by R.S. Woolhouse and Richard Francks. Oxford: Clarendon Press, 1997.

Where possible, I cite the critical *Akademie* edition. In instances where a text has yet to appear in the *Akadmie* edition, I cite other sources, such as Gerhardt, containing the text in its original language. I indicate the English translation I use following a semi-colon. For example, "A VI.4, N. 306, pp. 1563-4; L 317" means the text is located in the fourth volume of the sixth series in the *Akademie* edition and that I borrow the English translation of Loemker. Where no corresponding English edition is mentioned, the translation is my own.

I
Introduction: Harmony as Metaphysical *Grundbegriff*

Imagine for a moment that we set out to equip a standard metaphysical toolbox, that is, to gather a set of concepts sufficient for tackling most common metaphysical problems. Which concepts would merit inclusion? Following Plato's great metaphysical treatises, the *Sophist* and the *Parmenides*, we would likely start with being and non-being, change and rest, sameness and difference, oneness and multiplicity. Looking to Aristotle, we would add the ten categories, *viz*. substance, quantity, quality, relation, place, time, posture, having, action and passion, as well as several variations on the theme cause. Following both of these thinkers and a host of others, we would do well to throw in form and matter, necessity and contingency, universality, particularity and individuality, composition and division, corporeality and incorporeality, eternity, perfection and finitude. For handling most metaphysical jobs, one could reliably count on a toolbox so equipped.

G.W. Leibniz (1646-1716), a metaphysician's metaphysician if there ever were, stands out in the history of philosophy for insisting that harmony be included in his toolbox of foundational metaphysical concepts, or *Grundbegriffe*. Harmony, as this dissertation will make clear, is a notion without which Leibniz's metaphysics cannot proceed. Importantly, though harmony is explicated and defined with reference to other fundamental concepts, it is itself an irreducible and independent notion.

Harmony's absence from our standard metaphysical toolbox notwithstanding, it is in one respect perhaps not too surprising that Leibniz relies on harmony as a metaphysical concept. A survey of the tradition growing out of Pythagoras, including

authors such as Heraclitus, Empedocles,[1] Plato,[2] and Epictetus,[3] reveals harmony's association with certain theses—*viz*., that the universe has a discernible rational order; that some kind of union or sympathy obtains amidst beings; that the world is fundamentally beautiful and good—with which Leibniz, widely known for being a rationalist, for his theory of windowless yet mutually mirroring monads, and for defending the thesis that we live in the best of all possible worlds, readily agrees.

In other respects, however, there is much that is striking and original in Leibniz's use of harmony as a *Grundbegriff* or constitutive principle. Much of what is original to Leibniz will come to light in the course of this dissertation, but let me here initially qualify what is noteworthy in Leibniz's appeals to harmony. One significant feature is the sheer breadth of problems Leibniz approaches and solves via this concept. Harmony does not for Leibniz merely describe the broad structure of the cosmos; it enters into "nuts and bolts" metaphysical arguments regarding the nature of causality, of substance, of the mind, of the relationship of mind to body, and of good and evil. Also remarkable is the extent to which Leibniz's concept of harmony is truly metaphysical. By this I mean to distinguish Leibniz's use of harmony from principally aesthetic appeals to harmony. Though the harmonious is for Leibniz beautiful and pleasing, his characterization of a harmonious order does not principally rely on aesthetic experience as commonly understood. Furthermore, while Leibniz certainly trades on harmony's having both aesthetic and mathematical dimensions, his treatment of harmony derives in

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[1] On the place of harmony in the thought of Pythagoras and other Presocratic philosophers, see *The Presocratic Philosophers* (ed. by Kirk, Raven, and Schofield). On Pythagoras' harmony of the spheres, see also Aristotle *Metaphysics* A 985b-986a.

[2] *Timaeus* 36a-e.

[3] *Discourses* I.12.16. Here Epictetus uses neither the term ἁρμονίη nor ἁρμονία, but speaks similarly of the "symphony of the whole" [συμφωνίας τῶν ὅλον].

no direct way from musical theory or from analyses of harmonic intervals *à la* Pythagoras. Harmony is for Leibniz at root not an aesthetic, but a logical and metaphysical principle.

In light of his distinctive defense of harmony as a foundational metaphysical principle, this dissertation is an investigation into Leibniz's notion of harmony guided by two major questions:

1) What does harmony mean for Leibniz?

2) What import does Leibniz's understanding of harmony have for his metaphysics?

To better identify the need for such an investigation and to introduce the specific thesis I will defend, it is necessary that we address in the remainder of this introduction two further questions: 1) what is entailed in classifying harmony as a *Grundbegriff*? and 2) why is harmony a *Grundbegriff* for Leibniz in the first place?

I.1 What is entailed in classifying harmony as a *Grundbegriff*?

In his seminal investigation into Leibniz's early thought, *Die Philosophie des jungen Leibniz* (1909), Kabitz isolates five Leibnizian *Grundbegriffe*, concepts essential to Leibniz's thinking from the time of his first writings. These are, in Kabitz's estimation, (1) panlogism, (2) the independent existence of individuals, (3) universal harmony, (4) the quantitative and qualitative infinity of the universe, and (5) the mechanical hypothesis.[4] The first and fifth of Kabitz's *Grundbegriffe* are rather general theses: panlogism meaning that the world has a discernible rational order and the mechanical hypothesis pointing to Leibniz's insistence that all phenomena be explained

[4] Kabitz, *Die Philosophie des jungen Leibniz,* 127-134.

in terms of the new mechanical science of the 17th C. Kabitz locates the fourth *Grundbegriff* in Leibniz's belief that matter is infinitely divided and in his fascination with the layers of complexity in the world, especially as revealed under the microscope. As for the independent existence of individuals, Di Bella has helpfully muddied the waters by examining the complexity in Leibniz's notion of "individual," both in terms of the relationship of the individual to its world in and in terms of the correlation between Leibniz's ontological and conceptual understandings of "individual."[5]

We are left to discuss the third *Grundbegriff*, universal harmony. In order to articulate my reservations with Kabitz's analysis of harmony, I would like to draw a distinction between a *concept* and a *conception*. In so doing, I follow roughly the distinction Dworkin makes in his legal theory.[6] To paraphrase Dworkin, a single concept or ideal can admit of multiple conceptions, i.e., multiple definitions or operative understandings of that ideal. For example, equality is a concept enshrined in the American legal tradition. However, what has counted as equality, what equality has been taken to mean, and how equality has manifested itself in the life of the nation have all changed over time. Citing equality as an American *Grundbegriff* therefore tells only a small part of the story of its place in the tradition.

That harmony is a concept, an ideal, Leibniz adopts early in his intellectual development is an unimpeachable thesis. Thus far, Kabitz has it right. Yet Kabitz tacitly commits himself to the much stronger thesis that Leibniz maintains a substantially unaltered *conception* of harmony throughout the whole of his career. That Kabitz assents to this stronger thesis can be gleaned from his assertion that, though not present in the

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[5] See: *The Science of the Individual*: *Leibniz's Ontology of Individual Substance*.
[6] Dworkin, *Taking Rights Seriously*, 134-136.

mind of the young Leibniz, the theory of preestablished harmony was latent in Leibniz's earliest theory of universal harmony (when viewed in conjunction with the other *Grundbegriffe*).[7] Put otherwise, Kabitz sees Leibniz's mature appeals to harmony as implicit in his earliest writings, with no significant intervening changes in the basic conception of harmony. I disagree with this view.

Given the progress in Leibniz scholarship over the past century, and the accumulated literature on Leibniz and harmony, it might seem that in Kabitz I am cherry-picking an outdated interlocutor. Yet the thesis of continuity in Leibniz's conception of harmony is by no means unique to Kabitz. To the contrary, it has been affirmed in more recent, and otherwise excellent, studies of Leibniz and harmony. Mugnai writes that the essential meaning Leibniz attributes to the concept of harmony in his early works remains unchanged throughout later developments in his thought.[8] Leinkauf, much the same as Kabitz, declares Leibniz's earliest definition of harmony, "*diversitas identitate compensata*" a fundamental and enduring theorem of Leibniz's thought.[9] Piro similarly claims that all of Leibniz's definitions of harmony can be condensed into the unified formula "*varietas identitate compensata.*"[10] Carlin writes that though "the terminology he used to define harmony sometimes varied from writing to writing, the idea seems to have remained fixed in [Leibniz's] writing from early to late."[11] In addition to these transparent endorsements of the continuity thesis, Leibniz scholarship routinely takes the thesis for granted by juxtaposing, without qualification, excerpts treating harmony from texts spanning Leibniz's career. In all likelihood, Kabitz's continuity thesis is the

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[7] Kabitz, *Die Philosophie des jungen Leibniz*, 133.
[8] Mugnai, "Der Begriff der Harmonie," 72.
[9] Leinkauf, "Diversitas identitate compensata," 58.
[10] Piro, *Varietas Identitate Compensata,* 9.
[11] Carlin, "On the Very Concept of Harmony," 100.

consensus view, but at the very least it is a prevailing view which has not been subject to explicit scrutiny.

This dissertation applies such scrutiny and aims to debunk the common assumption of continuity in Leibniz's conception of harmony. Harmony is for Leibniz a foundational concept, but I shall defend the thesis that Leibniz's conception of it evolves from his early to his mature writings. So, in response to our question, classifying harmony as a *Grundbegriff* does entail the thesis that harmony serves a constitutive role in Leibniz's thought from his earliest writings, but it should not be taken to mean that there is continuity in Leibniz's conception of it.

I.2 Dissertation Conspectus

a. Plan of the Work

To make the case for a development in Leibniz's thinking on harmony requires that we take a historical, chronological approach to Leibniz's writings. So, in the closing section of this introduction, I will discuss Leibniz's initial uses of harmony to provide the starting point from which subsequent developments can be understood. I treat Leibniz's initial inquiries only briefly since, although they certainly harbor metaphysical presuppositions, they pre-date Leibniz's assumption of a metaphysical project in earnest.

In Chapter two I examine harmony's role in Leibniz's nascent metaphysical inquiries, specifically those from 1669-1674. No sooner does Leibniz take up a concrete metaphysical project than does he place harmony at the center of his thought. Defining harmony as a mutual compensation between identiy and diversity, Leibniz—in these early texts from his years in Mainz and his first years in Paris—invokes the concept in

discussions of natural law, theodicy, philosophy of mind, and the metaphysical foundations of physics. These texts go a long way towards revealing why Leibniz increasingly values harmony as a metaphysical tool and the conclusions for which he wishes to argue on the basis of harmony. Though I shall maintain that Leibniz needs to develop a more useful, determinate conception of harmony for his purposes, these early uses of harmony tell us much about Leibniz's commitment to the concept.

Chapter three presents the crux of my argument and in many ways serves as the centerpiece of the dissertation. I provide evidence of a significant shift in Leibniz's conception of harmony during his stay in Paris in the mid-1670s. Leibniz comes to define harmony not in terms of identity and diversity, but in the more restrictive language of simplicity and plenitude. Though at first blush simplicity and plenitude may seem synonymous with unity and diversity respectively, I will argue that given Leibniz's presentation, these two definitions are not co-extensive. There is, that is, a discernible development in his conception of harmony.

To be clear, in my analysis of the Paris texts, I will not be claiming to have unearthed some hitherto unknown Leibnizian definition of harmony. Most students of Leibniz are familiar with his language of simplicity and plenitude and many scholarly debates over how Leibniz construes the harmony of the world are conducted in these terms. The novelty in my analysis is, one, that it makes clear the development in Leibniz's thinking regarding harmony and does not elide Leibniz's two conceptions of harmony. This allows us to assess the relative adequacy of the two conceptions, to provide an account of Leibniz's motives for changing his definition of harmony, and to come to a more accurate picture of the development of Leibniz's metaphysics. Two, I

provide a new interpretation of the relationship between simplicity and plenitude and thereby shed new light on the metaphysical consequences of Leibniz's new conception of harmony. In brief, I posit that his refined conception of harmony provides Leibniz with a potent means of defending the centrality of rational agents in a maximally harmonious and objectively good order of creation.

In the second half of the dissertation, I turn to what are commonly considered Leibniz's middle and late periods, the metaphysics of which are most familiar from the *Discours de métaphysique* and the *Monadologie*, respectively. In these mature writings, I believe Leibniz retains the conception of harmony he developed in the Paris period. We see development therefore not with respect to our first guiding question—what does harmony mean for Leibniz?—but with respect to our second guiding question regarding the import of harmony for Leibniz's metaphysics. In other words, the second half of the dissertation looks to how Leibniz deploys the conception of harmony outlined in Chapter three in his mature metaphysics.

Chapter four sets out to clarify the connection between harmony *qua* criterion of creation, on the one hand, and harmony *qua* account of causality, via Leibniz's famous doctrine of preestablished harmony, on the other. I argue that my interpretation of Leibniz's conception of harmony is needed to make clear how the latter follows from the former. This chapter also explores the relationship between Leibniz's understanding of universal harmony and his attempts to revive the notion—widely discredited in the 17th C.—of final causality. In discussions of final causality Leibniz introduces a notion of optimization which, I suggest, can be seen as an expression or application of his conception of universal harmony. Chapter five examines what Leibniz's defense of

preestablished harmony against its early critics reveals about his final metaphysics of harmony. It also considers what our interpretation of the meaning of harmony can contribute to recent debates over Leibniz's late writings on intermonadic union.

In sum, the first half of the dissertation is devoted to defending a thesis of development in Leibniz's conception of harmony and to advancing a new interpretation of this conception. The second half of the dissertation seeks to show that our interpretation can shed light on Leibniz's mature metaphysics, specifically on the relationship between Leibniz's commitment to universal harmony—which is closely allied with his contention that we live in the best of all possible worlds—and his commitment to the peculiar hypothesis of preestablished harmony.

b. *Methodological Remark*

I have already remarked that our development thesis mandates that we approach Leibniz's texts chronologically. Still needing to be addressed, however, is the selection of texts and the scope of this dissertation. Our interest is not in every instance where Leibniz mentions harmony. Leibniz is fond of speaking of harmony between systems, between various approaches to a given issue, between diverse schools of thought. Thus he will speak, for instance, of the harmony between Aristotelianism and mechanism, between natural law and positive law, between theoretical and experimental physics, between the Catholic, Lutheran, and Reformed confessions. In these cases, "harmony" means that seemingly opposed systems must be mutually consistent if it can be shown that each expresses some truth. The "harmonization" of these philosophical schools follows from the unity of truth, from the fact that two truths cannot contradict each other.

Harmony in this sense is an important methodological principle for Leibniz and is accordingly as relevant to the present investigation as it is to any inquiry into Leibniz's metaphysics, since Leibniz's desire to reconcile diverse schools of thought colors and motivates much of his theorizing. Yet, to be clear, the harmonizing of various systems is *not* the object of this study. Our interest is in how harmony intervenes in arguments for particular philosophical positions. Therefore, we restrict our focus to those texts where either harmony explicitly enters as a premise in Leibniz's arguments or a compelling case can be made that harmony is presupposed in Leibniz's reasoning. Leibniz's metaphysics is surely remarkable for its efforts to find agreement or harmony amongst various systems, but equally remarkable and equally worthy of our attention is Leibniz's use of harmony as an operative principle—as a tool, to recall our initial metaphor—in the very construction of his system.

I.3 Why is harmony a *Grundbegriff* in Leibniz's thought?

Having outlined my account of the development in Leibniz's conception of harmony, it should be evident that the question of why harmony serves Leibniz as so important a principle will be answered fully only by analysis of the concrete contexts in which Leibniz appeals to harmony. The proof of the pudding, so to speak, is in the tasting. At this early juncture, however, I want to address the historical question of why harmony factors into Leibniz's thinking in the first place by looking at his writings from his student days in Leipzig and Altdorf in the 1660s. From these texts, we can ascertain why harmony appeals to the young Leibniz and establish the basis from which he will develop his own conception.

Why is harmony a *Grundbegriff* in Leibniz's thought? For starters, harmony as both idea and ideal was simply part of Leibniz's intellectual *milieu*. Much has been written on possible forerunners to his theory of harmony. The writings of the Ramist encyclopedists of the University of Herborn, particularly Johann Heinrich Alsted (1588-1638) and Johann Heinrich Bisterfeld (1605-55) have been shown to have especially shaped Leibniz's early thought on harmony.[12] Leinkauf has stressed that in addition to this German reformed tradition, a tradition of Renaissance Platonism including Nicholas of Cusa (1401-64), Marsilio Ficino (1433-99), and Charles de Bovelles (1479-1567) influenced Leibniz's ideas on diversity, identity, and harmony.[13] One could add Johannes Kepler's astronomical treatise *Harmonice mundi* of 1619 and Marin Mersenne's musical treatise *Harmonie universelle* of 1636 as works attesting to the interest in harmony amongst 17th C. intellectuals.

I shall not rehash in detail the extensive research that has been done on Leibniz's sources, nor do I wish to make a case for privileging one influence above others. My interest lies more in what Leibniz does with harmony than with where he got the idea. Nonetheless, a brief look to Bisterfeld helps to answer why Leibniz assumes harmony as a *Grundbegriff* and what purpose the concept serves in his early thought.[14] For

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[12] See: Antognazza ("Immeatio and Emperichoresis"; *Trinity and the Incaranation*; *Leibniz: An Intellectual Biography*; "Debilissimae Entitates?"), Hotson (*Commonplace Learning*), Loemker ("Herborn Encyclopedists"; *Stuggle for Synthesis*), Kabitz (*Die Philosophie des jungen Leibniz*, 6-10), Mercer (*Leibniz's Metaphysics*), Moll (*Der junge Leibniz*, vol. 3), Mugnai ("Der Begriff der Harmonie"), and Rutherford (*Rational Order*, 36-40).

[13] Leinkauf. "Diversitas identitate compensata"

[14] Among the writings we have from Leibniz's time as a student in Leipzig and Altdorf (1663-66) is a collection of the notes Leibniz made to Bisterfeld's *Philosophiae Primae Seminarium* (1657). See: *Notae ad Joh, Henricum Bisterfeldium*. A VI.1, N 7. In my remarks on Bisterfeld, I rely chiefly on this work and on the scholarship of Kabitz, Loemker, Mugnai, and Antognazza cited in n. 12, above. For full citations to Bisterfeld's works, consult these studies.

Bisterfeld, there exists a *panharmonia*,[15] or what he sometimes calls *immeatio*, amongst all things. All things are in concourse, in society, with all others, each individual standing in a variety of complex relations to all. Bisterfeld views this *panharmonia* as the created expression of the divine ἐμπεριχώρησις, that is, the union or society between the three persons of the Christian Trinity.[16] Most important for the young Leibniz, I think, is the way this theological belief in the likeness of God and creation founds a positive program for logic and philosophy.[17] For Bisterfeld, the task of philosophy is to reconstruct in the mind the *panharmonia* or *immeatio* of the world. "Every multitude," he writes, "can and ought to be recalled to unity."[18] In other words, the relations between things must be thoroughly explored and catalogued, such that the structure, order, and unity of the world are rendered transparent. Bisterfeld's theory of *panharmonia* is thus closely bound up with a belief in *panlogism*, i.e., in the thoroughgoingly rational structure of the world, which structure is accessible to human reason.

The significance of Bisterfeld for Leibniz can be gleaned from the latter's first logical work, the *Dissertatio de Arte Combinatoria*, published in Leipzig in 1666. In this text, Leibniz makes his first attempt at laying out the method for a universal science. One of his theses is that, beginning from a set of primordial, indefinable "first terms," one could, through a series of combinations and permutations, construct the entire edifice of human knowledge. He does not in this work provide an exhaustive list of these first terms, but he does supply an exemplar list of geometrical terms to show how his method would proceed. Take the following selection from his key: 9 = Part; 14 = Number; 15 =

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[15] A VI.1, N.7, pp. 153 & 158.
[16] ibid., p. 158. See also Antognazza ("Immeatio and Emperichoresis," 46-52) and Loemker ("Herborn Encyclopedists," 335-37).
[17] See: Mugnai, "Der Begriff der Harmonie," 50-58.
[18] A VI.1, N.7, p. 158.

Several. Using these first terms, Leibniz proceeds to define quantity as 14 of the 9 (15), i.e., the number of part(s). He then uses this definition of "quantity" and the primitive term "same" to define "equal" as "of the same quantity." He employs "equal" to define "greater," "less," and "parallel," and so on.[19]

Leibniz's presuppositions in his early combinatorics that concepts can be treated as numbers and that thinking is essentially calculation undoubtedly owe much to Hobbes' notion that ratiocination is computation and the Englishman's belief that demonstration proceeds by substituting terms with their definitions, *salva vertitate*.[20] Yet the significance of Bisterfeld is seen in the link Leibniz draws between the quantitative art of combinations and the idea of harmony. Just before presenting the geometrical examples we referenced above, Leibniz remarks in *de Arte Combinatoria*:

> We shall at least briefly indicate that everything is to be traced back to the metaphysical doctrine of the relations of a being with a being…I think that this has been seen much better than usual among writers of compendia by the most solid Johann Heinrich Bisterfeld in his *Phosphorus Catholicus, seu Epitome artis meditatandi* (1657), a work totally founded in what he calls the universal *immeatio* and περιχώρησις of all things in all things, in the similitude and dissimilitude of all things with all things, the principle of which is relations. He who reads this little book will more and more fully perceive the utility of the *ars complicatoria*.[21]

Though harmony is not explicitly mentioned in this passage, we know the idea of *panharmonia* is closely related in Bisterfeld's thinking to *immeatio* and περιχώρησις. More significant for our purposes, the terms similitude and dissimilitude figure prominently in Leibniz's earliest discussions of harmony. The point I wish to stress here is that the young Leibniz sees in his art of combinations the means of modeling the

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[19] A VI.1, N. 8, p. 200; LP 6-7.
[20] *De Corpore*, Bk I (*Computatio sive Logica*). For a discussion of Leibniz and the principle of "substitution *salva veritate*," see Ishiguro, *Leibniz's Philosophy of Logic and Language*, Ch. 2.
[21] A VI.1, N.8, p. 199; I borrow the translation of Antognazza, "Immeatio and Emperichoresis," 51-52.

relations of all things with all things. The primitive first terms of thought are the means of recalling multitudes, borrowing Bisterfeld's language, back to unity. Conversely, by proceeding from first terms to compound definitions, we can model the logical complexity of the world, the relationship between the whole and its parts.[22]

In sum, looking to Leibniz's Leipzig and Altdorf writings, we do not find any explicit definition given for the concept "harmony." Yet, Leibniz says enough to indicate why harmony appeals to him, why it enters his thinking as a *Grundbegriff*. Given Leibniz's aspirations of establishing a universal calculus, what he later calls an "alphabet of human thoughts,"[23] the idea of harmony nicely expresses the end, the goal of such a project, *i.e.*, the desire to bring order to—to make consonant—diverse concepts in hopes of penetrating the rational structure of God's creation. This, I posit, is Leibniz's first discernible belief regarding harmony: harmony expresses the goal, the aspiration—we might even say the *telos*—of thought. This belief, for Leibniz as for Bisterfeld, is of a piece with the theological belief that harmony adequately characterizes the structure of creation. I thus take as the starting point for this investigation of Leibniz on harmony not any articulated conception of harmony, but rather the logical-theological premise that thought seeks harmony; harmony is the satisfaction of reason.

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[22] Bisterfeld is not Leibniz's sole ally in this project. In the *Dissertatio de Arte Combinatoria*, Leibniz praises Kepler for his efforts in *Harmonicae mundi* to explore the relationships between geometrical figures, to show how more complex figures are composed of lesser, and to thereby "penetrate" the secrets of nature. A VI.1, N.8, p. 187.

[23] G VII, p. 185.

II
Harmony as the Co-Compensation of Identity and Diversity
[1669-1674]

During his tenure serving at the court of the Archbishop of Mainz (1668-1672), Leibniz takes up the ambitious project of defending the reality of substantial forms.[1] In the course of this defense, many of the concepts and positions which will come to define "Leibniz's metaphysics" first find expression. Harmony has been—and ought to be—included among these concepts. Though, as we have seen, Leibniz shows affinity for the idea of harmony even in Leipzig, it is not until Mainz that he gives the idea explicit definition. In addition to making explicit Leibniz's conception of harmony, the Mainz writings provide the earliest indications of the breadth of problems to which harmony will provide Leibniz the answer.

Viewed in one way, it would be more accurate to say that in Mainz Leibniz gave harmony not definition, but rather definitions.[2] Harmony is identified as "similitude in dissimilar things,"[3] "the unity of a great many things [*plurimorum*],"[4] "identity compensated by diversity,"[5] and "diversity compensated by identity."[6] The harmonious is further defined as that which is "uniformly difform."[7] What's more, Leibniz uses the terms "variety" and "unity" interchangeably with "diversity" and "identity," respectively.[8] Because of Leibniz's own flexibility in employing these definitions (even within the course of a single discussion) and because there is no evidence for a

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[1] On Leibniz's decision to defend substantial forms, specifically on the theological motives behind this move, see Goldenbaum ("Leibniz as a Lutheran," "Transubstantiation, Physics, and Philosophy").
[2] These definitions are nicely catalogued by Carlin, "On the Very Concept of Harmony," 100.
[3] A II.1, N. 56a, p. 164
[4] A VI.2, N. 42_4, p. 283
[5] A VI.1 N.12_5, pp. 474, 475, & 477. On p. 479, Leibniz also uses "congruity" as the counterpart to variety.
[6] A VI.1, N. 12_6, p. 484. A VI.2, N. 42_4, p. 283. A II.1, N. 87, p. 174; L 150.
[7] A VI.1, N. 12_6, p. 484
[8] ibid.

conceptual distinction between them, I consider these various locutions equivalent in meaning.[9] I shall refer to them collectively as the "co-compensation" conception of harmony, deriving this designation from Leibniz's remarks on the mutual compensation of diversity and identity in harmony.

When looking to Leibniz's first explicit definitions of harmony in the Mainz writings, it is important to bear in mind that he retains in his treatment of harmony the main presupposition of the Leipzig period, to wit, that harmony is the end and satisfaction of the intellect. There is ample evidence for this in the Mainz texts. In his April 1669 letter to his former teacher Jacob Thomasius, for instance, Leibniz marvels at the harmony which obtains among the various sciences, thereby reiterating his belief that reason seeks to replicate in its own understanding the harmonious arrangement of creation.[10] In the second draft of the *Elementa juris naturalis*, he states quite plainly that "every wise man is delighted by beauty or harmony."[11] He further affirms the relationship between intellection and harmony in his discussion of the divine intellect in his May 1671 letter to Magnus Wedderkopf.[12] As we saw in our introduction, harmony functions as an at once logical, epistemological, and aesthetic ideal for Leibniz. He retains and exploits these various senses of the term throughout his Mainz writings.[13]

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[9] In this, I am in express agreement with Piro (*Varietas Identitate Compensata*, 9), Carlin ("On the Very Concept of Harmony," 101), and Strickland (*Leibniz Reinterpreted*, 94). I know of no commentator who draws a conceptual distinction between the various expressions.

[10] A II.1, N. 11, p. 31; L 98-99.

[11] A VI.1, N. 12_2, pp. 434-435.

[12] A II.1, N. 60, p. 186; L 146.

[13] As further evidence for the centrality of harmony in Leibniz's notion of rationality, one might cite the curious passage (written in 1669 or 1670) in which Leibniz addresses the mind's ability to picture in dreams things which it can only conceive with great difficulty while awake. Leibniz writes: "There must necessarily be some architectural and harmonious principle, I know not what, in our mind, which, when freed from separating ideas by judgments, turns to compounding them" (A VI.2, N. 42_1, p. 278; L 115). This passage is telling insofar as it shows that Leibniz believes the mind's proclivity for harmony to be related to its calculative activity of composition. Yet, the passage is anomalous in that it suggests that the harmonious principle within the mind is incomplete and, left to its own devices, leads us equally to

It is rare that one can ever cleanly file a Leibniz text into a specific philosophical subcategory. Leibniz often treats many disciplines in the course of a single discussion, as all his investigations share their roots in fundamental metaphysical concerns. The texts in which he treats harmony are no exception in this regard, and it is essential that we bear in mind the theoretical confluence of his various inquiries. This disclaimer notwithstanding, Leibniz's discussion of harmony in the Mainz period falls pretty naturally into three fields: natural law, natural philosophy, and natural theology. We shall examine these in turn, beginning with natural law, since it is in this context that the co-compensation definition first surfaces.

II.1 Natural Law

Between 1669 and 1671 Leibniz composes six drafts for a work entitled the *Elementa juris naturalis*. In this work, Leibniz attempts to set out the principles of justice in the form of a proper demonstration in the Hobbesian sense, proceeding from premises to conclusions via the substitution of terms with their definitions. The project of expounding the precepts of natural law in a chain of definitions prompts Leibniz to formulate explicit definitions of harmony for the first time.[14] He does by introducing the

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beautiful and monstrous thoughts. All other writings from the Mainz period seem to restrict the mind's experience of harmony to the apprehension of the pleasant, beautiful, and true.

[14] I am aware of one possible exception to this claim. In a letter to Lambert van Velthuysen, Leibniz writes: "Harmony is similitude in dissimilar things" (A II.1, N. 56a, p. 164). The Akademie editors date the letter 5 May 1671. They date the fifth draft of the *Elementa juris naturalis* to the second half of the year 1671. Given their dating, it appears the van Velthuysen letter marks Leibniz's first use of the co-compensation definition. However, given that the letter presents the definitions and demonstrations found in *Elementa* draft five, it is likely that Leibniz was already in the process of developing these arguments at the time of his writing the letter, regardless of whether the letter predates his putting to paper *Elementa* draft five. Given this likelihood, I treat *Elementa juris naturalis* draft five as—for all intents and purposes—the first occurrence of the co-compensation definition of harmony.

co-compensation definition of harmony in the fifth draft of the *Elementa juris naturalis*.[15] Here, Leibniz substitutes for *harmonia* "*identitatem diversitate pensantem*" and, a few pages later, "*identitatem diversitate compensatam*."[16] In this section, we shall examine the contexts in which these definitions are first introduced in order to uncover harmony's role in Leibniz's ethical and juridical thought, as well as to consider the appeal of the co-compensation conception.

To preclude any confusion over what place Leibniz's juridical writings have in an investigation of Leibniz's *metaphysics* of harmony, let me remark briefly on the goals of the *Elementa juris naturalis*. Leibniz sets out to defend justice as an objective moral standard. For him, ethics or jurisprudence is the study of the Good,[17] an idea in the Platonic sense, i.e., an eternal verity which can and ought to be studied *a priori*.[18] Natural law, in other words, is based in the nature of things; ethics and jurisprudence follow upon metaphysics. Leibniz's primary target in the *Elementa* is Samuel Pufendorf—with Thomas Hobbes another potential target—who makes the principles of justice contingent on the will of legislators and by extension makes natural law contingent on divine *fiat*, not on any rational standard in the divine intellect. In light of these considerations, it is fair to say that any contribution harmony makes to Leibniz's ethical thought is, therefore, *mutatis mutandis* a contribution to his metaphysics.

We must presently consider two questions. One, what role does harmony play in Leibniz's theory of natural law? Two, what, if anything, does this role tell us about the

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[15] Harmony, though not any definition of it, is mentioned earlier, in the second draft of the *Elementa juris naturalis.* Leibniz mentions God's justice as the creator of universal harmony. See: A VI.1, N. 12_2, pp. 434-435, 438. For my take on Leibniz's use of harmony in this draft, see "Why must there be Minds? Harmony and Creation in the Young Leibniz" in *Natur und Subjekt: Akten des IX. Internationaler Leibniz-Kongresses*. Ed. by H. Breger, et al.. Hannover: Hartman, 2011. 388-93.
[16] A VI.1, N. 12_5, pp. 474-475 and 477, respectively.
[17] Leibniz to Jakob Thomasius, April 1669. A II.1, N. 11, p. 20; L 99.
[18] A VI.1, N. 12_4, p. 460; L 133.

significance of the co-compensation conception? In response to these questions, I will suggest that the concept of harmony—and in particular the co-compensation definition of harmony—allows Leibniz to avoid the tension which potentially obtains in his account of natural law due to his dual indebtedness on the subject to, on the one hand, Hobbes and, on the other, the Christian ethical tradition. This tension is over the reality and nature of the *summum bonum.* Leibniz's use of harmony to resolve this tension allows him in turn, I will suggest, to prove the necessary coincidence of justice and happiness.

In the fifth draft of the *Elementa juris naturalis* Leibniz defines the just man as he who loves all.[19] This leads him to qualify every good man as one who loves.[20] He calls the best state of a person *felicitas* and seems to believe the good man enjoys such a state.[21] Leibniz borrows his notion of felicity from Hobbes, for whom it is not repose but continual striving that is the mark of happiness.[22] Leibniz writes:

> Felicity is the best state of a person.
> (Since however the progress of good things is permitted [*detur*] into infinity, it follows that the best state consists in the perpetual progress to further good things not being impeded. Repose in striving [*appetendo*], or the state in which you want nothing, is not felicity but numbness. He who does not desire its continuation does not even perceive his own good; there is neither delight without harmony, nor harmony without variety).[23]

In adopting Hobbes' view of felicity, Leibniz appears to distance himself from a key element of the scholastic view, which reasons that felicity and delight follow upon the cessation of desire. As Thomas Aquinas writes, "delight…implies the repose of the lover in the object beloved."[24] For Leibniz, following Hobbes, to be is to be active; a being

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[19] See, for instance, A VI.1, N. 12_5, pp. 465-466.
[20] ibid., p. 479
[21] ibid., pp. 466, 483.
[22] See Hobbes. *Leviathan* I.xi.1.
[23] A VI.1, N. 12_5, p. 466.
[24] ST Ia IIae q. 4, a. 3, resp. In this article Aquinas discusses *beatitudo*, not *felicitas*, but these terms are used synonymously in the surrounding articles and *quaestiones*. I note here that I will make several

completely at rest is no being at all. The best state of a rational being therefore consists not in repose, but in desiderative activity.

With this understanding of felicity as interminable comes a potential tension in Leibniz's demonstrations. Hobbes' notion of felicity –"a continual progress of the desire, from one object to another, the attaining of the former being still but the way to the latter"[25]—is of a piece with his rejection of the *summum bonum* or *finis ultimus*. Leibniz's theological commitments preclude him from abandoning the reality of the *summum bonum*, not least when writing on natural law. For Leibniz, we, as rational creatures, are directed towards a single, divine good. In short, God or more precisely the vision of God is our optimal state, our *summum bonum*. Felicity therefore cannot consist merely in the infinite progress of desire, but must be an end state in some meaningful sense. How, then, does Leibniz uphold without conflict the lessons of Hobbes' psychology and a strong moral teleology?

Leibniz obviates this potential tension in his *Demonstrationum catholicarum conspectus* (1668-9), in which he depicts the beatific vision as the continued progression of knowledge into infinity.[26] The blessed see God, and in this sense have reached their *finis ultimus*, yet this state is not one of repose—à la Hobbes—since it is ever possible for the blessed to increase in their understanding of God's infinite essence. In one sense, this view is not unique to Leibniz. Leibniz's basic contention that no created intellect ever ascends to perfect comprehension of all things in God is in line with, to cite one

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references in this chapter to Aquinas and Scotus, in order to assess Leibniz's views via scholastic precedent. I am not making a historical case that Leibniz read any of the texts I cite. It is clear, however, that during his time in Catholic Mainz Leibniz acquired familiarity with the medieval scholastic tradition. For instance, he cites Aquinas several times in discussions of transubstantiation (see: A VI.1, N. 15_2 and A II.1, N. 87). My references to Aquinas and other scholastics are meant to represent the kind of general scholastic precedent with which Leibniz would have been familiar.

[25] *Leviathan* I.xi.1.

[26] A VI.1, N. 14, p. 499.

prominent case, Thomas Aquinas' analysis of the beatific vision.[27] One could therefore downplay the prominence of Hobbes' notion of *felicitas* in Leibniz's thinking.

In another sense, however, Leibniz does take issue with the Thomistic view, on explicitly Hobbesian grounds. Aquinas, though holding that the blessed progress in knowledge, nevertheless sees the *finis ultimus* as a state of repose. Aquinas reasons that each soul's understanding of God in the beatific vision is commensurate with its charity, hence there is no actual desire which remains unfulfilled. Each soul is fulfilled to the extent it desires to know God and this, on Aquinas' judgment, should rightly be called repose. Leibniz is uncomfortable with the identification of repose and felicity. Recall his remark, following Hobbes, that "the state in which you want nothing is not felicity, but numbness."[28] Given this disagreement with the Thomistic approach, Leibniz must provide another way of reconciling his "progressive" notion of felicity with the idea of a *summum bonum*.

Harmony is the idea Leibniz uses to effect this reconciliation, identifying, in *Demonstrationum catholicarum conspectus*, God with the harmony of all things.[29] The co-compensation definition of harmony comes in particularly handy here. Leibniz's conception of harmony as a ratio between identity and diversity (or unity and variety) explains how the perception of harmony is a satisfying end state—in that the mind reaches a limit in the reduction of multiplicity to unity—and yet not a state of repose, for, though grounded in unity, harmony admits of increase. "There is more harmony," Leibniz writes, "when there is more diversity, and it is nevertheless reduced to identity.

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[27] See, for instance, Aquinas. ST Ia, q. 12, a.6-8.
[28] A VI.1, N. 12_5, p. 466.
[29] On this identification, see section II.3, below.

(For not in identity but in variety can there be degrees)."[30] The pleasure garnered in the perception of harmony cannot be a state of repose because the expansiveness of God's essence and the continual progression of our knowledge occasion for us continually new desires. Nevertheless, because identity does not admit of degrees, and because we perceive diversity as united in God, the *summum bonum* can be considered a complete, pleasing state. This is significant because harmony allows Leibniz to hold, with Hobbes, that felicity is a desiderative, striving state, and yet maintain, against Hobbes, a strong moral teleology. For Leibniz, it is not merely the unimpeded progression of desire that pleases, but the interplay of variety and *unity*.

In light of these considerations I read harmony as providing Leibniz with a means of not only reconciling Hobbes' psychology with the scholastic natural law tradition, but also smoothing over a point of conceptual friction internal to the history of Christian theology itself, *viz*., that our natural end is at once a state of repose and our fullest, most active state.[31] Leibniz, as we have seen, balks at the language of repose on the grounds that it inadequately captures human nature. He replaces it with the language of striving and harmony. In the mind's apprehension of harmony, Leibniz believes he has a model in which activity and satisfaction need not conflict, but in fact complement and mutually engender each other.[32]

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[30] ibid., p. 479

[31] Loemker sees Leibniz's insistence that the beatific vision involves striving as a direct rejoinder against the Averroism of Weigel and Silesius, "who describe this highest value as personal cessation or a kind of death" (L 47). I take Loemker's reading seriously, though I read the stress on harmony in Leibniz's account of the beatific vision as addressing a wider tradition of Christian thinking on this issue than the Averroist trend.

[32] There are of course resources in the history of Christian theology for conceiving of the beatific vision in such a way that avoids the language of repose. Gregory of Nyssa writes: "This is truly the vision of God: never to be satisfied in the desire to see him" (*The Life of Moses* II.239). Whether or not Leibniz was aware of these resources, it seems clear that his own conception of the beatific vision is most directly

I stress the centrality of harmony to Leibniz's "progressive" notions of *felicitas* and the *finis ultimus* because it sheds light on Leibniz's use of the co-compensation conception of harmony in the *Elementa juris naturalis*, specifically in proving the necessary coincidence of justice and happiness. To see this, it helps to trace a few steps in the sequence of substitutions in *Elementa* draft five. Beginning with the definition of the just man as he loving all, Leibniz makes the following substitutions:

> If for he loving all it is substituted:
> 1. who is delighted by the felicity of all
> 2. who perceives the felicity of all as harmonious
> 3. who perceives in the felicity of all identity compensated by diversity.[33]

The initial substitution follows from Leibniz's definition of love as experiencing pleasure in the pleasure of another.[34] The transition from lines (1) to (2) follows from the fact that harmony is the end and satisfaction of the intellect and from the correlative definitions of pleasure, pain, and desire in Leibniz's psychology of affects. Leibniz holds that all desire is for harmony and that any given pleasure is an instance of the perception of harmony, reasoning from his belief that harmony is the end which intellect seeks. The connection between pleasure, desire, and harmony is made most explicit in the sixth draft of the *Elementa*— "delight or pleasure *is* the perception of harmony"[35]—and in Leibniz's November 1671 letter to Antoine Arnauld.[36] Nonetheless, it is evident that said connection is operative in the fifth draft from Leibniz's observation that there is no

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shaped by his acceptance of Hobbes' notion of felicity. I am grateful to Kevin Brennan for the reference to Gregory of Nyssa.

[33] A VI.1, N. 12_5, p. 477.

[34] It is worth noting that this definition of love was itself developed by Leibniz to obviate the tension between the self-interest at the heart of Hobbes' theory of the passions and the requirements of a charitable ethic (See Goldenbaum, "It's Love!"), much as I have suggested that the co-compensation definition of harmony serves to reconcile insights borrowed from Hobbes with elements of the Christian natural law tradition.

[35] A VI.1, N. 12_6, p. 484. Emphasis mine.

[36] A II.1, N. 87.

delight without harmony and his substitution of "to understand with striving [*conatus*]" with "to understand harmony."[37]

In the move from lines (2) to (3), Leibniz relies on his co-compensation definition of harmony. What does this particular definition reveal about the nature of the just man? The just man is he who finds his own happiness in the happiness of others, but, importantly, in the happiness of others ordered in a certain way. By focusing on the interplay of unity and diversity that is necessary for us to experience pleasure, Leibniz underscores the fact that the just man is pleased by the happiness of individuals—himself included—only insofar as this can be reconciled with the common good and by the common good only insofar as it can be reconciled with the good of individuals. To simply say that felicity is the progress of desire leaves open the possibility that we seek discrete pleasures, the continual fulfillment of discrete desires. Leibniz insists, however, that diversity must be compensated for by identity; each new object is only pleasurable to the extent that it can be brought into unity with all else. In the context of natural law, the just man will not be pleased by the felicity of person A, if this felicity comes at the expense of person B, in whose felicity the just man also takes an interest. Due to its emphasis on the unity which must obtain between diverse experiences of pleasure, the co-compensation conception of harmony allows Leibniz to show how happiness and justice increase *only* in concert. Importantly, the perception of harmony in each instance of justice captures in a limited way something of our *finis ultimus*, which is to perceive all things through the unity of God's essence. The principles of natural law, that is, follow from Leibniz's depiction of the *summum bonum*.

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[37] A VI.1, N. 12_5, p. 478.

There is a further implication here, an ethical injunction. Leibniz admits degrees of harmony and holds that the satisfaction of perceiving harmony occasions the desire to perceive greater harmonies. We can plausibly imagine a person experiencing the mutual compensation of the common good and individual goods in narrow scopes: within families, societies, or communities. We would assess this individual's justice by the extent to which his object admits of diversity.[38] Yet, because the desire for harmony would terminate only in perceiving the harmonious happiness of all, it seems to follow from Leibniz's analysis that any conditionally just person senses, albeit perhaps confusedly, the moral injunction to ensure that the happiness of more and more people is reconciled with that of the whole. The co-compensation conception of harmony thus underscores the fact that the just man's love is not an abstract feeling of universal benevolence, but an active desire to perceive, understand, and effect to the extent one is able a peaceful and felicitous community of people. It is worth remarking that this ethical end sits well with Leibniz's aspiration while stationed in Mainz to unite the Christian confessions, his stay in Mainz post-dating the Thirty Years War by a mere twenty years.

In the sixth and final draft of the *Elementa juris naturalis*, Leibniz broadens the connection between justice and harmony beyond what we find in the fifth draft. "All would truly love all," he writes, "if only we would consider, if only we would lift up our eyes to, the universal harmony."[39] Leibniz goes on to explain that an individual's limited perspective on the whole often causes him to view the good of others as conflicting with his own. By way of reflection on the harmonious construction of the universe, however,

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[38] Cf. Leibniz's discussion of degrees of love, A VI.1, N. $12_{6,}$ p. 481.
[39] A VI.1, N. 12_6, p. 479.

one begins to appreciate the unity of the cosmos which persists amidst—and ultimately compensates for—the diversity of beings. Leibniz—with the Stoics—believes that such awareness serves to mollify our hostility towards one another and to impress upon us that we are but individuals within a larger order, an order more beautiful and pleasing that any given individual. It must be stressed, however, that although wonder at the universal harmony often precedes love of others temporally in the order of our awareness, strictly speaking the former does not cause the latter, for they ultimately amount to one and the same thing. That is, to truly and fully delight in the universal harmony *is* to love all, *is* to be just. As Mulvaney succinctly puts it, "justice is for Leibniz the moral aspect of [universal] harmony."[40]

The idea of harmony as the co-compensation of identity and diversity helps Leibniz demonstrate that justice and felicity run parallel to one another, that the just life is also pleasurable. It is thus key to Leibniz's early ethical thought. Leibniz himself admits as much: "variety always delights us if it is reduced to unity. From these I deduce all the theorems of justice and equity."[41] In the course of exploring harmony's ethical import, however, we have had to touch on Leibniz's indebtedness to Hobbes' psychology and on the thesis that the harmony of all things is seen in God, two non-trivial issues requiring elucidation in the ensuing sections.

[40] Mulvaney, *Leibniz's Concept of Justice*, 207.
[41] Leibniz to Arnauld, November 1671. A II.1, N. 87, p. 174; L 150.

II.2 Natural Philosophy

The co-compensation conception of harmony comes into play in Leibniz's early natural philosophy in his analyses both of the mind-body problem and of the metaphysical foundations of physics. We begin with the former.

a. Philosophy of Mind

We have seen to this point that, for Leibniz, the mind desires and takes pleasure in harmony: in the harmonious arrangement of its ideas and in the contemplation of beings which themselves manifest a harmonious arrangement of parts and/or perfections. In his earliest studies of the mind, however, Leibniz makes an even more foundational claim regarding the mind and harmony. Harmony, in addition to being the end and satisfaction of mental activity, defines mental activity itself. The mind, by its very nature, is harmonious.

The insight that mental activity is harmonious leads Leibniz to his earliest justification for the distinction between mind and body. Before taking up what Leibniz means by mental activity being harmonious, let us first glance at how Leibniz intends to employ this insight for the purpose of proving the real distinction between bodies and minds against the materialism of thinkers like Gassendi, Digby, and, most especially, Hobbes, as well as against what he deems the inadequate proofs of the Cartesians. In outline, his reasoning is as follows:

(1) There is a type of activity, *A*, which is harmonious.
(2) The activity of bodies, *B*, is not harmonious.
(3) *A* cannot therefore be the activity of bodies.
(4) All bodies are corporeal
(5) ⊢ *A* cannot be the activity of something corporeal
(6) ⊢ *A* is the activity of something incorporeal, which we call the mind.[42]

[42] Cf. A VI.2 N. 42_4, p. 284: The reason why something is, is, because it presently [*jam*] is; or, because it is harmonious. From the former, the actions of bodies, from the latter those of minds.

Beginning with proposition (2) we may ask: what is the activity of bodies, and in what way is it not harmonious? In his early physical writings, Leibniz accepts the thesis of mechanical philosophy that collision is the primary model for explaining changes in phenomena. He further holds that the only relevant factor in the collision of bodies is the motion of the bodies involved, with neither the mass nor the size of the bodies bearing on the outcome.[43] The motion of a body is itself comprised of *conatūs*, instantaneous beginnings of motion, a notion borrowed from Hobbes' *De corpore*.[44] The result of a given collision, then, is determined by the sum total of all the *conatūs* involved, taking into account their quantities and their directions relative to one another.

In Leibniz's depiction of collision, we have a scheme in which diversity is reduced to identity—many *conatūs* join together to form a new one—and thus we might plausibly think this an instance of harmonious activity. The fact that Leibniz does not count such summative activity as harmonious underscores that harmony requires not just compensation, but *co*-compensation. In collision, identity compensates for diversity, yet diversity does not compensate for identity. In bodily motion all *conatūs* are instantaneously collapsed into a new, single *conatus*. By contrast, in a harmonious arrangement, diversity does not collapse into identity, but rather persists notwithstanding identity. Leibniz sees cognitive activity as harmonious in just this way. Thus, the idea of harmony as co-compensation supplies him with the means to resist Hobbes' materialist

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[43] See *Hypothesis physica nova*, A VI.2, N. 40, p. 228; *Propositiones quaedam physicae* [written in Paris, but consistent with the investigations of the *Hypothesis physica nova*], A VI.3, N. 2, p. 56; *Theoria motus abstracti*, A VI.2, N. 41, p.265; L 140.
For helpful and more detailed discussions of Leibniz's early theories of body and collision, see Garber *Body, Substance, Monad*, Ch.1 and Bassler "Motion and Mind."

[44] A VI.2, N. 41, p. 264; L 140. Cf. Hobbes. *De corpore* III.15.2.

conception of mind. For Leibniz, the "mechanics" of cognitive and corporeal action simply do not line up.

In *De corpore*, Hobbes defines sense as "a phantasm made by the reaction and endeavor outwards in the organ of sense, caused by an endeavor inwards from the object, remaining for some time more or less."[45] Sensation, in other words, is a species of bodily reaction. It differs from other instances of reaction by virtue of the fact that sense organs are capable of retaining the motion made in them, whereas—to use Hobbes' example—stones are not. Leibniz first voices his doubts over Hobbes' materialist account of sensation in his July 1670 letter to Hobbes. He writes in response to *De corpore* 25:

> I wish also that you had expressed yourself more distinctly about the nature of mind. For though you have rightly defined sensation as permanent reaction, as I said a littler earlier, *there is no truly permanent reaction in the nature of mere corporeal things*. It only appears so to the senses but is in truth discontinuous and always stimulated by a new external cause.[46]

The italicized passage describes the nature of corporeal motion discussed above. In bodies, instantaneous *conatūs* ever give way to new ones, as determined by their interactions and collisions with other bodies. Leibniz's concern is that since perceptions and thoughts have continuous duration over time, they cannot be accounted for by the successive, discontinuous, instantaneous *conatūs* of bodies. The heart of the divide here is the continuous duration of sensation versus the discontinuous motion of bodies. Even if, as Hobbes would have it, the organs of sense can "retain" motion, the successive, discontinuous character of this motion cannot, on Leibniz's view, account for sensation and thought.[47]

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[45] *De copore* IV.25.2.
[46] A II.1, N. 25, pp. 93-94; L 107. Emphasis mine.
[47] Leibniz has other reservations with Hobbes' theory of mind beyond those that I will raise here. For an account of how Leibniz's theory of mind grows out of Hobbes' treatment of perception at a *point*, see

Within a year of penning the letter to Hobbes, Leibniz—in his *Theoria motus abstracti* and, most clearly, in a short tract entitled *De conatu et motu, sensu et cogitatione*—explains by the harmonious activity of the mind what he feels Hobbes failed to explain by permanent corporeal reaction.[48] This brings us to the first proposition of Leibniz's argument: there is a type of activity, *A*, which is harmonious. In *De conatu*,[49] Leibniz marks a crucial distinction between mental and corporeal activity. "In the mind, all *conatūs* endure. Something is not chosen by adding and subtracting, but that which is most harmonious."[50] In short, the mind's activity is *sui generis* because it is governed by considerations of harmony. The mind compares various *conatūs*—in the case of minds, perceptions—and moves towards that which is the most harmonious, that which fits best within the totality of one's experience. This means that, for the mind, *conatūs* are not instantly translated into activity (here: desire or aversion). In bodies, by contrast, there is an immediate interaction of all *conatūs* involved. As Leibniz puts it, there is addition and subtraction, an immediate calculation of movements. In the mind, however, a different kind of synthesis of *conatūs* obtains, in which their influence on the agent's activity depends on the agent's prior experience. If a given *conatus* can be integrated harmoniously into my experience, it will please me and spur desire; if not, then aversion.

Take an example. I may perceive a banana, but this "beginning of motion" will not give rise to desire until it is determined that eating the banana is the option which best

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Goldenbaum, "Indivisibilia Vera," 63-6. I restrict my focus here to how Leibniz uses the idea of harmonious activity as an alternative to corporeal motion.

[48] The relevant passage from the TMA is the oft-cited seventeenth *praedemonstrabilium* in which Leibniz defines bodies as "momentary minds" (A VI.2, N. 41, p. 266; L 141). In this section, I focus on Leibniz's less often discussed arguments in *De conatu et motu, sensu et cogitatione*, as these explain why harmony is employed in that *praedemonstabilium* as something contrary to what is momentary.

[49] For the remainder of this section, I refer to *De conatu et motu, sensu et cogitatione* simply as *De conatu*. This should not be confused with the much later text, *De conatu centripeto aut centrifugo*, also sometimes abbreviated *De conatu*. For the latter manuscript see Bertoloni Meli, *Equivalence and Priority*.

[50] A VI.2, N. 42_4, p. 282.

agrees with my prior thoughts, memories, and desires. This process of judging one perception in light of others leads Leibniz to speak of the mind as considering all *conatūs* "going backwards."

> Whatever at some time has conatus without motion is a mind…the actions of body differ from those of mind because in body *conatūs* are not considered unless they are the last, in the mind all are considered going backwards.[51]

Crucially, as this excerpt makes clear, however quickly my desire for the banana may seem to follow the mere consideration of one, the transition from thought to action is *not* instantaneous, for it requires the comparison of various moments, of multiple *conatūs*. This is manifestly not the case in the case of corporeal motion; the mind is not, therefore, reducible to the body.

Leibniz takes the fact that desire and aversion are governed by considerations of harmony as justification for the first premise of his argument, *viz*., that there is a type of activity which is harmonious. Importantly for us, he leans on the co-compensation conception of harmony to articulate the distinguishing features of mental activity over and against corporeal motion. Though an inventive way of defending the mind-body distinction, Leibniz's strategy should come to us as no real surprise, since throughout our investigation we have seen Leibniz characterize the mind by its orientation towards harmony. Still, the analysis in *De conatu* runs deeper than anything we have seen, for Leibniz claims not only that the mind exhibits activity oriented towards harmony, but also that, in the very structure of thought itself, the mind *is* an instance of harmony. So far as I can tell, the harmonious dimension of thought has been underappreciated in the

[51] ibid., p. 285.

literature on Leibniz and thus a key aspect of his early theory of mind has been overlooked. For this reason, Leibniz's arguments in *De conatu* merit further attention.[52]

Leibniz judges thought—and in this is included all mental processes: sensation, imagination, memory, intellection, *et alia*—to be harmonious in two senses. First, Leibniz writes of thought that it "is nothing other than the perception of comparison, or more briefly, the perception of many things simultaneously, or unity in many things."[53] The central idea here is comparison, and this hearkens back to Leibniz's initial concern with Hobbes' account of permanent reaction. Thought, Leibniz says, need be of "many things simultaneously" because in order for the mind to constitute an object *qua* enduring object, it must be able to hold together, to compare, former perceptions, in order to see their continuity with the current perception. "To think a being [*ens*]," Leibniz writes, "is to think a perception rational, harmonious, reconcilable."[54] Thought thus requires the retention of *conatūs* (in this case, perceptions) over time.[55] This is true not only in the

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[52] The accounts which take *De conatu* most seriously of which I am aware are Beeley's ("The Mind-Body Problem"), Moll's (*Der junge Leibniz*, vol. 3 & "*Deus sive harmonia universalis*"), and Piro's (*Varietas Idenitate Compensata*). Beeley's account of Leibniz's early theory of mind is excellent in its emphasis on the decisive importance Leibniz's geometrical theories and beliefs concerning the continuum have for his early theory of mind. Beeley even highlights the centrality of harmony in Leibniz's account of mental intention and activity, but the fact that he neglects the harmonious structure of thought leads him to assert, I think erroneously, that with harmony Leibniz imports "unmistakably moral aspects into his theoretical model." Beeley writes: "Leibniz holds that ideally the most harmonious is chosen. That which is most harmonious is most conducive to the general good and thus clearly represents a moral imperative" (27). As we saw in section II.1, the mind's directedness towards harmony does have consequences for Leibniz's moral theory, but this is not at issue in *De conatu*. Leibniz in *De conatu* rather proceeds from a descriptive account of the activities of body and mind. Moll overlooks the point I want to make that Leibniz sees all mental activities as instances of harmony. He focuses on the mind's orientation towards harmony, but in noting that "the perception of harmony presupposes memory." ("*Deus sive harmonia universalis*," 76), he fails to recognize that memory itself is a harmony of *conatūs*. Piro (118-22) comments generally on the role of harmony in reconciling Hobbes' theory of sense perception with Leibniz's commitment to substantial forms, but he does not investigate in detail how Leibniz uses the idea of harmony against Hobbes .

[53] A VI.2, N. 42_4, p. 282.

[54] ibid. p. 283.

[55] It is possible that the harmony required to think a being could refer to the mind's ability to unite the various modalities of sense perception in a single object. Given that the primary and proximate target of *De conatu* is Hobbes' account of permanent reaction, however, and that Leibniz's focus is thus on the

constitution of an object, but also in accounting for the continuity of mental experience. By contrast, to reiterate, in bodily activity no *conatus* lasts longer than an instant before being resolved into a subsequent *conatus*.

The second sense in which the activity of the mind is harmonious is found not in the relations between perceptions, but in the relation of *cogitans* and *cogitatum*, of thinker and idea.

> When I think, I think at once myself and something else. Or: when I think, I at once perceive. Finally, when I think I at once think many things, and unity in many things…it is certain that I perceive myself and something else, or diversity.[56]

Leibniz here evidently subscribes to the theory that the thinker is always, at least implicitly, aware of himself in the act of thought. With perception, in other words, comes apperception. Crucially, the thinker does not think himself and object in sequence, but holds both of these aspects of thought together simultaneously. Thought itself, therefore, depends on the co-compensation of unity and diversity, an impossibility in instances of corporeal interaction.

This last point helps to situate Leibniz's handling of the mind-body problem with respect to his 17th C. predecessors. Leibniz himself believes that his defense of the mind-body distinction in *De conatu* exceeds the method of Descartes. "Because Descartes contemplated the mind in only one way, as it is itself, he did not ascend to it by reflection on bodies; therefore, he did not penetrate to the most profound matters."[57] Descartes errs by judging in advance that mind and body require separate investigations. Leibniz, by

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endurance of perceptions in thought, I interpret the harmony required to think a being as a response to the problem of time, not to the problem of common sensibles.

[56] A VI.2, N. 424, p. 283.

[57] ibid., p. 285. Cf. Moll's commentary on this passage: "*Deus sive harmonia universalis*," 77. See also Beeley ("The Mind-Body Problem") for more on Leibniz's "mechanistic-geometrical" model of the mind.

arriving at the reality of mind by way of mechanics and Hobbes' notion of *conatus*, believes he better safeguards the irreducibility of mind. That said, it would be fair to add that, just as Leibniz uses a Hobbesian strategy against Descartes, so too does he use a Cartesian strategy against Hobbes. By this I mean that it is Leibniz's introspective attentiveness to the mind's activity, to its unique harmonious structures, which provides him with the means to challenge Hobbes' materialism. By critically appropriating both Hobbes' mechanical approach and Descartes introspective approach, Leibniz forges an original theory of mind, a theory in which the concept of harmony takes center stage.[58]

In order to bring out further the important contribution such harmony-based arguments for the mind's irreducibility make to Leibniz's metaphysics, allow me to suspend for a moment our strict chronological approach to the Leibnizian corpus. I do so to judge whether Leibniz is justified in arguing in a quasi-Cartesian manner from the nature of consciousness to the immateriality of the mind. Margaret Wilson, looking at Leibniz's much more well-known "mill argument" from *Monadologie* §17, has argued that Leibniz fails to survive the very objections he raises against Cartesian arguments for the mind being an immaterial substance. Wilson's argument can be summarized as follows: (1) Leibniz criticizes Descartes and Malebranche for reasoning from a "clear and distinct" idea of the unity of consciousness to its immaterial basis, since, absent an argument for the *impossibility* of mechanical explanations of the unity of consciousness, "clear and distinct" ideas cannot settle the question of whether the ego is materially or immaterially based. In short, *pace* Descartes, ideas we take to be clear and distinct can

[58] For more on the importance of harmony to Leibniz's early theory of mind, see his 1675 letter to Simon Foucher (A II.1, N. 120; L N.11), wherein the unity and variety of thought are employed to refute solipsism.

be mistaken,[59] and thus cannot bear the burden of deciding the substantial grounding of consciousness. (2) Leibniz, in the mill analogy, argues that no mechanical cooperation between parts can achieve the true unity required for perception and consciousness; since all matter is an aggregate of infinitely divided parts, the unity of the mind therefore must have an immaterial basis. (3) Leibniz here commits the same mistake as the Cartesians, for "until one knows whether or not materialism is true, one lacks a distinct knowledge of the nature of the self, or the referent of 'I.' But if one lacks a distinct knowledge of the self, one cannot confidently reason from propositions about the self to the falsity of materialism."[60] Put otherwise, Leibniz fails in the mill argument to prove the *impossibility* of mechanical explanations for the unity of consciousness. Like the Cartesians, he presumes instead of proves that such explanation is impossible.

In the arguments from harmony in *De conatu*, I believe Leibniz advances arguments against materialist conceptions of the mind which meet Wilson's concerns. In *De conatu*, Leibniz does not ask his intuitive appeals to the harmonious structure of consciousness to bear the entire weight of the proof. He complements this appeal with an explicit argument against the best mental materialism of his day. He argues that Hobbes' theory of permanent reaction does not suffice *on its own mechanical terms* to prove the phenomenon in question, provided the assumption that sensation requires continuity. Yes, Leibniz appeals to the intuitive unity of thought, but via his conception of harmony he is able to offer the explicit challenge to materialism which the Cartesians neglected and which—on Wilson's plausible reading—the mill argument might lack.

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[59] Descartes, *Principles of Philosophy* I.30: "everything that we clearly perceive is true."
[60] Wilson, Margaret, "Leibniz and Materialism," 512.

This is not to make the strong, textually unsupportable claim that the early arguments in *De conatu* are implicit in Leibniz's mill argument, nor to say that the earlier arguments are the best or only way to save the later one. Though there are resonances between the two arguments, there is simply too much development in Leibniz's metaphysics of substance and in his conception of harmony in the intervening four decades to make any direct connection *prima facie* credible. Moreover, while there is no reason Leibniz could not have in mind his earlier justifications when writing the *Monadologie*, he seems to intend the mill argument as an independent proof based on his theory of monads. My aim in referring to Wilson's critique of the mill argument is rather to show that Leibniz does garner resources for demonstrating the impossibility of 17th C. materialist accounts of the mind. I further wish to highlight the distinctiveness of Leibniz's early arguments for the irreducibility of the mind to the body and, by extension, to highlight something of the power of harmony as a principle in his metaphysics.[61]

Let me raise one further anachronistic consideration. Wilson couches her discussion of the mill argument in the context of Kant's Second Paralogism in the *Critique of Pure Reason.* Indeed, the similarities between Leibniz's arguments for the incorporeality of the mind based on its harmonious structure and the argument, rejected by Kant, from the mind's ability to unify a manifold to its absolute simplicity are probably all too apparent to many readers. Ultimately, whether Kant's takedown of the argument he dubs the "Achilles of all the dialectical inferences of the pure doctrine of the

[61] Though I stress the importance of harmony in Leibniz's arguments against materialist conceptions of mind, it should be noted that this is not the only concept by which the young Leibniz attempts to prove the mind's incorporeality. In an as yet unpublished paper ("Reality, Activity, and the Continuity of Leibniz's Philosophy"), Andreas Blank explores arguments Leibniz makes similar to those in *De conatu* in which the scholastic notion *conexio* is central.

soul"[62] is convincing likely turns on whether one accepts Kant's theory of cognition and critique of reason, matters well beyond the scope of present inquiry. Yet, I would again underscore that Leibniz's early arguments centered on harmony do more than merely draw an inference from cognitive activity to a conclusion regarding substantiality; they are designed to expressly rule out mechanical accounts of the mind or at the very least mechanical accounts in a Hobbesian vein. They therefore provide stronger grounds for justifying a metaphysical conclusion regarding the nature of the mind than the argument presented in the Second paralogism permits.

Returning to our development thesis, a final word on *De conatu:* note that Leibniz's initial use of harmony vis-à-vis the mind-body problem is in no obvious way a direct pre-cursor to the theory of the pre-established harmony of mind and body. For one, Leibniz's principle preoccupation in Mainz is the *distinction* between mind and body; the pre-established harmony is more straightforwardly an attempt to explain the phenomenon of mind-body *correspondence*. Moreover, the account in Mainz follows from a specific conception of harmony and specific brand of mechanical physics, neither of which remains a fixed, perennial feature of Leibniz's system. Much intellectual effort will be needed on Leibniz's part to proceed from his early theory of the mind as harmony to his eventual theory of pre-established harmony.[63]

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[62] *Critique of Pure Reason* A 351. For recent discussion of the relationship between some other Leibnizian arguments for the incorporeality of the mind in light of the "Achilles" issue, see Schachter ("Leibniz's Achilles"). I am grateful to Adam Harmer for pointing me to this article.

[63] Moll, without providing much argument for his ascription, ascribes to Leibniz the theory of pre-established harmony as early as the writing of the *Elementa juris naturalis*, based on a remark in the fifth draft which reads: "God, by the addition of ether or the spirit of the universe, effects it that all things take place in the body just as in the mind." (A VI.1, N. 12_5, p. 480). Moll fails to take into account the difference between Leibniz's early physical theories—in which ether plays a key role—and his later phenomenalism. The theory of pre-established harmony is of a piece with the latter. If the simple correspondence between bodily and mental events (viewed in light of God's activity) were all there were to the theory of pre-established harmony, then any number of 17th C. thinkers—Descartes, Malebranche,

b. The Foundations of Physics

In Leibniz's early natural philosophy, the idea of harmony not only serves to distinguish the corporeal from the incorporeal realm, but also enters into Leibniz's account of the metaphysical underpinnings of physics. Though harmony does not play so central a role in Leibniz's early physics as it does in his early philosophy of mind, a brief look at its role in the former tells us much about the place of harmony in Leibniz's thought at the time.

Between 1670 and 1671, Leibniz produces two major works dedicated to the laws of motion: the *Theoria motus abstracti* (TMA) and the *Hypothesis physica nova* (HPN). The former work is Leibniz's attempt to derive the laws of motion *a priori* from definitions alone. Given the Cartesian and Hobbesian definitions of body as that which is extended in space,[64] the TMA treats the interaction of bodies as if in a vacuum, abstracting from their size, mass, and resistance; the only factors relevant to the outcome of a collision are the respective *conatūs* of the colliding bodies. Leibniz's aim in this work is to determine which laws of motion follow *necessarily* from the relevant concepts, *viz.* body, motion, and *conatus*.

As its title suggests, the demonstrations of the *Theoria motus abstracti* are abstract, i.e., they are not meant to capture the observable behavior of colliding bodies in which, for instance, a smaller body in motion might not set a larger body in motion. Moreover, focused as it is on collision, the TMA does not allow for action at a distance, such as we observe in magnetism. In the *Hypothesis physica nova*, Leibniz complements

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Spinoza—could be counted as its adherents. Moll does not do justice to the distinctiveness of Leibniz's view and obscures the true role of harmony in his early theory of mind. See: Moll. *Der junge Leibniz*, vol. 3, 224-225.

[64] Descartes' definition of body can be found in *Principles of Philosophy* I.55; Hobbes' definition can be found in *De corpore*, Chapter 8.

the TMA by studying the motion of bodies outside of a vacuum, in the sensible world. The HPN proceeds from empirical observation, treating the contingent laws of motion.

To resolve the discrepancies between what is necessitated by the abstract laws of motion and what is observed in the sensible world—to make the two approaches harmonize[65]—Leibniz posits a universal medium comprised of bubbles of ether in which all bodies move.[66] This appears to be an instance of Leibniz employing "harmony" in a general, methodological sense, with the concept itself doing little work. However, a more intriguing and consequential remark about harmony surfaces in another physical work from the same time, the *Leges reflexionis et refractionis demonstratae* (1671). Leibniz writes:

> In the pure state of nature (as in the *intermundia* of Epicurus) all things are heavy and are determined by the composition of *conatūs*. In a systematic state, all things seem to be done by some intelligence and to be completed with wonderful calculation according to laws of harmony, of wisdom, and of justice, from whence all things conspire in the benefit of all, all things are fitted to one another, all things pass through determined periods.[67]

As the discussion immediately preceding this passage makes clear, by pure and systematic states of nature, Leibniz means, respectively, motion considered abstractly and motion considered concretely. What does Leibniz mean, then, in stating that in the systematic state all is done "according to laws of harmony"? How is harmony functioning in Leibniz's account of the physical world?

Unfortunately, Leibniz does not indicate what he means by the laws of harmony in this text or in any of his other early investigations in natural philosophy. But against

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[65] In *Hypothesis physica nova* §58 (A VI.2, N. 40, p. 248), Leibniz explicitly mentions the need for harmony between his twin approaches to the laws of physics.

[66] For more comprehensive analysis of Leibniz's early physics and of the relationship between the TMA and HPN, I find particularly helpful Beeley "Mathematics and Nature" and Garber *Body, Substance, Monad*, Ch.1.

[67] A VI.2, N. 46_2, p. 315.

the temptation to write off this appeal to harmony as a poetic gloss on the beauty of the world without much metaphysical significance, I want to emphasize the architectonic role harmony plays. To be sure, Leibniz seems to be suggesting that the created world, with its apparent purposiveness, is more pleasing than a world following solely the brute, mechanical, necessary laws of nature would be, but the significance of harmony for Leibniz's description of the systematic state extends beyond the level of aesthetics. Harmony plays an architectonic role in two senses. First, and more importantly, the contention that the contingent features of the world follow from considerations of harmony, which considerations are the result of the divine wisdom, is a staple of Leibniz's theory of creation.[68] Though the precise way considerations of harmony are supposed to shape the structure of the physical world is not yet made clear in Leibniz's Mainz writings, the connection between harmony and contingency in nature is posited, and as his physical theories and conception of harmony develop, so too will his thinking on this subject. Secondly, harmony in the *Leges reflexionis* passage likely refers to the fact that, in a systematic state, the behavior of bodies better accords with our sense intuitions than it does when considered abstractly and geometrically, since, in the latter case the perceived size of bodies is irrelevant.[69] The systematic state is thus harmonious because in it our *a priori* and empirical sources of knowledge are brought into unity. There is, that is, a co-compensation of diversity and unity.

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[68] See II.3, below.

[69] Cf. Beeley "Mathematics and Nature," 134-6. Beeley uses the cited passage from the *Leges reflexionis et refractionis demonstratae* to discuss more broadly the role of empirical knowledge in Leibniz's early epistemology

II.3 Natural Theology

Given the theism at the heart of Leibniz's metaphysics, our discussion of harmony in the two preceding sections required frequent reference to God. It comes as no surprise, then, that harmony plays a central role in Leibniz's early natural theology, where it exerts its influence most keenly in Leibniz's accounts of divine causation and divine justice.

To begin, let us consider two facts. (1) For Leibniz, the universe is, in the classical sense of the term, a *kosmos*. Its multitude of entities is an ordered one, and on Leibniz's view this multitude reduces to unity: a unity grounded in God's creative act. Hence, Leibniz speaks often and fondly of the "universal harmony." (2) It was a staple of scholastic natural theology that whatever exists in the effect pre-exists—either in the same formality or virtually—in the efficient cause.[70] This principle leads to the conclusion that the perfections of the world—its order, its beauty—exist in God in pre-eminent fashion.

Traditionally, the causal principle expressed in (2) is employed to prove that God has life, wisdom, and beauty. Since Leibniz places added emphasis on harmony as the chief perfection of the universe and in fact interprets beauty in terms of it, we would expect him to hold that harmony also belongs to the divine essence. What is less expected—what is indeed perplexing—is that in many instances the young Leibniz exceeds the claim that cosmic harmony *expresses* God by claiming that the universal harmony *is* God.

> The beatific vision, or the intuition of God face to face, is the contemplation of the universal harmony of things because God, or the mind of the universe, is nothing other than the harmony of things, or the principle of beauty in them.[71]

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[70] See, for example, Aquinas. ST Ia q.4, a.2, resp. This article is itself a commentary on chapter five of Pseudo-Dionysius' "On the Divine Names."

[71] *Demonstationum catholicarum conspectus*. A VI.1, N. 14, p. 499.

> Because the blessed see God; God however is the universal harmony.[72]
>
> Therefore happiness consists in the most harmonious state of mind. The nature of the mind is to think; therefore, the harmony of the mind consists in thinking about harmony; and the greatest harmony of the mind or happiness consists in the concentration of the universal harmony, i.e., of God, in the mind.[73]

These passages appear in three separate texts, the compositions of which range from 1668/9-1672/3. Leibniz's identification of God with the universal harmony is clearly no anomaly. Less clear is in what manner Leibniz intends the identification.

One thing is certain: Leibniz by this identification is in no way ascribing materiality to God. This statement would seem trivial but for the fact that in his April 1669 letter to Jacob Thomasius, Leibniz chides Baghemin and others for confusing the fact that God creates out of himself with the contention that God is the primary matter of things.[74] Yet distancing Leibniz from such "theo-materialist" theses is not especially illuminating. Given the state of his metaphysics in the Mainz period, Leibniz's denial that God is the material of the universe ultimately reveals little about the relationship between God and the universal harmony, for as early as 1668 Leibniz makes an incorporeal principle the mark of substantiality and thereby renders materiality irrelevant to the question of substantial identity. In entertaining the idea that God is the concurrent mind—or said incorporeal principle—for all non-rational creatures,[75] Leibniz leaves open the possibility that God and the universal harmony are substantially the same.

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[72] *Ad Merlo Horstii Monita Sapientiae Christianae*. A VI.2, N. 37, pp. 152-153.
[73] A VI.3, N. 7, p. 117; CP 31. I group the *Confessio Philosophi*, written in Paris between Fall 1672 and winter 1673, together with the Mainz texts because Leibniz employs the co-compensation definition of harmony at crucial points in the work (see VI.3, N. 7, pp. 116 & 122). In this way the *Confessio Philosophi* is thematically and conceptually more akin to the Mainz texts than to those written later in Paris.
[74] A II.1, N. 11, p. 24; L 94.
[75] These positions are articulated in *De Transubstatione* A VI.1, N. 15_2; L N. 5_3

Still, there is no reason to believe Leibniz ever actually believed that God and the universal harmony are substantially one. In other words, we should not read "God is the universal harmony" in the strongest, pantheistic sense.[76] Even when deeming God the concurrent mind for most of creation, Leibniz is careful to point out that created entities are not God, but ideas in the mind of God.[77] Furthermore, as Mercer has documented, by 1669/70 Leibniz ascribes individual substantial principles to each created being, no longer making recourse to the divine mind to explain the substantiality of things.[78] There is simply no evidence in Leibniz's metaphysical writings during this era which supports reading "God is the universal harmony" as endorsing a theory of substantial monism.

Having ruled out the strongest reading, it remains to be determined why Leibniz favors the locution "God is the universal harmony." Leibniz provides no direct commentary on the matter, but I believe there are at least three reasons why Leibniz would want to posit some form of identity between God and the universal harmony, three advantages to his doing so. The first is that regarding God as harmonious follows from Leibniz's equation of the harmonious and the beautiful. If God is Beauty—true on many accounts of the doctrine of the transcendentals[79]—and if harmony is the mark of beauty, then God is harmony.

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[76] I do not know of anyone who attributes such a strong reading to Leibniz in the early 1670s. However, because there is some debate over whether Leibniz has a Spinozist conception of God in 1676, I briefly address the question of pantheism/monism here. On the 1676 question, see Adams (*Determinist, Theist, Idealist*, 123ff), Kulstad ("The One and the Many"), and Mercer (*Leibniz's Metaphysics*, 453ff), as well as Parkinson's helpful footnote to the main text in question (DSR 137, n. 4a).

[77] "The substance of each thing is not so much mind as it is the idea of a concurrent mind." A VI.1, N. 15_2, p. 512; L 118.

[78] Mercer and Sleigh, "Metaphysics: The early period to the *Discourse on Metaphysics*," 77-78.

[79] For a historical account of beauty as a transcendental, see Eco *The Aesthetics of Thomas Aquinas*, Ch.2. For a brief but fair assessment of Leibniz's position vis-à-vis the doctrine of transcendentals and its history—which counts Leibniz's notion of universal harmony as congenial to this doctrine—see Pieper, "Truth of All Things," 18.

While this logic provides sufficient reason for describing God as harmonious, it alone does not account for why God is the universal harmony *rerum*. Making that connection requires recourse to a second motivating factor, *viz*. that the harmonious construction of the universe—in which diverse entities cohere to form a single causal system—offers an image of how the divine simplicity admits of a plurality of notionally distinct perfections. The universe manifests the co-compensation of unity and diversity at the heart of the divine goodness. As was mentioned, it was a staple of natural theology that the world reflects the divine goodness, and the diversity of creatures was generally explained in terms of this reflective relationship. For instance, in his *De Spiritualibus Creaturis*, Aquinas writes[80]:

> No created nature, since it is finite, represents the divine goodness as perfectly as a multitude of natures does, because what is contained in many natures in a multiple way is included in God as a unit; and consequently there ought to be many natures in the universe, and also among the angelic substances.[81]

In saying "God is the universal harmony," Leibniz aligns himself with this way of conceiving the relationship between created and uncreated goodness. In fact, I would submit that Leibniz's focus on harmony—on the good as that which is harmonious—provides him with an even more precise means of accounting for diversity in creation than does focus on goodness *simpliciter*. In a letter to Magnus Wedderkopf from May 1671, he writes: "Since God is the most perfect mind, however, it is impossible for him not to be affected by the most perfect harmony."[82] We know from the fifth draft of the *Elementa juris naturalis* that harmony increases in perfection as it assumes greater

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[80] Though I take Aquinas as my example here, Mercer traces the tradition of seeing the plenitude of the world as an expression of the divine goodness to a wide range of figures. See: *Leibniz's Metaphysics*, 180ff.
[81] Article VIII, ad. 17.
[82] A II.1, N. 60, p.186; L 146.

diversity.[83] From these two premises it follows that, where possible, greater diversity will obtain in creation. Thus for Leibniz, *pace* Aquinas, diversity is not simply the consequence of limitation, i.e., of finite creatures expressing an infinitely perfect source of being. Rather, Leibniz's conception of harmony suggests that diversity is valuable in itself and integral to the goodness of the world.

A third virtue of identifying God with the universal harmony is that it underscores God's self-sufficiency. If God is in some sense the universal harmony, then he neither knows nor wills anything outside of himself and his own goodness in the act of creation.[84] Preserving the self-sufficiency of God would have been of particular importance to Leibniz in light of Descartes' contention that self-sufficiency is the mark of God's substantiality.[85]

Yet, despite the factors which make the identification of God and the universal harmony congenial to Leibniz and his intellectual ends, the identification remains deeply problematic, for it brings Leibniz dangerously close to Spinozism.[86] The proximate Spinozistic threat is not, however, what one might expect. Spinoza's identification of God and nature in his *Ethics* could not have been of concern to Leibniz in the early 1670s. What Leibniz did know—as of October 1670—was Spinoza's *Tractatus Theologico-Politicus* and its rejection of the distinction between the divine intellect and the divine will.[87] This rejection leads Spinoza to the conclusion that everything done by God is done of necessity. The question, then, is not one of pantheism, but of

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[83] A VI.1, N. 12_5, p. 479.
[84] As an example of this type of reasoning regarding creation, see Aquinas ST Ia, q.19, a.2, where Aquinas argues that God wills his own goodness necessarily, and all other things as ordained to his goodness.
[85] *Principles of Philosophy* I.51.
[86] A problem Catherine Wilson has recognized. See *Leibniz's Metaphysics: A Historical and Comparative Study*, 69.
[87] For this dating of Leibniz's acquaintance with Spinoza's *TTP*, see Goldenbaum "Die *Commentatiuncula de judice*" and "Beilage: Leibniz' Marginalien."

necessitarianism. In identifying God and the universal harmony, does Leibniz not fall into the same necessitarian camp as Spinoza?

Leibniz confronts this question, and defends the distinction between the divine intellect and will, in the *Confessio Philosophi* of 1672-3.[88] Before turning to Leibniz's defense, however, we should note that this work itself harbors textual inconsistencies regarding the relationship between God and universal harmony. At times, Leibniz retains the language of identification as when he writes "the greatest harmony of the mind or happiness consists in the concentration of the universal harmony, i.e., God, in the mind."[89] At other times, however, the existent harmony of the universe is portrayed not as identical to the existence of God, but as something "chosen by him."[90] If God selects "the best harmonious totality of things"[91] from amongst several options, identifying God and the universal harmony seems odd.

To a degree, these textual discrepancies are explicable. The primary philosophical contribution of the *Confessio Philosophi* is Leibniz's modal distinction between that which is necessary *per se* and that which is necessary *ex hypothesi* (alternatively called contingent *per se*). Things which fall into the former category are those whose opposites entail contradiction and which accordingly hold true in all possible worlds, for example the laws of mathematics. Things necessary *per se*, on Leibniz's account, result not from the divine will, but follow directly from the divine intellect. Things necessary *ex hypothesi* are those things whose opposites would be possible if not for an externally imposed constraining condition, *viz*. the will of God. Leibniz wants to

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[88] For my justification for including this text—written in Paris—in the analysis of the Mainz period, see n. 73, above.
[89] A VI.3, N. 7, p. 117; CP 31.
[90] A VI.3, N. 7, p. 124; CP 49.
[91] ibid.

maintain the difficult position—against Spinoza—that the features of the universal harmony are necessary *per se*, i.e., that the *constitution* of the best possible world is determined solely by the calculations of the divine intellect, but that the *actual existence* of the universe is necessary only *ex hypothesi*, since any event within the world, and indeed the very existence of the created universe, can be thought to be otherwise than it is. It is not difficult to see how this kind of reasoning would lead Leibniz both to affirm the identity of God and the universal harmony and to treat the same harmony as something selected by God. For, insofar as the universal harmony is determined by the divine understanding to be the order which best reflects the divine essence, it can be identified with that essence. But, insofar as the creation of a harmonious universe is colored by contingency, it cannot be identified with God.[92]

To sum up, there is a tension—or at least a noticeable lack of clarity—in Leibniz's early writings between the "universal harmony," which is an idea in the divine intellect and can be seen as necessary *per se*, and what we might for convenience label "the harmony of the universe," which refers to extant creation and which is contingent *per se*. Leibniz fails to cleanly distinguish these, leaving opaque his pronouncements about the identification of God and the universal harmony.[93] What is clear, however, is that Leibniz envisions the idea of universal harmony as paving the conceptual bridge between God's necessary being and the contingent features of the created world. Significantly, this use of harmony grows out of Leibniz's co-compensation conception

[92] Leibniz's position here resembles Scotus' contention that "the divine will necessarily takes complacency in everything intelligible insofar as some participation of God's own goodness is revealed therein," since the divine will necessarily loves its own goodness, and yet wills "the creature's existence contingently," since the creature's existence is not inevitable. Leibniz too wants to maintain that God wills necessarily the universal harmony *qua* reflection of his goodness as determined by the divine Intellect, yet contingently *qua* created. See Scotus. *Quaestiones Quodlibetales*. Question 16.

[93] The same tension also threatens Leibniz's conclusion that God is cause, but not the author, of sin. See Sleigh's commentary in his introduction to the CP.

and its efficacy in showing how creation mirrors the divine essence, which in its simplicity abounds in a multitude of perfections.

To this point, we have discussed what is and is not meant by Leibniz's claim that God is the universal harmony, yet we have only indirectly addressed how harmony functions in Leibniz's account of creation. Harmony enters into Leibniz's reflections on creation because of its centrality in his theory of intellection. As we have noted, Leibniz believes that the mind operates so as to seek and enjoy harmony amongst its ideas. This holds true not only for human minds, but also for any rational nature whatsoever, for reason simply is the co-compensation of collection and division, the process of calculative combination and permutation. Thus God, the most perfect intellect, knows and wills the most perfect harmony. From Leibniz's 1671 letter to Magnus Wedderkopf:

> What, therefore, is the ultimate basis [*ultima ratio*] of the divine will? The divine intellect. For God wills those things that he perceives to be the best and, likewise, the most harmonious; and he selects them, so to speak, from the infinite number of all the possibles. What, therefore, is the ultimate basis of the divine intellect? The harmony of things. And what is the ultimate basis of the harmony of things? Nothing. For example, no reason can be given for the fact that the ratio of 2 to 4 is that of 4 to 8, not even from the divine will. This depends on the essence itself, i.e., the idea of things. For essences of things are just like numbers, and they contain the very possibility of entities, which God does not bring about, as he does existence, since these very possibilities—or ideas of things—coincide rather with God himself. However, since God is the most perfect mind, it is impossible that he is not affected by the most perfect harmony and thus must bring about the best by the very ideality of things.[94]

As this text attests, creation comes about as a result of the divine intellect's directedness towards harmony.

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[94] A II.1, N. 60, p. 186; CP 3. See also: A VI.3, N. 7, p. 146; CP 101: "For what exists is the best, or harmonious. This is established by an invincible demonstration, because the first and unique *efficient* cause of things is mind; the cause of mind, that is, the cause of its action, or the *end* of things, is harmony; and in the case of the most perfect mind, the cause is the greatest harmony." (Emphasis in original).

I stress that harmony enters Leibniz's account of creation on the back of his theory of intellection for two reasons. First, doing so provides some needed distance between Leibniz and emanative theories of divine causation. Mercer attributes to the young Leibniz what she calls an "Emanative Creation Story," which she sees as a melding of Aristotelian theorizing regarding the nature of substance and Platonist theories of divine causation.[95] The main thrust of her detailed exposition of this creation story is that each individual substance in the created world instantiates, in a particular way, the essence of God. So, in her gloss on the passage from Leibniz's letter to Wedderkopf, the pivotal claim is that the ideas of things "coincide rather with the God himself."[96]

Mercer is right to highlight the relationship between the divine essence and the essence of created things, but her insistence on the language of emanation obscures the structure of Leibniz's argument. Emanative theories of causation turn on the principle that each substance has an activity proper to its own nature *and* communicates this activity to other substances. In the classic example, fire both burns and communicates its heat to other objects.[97] While Leibniz argues for conclusions that are very much congenial to emanative theories of causation—conclusions regarding the likeness of God and creation—nowhere does he employ this central tenet of emanative metaphysics.[98] Given that perhaps no Christian thinker can fully embrace emanative accounts divine causation, I would not object to Mercer's speaking of emanation analogically if her insistence on the language of emanation did not have the effect of ignoring the fact that

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[95] Mercer. *Leibniz's Metaphysics*, 238ff.
[96] ibid. 241.
[97] Plotinus. *Enneads* V.4.2
[98] For this same reason, I take Leibniz's use of the term emanation later in his career to be analogical.

Leibniz constructs his arguments regarding creation around his theory of intellection. The pivotal claim from the Wedderkopf passage is not as Mercer would have it, but is rather "since God is the most perfect mind, it is impossible that he is not affected by the most perfect harmony and thus must bring about the best by the very ideality of things." It is the fact that harmony is the *ultima ratio* of the mind which undergirds Leibniz's depiction of divine causation, not tacit Platonist commitments.

The second reason to stress harmony's connection to intellection *vis-à-vis* Leibniz's account of creation is that doing so brings out the structure of Leibniz's defense of divine justice. Consider the following passages:

> Sins occur to bring forth a universal harmony of things, thus distinguishing the light by means of shadows. However, the universal harmony is a result not of the will of God but the intellect of God, or of the idea, that is, the nature of things. Therefore, sins are ascribed to the same thing.[99]

> If sins exists because the harmony of things brings them about, then it must be said that God permits them, i.e., he neither wills in favor of their existence nor wills against it…even if harmony is pleasing, nevertheless it does not immediately follow that whatever arises from this harmony is pleasing. Because the whole is pleasing it does not follow that each part is pleasing. Even if the entire harmony is pleasing, nevertheless the dissonant aspects of it in themselves are not pleasing, in spite of the fact that they are combined according to the rules of art.[100]

In their general form, Leibniz's early pronouncements on theodicy resemble those of his foregoers. Aquinas too reasons that God merely permits evils. In his language, God wills evils only accidentally, only insofar as they accompany those goods which are necessary to the beauty and perfection of the universe.[101] Leibniz's basic approach to the question "wherefore evil?" is thus firmly rooted in scholastic precedent.

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[99] A VI.3, N. 7, p. 122; CP 45.
[100] A VI.3, N.7, p. 130; CP 63.
[101] ST Ia, q. 19, a.9.

I remarked earlier that Leibniz's focus on harmony as the criterion of creation more directly accounts for the desirability of diversity in creation than accounts which speak only of God's desire to communicate his perfection without further qualification. It is possible that the desirability of increased diversity in a harmonious order might also provide a more satisfying explanation as to why the beauty and goodness of creation need include discordant elements. If the beautiful is the harmonious, an argument might run, and if the harmonious—according to the co-compensation definition—need have multiple entities, entities whose goods can potentially conflict and limit one another, then it follows that the possibility of having beauty without discord is slight, and likely can obtain only in the case of God, the supremely simple and perfect being. But explicitly invoking harmony to explain the contribution of evil to the overall perfection of creation in this way does not, to my mind, offer any real advantage over scholastic approaches to the question of theodicy.[102] The real contribution of harmony to Leibniz's early theodicy, therefore, lies in the account of the "mechanism," so to speak, of creation, specifically the modal distinction between what is necessary *per se* and what is necessary given God's desire for maximal harmony. The link between contingency and harmony is crucial, but as was the case with his remark about the "laws of harmony" in the physical world, Leibniz's conception of harmony will need to become more determinate if it is to provide any precise depiction of the structure of the created world.

[102] For example, Eco has nicely demonstrated that beauty for Aquinas requires order and proportion, that the world is a "well-proportioned organism." From these conceptions one can then argue for the necessity of diversity and discord. See: *The Aesthetics of Thomas Aquinas*, Chs. 2 & 4.

II.4 Conclusion

In surveying Leibniz's writings from 1669-74, one cannot help but think that one is witnessing a great intellectual awakening, a striking and rapid outpour of ideas. Leibniz's prodigiousness in this period owes in large part to the idea of harmony. This notion aids Leibniz in resolving some of the thorniest philosophical conundrums: the relationship of justice and felicity, the nature of mind, the agreement of *a priori* and *a posteriori* reasoning in natural philosophy, the likeness between creator and creature. What's more, harmony enters Leibniz's reasoning most conspicuously at those junctures where he is attempting to show the compatibility, even confluence, of modern mechanical philosophy with both Christian theology and pre-modern philosophy. In this capacity, harmony holds a privileged place in Leibniz's metaphysical project at Mainz.

Much of the wide applicability of the idea of harmony owes to what we have called his co-compensation conception. By defining harmony rather broadly, this conception allows Leibniz to assign harmony a central role in each of the sub-disciplines—natural law, natural philosophy, and natural theology—we have discussed. However, as the next chapter will show, as the concept of harmony gains in significance for Leibniz, the broadness and flexibility of the co-compensation conception becomes something of a vulnerability. Leibniz is hence forced to refine his understanding of the meaning of harmony in order to spare many of the conclusions which he has made depend on it.

III
A New Conception of Harmony
[1675-1679]

Leibniz's extended stay in Paris from March 1672 until the end of 1676—ostensibly a diplomatic mission—proves to be a time of concerted intellectual growth. Most notably, during this period Leibniz devotes himself to mathematics, ultimately resulting in his development of the infinitesimal calculus.[1] Moreover, Paris' intellectual *milieu* acquaints Leibniz with a wider range of personages and theories than was available to him in Mainz. In Mainz Leibniz assumed the project—reconciling substance-based metaphysics with mechanical science—that would come to define him as a thinker; Paris allows him to acquire and sharpen many of the tools needed to bring that project to fruition.

Among the philosophical tools Leibniz hones in Paris is the idea of harmony. We find his ruminations on harmony in a series of short, experimental, yet nonetheless potent metaphysical inquiries collected by the editors of the *Akademie* edition under the title *De summa rerum*. Written towards the end of his Parisian interlude [1675-76], these papers—as the editors' title suggests—concern the nature of God and all which follows from God. As such, it makes perfect sense that Leibniz would discuss harmony in these investigations, given the thesis Leibniz had already espoused regarding God's selection of the most harmonious universe. Yet, as its English translator G. H. R. Parkinson has noted, *De summa rerum* reveals a still heightened interest in harmony on Leibniz's part. "What is distinctive about the use of the principle of harmony in the *De Summa Rerum*,"

[11] For an English translation of Leibniz's account of this development and a collection of manuscripts from the period, see J.M. Child's volume *The Early Mathematical Manuscripts of Leibniz.*

he writes, "is that it functions there as a key concept."[2] Parkinson is surely right about harmony playing an even greater role in the *De summa rerum* than it had in prior texts, but I believe there is an even more distinctive aspect of Leibniz's use of harmony in the Paris papers, *viz*., that Leibniz—who when in Mainz so regularly defined harmony by the co-compensation of identity and diversity—introduces new criteria for assessing the harmony of the world.

In this chapter, we probe the changes to Leibniz's metaphysical conception of harmony which occur in the late 1670s, drawing chiefly on the *De summa rerum* papers.[3] Section one considers the textual evidence for development in Leibniz's conception of harmony. Section two offers an interpretation of how we can best stitch together into a cogent position Leibniz's terse and at times enigmatic statements regarding harmony in *De summa rerum*. Section three proposes that we read the Paris developments in Leibniz's theory of harmony as conscious rejoinders to Spinozism. Section four looks at the consequences my interpretation of harmony has for Leibniz's conception of the laws governing nature. Finally, section five considers what my interpretation of *De summa rerum* contributes to existing scholarship on Leibniz and harmony.

III.1 Beyond Co-Compensation

In the papers comprising *De summa rerum*, Leibniz introduces two new elements into his thinking on harmony. The first can be gleaned from the following passage:

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[2] DSR xxxvi.

[3] I say "metaphysical conception" because this chapter will not treat the use of harmony in Leibniz's mathematics. Though the relationship between the mathematical and metaphysical notions of harmony is a ripe area for further research, a detailed inquiry here would take us too far afield. For Leibniz's "harmonic triangle" and its role in the development of the calculus, see *Historia et Origo Calculi Differentialis*, edited originally by Gerhardt and with an English translation in Child's volume. For recent studies on the idea of harmony in Leibniz's mathematics, see Serfati ("Leibniz's Practice of Harmony in Mathematics" and "Mathematical and Philosophical Aspects of the Harmonic Triangle in Leibniz").

> (A) 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. It follows that there is more reason for existing than for not existing, and that all things will exist, if that can come about.[4]

This remark stands out not only because in it Leibniz for the first time explicitly deems harmony a principle, but also because it introduces a new factor into our understanding of harmony: the maximization of essence. What is new here is not the idea of maximization as such—Leibniz's principles in the Mainz period already commit him to the position that God seeks the greatest possible diversity, for God seeks the greatest possible harmony and the degree of harmony increases only with added diversity—but the idea that harmony entails the maximization of *essence*.

On a plausible reading of the co-compensation definition of harmony—i.e., identity compensated by diversity, diversity compensated by identity—God seeks to create the greatest possible number of *things*. With passage A, Leibniz makes clear that more than the sheer multiplication of things, it is the maximization of *quantity of essence* (or, what amounts to the same thing, of perfection) which characterizes the most harmonious world. These two criteria—the maximal number of substances and the maximal quantity of essence—are not identical. Possible substances in the mind of God are distinguished according to their levels of perfection; each has a quantifiable amount of essence. It is entirely possible, therefore, that a world with fewer entities could have a greater quantity of essence than a world with more entities, if the sum total of perfection in the former is greater. For the first time in *De summa rerum*, Leibniz disambiguates what it is God seeks to maximize in his selection of the most harmonious world.

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[4] A VI.3, N. 60, p. 472; DSR 21. Cf. A VI.3, N. 83, p. 582.

The second new feature in Leibniz's conception of harmony surfaces in his discussion of harmony as "a certain simplicity in multiplicity."

> (B) For out of infinitely many possibles, some are the simplest; but the simplest are those which provide the most. The reason for this is that there is no reason that limits the rest. Harmony is just this: a certain simplicity in multiplicity. Beauty and pleasure also consist in this. So for things to exist is the same as for them to be understood by God to be the best, i.e., the most harmonious.[5]

The language of simplicity is new, though it would at first glance appear that simplicity stands as a synonym for identity or unity. Thus understood, passage B provides us with yet another iteration of harmony as the co-compensation of identity and diversity or unity and variety. Yet, if we attend more closely to the account of simplicity which Leibniz gives—"the simplest are those which provide the most"—it becomes clear that Leibniz goes beyond what the co-compensation conception alone can justify. With this remark, Leibniz posits an integral connection between simplicity and multiplicity. Simplicity provides for the greatest multiplicity; multiplicity depends on the simple.

Leibniz's remark regarding the mutual obtaining of simplicity and multiplicity is no anomaly, for he expresses this belief in other contexts during the Paris period as well.

> (C) Descartes takes refuge in the immutability of God; but he should have appealed to the harmony of the works (*rerum*) of God, for the wisest being chooses the simplest means to achieve the greatest results.[6]

By contrast, the co-compensation definition gives no indication of such mutual-obtaining. Under that definition of harmony, a multiplicity is reduced to unity while retaining its variety, but there is no sense that unity effects variety or that the former ought to be defined in terms of the latter. In Mainz, we find the co-compensation of identity and

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[5] A VI.3, N. 87, pp. 587-588; DSR 113.
[6] A VI.3, N. 58, p. 466; DSR 11.

diversity; in the Paris manuscripts of *De summa rerum*, we find a relationship between simplicity and maximization that is less co-compensation than *co-implication*.

With Leibniz's newfound emphasis on the maximization of essence and on simplicity as productive of it, there is clearly something new afoot in *De summa rerum* regarding Leibniz's account of creation and of the function of harmony therein. Before exploring the implications of Leibniz's revised conception of harmony, however, an important caveat is in order. As even a cursory reading of the Leibnizian corpus makes plain, the co-compensation conception does not drop out of Leibniz's writings after his Parisian sojourn. Just shortly after penning the essays of *De summa rerum*, in the *Elementa verae pietatis* of 1677-8, Leibniz defines harmony as "unity in variety" in the course of demonstrating the proposition "The good of the beloved is sought on account of itself."[7] To add a much later example, Leibniz comments in a 1715 letter to Christian Wolff that harmony is more pleasing the more *consensus* there is in variety.[8] Thus, in insisting that Leibniz introduces a *new conception* of harmony, I am not suggesting that Leibniz dispenses with the co-compensation conception entirely or that he never again thinks of harmony in these terms. The texts do not bear out such a radical reading.

What the texts rather suggest is this: harmony as the co-compensation of identity and diversity remains for Leibniz a useful conception and most likely expresses his focal definition of harmony. For certain kinds of demonstration, this conception is perfectly adequate. For example, it captures the essence of harmony sufficiently clearly and succinctly for demonstrations relating to ethics and natural law, as the mind's delight in harmony goes a long way towards explaining why the good person takes pleasure in the

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[7] A VI.4, N. 256, p. 1358.
[8] Leibniz to Christian Wolff, 18 May 1715. GLW 170-171; AG 233.

happiness of all, as we explored in Chapter II.1. The enduring power of the co-compensation conception of harmony for such proofs is reflected in its use in the *Elementa verae pietatis*, the argumentation of which resembles that of the *Elementa juris naturalis* in important respects.

Yet in other matters, especially in more detailed metaphysical discussions, the co-compensation definition stands in need of augmentation and honing if it is to have any real force. When it comes to God's selection and creation of the most harmonious universe, for instance, simply stating that "identity in diversity"—even the "greatest possible diversity"—obtains in the universe does not delve deeply enough. The co-compensation conception, absent any additional criteria, leaves Leibniz's account too superficial and too vague. For one, it leaves obscure how we are to measure diversity. What's more, as we shall see, the co-compensation definition provides Leibniz with insufficient resources for upholding the objective goodness of the world, the very defense of which was one of the primary reasons Leibniz invoked the idea of harmony in the *Confessio Philosophi*.[9] These considerations lead to the conclusion that Leibniz stands in need of a new conception of harmony. The fact that the conception of harmony introduced in *De summa rerum* is not co-extensive with the co-compensation definition leads to the further conclusion that Leibniz is in fact responding to this need in his Paris writings.

In addition to pointing to Leibniz's new conception of harmony, the *De summa rerum* papers—as compared to the Mainz texts—reveal a marked increase in Leibniz's confidence in harmony as a fruitful metaphysical concept. In passage A, he for the first

[9] How Leibniz's reflections on harmony in *De summa rerum* better enable him to defend the goodness of the world and its creator will be taken up in section III.3.

time ranks harmony as a principle and he proceeds to use this principle to argue for the *a priori* necessity [*ex hypothesi*] of certain features of creation: the conservation of motion,[10] the impossibility of a vacuum,[11] the actual infinite divisibility of matter.[12] Leibniz's warrant to advance such arguments comes from the fact that one thesis apropos his thinking on harmony never changes, *viz*., that harmony is the end and satisfaction of the intellect.[13] That God knows and delights in the most perfect possible harmony forms a key premise in Leibniz's arguments that God's creative act is free and good, and this without violation of the principle of sufficient reason. The details of Leibniz's strategy will be ours to explore, but having looked at the new criteria for harmony introduced in *De summa rerum*, it is essential that we keep in mind the unwavering connection between harmony and the perfection of the intellect. In this regard, it is fair to say that harmony has something of a fixed place in Leibniz's system, but this is not to be confused with Leibniz's having a fixed conception of harmony. The Paris manuscripts give the lie to any strong continuity thesis.

III.2 Harmony in *De summa rerum*

Given the new criteria of the maximization of essence and of simplicity, what exactly characterizes the most harmonious order? What do these two new elements tell us about God's selection of the most harmonious world? Let us begin with simplicity. According to passage B, what is most simple provides for the most because it puts the least constraint on the existence of other things: "The reason for this is that there is no

[10] A VI.3, N. 58, p. 466. (Passage C, above).
[11] A VI.3, N. 60, p. 473
[12] ibid. p. 474.
[13] A VI.3, N. 60, p. 476; DSR 29. Cf. A VI.4, N. 256, p. 1359 (*Elementa verae pietatis*).

reason that limits the rest."[14] Here Leibniz defines simplicity as a relation between substances. Simplicity, then, is directly proportional to what Leibniz elsewhere calls the compossibility of substances. This might strike us as odd, since at other points Leibniz suggests that simplicity is not a relation, but a property of a given being itself exclusive of its relationship to any other possible beings.

> (D) The simplest thing is that which thinks that it thinks itself; and thinking is absolute when that which thinks itself is all things.[15]
>
> (E) The harmony of things requires that there should be in bodies beings which act on themselves. On the nature of a being that acts on itself: it acts by the simplest means, for in that there is harmony.[16]

Leibniz thus seems to present two notions of simplicity. On the one hand—as in passages D and E—simplicity marks a property of a single being, namely the property of acting on itself. On the other hand—as in passage B—a being's simplicity is determined by its relationship to other beings, namely its non-obstruction to their existence.

Given the balance of Leibniz's statements in *De summa rerum*, I think it is most logical to presume that simplicity is a property of a single substance and that it is on the basis of a being's simplicity that it constrains least the existence of other beings. For, if a given being acts on itself, it is not a big leap to the conclusion that said being would easily accommodate the existence of other beings on which it need not act. This distinction between simplicity as a property of a single substance and simplicity as a relation between substances might seem trivial, but I think it is important for distinguishing the criterion of simplicity from the notion of compossibility. Simplicity, Leibniz will argue, effects the maximization of essence in the world in a way

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[14] A VI.3, N. 87, pp. 587-588; DSR 113.
[15] A VI.3, N. 74, p. 518; DSR 75.
[16] A VI.3 N. 87, p. 588; DSR 113.

compossibility alone does not. Key here is the maximization of *essence*. If the harmony of the universe required no more than the sheer variety of *substances*, and if simplicity meant no more than non-obstruction and compossibility, then little would need explaining; of course simple things produce the most variety, for it is the very compossbility with variety which makes them simple. The requirement that harmony maximize *essence* makes Leibniz's story, by contrast, more complex and requires that we look more closely at how Leibniz conceives of the simplicity of beings.

Passages D and E offer an important interpretative clue for understanding the relationship between simplicity and maximization. Leibniz posits that the self-reflexive activity of minds is the simplest activity. In what way, then, do they provide for the greatest quantity of essence, as required by passage A? *De summa rerum* hints at an explanation along the following lines. The essence of something increases in proportion to its perfection. Minds, Leibniz observes, are by their very nature essence amplifiers. They amplify essence in their ability to multiply their own knowledge—or, what is the same, their own power and perfection—through self-reflexion. Relying on what appears to be a version of the KK principle—i.e., if one knows *p*, then one knows that one knows *p*—Leibniz speaks of the "tripling of reflection" which obtains when we think about our thinking then later recall this self-reflexive act.

> The following operation of the mind seems to me to be most wonderful: namely, when I think that I am thinking, and in the middle of my thinking I note that I am thinking about my thinking, and a little later I wonder at this tripling of reflection. Next I also notice that I am wondering and in some way I wonder at this wonder, and fixed in one contemplation I return more and more into myself, alternately as it were, and elevate my mind through my thoughts.[17]

[17] A VI.3, N. 73, p. 516; DSR 73. Cf. a similar comment at A VI.3, N. 71, p. 509; DSR 61.

Self-conscious minds contain more essence than non-self-conscious beings not only because the former perform the highest kind of activity, thinking, but also because they can multiply what knowledge/perfection they have. This, I take it, is how we bridge Leibniz's comment in passage E—"on the nature of a being that acts on itself: it acts by the simplest means, for in that there is harmony"—with his remark in passage C that God chooses the simplest means to achieve a maximal result. Self-reflexive beings are the engines, so to speak, of universal harmony because in their simple activity they multiply the sum total perfection in the world. What's more, because self-reflexive beings amplify essence through action on themselves, minds can maximize their own essence without preventing other minds from doing the same. They offer, to recall Leibniz's remark from passage B, "no reason that limits the rest." Thus, simple beings do admit a high degree of compossibility, but it is not their being compossible which chiefly serves to maximize essence. It is rather their ability to "elevate [their minds] through their thoughts."

At this point, one might doubt that what Leibniz describes as a "tripling of reflection" in fact amounts to a real increase in knowledge and perfection, seeing it instead as a mere reiteration of knowledge already possessed. Leibniz offers more a straightforward argument for how self-reflexive activity adds to the mind's perfection later in his career. In §30 of the *Monadologie* of 1714—and in a similar argument in the *Nouveaux Essais* of 1705[18]—Leibniz claims that the mind's ability to think itself is the condition upon which all metaphysical thought is based. By virtue of its ability to grasp through abstraction necessary truths, the mind proceeds from immediate knowledge of itself to "think of being, of substance, of the simple and the composite, of the immaterial, and of God himself, by conceiving that that which is limited in us is limitless in him."

[18] *Nouveaux Essais sur l'entendement humain* A VI.5, N.2, p. 86; NE 86.

That is, the mind through reflection grasps that it is (being), that it acts and persists (substance), that it holds together in unity diverse perceptions (simplicity and composition), and that such diversity in unity is only possible in an unextended being (immateriality). These thoughts in turn open the possibility of the idea of God, a simple, immaterial being who is all things and knows all things. Since, as Leibniz notes, "these reflective acts furnish the principle objects of our reasoning,"[19] we see that the simple, self-reflexive activity of rational beings increases the quantity of essence in the world by making possible great increases in sum total knowledge. I bring up this argument not to violate our chronological method, but merely as a means of making more sense of Leibniz's claim that self-reflexion increases sum total knowledge and perfection. He is committed to this claim at the writing of *De summa rerum* even if he has not yet sketched out all its implications.

Returning to the make-up of the most harmonious world, we can thus far conclude that the conception of harmony Leibniz employs in *De summa rerum* mandates the creation of self-reflexive rational beings. That is, we can explain the reasoning behind passage E: "the harmony of things requires that there should be in bodies beings which act on themselves."[20] Additionally, from what has been said thus far, we might further conclude that the principle of harmony mandates the creation of innumerably many rational minds. Assuming the identity of indiscernables, each mind is unique in its quantity of perfection.[21] So, positing the existence of any given mind, m_1, God finds that granting existence to a second mind, m_2, both increases the overall perfection of the

[19] ibid.
[20] A VI.3 N. 87, p. 588; DSR 113.
[21] In *De summa rerum*, Leibniz treats the identity of indiscernables in a tract entitled "*Meditatio de principio individui*," A VI.3, N. 67.

whole—since each mind has knowledge of itself, these selves are distinct, and thus the overall amount of essence in the world increases—and is not obstructed by the existence of m_1. Similarly, positing the existence of m_1 and m_2, God finds it more harmonious to grant existence to a third mind, m_3, and so on.

Here, two difficult issues arise. The first is textual, for the scope of the claim that "harmony requires…there should be in bodies beings which act on themselves" is ambiguous. Leibniz could be arguing that in the most harmonious universe *all* bodies must have "beings which act on themselves" or he could be arguing that the most harmonious universe cannot entirely lack self-reflexive beings, so there must be at least *some* bodies which have them. Given the context surrounding the passage, Leibniz appears to limit self-reflexivity to at least sentient, if not rational, beings, so we should read Leibniz as endorsing the latter, more restricted claim.

But removing this textual ambiguity regarding the scope of Leibniz's claim only forces a philosophical difficulty upon us. Our foregoing analysis has suggested that, due to their ability to maximize essence via their simplicity, self-reflexive beings contribute most to harmony. It follows that God, who desires the greatest possible harmony should create self-reflexive beings *ad infinitum*. Leibniz comes close to this conclusion when stating that there "are innumberable minds everywhere,"[22] but this should not be confused with the conclusion that there are self-reflexive, rational minds everywhere and in all bodies. So, the question is, why does God create anything other than self-reflexive beings? If our interpretation is to have any merit, it must provide an answer to this question, for without one our strategy of placing rational minds at the center of the most harmonious world falls short of adequately accounting for the features of the existent

[22] A VI.3, N. 60, p. 477; DSR 31.

world. Fortunately, I believe an answer can be given, one which makes all the more likely that a proper interpretation of Leibnizian universal harmony ought to privilege the creation of rational beings.

Why do things other than rational minds exist? I believe we glimpse Leibniz's answer in the text surrounding passage D. The passage itself—"the simplest thing is that which thinks that it thinks itself; and thinking is absolute when that which thinks itself is all things"—is most plainly read as a reference to God, who in absolute simplicity thinks all that is possible. Yet, Leibniz's remark occurs in the course of his discussing the human mind, specifically in the course of his refuting Spinoza's definition of the mind as "the idea of a body."[23] So, the scope of Leibniz's remark is not limited to the divine mind; it tells us something about all thinking beings. Leibniz goes on to write:

> We perceive many things in our mind, such as thinking or perceiving, perceiving oneself, perceiving oneself to be the same, perceiving pleasure and pain, perceiving time or duration. Pleasure seems to come from *thinking of many things, or, from the transition to perfection*. Happiness itself consists in the continual transition to greater perfection. Since there is nothing in us except the mind, it is wonderful how so many different things are perceived in it. But in fact the mind is added to matter, and without matter it would not perceive as it does.[24]

Leibniz here observes that what I have described as the maximizing capability of self-reflexive beings is only fully exercised when said beings think things other than themselves. Minds maximize their essence/knowledge/perfection when in the simple activity of thinking themselves they at the same time think other things, and ideally all things. In response to our question, the reason to create non-rational beings is this: their creation adds to the overall harmony of the universe by increasing the knowledge/perfection available to those rational beings which are created. If in minds we

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[23] Spinoza. *Ethics* II, P13.
[24] A VI.3, N. 74, p. 518; DSR 76-77. Emphasis mine.

find harmonious activity in which simple self-reflexion occasions the multiplying and maximization essence, then the degree of harmony increases as minds have more knowledge on which to reflect. To have the greatest possible harmony in turn requires the creation of beings at various levels of perfection for cognizing minds to know.[25]

Such is Leibniz's reasoning as to why the criterion of maximal harmony necessitates not only rational minds, but also non-rational creatures. This is not the same as explaining how harmony determines the features of the rest of the world. In general, I believe Leibniz's approach is this: since the harmony of the universe is maximized via the perfection of self-reflexive rational beings, then in order to achieve the greatest possible harmony, the world must be arranged in such way that it is maximally intelligible. Call this the criterion of a maximally intelligible world, which obtains as a condition for rational beings knowing as much as possible. Put otherwise, since the beings most conducive to a harmonious world are rational minds, the most harmonious world must be one that is epistemically hospitable to them.[26] We shall take up in detail the consequences of this criterion in section III.4, but it is important to flag here that, while our interpretation to this point has focused on the creation of rational minds, Leibniz's principle of harmony governs the whole of creation.

Let us now review some implications of the foregoing analysis. The importance of the self-reflexivity of minds in Leibniz's Parisian conception of harmony suggests that the two elements of Leibniz's new conception of harmony—simplicity and the

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[25] See Rutherford's account of how the principle of continuity intersects with this requirement. "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" (*Rational Order*, 30).

[26] For further consideration of the epistemological import of Leibniz's theory of harmony see Carlin, "On the Very Concept of Harmony."

maximization of essence—are not in tension.[27] The primacy of rational beings in creation shows this, for they are those beings who by their activity maximize their own perfection and do so in a way that is most compatible with the perfection of other beings.

Thus, it is truly the co-implication of simplicity and maximization of essence that is beautiful, pleasing, and good. At times Leibniz's language appears to subordinate simplicity to maximization. The appearance of subordination is true insofar as Leibniz sees simplicity as effecting the maximization of essence, but false if taken to imply that maximization of essence is the true motivating factor in God's choice of the best possible world. Leibniz's pivotal insight is that neither maximization nor simplicity can obtain in the absence of each other. For Leibniz, neither sheer plenitude nor sheer simplicity is intellectually satisfying. What is intellectually satisfying, however, is the fact that producing plenitude depends on having a certain kind of activity, *viz.* simple, self-reflexive, contemplative activity. Leibniz's insistence is that *harmony* itself is God's criterion in choosing the best possible world. The co-implication of maximal essence and simple activity explains the choiceworthiness of harmony, but there is nothing in Leibniz's analysis which suggests that God finds either of these components choiceworthy in itself.

Our interpretation not only makes sense of Leibniz's various, often disparate, remarks regarding harmony in *De summa rerum*, but also explains God's choice of the most harmonious universe in a way that takes seriously the special moral status of rational agents. Leibniz is fond of citing the special relationship God has to rational beings, the special concern he shows for their happiness. To cite just one example, in the

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[27] For a discussion of opposing interpretations, which view these two elements as conflicting, see section III.5, below.

paper *De arcanis sublimium vel de summa rerum* (from which the *Akademie* editors derive the title *De summa rerum)* Leibniz writes: "I consider minds as destined for unparalleled joys and extraordinary happiness." [28] Our interpretation of harmony does justice to the central importance of the perfection and perfectibility of rational beings; they are the primary citizens of the most harmonious universe and all other features of that universe are arranged so as to further their knowledge and perfection.

Recall that in the Mainz texts we saw the concept of harmony used 1) to prove *a posteriori* the incorporeality of minds[29] and 2) to explain that the universe is conducive to the virtue and justice of rational beings.[30] In *De summa rerum*, Leibniz bolsters his conception of harmony such that he can use it 1) in an *a priori* argument for the *necessary* existence of incorporeal minds in the most harmonious world[31] and 2) to explain that the harmony of creation is not accidentally conducive to the intellectual and moral perfection of rational beings, but is in fact designed for this end. Overall, a story is beginning to emerge wherein the idea of harmony, though not confined to Leibniz's theory of mind, always intersects with it, allowing Leibniz to defend the exceptionality of rational beings.

Yet, before accepting this story, we must address a potentially damning challenge to it. However Leibnizian the idea of a world favorable to the perfection of rational beings might sound, this point is one Leibniz at times appears willing to concede during the Paris period. Commenting on the Appendix to Book I of Spinoza's *Ethics*—in which Spinoza dismisses teleological interpretations of the world—Leibniz writes:

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[28] A VI.3, N. 60, p. 477; DSR 31.
[29] Section II.2, above.
[30] Section II.1, above.
[31] A VI.3 N. 87, p. 588; DSR 113 (Passage E, above). Note that this necessity is necessity *ex hypothesi*.

> He adds an appendix in which he attacks those who believe that God acts according to purposes. The appendix is a mixture of truth and falsehood. Even though it is true that not everything happens for the sake of men, it does not follow that God acts without will or knowledge of the good.[32]

With this remark, Leibniz lays out his strategy for resisting Spinoza's conclusions about the relationship between God and the world: uphold God's purposiveness and goodness in creating by showing that this thesis does not depend on the "falsity" that all things are done for the sake of man. Our interpretation—which contends that the privilege accorded the human mind is essential to understanding Leibniz's account of the best and most harmonious world—seems to fly in the face of Leibniz's strategy.

As it turns out, the relationship of Leibniz's account of harmony in *De summa rerum* to Spinoza's *Ethics* is a good deal more nuanced than this discrepancy suggests, and I do not believe that our interpretation of harmony in *De summa rerum* in any way undermines Leibniz's arguments against Spinoza. To the contrary, as I will suggest in the following section, Leibniz's revised conception of harmony can and ought to be read as an essential part of his response to Spinoza.

III.3 Harmony: An Entity of Reason

In the appendix to the first book of his *Ethics*, Spinoza takes aim at what he sees as three pervasive metaphysical prejudices, the prejudices of teleology: that God "directs everything to a fixed end," "that God has made everything for man's sake," and that God "has made man that he should worship God." Leibniz holds as true the first and third of these reputed prejudices: the first owing to his thesis that God opts in favor of maximal harmony and the third owing to his conception of the *summum bonum*. Of special

[32] A VI.4, N. 337, p. 1776; L 205

concern is whether or not Leibniz affirms the second proposition. Deciding on this matter is essential because Spinoza contends that the first belief—that God directs everything to a fixed end—has its origin in the second. He writes:

> When men became convinced that everything that is created is created on their behalf, they were bound to consider as the most important quality in every individual thing that which was most useful to them, and to regard as of the highest excellence all those things by which they were most benefitted. Hence they came to form these abstract notions to explain the natures of things: Good, Bad, Order, Confusion, Hot, Cold, Beauty, Ugliness.[33]

On Spinoza's reading, the ends traditionally attributed to God as governing his creating—Goodness, Order, Beauty—lack objective meaning. They have meaning only relative to human beings. In Spinoza's terms, notions such as Good, Order, and Beauty are entities not of reason [*entia rationis*] but of the imagination [*entia imaginationis*]. Such notions arise because humans illicitly reify their interests into abstract notions. Especially striking given the subject of our study, Spinoza highlights harmony as an *ens imaginationis*. Alluding to the Pythagorean belief in the harmony of the spheres, he declares that the idea of harmony "has driven men to such madness that they used to believe that even God delights in harmony."[34]

Against this mad, imaginative, teleological approach to reality, Spinoza advances the mathematical. "Mathematics," he writes, "which is concerned not with ends but only with the essences and properties of figures, revealed to men a different understanding of truth."[35] In mathematics, there are no final causes. One ascertains truth only through formal causes, i.e., essences. Leibniz shares Spinoza's premise that considering the essences of things requires an investigation analogous to mathematics. For instance, he

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[33] *Ethics* I, Appendix.
[34] ibid.
[35] ibid.

likens the essences of things to numbers. "The essences of things are as numbers. Two numbers are not equal to each other, so two essences are not equally perfect."[36] Interestingly, however, Leibniz offers this analogy in a piece with a decidedly anti-Spinozist title: *De necessitate eligendi optimum*.[37] How, then, does Leibniz carve out a position from which he can agree with Spinoza regarding the importance of understanding through essences and yet support a radically opposed conclusion regarding the objective goodness of the world?

The answer to this question lies in Leibniz's refurbished conception of harmony. Recall: "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."[38] By focusing on the maximization of *essence* which obtains in the most harmonious universe, Leibniz attempts to deny Spinoza the distinction between mathematical and teleological standards of truth. Leibniz asserts that harmony, and *ipso facto* goodness, can be predicated of the world by looking solely to essences—à la mathematics—and not by looking to ends, if by ends one means something relative to human interest. That is, harmony—on Leibniz's conception—serves as an objective standard, an *ens rationis*. Teleological explanations of creation therefore need not involve imagined standards of value and need not conflict with mathematical explanations. One can hold that "God delights in harmony" without suffering Pythagorean "madness."

Because we find Leibniz in *De summa rerum* striving to forge a sufficiently quantitative, essence-based conception of harmony, I believe we ought to read the Paris

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[36] A VI.4, N. 250, p. 1352.
[37] The *Akademie* editors tentatively date this text 1677. Assuming this dating is correct, the text is written just after the works comprising *De summa rerum*.
[38] A VI.3, N. 60, p. 472; DSR 21. (Passage A, above).

developments in Leibniz's idea of harmony in light of Spinoza's *Ethics*.[39] Given Leibniz's study of Spinoza during the Paris period, I find it no coincidence that Leibniz's notion of harmony develops in the direction that it does. By incorporating the idea of the maximization of quantity of essence into his conception of harmony, Leibniz, I want to suggest, seeks to meet head-on Spinoza's attack on teleological interpretations of reality.

The maximization of essence, however, is of itself powerless against Spinoza's critiques. Spinoza in his own way argues for the maximization of essence, reasoning that from God's infinite intellect, an infinite number of things follow *by necessity*.[40] This is why Leibniz's contention in *De summa rerum* that the maximization of essence happens only through the simple self-reflexive activity of minds is so important, for, on Leibniz's account, explaining how essence is maximized in the world requires an understanding of the nature of the mind that Spinoza lacks. On Spinoza's definition of the mind as the idea of a body, Leibniz writes:

> Is the mind the idea of a body? That cannot be, for the mind remains when the body has been continually changed…Extension is a state, thinking is an action. Extension is something absolute, thinking is relative. Everything that thinks, thinks something. The simplest thing is that which thinks that it thinks itself; and thinking is absolute when that which thinks itself is all things.[41]

For Leibniz, Spinoza's definition of the mind inadequately accounts for the mind's enduring identity over time. Whereas bodies change continuously, "the nature of the mind…consists in the sense of itself" which persists amidst the mind's changing

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[39] To be sure, in the aforementioned 1671 letter to Wedderkopf, Leibniz likens the essences of things to numbers and thus has something of a quantitative, essence-based approach. My contention here will be that Leibniz's new ideas regarding the relationship between simplicity and essence maximization better meet Spinoza's challenge than what is contained in the 1671 letter could.

[40] *Ethics* I, P16.

[41] A VI.3, N. 74, p. 518; DSR 79. (Passage D, above). For Spinoza's definition of the mind as the idea of a body, see *Ethics* II, P13.

perceptions.[42] As we saw in Chapter II.2a, the capacity to retain identity amidst changing perceptions is one peculiar to incorporeal minds, which *distinguishes*—as opposed to *identifies*—them with bodies. The mind's sense of itself and its own knowledge of "all things" is, in turn, pivotal in explaining how essence is maximized in the world. In this sense, Leibniz can maintain that his account of the nature of the mind provides a more thoroughgoing depiction of how maximal essence follows from the divine perfection than does Spinoza's.[43]

Returning to the matter of teleology, Leibniz's revamped conception of harmony in Paris does not in itself respond to Spinoza's denial of the divine will and his correlative contention that all things follow from the divine essence of necessity. Understanding Leibniz's treatment of the necessitarianism issue would entail an investigation of his modal logic of necessity and possibility, which we touched on in our examination of the *Confessio Philosophi*, but cannot further undertake here.[44] What his notion of harmony does do, however, is carve out a position from which Leibniz can claim that *even if* the features of the existent world are in some sense necessary, their necessity does not rule out their being considered at the same time objectively harmonious and good. Of course, in order to reach Leibniz's conclusion, one must accept that it is reasonable to define the maximization of essence via the simple, non-obstructive self-reflection of minds as "harmonious." One might refuse to permit Leibniz this conception. Important for

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[42] A VI.3, N. 71, p. 509; DSR 61.
[43] Spinoza does remark on the mind's sense of itself and offers his own endorsement of the KK principle in the scholium to *Ethics* II, P21 which states: "This idea of the mind is united to the mind in the same way as the mind is united to the body." Leibniz's retort, I take it, would be that if the mind's relationship to the body is primary, and its self-relation derivative, then one cannot explain the identity of the self over time.
[44] See section II.3, above.

Leibniz's purposes however, is to show that what counts as harmony need *not* be a judgment relative to the imagination.

For Spinoza, the assumption that God "directs everything to a fixed end" depends upon the illusory premise, "God has made everything for man's sake." Leibniz, as it were, reverses the order of precedence. The divine intellect delights in the most perfect harmony and from this it follows that rational beings are the center of creation. Leibniz could not have defended such a reversal with the co-compensation conception of harmony alone, for it is possible to imagine a unifying principle compensating for almost any variety, an identity in any diverse collection. To give a robust account of what it means for the world to be the most harmonious, Leibniz needed to delve into an analysis of essence and ultimately of minds *qua* essence-amplifiers. That he did so in Paris is, I contend, most easily accounted for by his exposure to the principles of Spinoza's metaphysics.

Though I have cited Leibniz's renewed conception of harmony in Paris as an attempt to fortify his position against Spinoza, Catherine Wilson has offered a reading more skeptical of Leibniz's success in this regard. She argues that Leibniz's claim in passage A—particularly the thesis "that the greatest amount of essence that can exist, does exist"[45]—offers an ultimately unsatisfactory response to Spinoza, writing:

> But this theory is obviously powerless against Spinoza's claim that what exists is neither good nor bad except in light of human interests. Why should the maximum number of substances also be, objectively speaking, the best from the moral point of view? Leibniz has no answer here; he can only echo Malebranche's claim that efficiency is beauty, as he does in section 5 [of the *Discours de Métaphysique*]. But even if efficiency is beautiful, it does not follow

[45] A VI.3, N. 60, p. 472; DSR 21.

> that the beauty the philosopher seeks is just efficiency, and this problem pursues Leibniz well into the pages of the *Theodicy*.[46]

We shall consider the notion of efficiency Leibniz presents in the *Discours* in the subsequent chapter, but already our analysis of *De summa rerum*—and really it is *De summa rerum* that is most revealing here, not the *Discours*, since Leibniz writes the response to Spinoza which Wilson cites in 1676—has shown that Leibniz does have resources for articulating how something like efficiency or order is good from the moral point of view. Any order which renders the world maximally intelligible is good in that it satisfies the desires of rational minds, thus increasing their knowledge, perfection, and happiness. By focusing narrowly on the aesthetic appeal of efficiency, Wilson, I believe, overlooks the basic structure of Leibniz's response to Spinoza and the role of rational minds in it.[47]

Let me now address whether the foregoing philosophical account of Leibniz's motives for revising his conception of harmony is historically plausible. The earliest reference to harmony in *De summa rerum* dates to 11 February 1676.[48] Leibniz had access to a copy of Spinoza's *Ethics* no earlier than November 1676. This sequence of events has led Mercer to conclude that Spinoza "could have had no extensive influence" on Leibniz's theory of harmony.[49] Since, she writes, "Leibniz neither saw a copy of the *Ethics* nor talked with its author about it until November 1676," any developments in

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[46] C. Wilson. *Leibniz's Metaphysics: A Historical and Comparative Study*, 97-98. For Malebranche on simplicity, see *The Search After Truth* (published1674-75), II.1.7, III.2.6, VI.2.4. Leibniz and Malebranche share the idea that the simplicity of God's activity indicates his goodness, and that God justly preserves this simplicity even if entails the occurrence of deformity in the world.

[47] My response to Wilson is in the same vein as Gregory Brown's. Brown writes: "in order to maximize the amount of knowledge that can be obtained in a world, God ought to maximize the number of 'truly universal observations' that can be made in that world…Thus we see how happiness, knowledge, and perfection are related in Leibniz's thought" ("Leibniz's Theodicy and the Confluence of Worldy Goods," 583).

[48] See Passage A, above.

[49] Mercer and Sleigh. "Metaphysics: The early period to the *Discourse on Metaphysics*," 121, n. 42

Leibniz's system prior to this date cannot have Spinoza's *magnum opus* as their catalyst.[50] If Mercer is correct, then passage A—"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."[51]—written in February 1676 cannot be a response to Spinoza's critique of teleology, and my account of Leibniz's motivation collapses.[52]

Despite the ostensible soundness in approaching the matter conservatively, I would urge, *pace* Mercer, that we not limit the scope of Spinoza's possible influence on Leibniz to after the latter's reading the *Ethics* in November 1676. Leibniz was apprised of many of the central contents of the *Ethics* in discussions with Spinoza's trusted liaison Walther von Tschirnhaus earlier that year. Though Mercer reasons that these discussions are insufficient to account for Leibniz's numerous remarks on harmony in the first half of 1676, Leibniz's notes to his discussions with Tschirnhaus make evident that by February he knew Spinoza held God to be the only substance and individual minds to be modes of God.[53] From these premises—added to his previous familiarity with Spinoza's denial of divine will—Leibniz certainly could foresee the need to articulate a new conception of harmony. Once confronted with Spinoza's monism, he would have realized that a world with "the greatest possible diversity compensated for by identity" well describes the

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[50] ibid.
[51] A VI.3, N. 60, p. 472; DSR 21. Cf. A VI.3, N. 83, p. 582.
[52] Mercer's express claim is that Spinoza's *Ethics* could have had no extensive on Leibniz's development of the theory of *preestablished* harmony, the inception of which she dates to April 1676. I will take up the theory of pre-established harmony in Chapter IV. I do not agree that Leibniz has all the component parts of that theory in place by the middle of 1676. His basic conception of harmony undergoes revision throughout 1676, with some of the key passages regarding the co-implication of simplicity and essence maximization not being written until November of that year. Moreover, the theory of preestablished harmony also relies on Leibniz's distinction between motion and force in *De corporum concursu* (1678) and his complete concept notion of substance, arguably not worked out fully until the *Generales Inquisitones de analysi notionum et veritatum* (1686). Still, even excepting the question of pre-established harmony, Mercer's plausible argument regarding the timing and extent of Spinoza's influence on Leibniz's Paris writings poses a challenge to my reading and so I address it here.
[53] A VI.3, N. 33_4, pp. 384-85.

Spinozist universe, in which an infinite number of modes follow necessarily within the infinite intellect of *Deus sive Natura*. Leibniz, that is, would have foreseen the need to replace his co-compensation conception of harmony with one which: 1) provides an even better argument for the world's plenitude and 2) shows that this plenitude depends on a harmony which is objectively good.

Hence, while it is not the case that the developments in Leibniz's conception of harmony resulted from his *reading* Spinoza's critique of teleology in *Ethics* Book I—I cited Spinoza's remarks from the appendix simply for the sake of illustration—it is nonetheless appropriate to read Leibniz's reflections in *De summa rerum* in light of the substance of Spinoza's critique. Reading *De summa rerum* in this way provides a less strained explanation of the impetus for the development in Leibniz's conception of harmony than does an account which posits changes arising "naturally," as Mercer puts it, from his early thinking.[54]

III.4 A Maximally Intelligible World

One consequence of accepting the interpretation offered in section III.2—which stated that harmony requires in the first place self-reflexive beings as the building blocks of creation, since they through their simplicity exceed other beings in essence—is that the non-rational features of creation ought to be designed so as to be conducive to the perfection of minds, which consists in knowledge. If minds multiply their own essence by reflecting on their knowledge, then the more knowledge they obtain, the greater the overall amount of essence in the world. The most harmonious world, therefore, must be that world best suited to advances in knowledge. I suggested we call this sub-criterion of

[54] Mercer and Sleigh. "Metaphysics: The early period to the *Discourse on Metaphysics*," 84.

creation the criterion of a maximally intelligible world. In this section, we shall consider what effect this criterion has for the laws of nature. How must the natural world be constructed so as to serve the perfection and understanding of rational agents?

On Leibniz's view, recall, the nature of rationality is the calculative activity of synthesis and analysis: in his terms, the process of harmonizing. The maximally intelligible world then is that which is most congenial to our quest for harmony. Though it appears tautological to say that the most harmonious universe requires features congenial to harmony, it is important to proceed stepwise in order to clarify the causal chain: God delights in the most perfect harmony, which requires that he first of all create beings like himself, rational beings who obstruct least the perfection of other beings. Given the existence of rational beings, God then—causally, not temporally, of course—constructs that world most disposed to their delight in harmony.

Given Leibniz's new conception of harmony in Paris, we should expect that the maximally intelligible world is that in which simplicity is productive of the most. Indeed, this is what Leibniz maintains. Passage C serves as the primary evidence for this within the *De summa rerum* papers. Leibniz's most direct statement to this effect from the late 1670s, however, comes from a letter to Nicolas Malebranche written in June/July 1679.

> We must also say that God makes the maximum of things he can, and what obliges him to seek simple laws is precisely the necessity to find place for as many things that 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.[55]

Let me bracket for the moment that Leibniz here speaks of God making the maximum number of *things* [*plus des choses*] he can. I will return to this shortly. First deserving our attention is Leibniz's appeal to laws, for it is the idea of law that allows us to connect

[55] A II.1, N. 207, p. 725; L 211.

Leibniz's notion of harmony with the issue of intelligibility. When it comes to the constitution of the natural world, Leibniz holds that simple laws produce the most. Through understanding them we can in turn understand the great multitude of phenomena which they produce and govern.

What makes a law simple? Leibniz gives us some indication in his March 19, 1678 letter to Hermann Conring. "Yet it must be admitted that a hypothesis becomes more probable as it is simpler to understand and wider in force and power, that is, the greater number of phenomena that can be explained by it, and the fewer further assumptions."[56] The simplicity of a law or hypothesis refers to its self-sufficiency and explanatory scope; simplicity increases in proportion to the number of phenomena a law can explain without recourse to other principles or qualifications.

As important as the Conring letter is in revealing Leibniz's notion of nomic simplicity, it only takes us so far towards interpreting the letter to Malebranche, in which Leibniz states that simple laws permit the existence of the greatest number of things. It is not yet clear why this should be the case. How, in the case of natural laws, does simplicity effect plenitude?

David Blumenfeld has presented the most promising avenue for answering this question and for interpreting the Malebranche letter. His telling insight is that the most harmonious world can accommodate, and indeed requires, a plethora of simple laws. In fact, the most harmonious world contains the greatest possible number of non-contradicting simple laws. In Blumenfeld's terminology, God selects the world with the

[56] A II.1 N. 168, p. 600; L 188.

highest "simplicity index."[57] What makes Blumenfeld's interpretation compelling is that it takes simplicity—as indicated in Leibniz's letter to Conring—as a property of a law itself, not a collection of laws. The simplicity which effects maximization in the world thus does not entail that there be fewer laws. To the contrary, the more simple laws there are—so long as they do not restrict one another in explanatory scope—the more complex and rich the world they govern. This model reflects Leibniz's vision of harmony in the natural world. As he writes to Heinrich Oldenburg in December 1675:

> …there will come a time, and it will be soon, when we shall have as certain knowledge of God and the mind as we do of figures and numbers…And when these studies have been completed—though there will always remain to be studied the choicest of harmonies of an infinity of theorems, but by observation from day to day rather than by toil—men will return to the investigation of nature alone, which will never be entirely completed.[58]

The mind's activity of synthesis seeks universality of its laws, but the mind also delights in how "an infinity" of laws simple *per se* produces the plethora of being that is the world.

The importance of *simple* laws cannot be overstated. If plenitude were the goal of creation, one might think simple laws, with their universal or near-universal scope, a shoddy means. Would not a world with countless limited laws, each governing only a restricted sphere of phenomena, permit the existence of the greatest number of things? Perhaps, but even if this were true, such a world would hardly be the most intelligible.

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[57] Blumenfeld, "Perfection and Happiness," 390-391. See also Rutherford, *Rational Order*, 28 and surrounding. Rutherford, like Blumenfeld, defines a law's simplicity in terms of its freedom from exception, or explanatory scope. He disagrees with Blumenfeld over the ultimate importance of the Malebranche passage, however, arguing that Leibniz's later notion of *most determined* laws "does not correlate in any obvious way with the production of a greater variety of phenomena" (28). I shall argue in the next chapter that Leibniz's notion of most determined laws is related to his conception of harmony and I ultimately agree with Rutherford that both simple laws and most determined laws can serve to increase the world's intelligibility. And, as we have seen, the intelligibility of the world is what is crucial to maximizing its essence. However, for interpreting Leibniz's writings from the late 1670s, I believe Blumenfeld's "simplicity index" is the best approach.

[58] A II.1, N. 122, p. 394; L 166.

The need to ascertain new laws for each domain of phenomena would hinder one's ability to obtain comprehensive knowledge of the natural world. While the most harmonious world has the highest possible number of complementary laws, they must be simple in order to fulfill the criterion of making the world maximally intelligible.

Even adopting Blumenfeld's basic strategy, a difficulty remains in interpreting the Malebranche letter, a difficulty I initially bracketed. I have argued that for the Leibniz of the late 1670s the most harmonious world contains the greatest possible amount of *essence*, yet in his letter to Malebranche Leibniz claims that simple laws produce the greatest possible number of *things*. To resolve this discrepancy, it helps to look outside the Malebranche letter, specifically to the aforementioned essay *De Arcanis Sublimium vel de Summa Rerum* of 1676. Though written three years prior to the Malebranche letter—and thus potentially suspect as an interpretative key—this essay provides a much more detailed account of how God "find[s] place for as many things that can be put together" than does Leibniz's analogy to masonry in the Malebranche letter; for this reason it proves instructive.

In the essay Leibniz explains—on the basis of harmony—why the world contains both solids and fluids.[59] His argument has two steps. He first argues for nature's abhorrence of a vacuum. The proof is straightforward enough, for if the principle of harmony mandates that the greatest possible amount of essence exist, there can be no vacuum, since any vacuum would leave room for *something*, the addition of which would increase the overall amount of essence in the world. The plenitude of the world thus established, Leibniz writes, "we shall prove that there necessarily exist solids as well as fluids. For the former are more perfect than fluids, since they contain more essence;

[59] A VI.3, N. 60, p. 473; DSR 23.

however, not all things can be solids, for then they would mutually impede each other."[60] Leibniz provides no argument as to why solids contain more essence than fluids, but we can presume he considers their resistance to malleability indicative of the greater power of solids. By this description, then, Leibniz calls attention to the fact that in the corporeal realm—unlike in the case of incorporeal minds—what is most perfect (solids) is not most compossible with other beings. Given this restriction, God must design an arrangement of solids and fluids in the world and—as indicated by Leibniz's presumption that God would create only solids were this possible—this design seeks the greatest possible amount of essence. Hence, though Leibniz at times speaks of simple laws producing the greatest possible of number of *things*, his more detailed reflections reinforce the idea that it is *essence* which is maximized in the maximally harmonious world.[61]

Note that Leibniz's account of solids and fluids seemingly challenges my reading of harmony, wherein the simplest provide for the most. In the corporeal realm, fluids are simplest, since they are least obstructive to other bodies, whereas solids maximize essence. It is true that in the corporeal realm, simplicity does not produce maximal essence, but I take this opposition between solids and fluids to in fact further support my claim that the harmony of the world is not chiefly to be sought in bodies. It is certainly not achieved by its containing the maximal number of bodies, nor the highest possible number of solid bodies. Rather, universal harmony is achieved primarily by incorporeal beings, with the physical world contributing to this by virtue of its intelligibility.

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[60] ibid.

[61] A similar emphasis on the maximization of essence undergirds his proofs of the conservation of motion, (A VI.3, N. 58) and the actual infinite divisibility of matter (A VI.3, N. 60).

III.5 Competing Models of Leibnizian Harmony

To help situate my reading of *De summa rerum* within the existing literature on Leibniz and to further emphasize what I find instructive about this collection of texts, some brief, comparative remarks are in order about the prevailing interpretations of Leibniz's idea of universal harmony. None of the interpreters I shall mention in this section focuses on *De summa rerum*, and many draw on texts written much later in Leibniz's career. Thus, at this point in our investigation—as a consequence of our chronological approach to tracing Leibniz's development—I cannot address all aspects of these interpretations. That said, since I shall show that Leibniz's Paris writings provide the basic conception for his mature metaphysics of harmony, it is appropriate to consider my interpretation in light of others at this point.

In general, my analysis of harmony is in league with those of Blumenfeld and Rutherford, both of whom argue—against Rescher—that Leibniz's account of creation contains a single criterion of perfection. According to Rescher's influential interpretation, Leibniz presents a model in which "two operative factors are opposed to one another and pull in opposite directions," *viz*. the variety of phenomena and the order/simplicity of the world.[62] Rescher judges these criteria to be "conflict-admitting" and to increase in inverse proportion to each other. The significance of the idea of harmony, on this view, is that it signals God's striking the optimal balance between these competing factors. As my analysis has suggested, however, although simplicity and maximization are certainly two distinguishable aspects of the most harmonious universe, they neither oppose each other nor increase in inverse proportion. Instead, as passage B

[62] Rescher, *Leibniz's Metaphysics of Nature*, 10-11.

states unequivocally, "the simplest are those which provide the most," and this idea should serve as the starting point for a correct interpretation.[63]

Despite our shared commitment to the non-opposition of simplicity and maximization, I differ with Blumenfeld and Rutherford in important respects. Although Blumenfeld, as we have seen, provides an insightful account of how nomic simplicity and maximization coincide in Leibniz's account of the most harmonious universe—especially in the late 1670s—he too readily equates "variety of phenomena" with "degree of essence." Per *De summa rerum*, I believe some explanation is needed to show how these two concepts are related.[64] By beginning with the creation of self-reflexive, cognizing minds and then proceeding to the creation of other beings in a maximally intelligible world, we have been able to more closely model how Leibniz envisions the variety of phenomena contributing to the greatest possible amount of essence.

Rutherford rightly places the perfection and happiness of rational beings at the center of Leibniz's account of creation and stresses that their perfection depends on their inhabiting the most ordered and intelligible world.[65] My interpretation is thus very close to Rutherford's account. We differ in that Rutherford believes Leibniz sees God's end as the creation of the greatest metaphysical goodness, an end which Rutherford does not believe is identical to the creation of the maximal possible harmony.[66] I have shown evidence that harmony is, for Leibniz, God's end in creation and have provided an argument for how maximal harmony in fact coincides with maximal essence, once the

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[63] Close to Rescher's view is Gregory Brown's ("Compossibility, Harmony, and Perfection in Leibniz"). I consider my reservations with Brown's "perfection ratio" reading of Leibnizian harmony to be substantially the same as my reservations with Rescher's interpretation.
[64] I would express the same reservation regarding Strickland's focus—in response to Blumenfeld—on the greatest variety of *kinds* of things. *Leibniz Reinterpreted*, 59-61.
[65] Rutherford, *Rational Order*, 34, 49-51.
[66] ibid. 27, 31-5.

necessity of rational minds in the most harmonious world is understood. As far as I can tell, my differences with Rutherford follow from my analysis of the development in Leibniz's conception of harmony in the Paris years. Once we recognize that Leibniz's conception of harmony from Paris onwards is not limited to the co-compensation of unity and variety, the coincidence of harmony and maximal goodness is made clear.[67]

III.6 Conclusion

Whereas when reviewing the writings of the Mainz period one can fairly cleanly delineate Leibniz's separate uses of the idea of harmony in natural law, natural philosophy and natural theology, in *De summa rerum* the lines between these disciplines fade. Leibniz develops a conception of harmony which brings all these fields together and which can thus serve as a central, unifying principle of his metaphysics. With his account of the integral connection between simplicity and the maximization of essence, Leibniz can uphold the goodness of God and his creation in objective terms and can depict how creation favors the perfection and happiness of rational beings. Moreover, the conception of harmony advanced in Paris brings into clearer focus the intimate relationship between universal harmony and Leibniz's theory of mind, a relationship which will persist through his development of the theory of preestablished harmony.

It is also worth noting that, with his denial of Spinoza's sharp distinction between teleological and mathematical standards of truth, we see Leibniz exploiting more heavily than ever before the link between the aesthetic and mathematical meanings of harmony,

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[67] For a recent critique of Blumenfeld and Rutherford's "maximization view" and a defense of Rescher's "trade-off" view, see Roinila *Leibniz on Rational Decision-Making*, Ch. 2. Roinila seems to think that any maximization view is committed to the thesis that the maximal quantity of essence is equal to the greatest number of beings, a thesis which I have argued is too simplistic.

familiar from the time of Pythagoras. In other words, harmony is a concept which expresses, on the one side, the beautiful and the good and, on the other side, the mathematical and the rational. Leibniz's conception of harmony is, of course, peculiar to him, but the tradition of there being both mathematical and aesthetic senses to harmony nonetheless serves as a *leitmotiv* of Leibniz's metaphysics of harmony.

My interpretation in this chapter has stressed that Leibniz in the latter half of the 1670s develops a new and improved conception of harmony. Even assuming my account of this new conception has proved convincing, there remains the question of whether the conception advanced in *De summa rerum* is one Leibniz retains or whether it rather represents a blip on the map of his philosophical development. This question is especially pertinent given that Leibniz scholarship largely regards *De summa rerum*—often with justification—as a series of experimental working papers, filled with theses Leibniz puts forth more as trial balloons than as considered judgments. In an influential iteration of this view, Stein dubbed it a *Spinoza freundliche Periode*[68] which implies both that Spinoza was important to the period (I agree) and that we should not take the conclusions of the period as Leibniz's considered view. And while I do not believe *De summa rerum* represents Leibniz's last word on harmony or that it contains Leibniz's full picture of the most harmonious universe, I do intend to show that, as far as the idea of harmony is concerned, *De summa rerum* is more than a blip on the map. In the ensuing chapters, we shall look to how the basic conception of harmony developed in Paris—*viz*., the maximization of essence via simple rational beings and the intelligible world they inhabit—continues to shape and inform Leibniz's metaphysics. Leibniz's Parisian conception of harmony is—with apologies to Hemingway—a moveable feast.

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[68] Stein. *Leibniz und Spinoza*, Ch.5.

IV
Harmony and Causality
[1680-1690]

In the final month of 1676, Leibniz arrives in Hannover to take an appointment under Duke Johann Friedrich. Having acclimated himself to the vibrant intellectual scene in Paris (to say nothing of London and the Netherlands, where Leibniz made brief stops before his Hannover arrival), Leibniz could only view Hannover as something of an intellectual disappointment. He regards his middling position as court librarian as professionally disappointing as well. But for all this, Leibniz's philosophical production in Hannover is anything but disappointing. Leibniz writes prolifically throughout the 1680s, publishing some of his work—including his first published critiques of Descartes[1]—in the newly founded *Acta Eruditorum*. His investigations find systematic exposition in 1686, when Leibniz writes the "short discourse on metaphysics"[2] widely considered by posterity to be his first mature philosophical work.

Of the many noteworthy developments in Leibniz's thinking during this period, two concern causality. On the topic of causal explanation, Leibniz bucks much of 17th C. scientific epistemology—which accepted only explanations via efficient causes—by defending explanations via final causes. Of course, Leibniz had long accepted God's providential ordering of the entire world towards some end, but 1682 marks the first time he invokes final causes to account for discrete natural phenomena. On the second topic, causal interaction, Leibniz comes to deny real causal intercourse between substances. The purpose of the present chapter is to show how Leibniz's conception of universal harmony shapes both aspects of his work on causality. I intend to show that the

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[1] *Unicum opticae catoptricae & dioptricae principium* (1682); *Meditationes de cognitione, veritate, et ideis* (1684); *Brevis demonstratio erroris memorabilis Cartesii* (1686)
[2] A II.2, N. 1, p.3; M 3.

conception of harmony developed in Paris remains central in Leibniz's Hannover writings, yet becomes more thoroughly integrated into a comprehensive metaphysical view.

At this point, therefore, our account of the development in Leibniz's thinking about harmony shifts its focus. I remain convinced that the Paris development—i.e., the shift from defining harmony solely in terms of diversity compensated by identity to characterizing it in terms of simple beings maximizing essence—is the major breakthrough in Leibniz's conception of harmony. In other words, what counts for Leibniz as harmony from that point onward is the fact of simple beings effecting maximal essence. However, his having arrived at a satisfactory *conception* of harmony does not bring to an end the development in his *metaphysics* of harmony. Much work remains for Leibniz to spell out the consequences of the universe's being maximally harmonious in just the way he has defined. Indeed, Leibniz in his later writings comes to appeal to harmony in new and varied circumstances. My goal in looking chronologically at Leibniz's work henceforth is to show that a number of Leibniz's subsequent metaphysical doctrines are best explained in light of the conception of harmony developed in the *De summa rerum*.

IV.1 Harmony and Causal Explanation

a. Veritable Physique

With an essay entitled *Unicum opticae catoptricae & dioptricae principium*, published in the June 1682 edition of the *Acta Eruditorum*, Leibniz publicly inaugurates his defense of the use of final causes in theoretical physics. Leibniz's vindication of final

causes becomes the cornerstone of his doctrine of dual explanation, which holds that the activity of all natural phenomena can be explained in terms of *either* efficient causes or final causes. For Leibniz, efficient causality and final causality yield two separate methods by which one can account for natural world. Though Leibniz considers an explanation relying solely on final causes incomplete, this owes to the fact that he finds efficient explanations in many cases harder to come by, not to any inherent defect in explanation by final causes. The two systems are independent and in principle equally foundational.

Viewed in one way, Leibniz's remarks on the legitimacy of final causes can be seen as of a piece with his lifelong *apologia* for modern mechanics, i.e., with his project of reconciling modern philosophy with the demands of piety. Texts from the period suggest that Leibniz's efforts in this regard are reinvigorated in Hannover.[3] Yet, as Descartes' example proves, mere concern to square mechanical philosophy with belief in a benevolent deity does not in itself entail licensing teleological explanations in physics.[4] That Leibniz would embrace final causality cannot be taken for granted. Our task will be to explore the grounds upon which Leibniz mounts his defense of final causes and to consider why he takes up this project at this specific point in his career.

Before proceeding, however, some explanation is in order as to why Leibniz's statements on final causality merit discussion in an investigation of Leibnizian harmony, for the connection between these concepts is not obvious. In those texts where Leibniz

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[3] See, for instance, Leibniz's remarks in *Introductio ad scientiam generalem modum inveniendi demonstrandique docentem* (A VI.4, N.89, especially pages 372-373), *Paraenesis de scientia generali* (A VI.4, N. 206), and *Conversation du Marquis de Pianese et du Pere Emery Eremite* (A VI.4 N. 400, especially pp. 2273-74).

[4] For Descartes' rejection of final causes, see *Principles of Philosophy* I.28 and *Meditations* IV. For one instance of Leibniz's reaction to Descartes' position, see *De la philosophie cartesienne* (A VI.4, N.289, especially pp 1481-82).

delineates the relationship between efficient and final causality in greatest detail—*Definitiones cogitationesque metaphysicae* (1679-81?), *Unicum opticae catoptricae & dioptricae principium* (1682), *Discours de métaphysique* (1686), and the later *Tentamen anagogicum* (1696)—Leibniz fails to even mention the term harmony in the course of his demonstrations. *Prima facie* it would seem that harmony is not an operative—let alone seminal—principle in Leibniz's arguments for natural teleology. Still, there are compelling reasons to posit a relationship between Leibniz's beliefs regarding harmony and his comments on final causality. Indeed, it is my position that our understanding of one should inform our understanding of the other.

The connection between harmony and final causality comes through most clearly in Leibniz's insistence that the laws of nature are not geometrically necessary.[5] Instead of seeing them as geometrically necessary, Leibniz holds that the laws governing the natural world are necessary as a consequence of the divine perfection, a kind of necessity which Leibniz at various points refers to as either physical or architectonic. The difference between the two species of necessity is this: the contrary of a geometrically necessary law entails a contradiction, whereas the contrary of an architectonically necessary law implies not contradiction but imperfection.[6]

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[5] One might also cite Leibniz's remark in the *Monadologie* that "the two kingdoms, that of efficient and that of final causes, are in harmony with each other [*sont harmoniques entre eux*]" (§79. G VI p. 620; L 65). Even in the early 1680s Leibniz speaks of the need to conjoin [*conjungere*] explanations by efficient and final causes (A VI.4, N. 267, pp. 1402-3; LC 252-3). These remarks strike me as instances of Leibniz using harmony in a strictly methodological sense to note the complementarity of independent systems. I therefore focus here on what I take to be a more philosophically profound reason for linking harmony and final causes.

[6] See Garber *Body, Substance, Monad*, 235ff. for an account of this shift in Leibniz's thinking regarding the logical status of physical laws. Garber dates to 1678 Leibniz's abandoning the attempt to uncover geometrical necessity in physical laws. There is, however, something of a forerunner of Leibniz's mature view in the *Hypothesis Physica Nova* (1670/1), where Leibniz considers concrete motion to be mediated by God's will, though in this earlier work, Leibniz still seeks to demonstrate the geometrical necessity of what he calls abstract motion. See section II.2b, above.

Garber charges Leibniz's view of the laws of nature with positing "a kind of contingent a priori, truths that can be known without the aid of experience, even though they are not [*per se*] necessary."[7] With the phrase "contingent a priori" Garber means to highlight that, for Leibniz, insofar as we know the criterion according to which God chooses the structure of the created world, we can deduce *a priori* the laws of nature When we seek the criterion for such a deduction, however, we are led to harmony since, as we well know, God opts for the maximally harmonious universe. As Leibniz reaffirms in *De libertate et necessitate* (written between 1680-84), God's unimpeachable knowledge of things not geometrically necessary follows from "the state of the world or the harmony of things."[8]

Though it might seem superfluous—if not downright excessive[9]—to appeal to "contingent a priori" truths in the course of physical investigations, Leibniz himself cautiously advocates that we do just this.

> The a priori method is certain if we can demonstrate from the known nature of God that structure of the world which is in agreement with the divine reasons and from this structure can finally arrive at the principles of sensible things. This method is of all the most excellent and hence does not seem to be entirely impossible. For our mind is endowed with the concept of perfection, and we know that God acts in the most perfect way. I admit, however, that, though this way is not hopeless, it is certainly difficult and that not everyone should undertake it…Yet superior geniuses should enter upon this way, even without the hope of

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[7] *Body, Substance*, *Monad*, 248.
[8] A VI.4 N. 271, p. 1448.
[9] Consider Parkinson's assessment of this aspect of Leibniz's philosophy, which is worth quoting at length: "It remains to make some comments about Leibniz's use of the principle of the best to establish scientific propositions. Obviously, this is a respect in which Leibniz is very much a man of his time: no one would now think seriously of using such a principle to prove scientific propositions. To say nothing of the many who reject outright the concept of a purposive deity, even those who believe in such a deity are much more reluctant than Leibniz was to make *a priori* assertions about the means that such a deity must adopt. There would probably be general agreement that if the notion of divine purpose has any use in the sciences, it is only as a heuristic principle—not, that is, as a means of proof, but as a way of suggesting hypotheses that can be tested empirically" (*Logic and Reality in Leibniz's Metaphysics*, 115).

> arriving at particulars by means of it, in order that we may have true concepts of the universe, the greatness of God, and the nature of the soul…"[10]

Elsewhere, Leibniz goes so far as to call this method of considering the laws of the natural world from the perspective of God's perfection that of "*la veritable physique*."[11] Given his summons that superior geniuses—a group of which I imagine he counts himself a member—consider the structure of the physical world in terms of God's decrees for the most perfect universe, I believe we have good cause for probing Leibniz's discussion of final causality in our investigation of harmony. Whatever ends exist in nature must be governed by considerations of harmony, since it is by God's selection of the most harmonious universe that physical laws are determined in the first place.

As will become evident, accounting for exactly how Leibniz's conception of final causality relates to his commitments regarding harmony and divine perfection is not an easy task. In what follows, I will make the case that we come closer to uncovering the character of this relationship if we appreciate how Leibniz mobilizes the conception of harmony he developed in the Paris period in his analysis of final causality.

b. Final Causes in Optics

The first, and throughout his writings the most prominent, cases Leibniz cites when discussing final causes are the laws governing the reflection and refraction of light. The separate justifications for these laws put forth by Descartes and Fermat provide Leibniz with a paradigm for his doctrine of dual explanation, i.e., the contention that "all the phenomena of nature can be explained solely by final causes, as if there were no

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[10] *Elementa Physicae* L 283.

[11] *Lettre de M.L. sur un principe general utile à l'explication de loix de la nature par la consideration de la sagesse divine, pour servir de replique à la reponse du R.P.D. Malebranche*, 1687. G III, p. 54; L 353.

efficient cause; and all the phenomena of nature can be explained solely by efficient causes, as if there were no final cause."[12] Because it provides the clearer example of Leibniz's originality in reconciling these two methods of explanation, we restrict our focus to the law of refraction, which states

$$\sin i = n \sin r$$

where i and r are the angles of incidence and refraction, respectively, and n is a constant determined by the density of the refracting medium.

In his *Dioptrique* of 1637, Descartes offers a proof for the law of refraction which makes recourse only to efficient causes. In other words, Descartes limits himself in his proof to mechanico-geometrical principles, in order to account for the behavior of refracted light.[13] Though it had been known since Ptolemy that when passing from a rarer to a denser medium light bends towards the perpendicular, Descartes distances himself from a medieval tradition which grounded such behavior in the efficiency of nature.[14] For Descartes, the law of refraction is adequately explained not by the assertion that *natura nihil agit frustra*, but rather by consideration of the effects the refracting medium has on the perpendicular and parallel motions of the light ray. Descartes' derivation of the refraction law thus provides Leibniz with a well-known example of a natural phenomenon being explained solely by efficient causality.

The refraction law proves so suitable to Leibniz's defense of final causality because Fermat had arrived at the same conclusion as Descartes, but did so relying on the efficiency and economy of nature. Drawing on his foundational belief that "nature

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[12] A VI.4, N. 267, p. 1403; LC 253

[13] In his detailed account of Descartes' development of the law of refraction, Schuster ("Descartes *opticien*") suggests that geometrical constructions were more fundamental for Descartes than any mechanical principles regarding the behavior of light.

[14] See Sabra, *Theories of Light,* 93-99 and Schuster, "Descartes *opticien*," 281.

performs its movements by the simplest courses," Fermat explains refraction in terms of light traveling the quickest possible path.[15] Leibniz does not accept at face value Fermat's description of the end sought in nature, since Fermat's reasoning conflicts with Descartes' assertion—which Leibniz endorses—that light travels more quickly in a denser medium.[16] However, Leibniz appreciates in Fermat the strategy of recasting teleological approaches to optics in terms of modern mathematical calculations based on the determination of maxima and minima.[17]

In his own explanation of the law of refraction by final cause, Leibniz asserts that a ray of light travels from source to sink along the easiest of all paths [*via omnium facillima*].[18] Sabra explains Leibniz's notion of the easiest path in terms of least resistance, writing: "Leibniz suggested that light travels the path of least 'resistance,' that is, the path for which the sum of the distances covered, each multiplied by the 'resistance' of the medium, is a minimum."[19] Through use of what we today call the variational calculus, Leibniz demonstrates that the actual path light travels from source to sink can be predicted through considerations of *ease alone*, without the aid of mechanical principles, i.e. without reference to efficient causes. Thus, Leibniz can uphold final cause as a mathematical *explanans* in optics: one separate from, yet equally reliable as, efficient cause.

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[15] *Oeuvres de Fermat*, II p. 355. Quoted in Sabra, *Theories of Light*, 139, n.14.
[16] On Leibniz's reconciling these opposing conclusions, see McDonough, "Leibniz's Two Realms Revisited," 678.
[17] Fermat explicitly aligns his way of final causes with a medieval optical tradition. See Sabra, *Theories of Light*, 37, n.4. Interestingly, Descartes also asserts that change in corporeal motion is always the least possible, but Descartes holds this as a logical principle, not a teleological one. On Descartes' "principle of minimal modal change," see Damerow, Freudenthal, et alia, *Exploring the Limits of Preclasical Mechanics*, Chapter 2.4.2**.** For more on Leibniz's evaluation and appropriation of Fermat's and Descartes' optical proofs, see Duchesneau (*Leibniz et la methode de la science*, Chapter 4.1) and McDonough ("Leibniz's Two Realms Revisited" and "Leibniz on Natural Teleology").
[18] *Acta Eruditorum* 1682, p. 185; D III p. 145
[19] Sabra, *Theories of Light*, 148. See also McDonough, "Leibniz on Natural Teleology," 512.

For all its mathematical "magic,"[20] Leibniz's view carries with it a philosophical difficulty. It is sufficiently clear that the method Leibniz outlines is not that of mechanics, for it proceeds from consideration of the end state achieved, and this feature alone provides Leibniz with adequate grounds for speaking of final causes in nature.[21] Less clear is whether there are evaluative judgments implicit in Leibniz's notion of finality. Does the optimization of ease in any way point to the goodness of the created world? On the one hand, the purely mathematical approach Leibniz offers for discovering the easiest path suggests that nature's ends can be uncovered absent any considerations of goodness. On the other hand, however, the conclusions which Leibniz draws from his investigations suggest that he feels the final causality evident in nature testifies to the divine wisdom and goodness. As he writes in an unpublished discussion of the laws of optics, "those conjoin both methods who think God is the author of things and is supremely powerful and supremely wise, and has expressed his magnitude and beauty in the world by a certain reason."[22] Given the balance of his remarks in texts treating final causality, I am inclined to think that Leibniz does in fact see the end which he discovers in nature as *good*, as contributing to the overall perfection of creation. Though the example of refracted light does not make such a conclusion obvious, in the ensuing section, I propose two distinct yet complementary ways by which Leibniz might substantiate his position.

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[20] In the *Acta Eruditorum* of 1684, Leibniz praises his 1682 demonstration: "we presented a general foundation of optics, catoptrics, and dioptrics. Other very learned men have sought in many devious ways what someone versed in this calculus can accomplish in these lines as by magic [*imposterum*]." *Nova methodus pro maximis et minimis*. D III, p. 172; Translation is taken from the edition of Calinger, p. 352.
[21] McDonough ("Leibniz on Natural Teleology") offers a strong defense, in light of more recent discussions of teleology, of Leibniz's system as genuinely teleological.
[22] A VI.4, N. 267, p. 1403; LC 253.

c. *Final Causes and Harmony*

For bringing into clearer view how Leibniz's presentation of final causes in optics permits him conclusions about the goodness of the world, §21 of the *Discours de métaphysique* proves particularly instructive. Leibniz here offers a new expression for the end achieved by the movement of light.

> I find even that several effects of nature can be doubly demonstrated; once, by the consideration of their efficient cause, and again, independently, by the consideration of the final cause, making use for example, of the decree of God always to produce his effect by the easiest and *most determined* ways, as I have shown elsewhere in accounting for the rules of catoptrics and dioptrics.[23]

Leibniz here equates the optimization of ease with the optimization of "determination." In so doing, Leibniz does not add anything conceptually new to his optical analysis, yet the expression "most determined" serves to underscore the fact that *all* corporeal motion—even in cases where it would not be readily apparent what would count as "ease"—occurs in such a way that changes in motion happen at exceptional, extremal points—points, in other words, where the derivative vanishes[24]—which we can predict mathematically. Hence, the fact that nature acts in the most determined way increases the intelligibility of the world by giving us a way to account for the motion of bodies even when knowledge of efficient causes is lacking.

It is the increased intelligibility of nature granted by the presence of final causes which provides Leibniz with a direct path to God's wisdom and goodness. In Chapter three, we saw that since rational beings hold pride of place in the most harmonious universe, the physical world must be arranged in such a way that it is maximally intelligible, for only on this condition is the world hospitable to the mind's striving to

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[23] Emphasis mine. A VI.4, N. 306, pp. 1563-64; L 317. Cf. a similar remark in §22.
[24] Leibniz's expression for any such inflection point is a "*punctum flexus contrarii*" [*Acta Eruditorum* 1684]. D III, p.168.

increase in knowledge, essence, and perfection. A world in which everything happens in the most determined way thus contributes to the harmony of the universe by making possible advances in knowledge which are not afforded by the way of efficient causes alone. As Leibniz observes in §22 of the *Discours*: "The way of final causes, however, is easier and is often useful for understanding important and useful truths, which one would be a long time seeking by the other more physical route."[25]

Leibniz points to a second way of understanding why he sees his discovery of final causes in nature as evidence for God's wisdom in a set of provocative remarks from the early 1680s:

> God can be considered not only as the principle of corporeal things, but also as the director of souls. For as he once excited the parts of matter with an impressed motion, so he excited souls with a sense of the good.[26]

> But those who are wise know that every effect has a final as well as an efficient cause—final because everything that happens is done by a perceiving being, efficient because everything that happens naturally in a body takes place through the corporeal organ and according to the laws of bodies.[27]

In both excerpts, Leibniz bases the presence of final causes in nature on the presence of incorporeal principles—"souls" or "perceiving beings"—in all bodies. His claim appears to be that each incorporeal principle, by virtue of its being a soul or soul-like, strives for the good (this striving in the case of sub-rational beings of course having no volitional aspect). In other words, the presence of soul-like incorporeal principles in all bodies leads to a general orientation towards the good in the activity of all natural beings.

Let us now take up the issue of "ease." Is there anything good about it, such that

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[25] A VI.4, N. 306, p. 1565; L 317. Cf. Rutherford (*Rational Order*, 28-29), who also argues that God prefers most determined laws because they are satisfying to reason and increase the world's intelligibility. In this way, they need not conflict with the "simple" laws to which Leibniz refers in his 1679 letter to Malebranche and which we discussed in section III.4, insofar as both a law's freedom from exception and its being mathematically determinate add to the world's intelligibility.

[26] A VI.4, N. 267, p. 1403; LC 253 (translation modified).

[27] L 288

we can say the ray of light optimizes ease out of a sense of the good? Recall that in the preceding chapter we saw Leibniz define the best, most harmonious universe as that in which simplicity effects the maximization of essence. Harmony was defined in terms of essence or power being maximized in the simplest possible way. If one superimposes the language of simplicity and power onto Leibniz's explanation for the law of refraction, one could say that light travels a quicker, simpler route through denser media because in this way it minimizes the resistance to its own power, or the detraction from its own essence. Conversely, in less resistant media, the longer path can be seen as that in which the ray maximizes its power. Speaking of the activity of light in this way is admittedly something of an analogy—as is Leibniz's speaking of all incorporeal principles as "soul-like" or perceiving—but this analogy provides us with a way of understanding how God's inclining each "soul-like" incorporeal principle act in the most efficient way is of a piece with the designs of universal harmony.

My suggestion that Leibniz's notion of determination coincides with his conception of harmony gains some credibility from the fact that Leibniz uses the language of refraction to describe the limitation of essence/power inherent in every substance. As he writes in 1683:

> Neither extension nor motion pertain to the substance of a body, but only a principle of being affected [*principium pationis*] or of natural limitation and form as a principle of action or of natural illimitation. For in every creature there is both the limited and the infinite: limitation with respect to distinct cognition and irresistible power, but illimitation with respect to confused cognition and refracted action [*actionis refractae*]. For every soul, or rather every corporeal substance is confusedly omniscient and refractively omnipotent [*omnipotens refracte*]. Nothing in the whole world is produced which does not perceive, and nothing makes an effort [*conantur*] which does not pertain to the infinite.[28]

[28] *Mira de natura substantiae corporeae*. A VI.4, N. 279, pp. 1465-66. I have borrowed, with minor emendations, the translation of Fouke ("Dynamics and Transubstantiation," 51).

If the metaphysical *principium pationis* within each substance can be explained in terms of refracted power, it is plausible that Leibniz would view physical cases of optical refraction in terms of each substance's *conatus* to maximize its own power being limited in the face of resistance. Where resistance is greater the shortest path can be seen as the most harmonious, therefore, since said path relies on its simplicity to best conserve the light's power/essence. Harmony, in this case, can be gleaned from the light's efficiency in preserving maximal power, all things considered. Again, Leibniz does no more than suggest a reading along these lines, but this interpretation is worth mentioning as a possible secondary route—in addition to the increased intelligibility of the world afforded by final causes—for connecting his conception of efficiency with his commitment to the harmony and goodness of the created world.

To sum up, Leibniz's optical discoveries were genuinely new and exciting for him and they in many ways represent the culmination of his attempt—which began in the *Hypothesis Physica Nova* and the *Leges reflectionis et refractionis demonstratae* of 1670/1—to find a teleological basis for natural processes.[29] I would count Leibniz's defense of final causes in physics among the more noteworthy developments in his mature writings, one made possible by his development of the infinitesimal calculus. The newness and originality of the optical examples notwithstanding, I believe Leibniz's ability to count the final causes found in optics as evidence for God's wisdom relies on a notion of harmony which he had previously developed outside the context of physics proper. For one, the very fact that nature acts in a regular, optimal fashion is congenial to the mind's quest for knowledge, which is in turn central to the harmonious ordering of the world. Two, the idea that simplicity serves to maximize essence perhaps helps to

[29] See section II.2b, above.

explain why Leibniz found so promising the kind of optimization he discovered when studying optics. Absent the background of Leibniz's conception of universal harmony developed in 1675-6, his connection in the early 1680s between the ends in nature and God's wisdom would remain obscure.

If my thesis that we best read Leibniz's enthusiasm for his optical discoveries as a development within his ongoing reflections on harmony is correct, it lends evidence to Garber's "conjecture…that Leibniz's brush with Spinozism awoke him to the importance of final causes in the physical world."[30] As we have seen, Leibniz amended his notion of harmony in Paris in order to deny Spinoza's strict distinction between, nay, mutual exclusion of mathematical and teleological standards of truth. This notion of harmony—as the mutual obtaining of simplicity and the maximization of essence—provides him with a teleological standard in the broad sense, meaning it sets the end for God's creative activity. While it would be too much to suggest that this broad teleological standard directly led Leibniz to his discovery of final causes in optics, the fact that the end Leibniz discovers within the physical world accords so well with his conception of universal harmony allows Leibniz to mount, on the basis of his optical example, a full-scale vindication of God's wisdom and goodness. It is indeed Leibniz's "brush with

[30] Garber *Body, Substance, Monad*, 233. McDonough ("Leibniz's Optics and Contingency in Nature") advances an alternative interpretation, suggesting that Leibniz's "derivations of the laws of reflection and refraction do not merely provide a premise in an otherwise independent argument for a providential creation, but instead deeply inform his mature understanding of divine providence and its relationship to the study of the natural world." (443). Insofar as Leibniz's doctrine of dual explanation plays an important role in Leibniz's mature reflections on divine providence—allowing him to do justice to both theology and mechanical science—McDonough is right to point out that Leibniz's optical discoveries inform his understanding of providence. Yet, on my reading, McDonough accords too much explanatory power to the optical examples. I do not see how they alone could provide Leibniz with the evidence he needs to defend divine providence unless part of an "otherwise independent" project of philosophical theology, one in which, I maintain, harmony plays an irreducible role.

Spinozism" which best explains both his need to revive the legitimacy of final causes in physics and the conception of harmony needed for him to do so.

IV.2 Harmony and Causal Interaction

a. *The Hypothesis of Concomitance*

In texts from the middle 1680s, we find the first appearance of the theory which will come to attach the idea of harmony indelibly to Leibniz's name: the theory of preestablished harmony. With this theory Leibniz purports to explain the metaphysical foundation of all causal relations and in particular that between mind and body. Borrowing Kulstad's formulation, we define the theory of preestablished harmony as the thesis "that God created finite substances in such a way that they do not causally interact but nonetheless exhibit parallelism in virtue of their own spontaneity," where *spontaneity* refers to the thesis "that each state of a created substance arises causally from its preceding state" and *parallelism* to the thesis "that the states of each creature correspond or agree perfectly with the states of every other creature at any given moment."[31] In short, Leibniz posits that *sensu stricto* substances do not interact, since each created substance develops according to the law of its own concept. What we experience as the interaction or intercourse between substances is the perfect correspondence between the changes in one substance and those in all others.

This sketch of the theory of preestablished harmony will of course require much unpacking, but first a terminological note. Leibniz does not ascribe the name "preestablished harmony" to his theory until 1695; in earlier presentations he favors the label "hypothesis of concomitance." In this chapter I follow Leibniz in speaking of the

[31] Kulstad. "Causation and Preestablished Harmony," 96-97.

hypothesis of concomitance and limit our investigation to those texts in which he first advances the theory. Despite the absence of the phrase "preestablished harmony," however, it should be noted that Leibniz's theory in the 1680s fits the basic definition of preestablished harmony presented above.[32] I stress this point to underscore the fact that *harmony* is not an idea superadded (at some subsequent date) to the hypothesis of concomitance. Rather, this hypothesis is from its inception one regarding the harmony between substances. As Leibniz writes in a text putatively dated to 1686:

> For each individual substance, expressing the same universe in its own measure according to the laws of its own nature, behaves in such a way that its changes and states correspond [*respondeant*] perfectly to the changes and states of other substances; but most especially correspondent to each other are soul and body, whose intimate union consists in a most perfect agreement [*perfectissimo consensu*]. Even if this is not considered an *a priori* demonstration, it should hold its ground as the most plausible hypothesis. For why may we not suppose that God created soul and body from the beginning with so much ingenuity that, whilst each pursues its own laws and properties and operations, all harmonize with one another most beautifully [*omnia pulcherrime conspirent inter se*]? This I call the *hypothesis of concomitance*.[33, 34]

As these remarks suggest, the hypothesis of concomitance picks out not just any relationship but a *harmonious* relationship. Our task in this section is to assess the degree

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[32] In an article from the *Journal des savants* of 12 September 1695, Simon Foucher, responding to Leibniz's theory of preestablished harmony, opens by noting that the theory is not new to him, but rather that he knew Leibniz's position a decade before. Like Foucher, I discern no difference between what is labeled the hypothesis of concomitance and what comes to be known as the theory of preestablished harmony. See: WF 41.

[33] *Specimen inventorum de admirandis nautrae generalis arcanis*. A VI.4, N. 312, p. 1621; LC 313-314.

[34] Whereas in the 1670s Leibniz largely relied on the Latin term *harmonia* and on occasion the French *harmonie* when writing about harmony, in the 1680s Leibniz employs a number of other terms to indicate the harmony between things. In Latin, he uses *conspirare* which has typically been translated into English as "harmonize." Given the lack of a verbal form of *harmonia* in Latin, the use of some other term to describe the activity between substances is almost inevitable. Indeed, there is some roughly contemporaneous textual evidence—for example A VI, N. 329_1, p. 1668 (*Communicatio ex disputationibus cum Fardella* , 1690 (?); AG 103)—which shows that Leibniz does use the verb *conspirare* and the noun *harmonia* to refer to the same phenomenon in the course of a single discussion, lending more credence to the translation of *conspirare* as "harmonize." In French, Leibniz most often uses the verb *s'accorder* (or the related *s'entraccorder*) to indicate the harmony between substances. I follow other Leibniz translators in rendering these terms as "to harmonize," referencing the original terms in brackets.

to which Leibniz's already established understanding of harmony informs the hypothesis of concomitance.

Leibniz offers his most detailed explanation of the hypothesis of concomitance in his epistolary correspondence with Antoine Arnauld, which took place—at times through intermediary Landgraf Ernst von Hessen-Rheinfels—between February 1686 and March 1690.[35] Leibniz initiates the exchange by transmitting to Arnauld a summary of what we now know as the *Discours de métaphysique*. Though the principal theme in the correspondence is Leibniz's take on freedom and necessity—a topic we cannot address here[36]—the issue of causal interaction assumes an important secondary role.

We begin with the first direct exchange between Leibniz and Arnauld, from 14 July 1686.[37] In response to Arnauld's criticism that Leibniz's metaphysics constrains divine freedom, Leibniz counters: "I conceive that there was an infinite number of possible ways of creating the world according to the different plans that God could form, and that *each possible world depends upon certain of God's principal plans or ends* which are peculiar to him, that is to say upon certain primary free decrees (conceived of as possible) or laws of the general order of that possible universe."[38] What makes this statement intriguing is Leibniz's suggestion that each possible world represents a possible *end* which God could realize in creation. This end is reflected in an architectonic law

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[35] The fact that the theory is first presented to Arnauld, a Catholic (Jansenist) cleric, might explain something of the cachet of the term "concomitance." The term is used in Eucharistic theology to explain the full presence of Christ in each of the two species of the Eucharist. Perhaps Leibniz felt that casting his views on the relationship between substances in terms of concomitance might appeal to Arnauld's sensibilities. I think it would be too much to insist on this, since Leibniz's views on Eucharist in the late 1680s are notoriously complex (See: Fouke, "Dynamics and Transubstantiation"). Nevertheless, the intriguing possibility of a theological motive behind Leibniz's choice of the word "concomitance" should not be ruled out or overlooked.

[36] There is vast literature on the topics of freedom, determinism, contingency, and necessity in Leibniz. The best account of how these issues surface in the correspondence with Arnauld can be found in Chapter 4 of Sleigh's *Leibniz and Arnauld: A Commentary on their Correspondence*.

[37] I omit in this reckoning Leibniz's much earlier letter to Arnauld in November 1671 (A II.1, N. 87).

[38] A II.2, N. 14, p. 73; M 56-7. Emphasis mine.

governing the series of things which obtain in that world. God does not select from amongst possible worlds based on individual states of affairs which obtain in them. Rather, he chooses amongst possible ends or designs for creation and creates the world which achieves the most desirable end.

Each possible world representing a possible end of creation, an individual substance within a world expresses "the whole universe of which it is a part in accordance with a certain relationship, through the connection that exists between all things, because of the interrelationships between God's decisions or plans."[39] For Leibniz, by virtue of something's being an individual substance all that can be predicated of it is included in its complete concept.[40] Each substance, in other words, has an essence which is ontologically complete in itself.[41] However, because this substance's individual nature is determined by its inclusion in God's design for a particular possible world, a given substance expresses both that design and all other substances which likewise contribute to that design. Though I do not believe Leibniz intends to posit two distinct acts on the part of God—choosing an end for creation and choosing a collection of substances to achieve this end—we can notionally distinguish God's chosen end for creation from the substances he creates for this end. In his explanation to Arnauld, Leibniz privileges the former choice as primary. "Thus all human events could not fail to occur as in fact they did occur, once the choice of Adam is assumed; but not so much because of the individual concept of Adam, although this concept contains them, *but*

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[39] A II.2, N. 14, pp. 73-4; M 57.
[40] See *Discours de Métaphysique* §8 (A VI.4, N. 306, pp. 1539-41) and the contemporaneous *Generales Inquisitiones de Analysi Notionum et Veritatum* (1686).
[41] Leibniz counts existence as something added over and above essence, and aligns the latter with possibility (GI, ¶73).

because of God's plans, which also enter into this individual concept of Adam, and which determine that of his entire universe."[42]

The fact that individual substances relate to one another because they are co-conspirators, so to speak, in achieving God's plan for creation is important for this reason: it suggests that what Leibniz terms mutual "expression" between substances is not something peculiar to any one possible world. What distinguishes—at least some[43]—possible worlds is not the presence or absence of mutual expression but the *kind* of expression present in each possible world, given the end the worlds achieves. I therefore want to stress that Leibniz's hypothesis of concomitance is not merely an assertion of mutual expression. More than this, the hypothesis of concomitance is a commentary on the kind of expression which must hold in the most choiceworthy of possible worlds. The hypothesis of concomitance seeks to define the "certain relationship" holding between things because of God's actual choice of the best of all possible worlds. This is why the hypothesis of concomitance is also a hypothesis of harmony, for it articulates the kind of inter-substantial expression which obtains in a universe designed for harmony. For, as Leibniz reiterates in 1685, "the existence of contingent things follows not from

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[42] A II.2, N. 14, pp. 73-4; M 57. Emphasis mine.

[43] As I interpret them, Leibniz's remarks to Arnauld should commit him to the strong thesis that inter-substantial expression obtains in *all* possible worlds, indeed that such expression is what constitutes a collection of substances forming a world at all. However, in a letter from 9 October 1687, Leibniz references the possibility that there be in a world "as many systems as substances" (A II.2, N. 57, p. 245; M 148). Leibniz seems to entertain this possibility only on the assumption *per impossible* that the world does not proceed from a single first cause, but the remark holds open the door to logically possible worlds in which there is no mutual expression. Accordingly, I limit myself to the more modest interpretation that inter-substantial expression, if not a constitutive element of all worlds, is at least not a distinguishing mark of the most harmonious world. I believe this weaker thesis will be borne out in our analysis of the October 1687 letter.

their essence or possibility but from the will of God, or what comes to the same, from the universal harmony of things."[44]

That the hypothesis of concomitance refers to a specific kind of harmonious inter-substantial expression and not to expression as such is not something which Leibniz states unequivocally. However, as Sleigh has argued, Leibniz's comparison between inter-substantial concomitance and musical harmony strongly suggests this conclusion.

> [R]egarding this concomitance which I uphold, it is like many different bands of musicians and choirs, playing their parts separately, and so placed that they cannot even see or hear each other, but who can nevertheless harmonize [*s'accorder*] perfectly, by each one following his notes, with the effect that the listeners finds them all in magnificent harmony [*harmonie merveilleuse*], which is much more surprising than if there were a connection between them.[45]

In Sleigh's terms, whether the bands and choirs produced "euphony or cacophony" they would express one another by virtue of their constant and fixed relation to one another.[46] Harmony entails mutual expression, therefore, but the inverse relation does not hold. To explain this contention, and to further elucidate the conditions for euphonic, harmonious expression, let us turn to Leibniz's definition of "expression."

On 9 October 1687—after being prodded by Arnauld to clarify his meaning[47]—Leibniz writes "one thing *expresses* another (in my terminology) when there exists a constant and fixed relationship between what can be said of one and of the other."[48] This definition is obviously rather general and, I find, underwhelming. Yet, there is a

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[44] Leibniz to Veit Ludwig von Seckendorff, End of May 1685. A I.4, n. 427, p. 507.
[45] Letter to Arnauld, 30 April 1687. A II.2, N. 42, pp. 182-83; M 118-19.
[46] Sleigh. *Leibniz and Arnauld: A Commentary on their Correspondence*, 177. Sleigh's sketch of the conceptual landscape is slightly different than mine. He calls the thesis that substances harmonize "universal accommodation," and treats this as a sub-thesis within the hypothesis of concomitance of preestablished harmony (Ch.7.5). Despite this difference, I consider myself in general substantive agreement with Sleigh's analysis of expression and accommodation as they surface in the Leibniz-Arnauld correspondence. In the remainder of this chapter, I aim not to repeat Sleigh's analysis, but to further investigate how Leibniz's conception of harmony functions in the hypothesis of concomitance.
[47] Arnauld to Leibniz, 4 March 1687. A II.2, N. 36.
[48] A II.2, N. 57, p. 240; M 144.

rhetorical advantage to Leibniz's defining expression in this way. With this definition, Leibniz highlights his agreement with Descartes, Arnauld being a more or less Cartesian thinker. According to Leibniz, Descartes would agree that each substance has a "fixed relationship" with all others, since the continuity and divisibility of matter make it such that movement in any given body affects all contiguous bodies, and that these bodies in turn affect their surrounding bodies, and so on *ad infinitum*. Furthermore, Descartes would concede that body and soul maintain a fixed relationship since motions in extended substance correspond to perceptions in thinking substance.

From this point of agreement regarding the reality of expression *qua* fixed relationship, Leibniz attempts to convince Arnauld that he has a more "natural" way of explaining the metaphysical basis of expression than do the Cartesians.

> The ordinary Cartesians confess that they cannot account for this union; the authors of the hypothesis of occasional causes think that it is a 'difficulty worthy of a liberator, for which the invention of a *Deus ex machina* is necessary'; for myself, I explain it in a natural manner. By the concept of substance or complete entity in general, which implies that its present state is always a natural consequence of its preceding state, it follows that the nature of every individual substance and consequently of every soul is to express the universe; it was first created in such a way that by virtue of the inherent laws of its nature, it must happen that it is in harmony [*s'accorder*] with what is taking place in bodies, and particularly in its own.[49]

Here, Leibniz pits the hypothesis of concomitance in opposition to the theory of occasional causes, the latter a staple of the Cartesian tradition defended most memorably by Nicolas Malebranche. This particular passage deals with the harmony between mind and body—which, for a Cartesian, but not for Leibniz, is an instance of intersubstantial expression—but for the moment I simply wish to cite it as evidence for our conclusion that expression alone does not entail concomitance or harmony. The system of

[49] A II.2, N. 57, pp. 242-243; M 145-146.

occasional causes establishes a "fixed relationship" between mind and body, but falls short, Leibniz believes, of his own hypothesis. Leibniz's broad definition of expression thus allows him to shift the question from one concerning the reality of expression to one concerning the proper understanding of expression. Regarding the latter, Leibniz's strategy is to prove his hypothesis "natural" and the occasionalist position supernatural in the worst sense, an *ad hoc* appeal to a *Deus ex machina*

At times Leibniz issues the *Deus ex machina* critique by charging that the occasionalist picture demands that God perform a perpetual miracle: on each occasion of causal interaction between substances God arranges it so their actions correspond. Though the language of perpetuity contrasts nicely with Leibniz's eventual term "preestablishment," Leibniz's quibble is not over temporality. His chief reservation with occasionalism can be gleaned from not the term perpetual, but rather the term miracle. Leibniz sees occasionalism as denying finite creatures causal efficacy, all causal power residing in God and all causal interaction requiring God's direct, "miraculous" intervention.[50] In contrast, Leibniz deems his account *natural* because he sees all actions and passions of an individual as proceeding from its own *nature*.

As Rutherford has pointed out, Leibniz's critique of occasionalism centers on its conception of creation. Contrasting Leibniz's account with Malebranche's, Rutherford writes: "While Malebranche conceives of God as bestowing activity on a world of otherwise passive creatures, and thereby realizing perfection through the exercise of his wisdom or the simple and uniform mode of his willing, Leibniz conceives of perfection

[50] Whether the occasionalist tradition in fact denies causal efficacy to finite creatures is a subtle and difficult question. Desmond Clarke's essay "Causal Powers and Occasionalism from Descartes to Malebranche" lays out nicely the issues at stake and the positions of the principal figures. Leibniz, however, is of the opinion that occasionalism places exaggerated emphasis on creaturely dependence.

as resident in the essences or natures that are themselves constitutive of the world."[51] Crucial for Leibniz is God's communication of his perfections to his creatures. As Rutherford goes on to note, whereas Malebranche's metaphysics stresses creaturely dependence on the creator, Leibniz's underscores God's disposition "to create that world which in and of itself contains the greatest possible perfection."[52] From Leibniz's perspective, a significant shortcoming of the occasionalist position is that insofar as it locates the power of finite beings in God it treads dangerously close to Spinozist monism.[53]

Leibniz champions the hypothesis of concomitance as a superior depiction of creation in both the July 1686 and October 1687 letters to Arnauld. In the former, he defends his principle of the metaphysical independence of individual substances by claiming that the manner of intercourse between these "worlds apart" is the only one "worthy of God."[54] He elaborates on this in the latter letter: his hypothesis better captures God's desire to arrange the world in the best possible way, for it "seems to me not only easy to conceive, but also worthy of God and the beauty of the universe, and in a way necessary, since all substances must have a harmony and connection which links them together [*harmonie et liason entre elles*], and must express *in themselves* the same

[51] Rutherford. "Natures, Laws, and Miracles," 157.
[52] ibid., 158. It is worth noting in the context of this debate the similarities found in Book III, Chapter 69 of Thomas Aquinas' *Summa Contra Gentiles*. Aquinas—defending the real causal interaction of creatures on one another against those who locate all proper action in God—advances several arguments which tend in a Leibnizian direction, arguing from the perfection and power of God to the perfection and efficacy of creatures. Of course, Leibniz does not advocate for real causal interaction, but he and Aquinas share a common position against those who think they glorify God's power in exaggerating creaturely passivity.
[53] Leibniz lays this consequence of occasionalism bare in a 1702 rejoinder to Pierre Bayle. See WF 122.
[54] A II.2, N. 14, p. 81; M 65.

universe and the universal cause which is the will of their creator and the decrees and laws which he has established to make them adapt to one another as well as possible."[55]

I believe we are now in position to specify why the hypothesis of concomitance accords with the will of the creator in a way occasionalism does not. In short, only Leibniz's hypothesis reflects God's will for *harmony* and thus only Leibniz's hypothesis presents a picture in which diverse substances truly *harmonize*. Leibniz's rejoinder to occasionalism, I am suggesting, is yet another attempt on his part to articulate the consequences of God's desire to create the most harmonious possible world.[56] To see this, it helps to once more recall the model of the most harmonious universe which Leibniz developed in Paris: optimal harmony obtains when essence is maximized via simple beings. In Leibniz's theory of concomitance, each substance is simple and singular in itself. In contradistinction to Malebranche's notion of simplicity, which holds that God acts via general not particular volitions, Leibniz (while not denying Malebranche's point) believes that more can be said regarding the simplicity desirable in creation. What is fundamental is the simplicity of independent substances each of whose activity follows from *its own power*. One cannot overstate the importance of the fact all the perceptual states of a given substance result from its own power, for the real power of substances constitutes the essence and perfection of the world.

Moreover, note Leibniz's remark that all substances express *in themselves* the universe and its architectonic plan. Each simple substance, he writes, "contains a world

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[55] A II.2, N. 57. Emphasis mine.

[56] Cf. Stuart Brown "The Proto-Monadology of the *De Summa Rerum*." Brown and I have different interpretations of harmony in Leibniz's Paris period, but we share the belief that Leibniz's Parisian reflections on harmony point towards his mature metaphysics.

of diversities within a genuine unity."[57] By virtue of their being members of the same law of the series, all substances represent, however faintly, every other substance in their world. Because substances express one another *in themselves*, i.e., through what is included in their own concepts, not through some additional "miracle," the overall amount of essence in the world is multiplied by the representations of all in all. This is analogous to what we saw in the *De summa rerum*, where each mind's knowledge of the world was said to increase the overall essence of the world. Minds "multiply" the essence of the world by their ability to represent and "mirror" the world in intellection. As Leibniz writes in §9 of the *Discours*:

> Thus the universe is in a certain sense multiplied as many times as there are substances, and the glory of God is likewise redoubled by as many wholly different representations of his work. It can even be said that every substance bears the character of God's infinite wisdom and omnipotence and imitates him as much as it is capable. For it expresses, however confusedly, everything that takes place in the universe, past, present, or future…And since all other substances in turn express this one in their own way, and adapt themselves to it, it can be said that each *extends its power* over all the rest in imitation of the omnipotence of the creator.[58]

By representing other substances, each substance increases its power. To reiterate, this increase is only possible if the mind/soul is the agent of such mirroring, not simply a passive "occasion" for it. The soul must be, as Leibniz puts it, a "substance whose nature it is to be representative."[59]

In sum, my contention is as follows. Only by keeping in mind Leibniz's ongoing project of delineating the harmonious aspects of the world do we fully capture how the hypothesis of concomitance is also a hypothesis of harmony. The harmony between

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[57] Leibniz to Arnauld 30 April 1687. A II.2, N. 42, p. 189; M 124. Recall Leibniz's contention that the nature of the mind is to harmoniously contain in its simplicity a diversity of mental representations, as stated in *De conatu et motu, sensu et cogitatione* (see section II.2, above).
[58] A VI.4, N. 306, p.1542; L 308. Emphasis mine.
[59] Leibniz to Arnauld, 9 October 1687. A II.2, N. 57, p. 243; M 146.

substances which Leibniz puts forward does not reduce conceptually to compossibility or expression. Though harmonizing substances must be compossible and a harmonious universe must include inter-substantial expression, these conditions alone do not ensure inter-substantial harmony. What is needed to ensure harmony is the presence of independent, simple, *spontaneous* substances. Recall, spontaneity refers to the thesis "that each state of a created substance arises causally from its preceding state." This spontaneity ensures that simple substances—minds and the "mind-like" principles in non-rational beings—contribute through their own activities to the essence and perfection of the world. Parallelism—"that the states of each creature correspond or agree perfectly with the states of every other creature at any given moment"—magnifies this perfection by ensuring that regular causal claims can be made about the world, thereby rendering it intelligible and hospitable to progress in knowledge.

There is another sense in which the hypothesis of concomitance can be said to increase the world's intelligibility. Recall Leibniz's statement in the *De summa rerum* that "the simplest thing is that which thinks that it thinks itself; and thinking is absolute when that which thinks itself is all things."[60] Of course, only God contains all perfections and only divine thought is absolute, but the hypothesis of concomitance brings each rational being closer to this kind of absolute thinking than does any other hypothesis. Since each being expresses every other substance and event in the universe, each person can, by reflecting on him/herself, come to a limited awareness of the *entire* world. Concomitance therefore greatly increases the potency of our self-reflexive abilities.

One appeal, then, of the hypothesis of concomitance is that it makes knowledge more readily available to rational beings, which increases their power and essence, and

[60] A VI.3, N. 74, p. 518; DSR 75.

which ultimately serves to increase their well-being. This is in keeping with Leibniz's contention that the most metaphysically perfect and harmonious universe is that most conducive to the moral perfection and happiness of rational beings. As he writes in the *Specimen inventorum*:

> For as God himself is the King of Minds as well as the cause of things, and since he himself is a mind, he cultivates a special fellowship with them. In fact, since every single mind is an expression of the divine image…it is manifest that minds are the most important part of the universe, and everything has been established for their sake. In other words, in choosing the order of things, the greatest account was taken of minds and all things were so constructed that they would appear more beautiful the better they are understood…just as he sought the perfection of things, so he sought the happiness of minds.[61]

With the introduction of the hypothesis of concomitance, Leibniz brings to maturity his insight regarding the connection between the harmony of the world and centrality of minds.

For Leibniz, the hypothesis of concomitance captures the metaphysics of a harmonious universe more effectively than either of the competing theories fashionable in the 1680s.[62] *Influxus* theory, which posits a direct influence of the mind on the body, forswears both the principle of inertia and the conservation law, thus rendering the physical world unintelligible, lest God be invoked to account for discrepancies. In order for the harmony of the world to be maximized, however, God must create a world in itself maximally intelligible, to allow for the greatest possible advances in knowledge/power. Occasionalism, as we have seen, robs substances of their power, making it impossible for the substances themselves to harmonize (as opposed to passively

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[61] *Specimen inventorum de admirandis naturae generalis arcanis* (1688?). A VI.4, N. 312, p. 1624; LC 319

[62] As several commentators have noted, Leibniz often treats three options—*influxus* theory, occasionalism, and the hypothesis of concomitance or preestablished harmony—as exhaustive. He then deploys a *reductio* argument in order to defend his position. In other words: Necessarily A or B or C. Neither A nor B. Therefore C. To my knowledge, Leibniz never defends the exhaustiveness of these alternatives.

being harmonized "on occasion" by God). In so doing, occasionalism fails to account for the maximization of essence which must obtain in the most harmonious universe.[63]

By taking into account Leibniz's conception of universal harmony when interpreting the hypothesis of concomitance, we can trace a steady arc of development in Leibniz's reflections on harmony. To wit:

- In Mainz, Leibniz adopts the thesis the most harmonious world exhibits the greatest amount of diversity. It is this harmony which accounts for worldly perfection despite the presence of evil. Leibniz also adopts the thesis that the mind is itself harmonious, being a simple metaphysical "point" which nonetheless contains a diversity of perceptions. At this stage in Leibniz's thinking, these two theses regarding harmony do not bear directly on each other.
- In Paris, Leibniz shifts from measuring harmony in terms of diversity and unity to measuring harmony in terms of quantity of essence and simplicity. This move allows Leibniz to show that the nature of the mind—complex, self-reflexive, and yet simple—is foundational to maximizing essence in the most harmonious universe. He is thereby able to incorporate his reflections on the mind into his thesis regarding universal harmony.
- In Hannover in the 1680s, I am here suggesting, Leibniz preserves the same basic conceit regarding the centrality of simple minds to the maximally harmonious world. However, following the development of his "complete concept" understanding of the individual, Leibniz develops the new thesis that harmony is

[63] Leibniz believes the occasionalists' refusal to accord power to individual substances not only fails to explain the features of most choiceworthy of possible worlds, but also compromises the metaphysical foundations of a number of other positions which he and Arnauld hold on theological grounds, *viz*. the immortality of the soul, moral agency, and individual freedom. See: A II.2, N. 14, pp. 80-81; M 64-65.

> achieved by means of the causal independence of each simple substance, combined with their mutual parallelism.[64]

Though my focus on the idea of harmony forces us to look beyond what Leibniz explicitly argues in his correspondence with Arnauld, it has the benefit of showing the continuity between Leibniz's enduring reflections on universal harmony and his new position on preestablished inter-substantial harmony.

b. Mind-Body Harmony

It might seem odd to readers of Leibniz that to this point in discussing the hypothesis of concomitance, we have paid relatively little attention to the body. Indeed, one could be forgiven for thinking that the hypothesis of concomitance is meant primarily as an account of the mind-body relationship, given the frequency with which concomitance is brought up in this context. After all, Leibniz and Arnauld debate at length the proper explanation for why Arnauld's arm moves in accordance with his desire to doff his hat.[65] Furthermore, Leibniz often argues that his hypothesis is particularly appropriate for explaining mind-body (non-)interaction. Yet, as Leibniz makes clear, the harmony between mind and body follows as a consequence of the universal harmony between substances, not *vice versa*. His response to Arnauld's query about the arm and the hat is worth quoting at length.

> My reply is that it is not through any impression or action of bodies upon the soul, but because the nature of every substance bears a general expression of the whole

[64] I am here in basic agreement with Kulstad ("Causation and Preestablished Harmony") who believes that it is only between 1678 and 1686 that Leibniz moves beyond denying mind-body interaction to the more radical position of denying all causal interaction between substances. It is the more radical position, combined with the thesis of spontaneity, which is required by the hypothesis of concomitance/preestablished harmony. Thus we are justified in considering the hypothesis of concomitance a legitimate development in Leibniz's thinking regarding harmony in the 1680s.

[65] Arnauld introduces this example in a letter dated 28 September 1686. See: A II.2, N. 17, pp. 95-6; M 79.

> universe, and because the nature of the soul bears more particularly a more distinct expression of what is happening now that concerns its body. That is why it is natural for it to register and know the accidents of its body by its own accidents. It is the same for the body when it adapts itself to the thoughts of the soul; and when I wish to raise my arm, it is precisely at the moment when everything is arranged in the body so as to carry this out, in such a manner that the body moves by virtue of its own laws; although it happens through the admirable but unfailing harmony between things [*l'accord admirable mais immanquable des choses entre elles*] that these things conspire towards that end precisely at the moment when the will is inclined to it, since God took it into consideration in advance, when he made his decision about the succession of all things in the universe. All these are merely consequences of the concept of an individual substance[66] which embraces all its phenomena, in such a way that nothing can happen to a substance which is not born to it of its own depths, but in conformity with what happens to another, though one acts freely and the other without choice.[67]

There is much in this passage which needs explanation, but I first wish to underscore that Leibniz's theory of the harmony between mind and body is but a particular feature of Leibniz's overall account of causality, not the *raison d'être* of the hypothesis of concomitance. Though there is a parallelism between the actions of minds and those of bodies, for Leibniz, unlike the Cartesians, the metaphysical playing field is not even. For Cartesians, the question is how two substances—thought and extension—communicate. Leibniz cannot frame the question this way, for however one answers the question over whether minds are in themselves substances,[68] *bodies*—in accord with Leibniz's longstanding position—are not substances. Minds and mind-like substantial principles

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[66] Given our prior claim that expression between substances in a possible world does guarantee their mutual harmony, it is difficult to accept at face value Leibniz's claim that the perfect harmony between mental and corporeal laws follows *merely* as a consequence of the complete concept notion of substance. Given that Leibniz makes this claim directly after mentioning God's "decision about the succession of things in the universe," it is possible that Leibniz intends something along the lines of "given God's choice for the best of all possible worlds, it follows from the concept of an individual that…" However, this is by no means a transparent way of interpreting the passage.

[67] 28 November/8 December 1686. A II.2, N.25, p. 118; M 92 (translation modified).

[68] There is a host of literature—especially in Anglo-American research—on this question. Particularly at issue is whether Leibniz's use of the term "corporeal substance" in his so-called middle years commits him to a strong hylomorphic thesis which denies substantiality to minds alone *or* whether Leibniz holds a more idealist metaphysics for which minds are in themselves substances. The positions of the two major camps have been defended in most detail by Garber (*Body, Substance, Monad*) and Adams (*Determinist, Theist, Idealist*), respectively.

are metaphysically primary for Leibniz. Thus, key to understanding Leibniz's position on mind-body agreeement is recognizing that it is a consequence of the universal harmony between substances, not—from a metaphysical perspective—an independent instance of harmony.

How do Leibniz's remarks on mind and body fit within his picture of inter-substantial harmony? According to hypothesis of concomitance, intercourse with other substances follows from one's own complete concept. There is no physical interaction which accounts for this intercourse, of course; it is rather grounded in the agreement which God establishes between the perceptions of individual substances. Crucially, each substance becomes aware of others via its own perceptions. In other words, each substance perceives other substances *qua* phenomena, as bodies. One's own body represents the vantage point from which one perceives and registers the actions of other individuals. My experience of my body is, therefore, itself a perception, differing from my perception of other bodies only by virtue of its being particularly distinct.

> I do not think there is any difficulty in what I said about how 'the soul expresses more distinctly (all other things being equal) what pertains to its body,' since it expresses the whole universe in a certain sense, and in particular according to the connection between other bodies and its own, for it cannot equally well express everything; otherwise there would be no distinction between souls.[69]

I note in passing that with his remark that the soul accesses what happens to its own body via a particularly distinct expression or perception, one detects in Leibniz some vestigial Spinozism.[70]

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[69] Leibniz to Arnauld 30 April 1687. A II.2, N. 41, p. 167; M 113

[70] Cf. Spinoza, *Ethics* II P13. Kulstad, without ignoring the importance differences, picks out a further likeness between Leibniz and Spinoza on the issue of preestablished harmony, namely the position that "bodies operate by the laws of bodies, minds operate by the laws of mind or ideas, there is no interaction between minds and bodies, and yet nonetheless they correspond perfectly" ("Causation and Preestablished Harmony," 114).

If the relationship between my mind and body is a special case of inter-substantial expression through perceptual representation, then just as other phenomena can be explained by two sets of laws—efficient and final—so too can our own activities. The actions of our bodies proceed according to purely physical laws, yet we simultaneously know that our mind desires some end. According to Leibniz, these law-bound causal sequences coincide perfectly. If this account sounds much like what we saw in Leibniz's doctrine of dual explanation, that's because it is. From Leibniz's perspective, I believe, the difference between our ability to explain physical phenomena by two sets of laws and our ability to account for the relationship between mind and body is one of degree, not kind. We simply have a more direct and intimate experience of the harmony between these causal realms in the case of our minds and bodies, an experience so intimate, in fact, that we are tempted to interpret the mind-body relationship as one of direct causal influence.

As Leibniz's correspondence with Arnauld attests, the relationship between mind and body is highly important (not least because of its theological import), but I do not believe Leibniz views it as particularly problematic at this point in his career. Once Leibniz establishes the doctrine of dual explanation *and* defends his hypothesis of concomitance as the most worthy explanation of inter-substantial expression, he has in place all the requisite materials for explaining the commerce of mind and body, and to do so in a way which avoids talk of direct influence or occasional causes. This is not to say that the nature of body is easily explained—to the contrary, the notion of body as a particularly distinct perception raises a host of issues—but only to say that Leibniz's

position on the harmony of mind and body follows directly from the topics already discussed in this chapter.

IV.3 Conclusion

I would like to return for a moment to Garber's phrase "contingent *a priori.*" The phrase points us to the metaphysical difficulty in moving between what is necessary and what is not. Though the present investigation has not probed whether necessity and contingency can in fact be bridged (another philosophical investigation entirely), we have seen Leibniz use the idea of harmony in attempt to bridge them. For Leibniz, contemplating harmony gives us insight into which possible world a necessary being would create and, as a consequence, insight into how that world works. As he develops this thesis, Leibniz concludes that the world works, broadly speaking, according to two non-overlapping sets of laws: the efficient and the final. Yet these causal "realms" are themselves founded on the consonance which exists between infinitely many substances developing according to the individual "laws" governing their sequences of perceptions. For Leibniz, part of the magnificence of the world is, I believe, that so many independent substances can harmonize so as to permit general causal claims and to ground advances in the understanding of truth. Thus, though we have treated separately Leibniz's epistemological and metaphysical reflections on causation, it is important to emphasize that, for Leibniz, these are but two aspects of a single project of explaining the contingent features of the world in a way worthy of God.

Finally, it is worth reiterating that our investigation into causality in this chapter has served primarily as a window into the development of Leibniz's theory of harmony.

The hypothesis of concomitance—or of preestablished harmony—is the culmination of Leibniz's reflections on God's harmonious ordering of the world; it further renders the conception of harmony we outlined in Chapter three a central, architectonic metaphysical principle.

V
Harmony in Leibniz's Late Thought
[1690-1716]

In the preceding chapter, we saw Leibniz's reflections on harmony flower into the hypothesis of concomitance between substances and between mind and body. In 1695, Leibniz officially christens this hypothesis the theory of preestablished harmony (PEH).[1] Leibniz devotes much of his subsequent writing to defending this theory and its implications, especially as pertains to the harmony of mind and body.

The general contours of PEH and the main arguments in its favor remain unchanged from the time of Leibniz's correspondence with Arnauld until his death in 1716. Among these I include the following positions (accompanied by representative texts post-dating 1690):

1) The world consists of causally independent substances whose activities are spontaneous and nonetheless perfectly parallel one another: "That is, we must say that God originally created the soul (and any other real unity) in such a way that everything must arise from its own depths, through a perfect *spontaneity* relative to itself, and yet with a perfect *conformity* relative to external things" (1695).[2]

2) The perceptions of these causally independent substances represent diverse points of view on the same world. The multiplicity of perspectives on a single world amplifies the perfection and harmony of the world: "Each *soul* is a world in miniature, representing things from the outside according to its own point of view, and confusedly or distinctly according to the organs which accompany it…So by using souls as so many mirrors, the author of things has found the way to multiply the universe itself, so to speak" (1706).[3]

3) The theory of preestablished harmony offers a more natural explanation of causality than does occasionalism: "But let us see whether the system of

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[1] Leibniz first uses the phrase "*l'harmonie pre-établie*" in a letter to Guillaume François de l'Hôpital on 20 September 1695 (A III.6, N. 163, p. 505). The phrase first appears publicly the following year in the *Journal des savants* (see WF 51). For a fuller account of the early appearances of the term, and of Bayle's mistakenly attributing it to François Lamy, see WF 137, n.20.

[2] *Système nouveau de la nature et de la communication des substances, aussi bien que de l'union qu'il y a entre l'âme et le corps*. G IV, p. 484; AG 142 (emphasis in original).

[3] Leibniz to Electress Sophie, 6 February 1706. G VII, pp. 566-7; TS 347.

> occasional causes does not in fact imply a perpetual miracle. Here it is said that it does not, because God would act only through general laws according to this system. I agree, but in my opinion that does not suffice to remove the miracles. Even if God should do this continuously, they would not cease being miracles, if we take the term not in the popular sense of a rare and wonderful thing, but in the philosophical sense of something which exceeds the powers of created beings. It is not enough to say that God created a general law, for besides the decree there is also necessary a natural means of carrying it out, that is, all that happens must also be explained through the nature God gives to things" (1698).[4]

4) The theory of preestablished harmony testifies to the centrality of rational minds in creation: "Never has any system made our eminence more evident. Since every mind is like a world apart, self-sufficient, independent of every other creature, containing infinity, and expressing the universe, it is as durable, subsistent, and absolute as the universe of creatures itself" (1695).[5]

I would add one further thesis, central to Leibniz's conception of universal harmony, but not specific to the theory of preestablished harmony:

5) The harmony of the world requires that the world be maximally intelligible. This means that it is governed by a plethora of general laws and is conducive to general observations and theories[6]: "The more there is worthy of observation in a thing, the more general properties, the more harmony it contains; therefore, it is the same to look for perfection in an essence and in the properties that flow from the essence…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, the system that is as harmonious as possible and thus contains the greatest number of general observations" (1715).[7]

One could multiply examples of Leibniz citing these aspects and advantages of PEH. Since we have already treated the development and philosophical underpinnings of these positions, we shall not focus our attention in this chapter on Leibniz's continued reliance on them.

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[4] *Éclairissement des difficultés que Monsieur Bayle a trouvées dans le systéme nouveau de l'union de l'ame et du corps.* G IV, p. 520; L 494.
[5] *Systéme Nouveau*. G IV, p. 485-6; AG 144.
[6] See the discussion of Blumenfeld's "simplicity index," Section III.4, above.
[7] Letter to Christian Wolff, 18 May 1715. GLW 170-171; AG 233.

Instead, we turn our focus in this chapter to Leibniz's defense of PEH against its various critics. Leibniz's makes his theory available to the public in 1695, with the publication of his "*Système nouveau de la nature et de la communication des substances, aussi bien que de l'union qu'il y a entre l'âme et le corps*" in the *Journal des Savants*. The appearance of the *Système nouveau* sparks a host of exchanges and exploring these provides a fuller picture of Leibniz's views on PEH. Of paramount importance for our investigation is the relationship between PEH and Leibniz's late notion of substance. As we have seen throughout our study, Leibniz's theory of harmony is closely allied with his ideas regarding substance, specifically his rehabilitation of the notion of incorporeal substance. Leibniz's theory of substance undergoes significant changes in the period following the *Discours de métaphysique*, beginning with the publication of the *Specimen dynamicum,* also in 1695.[8] The *Specimen* outlines Leibniz's considered notion of force and affords him a new paradigm for defending the reality of incorporeal substances. A further new element in Leibniz's theory of substance comes in the form of simple, indivisible monads which become the metaphysical building blocks of the Leibnizian cosmos.

A brief word on these developments is in order. Though force, as *vis viva*, had been part of Leibniz's thought since 1678,[9] the *Specimen dynamicum* stands out for cataloguing the types of forces Leibniz sees at work in the world. Having read Newton's *Principia Mathematica* in 1688,[10] Leibniz was particularly eager in years following to

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[8] Part I of the *Specimen dynamicum* was published in April 1695 edition of the *Acta Eruditorum*. Part II never saw publication during Leibniz's lifetime. For information on the genesis of this work, and on the preliminary studies which are its forerunners, see Garber *Body, Substance, Monad*, Ch.4 and Robinet *G.W. Leibniz Iter Italicum* 4.1.

[9] See: *De corporum concursu*. On *vis viva*, consult Iltis *The Controversy over Living Force*.

[10] On the circumstances surrounding Leibniz's reading of the *Principia* and for a brief account of his response, see Antognazza, *Leibniz: An Intellectual Biography*, 290-99.

advance publicly an alternative picture of force, one which preserves the causal independence of the immaterial and material realms from each other. To this end, Leibniz distinguishes between primitive forces, which refer to the internal strivings of simple substances, and derivative forces, which govern the interactions of bodies. Both primitive and derivative force are further divided into the active and passive. Here is how Leibniz defines the respective forces in the *Specimen*:

> *Active force*...is twofold, that is, either *primitive*, which is inherent in every corporeal substance *per se* (since I believe that it is contrary to the nature of things that a body be altogether at rest) or *derivative*, which, resulting from a limitation of primitive force through the collision of bodies with one another, for example, is found in different degrees. Indeed, primitive force (which is nothing but the first entelechy) corresponds to the *soul* or *substantial form*.[11]
>
> Similarly, passive force is also twofold, either primitive or derivative. And indeed, the *primitive force of being acted upon* or of *resisting* constitutes that which is called the *primary matter* in the schools, if correctly interpreted. This force is that by virtue of which it happens that a body cannot be penetrated by another body, but presents an obstacle to it, and is at the same time endowed with a certain laziness, so to speak, that is, an opposition to motion, nor, further, does it allow itself to be put into motion without somewhat diminishing the force of the body acting upon it. As a result, the *derivative force of being acted upon* later shows itself to different degrees in *secondary matter*.[12]

What comes through most strongly in these (at points opaque) definitions is the fact that the physical world derives from the metaphysical realm: forces in bodies are modifications of the primitive forces of a substantial form, or entelechy. The *Specimen dynamicum* is Leibniz's most detailed attempt to demonstrate the need to admit substantial forms if one is to give a proper account of nature.

The central tenet of Leibniz's theory of monads is that there is nothing in the world but simple substances, and in them perception, "that is, the representation of the composite, or what is external, to the simple" and appetite, "that is, its tendencies to go

[11] D III, n. L, p. 316; AG 119.
[12] D III, n. L, p. 317; AG 119-120.

from one perception to the other."[13] While the introduction of monads does not completely alter the Leibnizian landscape insofar as he retains his belief in harmony between non-interacting, causally independent substances, there is, as Fichant has argued, a definite transition from discussion of *individual* substances in the late 1680s to talk in Leibniz's later work of *simple* substances, or monads, which aggregate to form various composites.[14]

The dynamics and the theory of monads undoubtedly impact Leibniz's thinking as he refines and strengthens his arguments for PEH. These advances in his metaphysics should be borne in mind throughout this chapter, as should the question as to whether Leibniz can count on his dynamics, monadic metaphysics, and the theory of preestablished harmony to mutually reinforce one another.[15] In Part I we look to Leibniz's continued defense of the theses of parallelism and spontaneity. In Part II, we look to harmony's role in discussions of soul-body and intermonadic union, key concerns in Leibniz's final years.

V.1 Preestablished Harmony Revisited

For the purpose of examining how Leibniz explains and defends mind-body harmony in his late writings, I will highlight Leibniz's exchanges with two of his many

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[13] *Principes de la nature et de la grâce, fondés en raison*. G VI, p. 598; AG 207.
[14] Fichant. "L'invention Métaphysique."
[15] Gale nicely underscores at least one important way in which Leibniz's dynamics, particularly the physicality of force, lends plausibility to PEH. He writes: "Force provides a plausible physical model, that is, it fills the role of sufficient hypothetical mechanism, which could generate the individual, absolute behavior of a Leibnizian corporeal substance To say this in another way, we must realize that, without force (or something analogous), there is no plausible interpretation of the workings—the actual, real functionings—of the harmony on the physical side of affairs…To have discovered a physical something which in fact was absolute, indwelling, and permanent meant that he could have his harmony between the stuffs that instantiated this force. Without force, and its ever so physical cash-value, the Harmony can only and ever remain strictly metaphysical, in every pejorative sense of the word" ("The Concept of Force," 66).

interlocutors: Pierre Bayle and Georg Ernst Stahl. I restrict our analysis to these two men mostly for the sake of clarity and simplicity, but also due to the importance of the exchanges themselves. Bayle is not the most subtle reader of Leibniz, but his published reservations regarding PEH provide Leibniz with important opportunities to clear up basic misconceptions. Bayle comments on preestablished harmony in both the 1696-7 and 1702 editions of his *Dictionnaire historique et critique*, with Leibniz penning a response to each edition.[16] In the 1696 edition of his *Dictionnaire*, Bayle sums up his critique of PEH with the following example:

> There are some problematic things in M. Leibniz's theory…For example, he holds that the soul of a dog operates independently of its body…From this it follows that the dog's soul would feel hunger and thirst at certain times, even if there were no bodies in the universe; even if 'there existed nothing but God and the soul'… I shall wait until the clever author of this system has improved it before preferring it to that of occasional causes: I cannot understand the series of spontaneous internal actions which could make a dog's soul feel pain immediately after having felt pleasure, even if it were all alone in the universe. I can understand why the dog passes immediately from pleasure to pain when, whilst it is very hungry and eating some bread, it is suddenly hit with a stick; but that the soul should be constructed in such a way that it would have felt pain at the moment that it was hit, even if it had not been hit, and even if it had continued to eat the bread without being disturbed or prevented, that is what I cannot understand. I also find the *spontaneity* of this soul wholly incompatible with its feelings of pain and in general with all feelings it finds unpleasant."[17]

From this point, I will refer to this alleged counterexample as "Bayle's dog."

Stahl, a physician and natural scientist, represents a cluster of early 18th C. medical theorists who were dissatisfied with the ability of mechanical theory to explain organic functions, particularly the kinds of reciprocal causal dependencies between parts

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[16] Bayle's comments on preestablished harmony can be found in the article "Rorarius" in the first (Amsterdam: 1696-7) and second (Rotterdam: 1702) editions of the *Dictionnaire*, notes H and L, respectively. From this point B1 = 1st edition, note H; B2 = 2nd edition, note L.
[17] B1; WF 73-4.

and whole in organisms.[18] Stahl believed teleological explanations were needed to account for the purposive activity of living beings and therefore posited a direct influence of the soul on the body. In his penchant for teleology, Stahl treads closely to Leibniz, but in his rejection of the self-sufficiency of mechanical explanation, he deviates strongly from Leibniz's position. Spelling out an alternative model for the relationship between teleology and mechanism is crucial for Leibniz's defense of the *harmony*, as opposed to direct influence, of mind and body.

For the remainder of this section, I will weave together Leibniz's exchanges with Bayle and Stahl to elucidate how Leibniz deals with challenges to PEH's central theses of parallelism and spontaneity. In the course of this analysis, we will also broach Leibniz's use of preestablished harmony as proof of the existence of God.

a. Parallelism vs. Preestablished Disharmony

Leibniz's thesis of mind-body parallelism is attacked by both Bayle and Stahl. Each doubts the likelihood that mind and body, each following its own laws, could correspond to each other at all moments. This line of critique has more and less sophisticated varieties. Bayle offers the latter. His counterexample of a dog which is not hit, yet still feels pain, does not challenge so much as misrepresent Leibniz's theory. Leibniz posits explicitly that God *preestablishes* the harmony between mind and body and thereby prevents the kind of divergence between the soul's perceptual states and the body's physical states that Bayle imagines.[19] Yet, while Bayle fails to do justice to

[18] For extended analysis of Leibniz's relationship to Stahl, Hartsoeker, and other medical theorists, see Duchesneau *Leibniz le vivant et l'organisme* and Smith *Divine Machines*.
[19] See: "Lettre de M. Leibniz à l'auteur, contenant un éclaircissement des difficultés que Monsieur Bayle a trouvées dans le système nouveau de l'union de l'âme et du corps," published in the July 1698 edition of

Leibniz's position,[20] the onus is on Leibniz to provide an account of what it is *in the nature of creatures* that guarantees the perfect parallelism of mind and body if he is to distinguish himself adequately from the occasionalists and their perpetual miracles.

Stahl levies a more grounded critique of parallelism, insofar as he draws his counterexample from common experience. His concern is with inefficacious acts of the will. Free agents regularly will outcomes which do not obtain in the physical realm. Indeed, free agents can even dare (his term) to do the impossible.[21] In light of these occurrences, what right does Leibniz have to assert the direct correspondence between mind and body? Is there not also evidence in our experience which points to a "positive disharmony, also preestablished?"[22]

There are two basic strategies Leibniz uses to render the thesis of parallelism more intelligible and more in keeping with appearances. The first strategy relies on the idea of proportion, which assumes an important role in his tête-à-tête with Stahl. Stahl accounts for the direct influence of body and soul on one another in part by positing a *proportio* between soul and body. This troubles Leibniz because there can only be proportion between commensurable entities. Stahl's appeal to proportion therefore

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the *Histoire de ouvrages des savants.* WF 81. For the remainder of this section, this essay will be designated *Histoire de ouvrages*.

[20] At least, it looks this way at the time of B1. In B2, Bayle questions whether it is possible for God to endow bodies with the ability to follow their own laws, thus challenging a key tenant of PEH. He questions this not on the side of God's power (which is unlimited), but on the side bodies, which may not be the types of beings capable of possessing so great a power. If Bayle already has this reservation in mind when writing the first edition, he may not be misrepresenting Leibniz so much as suppressing his true cause of concern. See B2; WF 86-7.

[21] *Negotium otiosum*, 27th ed. Enodatio XXVI. Quoted in Smith "Preestablished Harmony and *proportio*," 250.

[22] ibid. Explicatio XXVII. I also owe this citation to Smith.

implies that the soul be, in Leibniz's terms, "a subtle body,"[23] a position Stahl certainly rejects. In response to Stahl, Leibniz distinguishes between *proportio* and *societas*.

> [Stahl's] response on the other side establishes that there is proportion between body and soul, since the soul is in the body. At the least, there is association [*societas*] between mind and body and association [Stahl asserts] requires proportion. But in order not to investigate at this time whether and to what extent the soul is in the body, as in a place, *I deny that proportion follows from such association*. Even lines and surfaces are in a body and have a certain association; nevertheless proportion is not granted between motion and extension, nor between place and time.[24]

I take Leibniz to mean that two things are in *societas* if they bear relation to a single phenomenon. Such *societas* can attain even in the absence of commensurability or proportion. Parallelism without proportion is therefore not *prima facie* implausible and is indeed a preferable thesis since it avoids making the soul a subtle body.

The real force of Leibniz's rejection of Stahl's position on the proportion between soul and body can be gleaned from his earlier comments in the *Nouveaux essais sur l'entendement humain* (1704-5), where Leibniz invokes proportion in an *a priori* argument in favor of mind-body parallelism.

> The fact is that if during sleep or waking there were impressions in the body which did not touch or affect the soul in any way at all, there would be limits to the union of body and soul, as though bodily impressions needed a certain shape or size if the soul was to be able to feel them. And that is indefensible if the soul is incorporeal, for there is no relation of proportion between an incorporeal substance and this or that modification of matter.[25]

Leibniz's reasoning is that if *any* bodily impression corresponds to a modification in the soul—as happens in our experience, for instance, when one perceives pain upon placing

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[23] *Animadversiones circa assertiones aliquas Theoriae Medicae verae Clar. Stahlii.* D II-2, p. 152. Quoted in Duchesneau "Stahl, Leibniz, and the Territories of Soul and Body," 232.
[24] ibid. D II-2, p. 156. Emphasis mine.
[25] *Nouveaux essais sur l'entendement humain*. A VI.6, N.2, p. 116. The English translation of Remnant and Bennett follows the pagination of the *Akademie* edition. In all subsequent references, this work will be designated NE, with the understanding that the pagination refers to the pagination both in A VI.6 and in the Cambridge English edition.

his hand in a fire—then *all* bodily impressions must result in modifications to the soul, for, if they did not, this could only be due to some principle which limits the union of body and soul. But such a principle of limitation is an absurdity since soul and body are not commensurable types of things and therefore have no proportion. Thus, in order to account for those instances where our mental and bodily states do in fact correspond, we must either accept the "subtle" materiality of the soul or conclude that soul and body correspond in all cases. Left with these options, we must accept parallelism.

Leibniz's argument from proportion further supports the truth of parallelism, and by extension PEH, but we still need an account of how parallelism works and of what secures it. Leibniz provides such an account by pointing to the congruence between the infinite divisibility of matter and the infinity of *petites perceptions* in the mind. On the side of matter, Leibniz reasons that assuming both a plenum and matter's infinite divisibility—assumptions Cartesians would grant—it follows that an alteration in any part of matter reverberates, however faintly, in all other parts of matter.[26] Similarly, on the side of the mind, Leibniz holds that at any point the mind has innumerable confused perceptions of which it is unaware: traces, as it were, of all the other substances it mirrors.[27] Though there is an important ontological difference between the substantial and phenomenal realms—*viz.,* minds "concentrate" in their simplicity what is merely diffuse in matter[28]—both minds and bodies register the entirety of the universe. What is

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[26] "Réponse de M. Leibniz aux reflexions contenues dans la seconde édition du Dictionnaire Critique de M. Bayle, article Rorarius, sur le système de l'harmonie préétablie" G IV 557; WF 110-11. Note that while I have framed Bayle's objections to PEH by using the "Bayle's dog" passage from D1, in reconstructing Leibniz's philosophical arguments in response to Bayle, I draw liberally from both published and unpublished responses to B1 and B2.

[27] See, for example, NE 153-155.

[28] *Histoire de ouvrages*; WF 80. Cf. NE 318. On origins of this doctrine in Leibniz's thought, see Ch.2, above.

represented in the one does not diverge from what happens in the other, since each is reflecting the same world. Writing his notes to Bayle's first edition, Leibniz remarks:

> Thus the causes which move the stick…are also represented in the dog's soul from the outset, exactly and truly, but feebly, by small confused perceptions and without apperception, that is, without the dog's knowing it—because the dog's body also is affected by them only imperceptibly.[29]

With the doctrine of *petites perceptions*, Leibniz has a means of explaining how perceptual states mirror bodily states, down to the smallest detail.[30] The doctrine does not prove the truth of PEH—as the argument from proportion set out to do—but it offers a more precise explanation of how the harmony between mind and body works. Note also that, though we have no reason to believe Leibniz ever won Bayle to his side, Bayle himself suggests that the full development of the idea of universal expression via *petites perceptions* "would be the real means of resolving all the difficulties" he finds in PEH.[31]

Yet, while positing *petites perceptions* allows Leibniz to describe how all bodily acts have mental correlates, I find difficulties arise when explaining correspondence in the opposite direction, i.e., explaining how all perceptual states have bodily corollaries. Take the example of abstract reasoning. Leibniz argues that abstract thoughts "have their place there [in the body], through the symbols which represent them to the imagination."[32] However, it is not clear what the thesis "all thinking requires symbols" has to do with PEH. Since Leibniz holds that all sensation derives from the soul itself,[33] he cannot be claiming, à la Aristotle, that the activities of sensing and imagining are

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[29] From Leibniz's notes to B1. G IV, p. 532; WF 77
[30] Cf. NE 381-382.
[31] B2; WF 94.
[32] G IV, p. 559; WF 112. See a similar remark at G IV, p.563; WF 117. Cf. also NE 77.
[33] See, for instance, TS 137: "unities are the real root and seat of all being, all power, and all sensation: and these unities are souls."

bodily based.[34] Leibniz presumably means to point out that if humans were pure act, like God, we would be able to think without images, having pure intellectual intuition. Thus, the need to frame our thoughts in symbols testifies to the limitations on our activity, and hence to our primary passive power or "prime matter." But, while this might suffice to show that abstract thinking is always in some sense "material," it is not clear that the need for images corresponds to any actual bodily phenomenon, on the level of derivative forces, as PEH requires. I do not doubt that we could, in Leibniz's stead, find bodily, neurological activity which parallels abstract thinking. But I do not see, given Leibniz's epistemology, how symbol-thinking *per se* supports his conclusion. The failure of the symbols argument does not, of course, invalidate the theory of PEH, but to my mind it leaves questions as to how Leibniz thinks parallelism functions in practice.

b. *Spontaneity and Monadic Teleology*

Preestablished harmony is attacked on its second flank, spontaneity, as well. Consider Bayle's query about the issue of desire. "I also find the *spontaneity* of this soul wholly incompatible with its feelings of pain and in general with all feelings it finds unpleasant."[35] How is it, Bayle asks, that a subject spontaneously gives rise to unwanted perceptions? On one level, Leibniz can easily respond to Bayle by drawing a conceptual distinction between the spontaneous and the voluntary.[36] Not everything which follows from the nature of the agent is under the discretion of the agent. The thesis of spontaneity claims only that the agent's actions proceed without direct causal influence from other

[34] See Aristotle, *De Anima* III.3: "…imaginations remain in the organs of sense and resemble sensations" (425a5).
[35] B1; WF 74.
[36] *Histoire des ouvrages,* WF 81.

substances. The thesis does not entail that an individual has voluntary control over his perceptual states.

At a deeper level, however, Bayle's charge cannot be so quickly shaken, for Leibniz himself uses language not unlike Bayle's in describing the law of appetition, i.e., the law by which perceptions progress from one to the next. As he remarks in the *Principes de la nature et de la grâce fondés en raison* of 1714: "the perceptions in the monad arise from one another by the laws of appetites, or by the laws of *final causes of good and evil*, which consist in notable perceptions, ordered or disordered."[37] With respect to Bayle's dog, insofar as pain is not good for it, it is not initially clear how its spontaneous transition to a feeling of pain can be said to follow from considerations of good and evil. In other words, it remains to be explained how appetition, if oriented teleologically, admits of unpleasant perceptions. What's more, if Leibniz is to maintain against Stahl that the mental and material realms do not pollute each other, then he has to explain how purely mechanical laws of bodies, indifferent to the pleasure and happiness of beings, can be reconciled with a being's teleological appetite for the good.

The key to resolving the tension between what is pleasant and what is good is one familiar to us, *viz.*, Leibniz's reliance on the idea of final cause. As we saw in the previous chapter, Leibniz considers teleologically governed change to be that which occurs in the simplest and most determined way possible. He believes the change of a soul's perceptual states occurs in precisely this way. As he writes in response to Bayle: "The state of a *soul*, like that of an *atom*, is a state of change, a tendency: the atom tends

[37] G VI, p. 599; AG 207. Emphasis in original.

towards change of place, the soul towards change of thought; each of them changes itself in the simplest and most uniform way its state allows."[38]

While it is much more difficult to spell out simple change in the case of thought than in the case of refracted light (where one can rely on mathematical maxima and minima), Leibniz's notion that thoughts change in the simplest way possible must mean at least this: there are no gaps, no arbitrary shifts, in the sequence of thoughts. Bayle finds particularly hard to swallow the idea that spontaneity could account for the wild swings in our perceptual states: envisioning black then white; or, in the case of the dog, experiencing pleasure then at the very next moment pain.[39] What could account for such changes except external influence? Leibniz contends that there really is no problem of a gap here, for while the soul is only aware of two discrete thoughts, there is in fact within it a "compound tendency" which results from the multitude of *petites perceptions*. Thoughts arise in the simplest possible way, all *petites perceptions* considered, that is, given the multitude of perceptions and their varying levels of distinctness.

Returning to the issue of the relationship between pleasure and the good, we are now in position to explain how, for Leibniz, pain arises even in the midst of the soul's teleological bent. Insofar as any individual is limited, i.e. passive with respect to other beings, he cannot always achieve that towards which he strives. Thus, though he strives towards pleasure, he sometimes encounters pains.[40] Yet, this limitation on what is proximally pleasant is still, all things considered, *good* for the agent because it is ultimately more important for the flourishing of the agent that his sequence of perceptions be intelligible than ever-pleasant. If the dog perceived itself being struck and

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[38] G IV, p. 562; WF 115.
[39] B2; WF 90-91.
[40] See Leibniz's notes to B2. G IV, p. 546-7; WF 103.

experienced pleasure, there would be an inexplicable gap in its cognition, which would threaten all understandings of cause and effect and would thereby prevent any progress in knowledge. In this case, absence of pain might even threaten the dog's life, were the dog to allow itself to be beaten further. The teleology of the law of appetition must therefore be understood as follows: each soul produces the maximal pleasure it can, but this maximization is constrained by the law of continuity. It would seem the fact that the law of continuity holds in both causal kingdoms—that of power and that of wisdom—goes some way in explaining how, *contra* Stahl, these causal series can remain distinct while nonetheless proceeding from a single substantial individual.

c. Spontaneity and Problem of Solipsism

Bayle's chief objection to PEH and that which underlies the concerns we have already considered is, I believe, that the thesis of spontaneity renders the external world superfluous. How is it, Bayle asks, that the dog would feel pain if it were alone in the universe, i.e., if there weren't some other being hitting it? If spontaneity renders each substance independent and a "world apart," then this fact counts just as much as evidence against PEH as it does in its favor, for it could either be the case that there are *no* external substances or that there is a multitude whose perceptions harmonize. By what right does Leibniz reject solipsism?

Leibniz partially concedes Bayle's point. There is, he observes, no geometrical or metaphysical necessity that one's perceptions correspond to those of other substances. Nevertheless, it is necessary *ex hypothesi Dei*.

> It is true that if God were to decide to destroy everything external to the soul, but to keep the soul in isolation, with all its affections and modifications, they would

> bring it, through its own dispositions, to have the same sensations as before…But since this is contrary to the designs of God, who wanted there to be agreement between the soul and things external to it, it is clear that the preestablished harmony removes such a fiction: it is metaphysically possible, but it doesn't accord with the facts and their explanations.[41]

On what grounds does Leibniz deem the non-existence of other substances contrary to God's designs? One might expect Leibniz to argue, as does Descartes, that in the absence of external substances to which our perceptions correspond, God would deceive us and so be deficient in goodness.[42] But Leibniz puts little stock in deceiver arguments. Even if all our perceptions were a dream, a coherent and distinct dream would allow us to progress in practical knowledge and happiness; God would therefore be acquitted of malice.[43]

Leibniz instead argues for the real existence of external substances on the basis of plenitude.[44] God seeks to maximize essence, to create as much perfection as possible. Hence, a single substance goes against the designs of God, since no created substance exhausts the possibilities for created perfection. Also contrary to God's designs would be a situation where substances have no correspondence with one another, for in this case God "would have made as many worlds without connection, so to speak, as there are substances."[45] Leibniz rejects this possibility because it is an impoverished version of the plenitude God seeks. God desires not plenitude as such, but harmony, i.e., he seeks to create a single world which maximizes essence via the harmony between substances.

On its face, this is not the most riveting argument in response to Bayle's concern, for it affirms the reality of preestablished harmony on the basis of God's general desire

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[41] Leibniz's notes to B1. G IV, p. 530; WF 76. See similar remark in *Histoire des ouvrages*, WF 81.
[42] *Meditations* III.
[43] See *De modo distinguendi phaenomena realia ab imaginariis.* A VI.4, N. 299_2, pp. 1502-3; L 364-5.
[44] See Loemker's commentary: L 497, n. 2.
[45] *Histoire de ouvrages*, WF 81.

for harmony as the criterion of created perfection. In short: universal harmony, therefore preestablished harmony. Despite its lack of flair, this manner of argument is perfectly consistent with what we saw in the Arnauld correspondence, where Leibniz arrived at PEH in the context of a broader (anti-occasionalist) analysis of the harmony of creation. Moreover, it is consistent with Leibniz's own understanding of the relationship between God's designs and PEH. Note the causal sequence he recounts in the *Essais de théodicée: "*already convinced of the principle of Harmony in general, I was *in consequence* convinced likewise of the *preformation* and the Pre-Established Harmony of all things among themselves."[46]

Though a reasonable response to Bayle and consistent with his understanding of PEH, Leibniz's strategy for rejecting solipsism comes at cost: it threatens to compromise one of Leibniz's favorite features (and one has to think selling-points) of PEH, *viz*. its power to prove God's existence. And so we turn to the problem of Leibniz's proof and the prospects for saving it.

d. Preestablished Harmony as argument from design

Towards the close of the *Système nouveau*, Leibniz lists the advantages of the hypothesis of preestablished harmony. Among these is that the theory provides "a new proof for the existence of God…one which has extraordinary clarity. For the perfect agreement of so many substances which have no communication among them can only come from a common source."[47] This is not the first time Leibniz heralds the ability of PEH to prove God's existence; indeed, PEH *qua* argument from design is about as old as

[46] G VI, pp. 136; T 157. First emphasis mine.
[47] G IV, p. 486; AG 145. Cf. a similar remark at G VI, p. 541; L 587.

PEH itself. Writing to Arnauld on 9 October 1687, Leibniz explains: "So this mutual relationship of different substances (which cannot act upon one another, if one speaks with metaphysical strictness, and which yet harmonize as if they did act upon one another), *is one of the strongest proofs of God's existence* or of a common cause that every effect must always express according to its point of view and ability."[48]

The most detailed discussion of the argument of which I am aware occurs in Book IV of the *Nouveaux Essais*, where Leibniz pronounces in no uncertain terms that the proof based on preestablished harmony is "new and indisputable."[49] The argument proceeds in two phases. Phase one establishes the existence of God with only moral certainty. Material particles, Leibniz begins, cannot account for perception. As we have seen again and again, Leibniz believes perception requires an immaterial unity over and above material multiplicity. Furthermore, such immaterial, substantial unities have both active and passive dimensions. From these assumptions, Leibniz argues:

> Now these beings have received their nature which is active as well as passive (i.e. have received both their material and immaterial features) from a universal and supreme cause; for otherwise, as [Locke] has so well said, their mutual independence would have made it impossible for them ever to have produced this order, this beauty, this harmony we find in nature.[50]

Two issues bear on the proof at this point. One, the remarkable arrangement of so many simple beings testifies to the presence of a universal architect. Two, the specific alignment of immaterial souls (or soul-like principles) with incommensurable material bodies requires most of all a common source.

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[48] A II.2, N. 57, p. 245; M 147-8. Emphasis in original
[49] NE 438 (translation modified). Cf. Leibniz's notes to Lamy's *De la Connoissance de soy-même*, G IV, p. 578; WF 153. Cf. also G VI, p. 541; L 587.
[50] NE 440.

In general, there is nothing original to Leibniz in this stage of the argument. His take on the basic ontology of the world—simple substances with active and passive force—notwithstanding, the crux of the argument is the world's orderly arrangement, and he openly acknowledges his agreement with Locke on this. Furthermore, any occasionalist could comfortably point to the agreement between body and soul as proof for the need of a divine power orchestrating their agreement. Where Leibniz believes his true contribution lies is in bringing the argument from moral certainty "to a state of absolute metaphysical necessity by the new kind of harmony I have introduced, namely the preestablished harmony."[51]

As Leibniz sees it, the twin theses of spontaneity and parallelism at the heart of PEH implicate a divine creator. For, if each substance expresses the world without the direct causal influence of any other substances (spontaneity), and yet corresponds perfectly with the spontaneous expression of these other substances (parallelism), then this can only be due to "a universal cause upon which all these beings depend and which brings it about that each of them agrees and perfectly corresponds to the others."[52] Without an omnipotent and omniscient designer, such harmony between creatures would be inexplicable. More, it would be impossible: the causal independence of substances precludes finite substance from acting on one another and bringing themselves into harmony.

So runs the argument Leibniz deems indisputable. Leibniz scholars have been less confident. Bertrand Russell notably disputed the proof in a largely Kantian manner

[51] ibid.
[52] ibid.

which denied Leibniz the success of any proof of God's existence.[53] But even if we suspend Kantian concerns over whether all arguments for God's existence reduce to an indefensible ontological proof, i.e. even if we take Leibniz on his own terms, the proof of God via preestablished harmony faces a damning objection: it is, on plainest reading, viciously circular.[54] As we saw in his response to Bayle's dog, Leibniz assumes God's existence in order to warrant the presumption of external substances. If Leibniz predicates the reality of external substances on the designs of God, he is not entitled in turn to prove God's existence on the basis of the parallelism between these substances. The PEH design argument collapses under its own weight.

The foregoing diagnosis is fair, but it leaves us with an undesirable conclusion, for it dismisses what Leibniz—no slouch logician he—dubs a "new and indisputable" proof as a textbook *petitio principii*, to the great discredit of Leibniz's judgment. Now, one might think this mistake no great mar on Leibniz's reputation. As Sleigh quipped: "It may be said with only the mildest exaggeration that Leibniz never met a purported proof for the existence of God that he didn't like, at least in general terms."[55] If Leibniz's blindness to the cogency of such proofs is an open secret, we can perhaps overlook his enthusiasm in this instance and move on.

Still, that PEH offers a proof for the existence of God is a frequent refrain of Leibniz's, so much so that it is worth considering whether Leibniz's argument against solipsism is not as we have recounted it. Leibniz certainly could argue against solipsism from harmony in the way we outlined, but perhaps he also had another argument at his

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[53] Russell, *A Critical Exposition of the Philosophy of Leibniz*, 188ff.
[54] I claim no originality in noticing the circularity of Leibniz's demonstration. Gregory Brown, for example, offers a fine discussion of the problem ("God's Phenomena").
[55] Sleigh, "Remarks on Leibniz's Treatment of the Problem of Evil," 167.

disposal, one which would not incur so steep a cost. If Leibniz has another argument against solipsism, he would be free to use preestablished harmony in his proof for God without falling prey to circularity.

Returning, then, to Leibniz's proof of God, let us see if we can construct it in a more cogent way. Recall that inter-substantial harmony is the point which clinches the conclusion. God must exist if I am to perceive other substances out of my own spontaneous activity. Now, how do I arrive at an awareness of other substances? They limit me; I am aware of others because I understand my alterations through them. Now, even though my limitation/passivity ultimately constitutes "part" of my being, a given substance cannot be the sufficient reason for its own limitation, since the essence of any being is to act. Note that even primary passive force is defined as a force of resisting, of opposition to the encroachment on a substance's power.[56] To find the sufficient reason for why a substance is limited, one must look outside the substance itself.

If not within me, the sufficient reason for my limitation must be found in either of two sources. Option A: I exist amongst other substances with whom I form a world and whose perceptions are coordinated with my own. Though we do not causally influence one another, we conceptually constrain one another insofar as we are inhabit the same world and must have compossible perfections. Option B: There are no other substances, save God who puts constraints on my activity when creating me.

If option A is true, then we are left with the PEH design argument as Leibniz presents it; the coordination of so many substances requires infinite power and wisdom. If option B is true, we could still conclude that God exists. But this latter is not a viable option. For, if there were no other substances with whom I constitute a world, God

[56] D III, n. L, p. 317; AG 119-120.

would seem to have no sufficient reason for limiting my power in one way or another. In limiting me in any determinate way, God would act arbitrarily; at the very least, it is hard to see what sufficient reason God could have which would be consistent with his perfection. Note that here we reject the possibility that other beings are merely phenomenal not due to the principle of plenitude—as was the case in our first construction of the argument—but due to the *principle of sufficient reason*. No adequate explanation can be given for why my perceptions are precisely the way they are unless other substances exist. Given the existence of these other substances, the coordination of our perceptions, Leibniz can go on to argue, serves as proof of a divine architect.

This way of reconstructing Leibniz's arugment has, I think, much to recommend it. First and foremost, it does not presume God to conclude God, unless one believes the principle of sufficient reason presumes God's existence, a position Leibniz must reject on pain of collapsing the distinction between God's intellect and will. Granted, if one asks what sufficient reason there is for the existence of other substances, the answer is God's desire for harmony and plenitude. But, this answer incurs no vicious circularity because the proof for the existence of other substances and their harmony turns on the principle of sufficient reason, *not* on the presumption of harmony itself. Second, this manner of reconstruction is consistent with Leibniz's claim that it is *metaphysically* possible that our perceptions of other substances be purely phenomenal, since the argument relies on the principle of sufficient reason, not the principle of non-contradiction. Plus, there is some textual support which suggests that Leibniz might have considered something like the argument I have outlined, or at least that he came to it at some point. In a 1715 letter to Bartholomew Des Bosses he writes: "We judge with the greatest probability that we do

not exist alone, not only from the principle of divine wisdom, but also from that common principle upon which I generally insist: that nothing happens without a reason; and there does not appear to be a reason why we alone should be preferred over so many other possible beings."[57] Here, Leibniz's argument against solipsism follows from the principle of sufficient reason and points to the kind of argument we have constructed.[58]

At first blush, the idea that a thesis as speculative as PEH could provide *indisputable* proof for God's existence is hard to take seriously. However this last text suggests that Leibniz either amended, or had the resources to amend, his proof of God from harmony, roughly in the way we have outlined and to thereby avoid the charge of circularity. Leibniz's PEH proof is therefore, I submit, neither as vulnerable nor naive as its presentation in the *Nouveaux Essais* would indicate.

V.2 Monads, Harmony, and the Question of Union

The Jesuit René Joseph de Tournemine had little sympathy for occasionalism and was eager to adopt an alternative account of the relationship between soul and body. Yet, partial to Leibniz's system though he was, Tournemine challenges whether or not Leibniz delivers on his promise. Recall that the full title of Leibniz's 1695 essay promises to provide a "new system" of not only the communication between substances but also of

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[57] Leibniz to Des Bosses, 19 August 1715. DB 347.

[58] Leibniz makes a nearly identical appeal to the principle of sufficient reason in a letter to Des Bosses the following year, adding a remark that might suggest his awareness of the threat of circularity in the proof of God from harmony. "Moreover, even if no creatures were to exist besides a perceiving one, the order of what was perceived would display divine wisdom. And so, even though the wisdom of God is also known *a priori*, and not only from the order of the phenomena, there is no circle here" (29 May 1716. DB 369). Leibniz here concedes that one could eschew the issue of preestablished harmony altogether by adopting a form of what we have labeled option B, a more straightforward (and less fetching) design argument. Yet, given his remarks about proving external plenitude via the principle of sufficient reason, it is clear that Leibniz does not mean to give up on the proof of God from harmony.

"l'union *qu'il y a entre l'âme et le corps*." Tournemine suspects, however, that the new system of PEH—with its synchronous, harmonious, yet causally independent activities of mind and body—insufficiently *unites* soul and body to one another. As we shall see, the question of union comes to occupy a central place in Leibniz's correspondence with another Jesuit, Bartholomew Des Bosses, and ultimately points to potential ambiguities in Leibniz's final metaphysics. Our purpose in this section will be to evaluate Leibniz's final metaphysics of union—both the union of soul with body and the union of monads in corporeal substances—in light of his theory of harmony.

Tournemine expresses his reservations about PEH by borrowing a favored Leibniz metaphor: two clocks designed and wound so as to give perfectly synchronized readings.[59] Tournemine does not see how the metaphor helps Leibniz's cause:

> For after all, *correspondence*, or *harmony*, does not make a *union* or essential connection. Whatever parallels we might make between two clocks, even if the relation between them were perfectly exact, we could never say that these clocks were united just because the movements of the one correspond to the movements of the other with perfect symmetry.
> We must therefore go further to find a principle which will explain clearly the union of the soul with the body. We need to find a principle which will show that there is not only harmony…but also a connection, or essential dependence; not merely a virtual or apparent union which depends on some arbitrary law, but one which is actual and real: a union which is not superficial but intrinsic.[60]

Tournemine believes that the metaphysical union of soul and body is needed in order to ensure the essential dependence and intrinsic relation of soul and body. Insofar as Leibniz's theory of preestablished harmony does not speak to union, it cannot account for intrinsic relation. This failure has several deleterious consequences. Many of these are

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[59] Though embraced by Leibniz, the clock metaphor is original to Leibniz's longtime correspondent Simon Foucher, who employs it in his comments to the *Système Nouveau* which appeared in the *Journal des Savants* of September 1695. See WF 43; G I pp. 425-6 and G IV pp. 488-9.
[60] WF 249. Emphasis in original. Tournemine's remarks were originally published in the *Mémoires de Trévoux* of May 1703; they appeared in the Amsterdam edition of the same journal in March of 1704. Leibniz uses the latter date when referring to this piece.

theological: without the intrinsic relation of soul and body, one cannot rule out definitively the possibility of metempsychosis, a point of live theological debate in Leibniz's intellectual circles;[61] lack of grounds for intrinsic relation could also trouble theses regarding the incarnation and the resurrection of the body. Beyond these theological concerns, Tournemine's objection challenges philosophically whether PEH saves appearances as well as Leibniz thinks it does. *My* body is always in harmony with *my* soul: does this not indicate a more inextricable, reliable, and intimate relationship than that between two clocks?

In response, Leibniz concedes to Tournemine that PEH fails to posit a metaphysical union between soul and body. The theory rather purports to explain the *perceived* relationship between soul and body. The correspondence of soul and body is a phenomenon, and it is only this phenomenon which is at issue in PEH. "But since this metaphysical union, which is added onto that, is not a phenomenon, and as we have not even been given any intelligible notion of it, I have not taken it upon myself to look for an explanation of it."[62] Importantly, Leibniz does not deny the possibility of there being a principle of union, the likes of which Tournemine seeks, but he likens our understanding of any such principle to our understanding of mysteries.[63] In general

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[61] Leibniz counts as one of the great upshots of PEH that is proves the impossibility of metempsychosis. See G VI, p. 453 (L 589); G IV p. 480 (AG 140); A I.10, N. 53, p. 64 (TS 105-6). The thesis of metempsychosis or the transmigration of souls was defended in Leibniz's day by the likes of Henry More and Francis Mercury van Helmont. Leibniz met with the latter several times in 1696.

[62] WF 250. Originally published in March 1708 edition of the *Mémoires de Trévoux*. It is worth noting that Leibniz continues to at times use the term "union" in describing PEH after his exchange with Tournemine. For instance, in the *Principes de la nature et de la grâce fondés en raison* (1714), he writes of "the agreement and the physical union of soul and body" (G VI p. 599; AG 208). In the *Mondaologie* of the same year, Leibniz is more cautious: "These principles have given me a way of naturally explaining the union, *or rather the conformity*, of the soul and the organic body" (§78. G VI, p. 620; AG 223. Emphasis mine).

[63] WF 250. Leibniz recounts this response to Tournemine in the *Théodicée* (1710), G VI p. 45; T 68-9.

keeping with Leibniz's treatment of mysteries, it is enough for him that his system allows for their possibility; his metaphysics need not prove their truth.[64]

Leibniz does not, however, grant Tournemine's supposition that union is needed to ground an intrinsic relation. His most extended commentary on this issue is found in a draft of a 1706 letter to the Dutch experimental physicist Burchard de Volder. After drawing a distinction between union and agreement, Leibniz writes:

> I believe that that primitive or derivative force which is conceived in extension or mass as outside of perceivers is not a thing, but a phenomenon, as is extension itself…But to seek something here beyond the phenomenon, it seems to me, is just as if someone were to deny that he was satisfied with an explanation of the phenomenon of an image, as if there were some unknown essence of the image that remained to be explained. Arguments, in my judgment, can prove the existence of nothing but perceivers and perceptions (if you put aside their common cause), as well as the existence of those things which must be admitted in them, namely, in the perceiver, the passage from perception to perception while the same subject remains, and, in the perceptions, the harmony of the perceivers.[65]

The fulcrum of Leibniz's response is his belief in the phenomenality of bodies. Because bodies are phenomenal, their relationship to incorporeal souls is too a phenomenon. Yet, the relationship between soul and body is nonetheless intrinsic and non-arbitrary because bodily phenomena derive from the reality of simple soul-like perceivers. Tournemine, as it were, demands too much. In taking the two clocks example too literally, he overlooks the ontological distinction between soul and body—they are different kinds of clocks!—and thereby posits too stringent a criterion for intrinsic relation. For Leibniz, one cannot hope to explain more than the phenomenon of agreement because the realm of extension is itself phenomenal.[66]

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[64] For Leibniz on reason, faith, and mysteries, see G VI, p.52; T 76. See also: Goldenbaum, "Spinoza's Parrot, Socinian Syllogisms, and Leibniz's Metaphysics."

[65] Leibniz to de Volder, 19 January 1706 (first draft). G II, p. 281; AG 184, n. 239.

[66] See Leibniz's 30 June 1704 letter to de Volder: "Indeed, considering the matter carefully, we must say that there is nothing in things but simple substances, and in them perception and appetite. Moreover,

Thus far, Leibniz's defense of PEH against Tournemine's demands for mind-body union appears relatively straightforward, consistent with his dynamics and with monadic metaphysics. Leibniz's response to Tournemine presupposes the substantiality of mind-like monads and the phenomenality of bodies as outlined by Leibniz to de Volder. However, this is not the whole story, for the interpretation of bodies as phenomena is not the only analysis of body Leibniz presents in his correspondence with de Volder. In an earlier and oft-cited letter from 20 June 1703, Leibniz sketches a five-tiered ontology, a general outline of monadic metaphysics.

> Therefore, I distinguish: (1) the primitive entelechy or soul; (2) the matter, namely, the primary matter or primitive passive power; (3) the monad made up of these two things; (4) the mass or secondary matter, or the organic machine in which innumerable subordinate monads come together; and (5) the animal, that is, the corporeal substance, which the dominating monad in the machine makes one.[67]

Of particular interest is thesis (5), for Leibniz's acceptance of the notion of corporeal substance poses a difficulty. On Leibniz's principles, substances must be simple, *unum per se*. And yet, Leibniz suggests in (5) that a dominant monad can grant substantiality to an *aggregate* of monads. While there seems to be good reason to accept thesis (5) if Leibniz wants to explain how, say, an eagle's body composes a single substance in a way a pile of sticks does not, the unavoidable question for Leibniz is how the preestablished relations of harmony between monads—which Leibniz has insisted explain only *phenomena*—give rise to an aggregate corporeal *substance*.

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matter and motion are not substances or things as much as they are the phenomena of perceivers, the reality of which is situated in the harmony of the perceivers with themselves (at different times) and with other perceivers." G II p. 270; AG 181.

[67] Leibniz to de Volder, 20 June 1703. G II, p. 252; AG 177. Though our analysis of this passage will focus on the notion of corporeal substance in (5), Rutherford provides a helpful gloss on (4). In his terms, the "panoganicism" of Leibniz's position—namely, the fact that all bodies are at root monads—increases the harmony of the world by ensuring that all phenomena are "well-founded" and substantially-rooted (*Rational Order*, 228ff.).

This question of the union of monads in a corporeal substance broached in the de Volder correspondence comes to feature prominently in Leibniz's decade-long correspondence with the Jesuit Bartholomew Des Bosses. A significant body of literature has addressed this correspondence, with no consensus reached on Leibniz's own commitment to the hypotheses introduced in the exchange. I now wish to consider how approaching the correspondence through the lens of Leibniz's theory of harmony might contribute to our understanding of Leibniz's ultimate acceptance or denial of corporeal substances.

Des Bosses engages Leibniz with hopes "to accommodate the substance of [Leibniz's notions] with the doctrines of Aristotle, or rather, accommodate the former with the latter and both with the doctrines of the Church."[68] Of paramount importance in accommodating any metaphysics with Catholic dogma is the mystery of transubstantiation. When asked whether his philosophy can defend transubstantiation, Leibniz at first refers Des Bosses to his response to Tournemine: "I have already replied to Tournemine that the presence [here: of Christ in the bread] is something metaphysical, like a union, which is not explained through the phenomena."[69] Put otherwise, PEH is subject to the same limitation we saw in the two clocks example: it cannot—nor does it purport to—explain anything supraphenomenal.

But Leibniz does not end his response here. In denying that his system offers a defense of transubstantiation, he does not thereby close the door on the possibility that his system could admit said defense. "Whether and how your transubstantiation can be

[68] Des Bosses to Leibniz, 25 January 1706. DB 7.
[69] Leibniz to Des Bosses, 8 September 1709. DB153.

explained in my philosophy would be a more difficult question."[70] Leibniz's qualifier "your" transubstantiation might be taken as a warning not to read Leibniz's attempts to accommodate transubstantiation as expressions of his sincere views. But, as Look has argued, the discussion of transubstantiation does not drive the entire correspondence so much as it serves as an occasion for the correspondents to examine Leibniz's views on corporeal substance.[71] The question of the union of Christ with the bread involves questions regarding the corporeality of the body and its union with the soul. Leibniz's comments on transubstantiation, therefore, must be read with some care.

Leibniz is more reticent in the Des Bosses correspondence, relative to his exchange with de Volder, to say whether the reality of corporeal substance is a fundamental tenet of his system. In an attempt to accommodate transubstantiation, Leibniz writes:

> Thus, one of two things must be said: either bodies are mere phenomena, and so extension also will be only a phenomenon, and monads alone will be real, but with a union supplied by the operation of the perceiving soul on the phenomenon; or, if faith drives us to corporeal substances, this substance consists in that unifying reality which adds *something absolute* (and therefore substantial), albeit impermanent, to the things to be unified. And your transubstantiation must be located in the change of this, for monads are not really ingredients of this added thing, but requisites…Consequently, although the substance of the body is changed, the monads can be saved, along with the sensible phenomena founded on them.[72]

We are presented here with two options, either of which Leibniz claims is consistent with his principles.

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[70] ibid.
[71] Look, *Vinculum Substantiale*, Ch.4. See also Look and Rutherford's introduction to their edition of the Leibniz-Des Bosses correspondence. I note in general my indebtedness to these analyses of the metaphysics of substance in the correspondence. In many ways, I shall rely on them as a launching pad for a discussion of harmony.
[72] Leibniz to Des Bosses, 15 February 1712. DB 226-7.

> Option A: Substantiality is not granted to corporeal substances. Bodies are *phenomena bene fundata*.[73] Significantly for us, the union of monads in bodies is grounded in perception, i.e., the *harmonious* agreement between the perceptions of various monads.
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> Option B (*which Leibniz here claims to entertain on extra-philosophical grounds*): Substantiality is granted to corporeal substances by way of a new element in the Leibnizian universe, what he calls the substantial bond [*vinculum substantiale*]. The *vinculum* grants substantiality to an aggregate of monads and thus renders the corporeal realm more than phenomenal.

Since in the above passage Leibniz claims to ponder option B only in the interest of faith, it very well may be that he no longer accepts the five-tiered ontology of the de Volder letter, which suggested that the idea of corporeal substance had some rational allure for Leibniz. We should not hasten to this conclusion, however, before considering two major advances which occur in Leibniz's thought regarding the *vinculum substantiale*.

The first advance occurs with Leibniz's admission that "nothing absurd arises if the substantial bond, or the substance itself of the composite, is also said to be ingenerable and incorruptible, because I think that no corporeal substance should really be admitted except where there is an organic body with a dominant monad, or a living thing, that is, an animal, or something analogous to an animal."[74] This move follows from Leibniz's belief that substances can be created and annihilated, but not otherwise generated or corrupted. In order for the substantial bond to merit the status *substantial*,

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[73] Leibniz remarks later in the same letter: "If that substantial bond of monads were absent, then all bodies with all their qualities would be only well-founded phenomena, like a rainbow or an image in a mirror—in a word, continuous dreams that agree perfectly with one another; and in this alone would consist the reality of those phenomena." DB 227.

[74] Leibniz to Des Bosses, 23 August 1713. DB 319.

therefore, it must be ingenerable and incorruptible.[75] Leibniz does not commit himself to this picture of the *vinculum* any more than he did to the existence of the *vinculum* itself. He acknowledges only that the thesis is not absurd; he does not argue for its fitness. Nevertheless, this step is significant insofar as Leibniz accords to the *vinculum* features characteristic of monads.

The second advance comes when Leibniz, after further dialogue over the substantiality of corporeal substances, endows aggregate substances—more precisely the *vincula* uniting them—with their own principles of action and primitive forces. From a 1715 letter:

> Now I come to the question of whether this bond, if it exists, is something substantial. It seems so to me; otherwise I judge it to be useless; for how else will it make a composite substance, the one reason for which it was introduced? But you object, first, that it is not a principle of action, since it is like an echo. I respond that a body returning an echo is still a principle of action. This bond will be the principle of action of the composite substance; and he who admits this composite substance…will also admit this bond.[76]

And from a letter the following year:

> Composite substance does not consist formally in monads and their subordination, for then it would be a mere aggregate, that is, an accidental being; rather it consists in primitive active and passive force, from which arise the qualities and the actions and passions of the composite, which are perceived by the senses, if they are assumed to be more than phenomena.[77]

In the first passage, Leibniz draws upon his conviction that "to act is the mark of substances."[78] The fact that the activity of composite substances is predicated on the activity of monads does not, according to Leibniz, make composites any less substantial or incapable of their own proper activity. The metaphor of an echo is significant in this

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[75]The conclusion follows also from Leibniz's belief that neither soul nor body dies, the latter constantly changing but never perishing (ibid.).
[76] Leibniz to Des Bosses, 19 August 1715. DB 349.
[77] Leibniz to Des Bosses, 29 May 1716. DB 371.
[78] *Specimen dynamicum*. D III, p. 315; AG 118

regard. Being committed to the idea that minds echo divine perfection and are nonetheless the subjects of their own activity (not, as Spinoza would have it, mere modes of the divine), Leibniz holds too in this case that the dependency of the *vinculum* on monads does not compromise its own capacity for action.[79] In the second passage, Leibniz pushes even further, concluding that the *vinculum* must be the subject of its own primitive active and passive forces, if it is to bond an *unum per se* substance and not merely an aggregate. Though they perform different functions, monads and substantial bonds are now in their basic ontological features separated by the thinnest of margins.

I survey these changes in Leibniz's presentation of the *vinculum substantiale* because I would like to consider how the *vinculum* hypothesis intersects with Leibniz's conception of harmony. Can Leibniz's position, reaffirmed in the Des Bosses correspondence, that God acts always "most wisely and most harmoniously"[80] tell us anything about Leibniz's level of commitment to the existence of the *vinculum*? Leibniz appeals to harmony to settle the question only once in the correspondence: "It cannot be proved from harmony that there is anything else in bodies besides phenomena."[81] If harmony is perfectly consistent with the phenomenality of bodies, the existence of the *vinculum* would have to follow from an additional criterion of creation. Since no evidence indicates what this additional criterion could be, Leibniz's theory of harmony seems to rule out the existence of substantial bonds.

Indeed, we have stressed that since the writing of the *De summa rerum*, maximization of essence must occur via simple beings, if, according to Leibniz, maximal

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[79] Consider Leibniz's remark in his final letter to Des Bosses (29 May 1716): "Nothing prevents an echo from being the foundation of other things, especially if it is an originary echo." DB 375.
[80] Leibniz to Des Bosses, 29 April 1715. DB 338-9.
[81] Leibniz to Des Bosses, 26 May 1712. DB 243.

harmony is to obtain. It is unclear how the *vinculum* satisfies the "simplicity" dimension of this criterion. Faced with a choice between phenomenal bodies or corporeal substances, the "simplicity" criterion could be interpreted as favoring the former. Since substantial bonds are superfluous to universal harmony, one could argue, God would not include them in the architecture of the world.

Furthermore, if substantial bonds with primitive forces are admitted, the question arises as to how they fit within the preestablished harmony between substances. Are their forces somehow in harmony with the forces of monads? Leibniz, remarkably in my opinion, suggests the possibility of monads *influencing* substantial bonds. "If that real bond is possible, it should be possible for there to be an influence [*influxus*] of the unities on it; otherwise there will be no reason why it can be called the bond of them."[82] *Influxus* being a technical term in the mind-body debate,[83] its use here cannot be taken colloquially. If monads somehow exert direct influence on substantial bonds, this compromises the spontaneity and parallelism so essential to maximizing essence in the theory of preestablished harmony.

Ultimately, I believe that the foregoing considerations are right. I believe Leibniz's commitment to universal harmony rules out the reality of substantial bonds. But I admit that harmony provides no conclusive evidence against substantial bonds. For example, one might point out that Leibniz's statement about harmony requiring nothing in bodies beyond phenomenon is made relatively early in his correspondence with Des Bosses, in 1712, before Leibniz concedes that substantial bonds, if real, have their own

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[82] Leibniz to Des Bosses, 29 April 1715. DB 337.
[83] Leibniz in fact differentiates his theory of substantial non-interaction from *influxus* in the same letter. "…if all monads have their perceptions from their own stores, so to speak, and without any physical influence [*influxu*] on one another…" DB 337.

active and passive forces. One might therefore ask: would God, seeking in his preference for harmony to maximize the quantity of essence, not opt to create *vincula* which, by virtue of their active and passive forces, increase the sum total essence/perfection in creation? Substantial bonds, this line of thought runs, are a late addition to Leibniz's system, but they nevertheless accord with his conception of harmony.

Given the interpretative difficulties involved, I think we should accord significant weight to Leibniz's observation that the principle of harmony requires not corporeal substances, but only phenomenal bodies. As a general exegetical principle, I would suggest that when interpreting texts where the nature of one metaphysical principle—in this case, substance—is at issue, appeals to other significant metaphysical concepts should be taken as especially telling. Leibniz's appeal to harmony to show the needlessness of substantial bonds should therefore caution us strongly against seeing substantial bonds as legitimate elements of Leibniz's system. Moreover, though we have allowed for the fact that substantial bonds could be said to increase the amount of essence in the world, we have also seen that including *vincula* in creation would demand a significant rethinking of Leibniz's concept of harmony. And while this dissertation has shown that Leibniz's conception of harmony is not static, there is no textual evidence which suggests that he made any radical alterations to his conception of harmony, or to his theory of creation, in the last decade of his life.[84]

Even if my suspicion is right that viewed through the lens of harmony the hypothesis of the *vinculum* becomes untenable, significant questions remain. One is the

[84] At the time of writing this dissertation, not all of Leibniz's works are yet available in the critical, *Akademie* edition. Philosophical writings post-1690 are not yet published (with the exception of the *Nouveaux Essais*), though many are available in Gerhardt's volumes. The philosophical correspondences are available in the *Akademie* edition up until 1700. It is possible that future release of heretofore unavailable texts will force me to modify this assessment.

question of charitable interpretation. If Leibniz is unequivocally committed to the idea that universal harmony does not require substantial bonds, why does he continue to take the prospect of these bonds so seriously, repeatedly endowing them with greater ontological heft? Leibniz is not exactly lobbying Des Bosses to accept his metaphysics, so there is no clear-cut diplomatic reason to entertain the *vincula*. Are we left, then, to accuse Leibniz of dissimulation? Here it is helpful to remember that Leibniz couches all his appeals to the *vinculum* in hypothetical terms. As Look has argued, the *vinculum substantiale* represents real progress in Leibniz's thought, but progress not so much in doctrine as in the recognition of a problem.[85] The problem of composite substance, i.e., of explaining the difference between the aggregation of monads in a living organism and the aggregation of monads in a heap of rocks, is a legitimate one for Leibniz's metaphysics. For Leibniz, in his correspondence with Des Bosses, to tease out the implications of even an unpromising hypothesis is not, in the absence of a settled explanation, necessarily vicious or duplicitous.

Still, the problem of composite substance points to a deeper question, one that cuts to the heart of our investigation, *viz*: is the theory of preestablished harmony, developed in the 1680s under the understanding of substance *qua* complete individual, adequate to Leibniz's monadic metaphysics of ontological simples? Or, should the theory of preestablished harmony have undergone further development apace with the other changes in Leibniz's thinking? Reading the correspondences with de Volder and Des Bosses, it is hard not to wish that Leibniz would have offered more explanation of how the preestablished relations between monads united in an organic body differ from the preestablished relations between all substances. The relationship between dominant

[85] Look, *Vinculum Substantiale*, 132.

and subordinate monads in an organic body seems to be a special type of causal relation, perhaps a special instance of harmony. And yet, this wish notwithstanding, it would also be hard to charge that Leibniz lacked the resources within his theory of preestablished harmony to explain all kinds of monadic relationships. His thesis that certain monads can be, in their perceptions, subordinated to others seems specially designed to allow for different types of intermonadic relations within the preestablished harmony. Thus, I do not think it the case that Leibniz needed to revise PEH to accommodate monads, nor that he needed to accept corporeal substances. Nevertheless, I for my part wish Leibniz had devoted his late efforts to refining his theory of intermonadic harmony, rather than to entertaining the possibility of extramonadic bonds. Had he done so, we would be left not with questions of the phenomenality vs. reality of bodies, but with a fuller picture of the intricacies of a harmonious, idealist universe.

Conclusion: A Metaphysics of Harmony

I have called this dissertation *Leibniz's Metaphysics of Harmony*, a title which can be read in at least two senses. In the first instance, the phrase "metaphysics of harmony" might be taken in a partitive sense, as picking out the metaphysical aspect of the idea of harmony, as opposed to its aesthetic, epistemological, or ethical dimensions. I believe we have succeeded in revealing what Leibniz's metaphysics of harmony in this sense is. We have seen that harmony does not simply mean that which is pleasing (though it also means that), nor simply that diverse things cohere and fit together (though it can mean that too), nor does it simply name a psychological state of tranquility or equanimity with the whole (though it can have this sense as well). More important for Leibniz than any of these senses of harmony is, I believe, its metaphysical sense. This metaphysical meaning, though not univocal in all of Leibniz's writings or at all points in his career, is, we have shown, sufficiently determinate to have metaphysical heft. His conceptions of harmony allow Leibniz to arrive at definite conclusions about the mind, the mind-body relationship, and causal relations in general.

The phrase "metaphysics of harmony" might also be read in a descriptive sense, as indicating that Leibniz's metaphysics is defined by harmony, that harmony is its chief characteristic. I believe our investigation has shown that there is an important extent to which this is true: harmony is in many ways the heart of Leibniz's metaphysics. In the preface to the *Essais de théodicée*, Leibniz claims "[t]here are two famous labyrinths wherein our reason very often goes astray." One labyrinth concerns the origin of evil, the other the problem of the continuum.[1] While it would be too much to say Leibniz's

[1] G VI, p.29; T 53.

conception of harmony rids us of these labyrinths, harmony is central to Leibniz's approach to each, and thus central to his metaphysics as a whole.

Harmony obviously plays a role in Leibniz's theodicy. Musical harmony provides a paradigm case in which things not pleasing in themselves contribute to greater pleasure and beauty, and therefore offers a model wherein sin and suffering need not conflict with divine omnibenevolence. This is an important insight, but if this were all there were to Leibniz's use of harmony in discussions of evil, one could dismiss Leibnizian harmony as a metaphor, and a not especially consoling one at that. Leibniz's conception of harmony, however, enters more deeply into Leibniz's theodicy than is initially apparent, pushing further to point to the exceptionality of rational beings, the special concern shown for them in creation, and the reality of teleological order in nature. These latter theses do much to broaden Leibniz's defense of divine justice, to provide an account of God's benevolence, and to guide Leibniz through the first labyrinth.

The labyrinth of the continuum concerns the nature of substance, particularly whether there can be any substantial *per se* unities given the infinite divisibility of matter. As we discussed in Chapter 2, Leibniz's foundational insight that mind itself is harmonious provides a major plank in his defense of incorporeal substances. This insight in turn paves the way for Leibniz's ultimate solution to the continuum problem, his distinction between the level of immaterial "atoms," or monads, and the phenomenal realm of infinitely divisible extension. Harmony *qua* solution to the problem of "the one and the many" guides Leibniz's course through the second labyrinth as well.

Harmony provides the clue to these pressing philosophical labyrinths precisely because it is the end governing creation. In this regard, Leibniz's is a metaphysics of

harmony in the descriptive sense. I do not mean to suggest that harmony is a self-sufficient metaphysical principle, from which one could derive the whole of Leibniz's "system." I do mean, however, that we lack a full appreciation of the appeal many of his metaphysical positions had for Leibniz if we divorce them from their context in his vision of universal harmony.

The chronological approach to Leibniz's writings I have taken and the corresponding proof of development in Leibniz's conception of harmony have proven instrumental for understanding Leibniz's "metaphysics of harmony" in both what I am here calling its partitive and descriptive senses. That is, this approach has allowed us both to specify the metaphysical significance of harmony for Leibniz at various points in his life and also to unite his at times apparently disparate appeals to harmony into a coherent, albeit developing, metaphysical view, a view which upholds the exceptionality of rational beings and the intelligibility of nature.

The question remains whether a metaphysics of harmony is a good metaphysics. While we could approach this question by isolating and evaluating certain consequences of Leibniz's theory of harmony—the usefulness of teleological optimization in the sciences, the inability of materialism to account for mental processes, etc.—since one of my goals throughout has been to stress that Leibniz's appeals to harmony are not *ad hoc*, it is more appropriate to this investigation to take up the question wholesale. In response I will steal a page from the playbook of Robert Adams, who writes with respect to monads that the theory "in its essentials, though not in all its details, represents an important, permanent metaphysical alternative, one of the handful of fundamental views

in this area that has a real chance of being true."[2] The situation with Leibniz's metaphysics of harmony is, to my mind, much the same: Leibniz presents us with a theory which, in its essentials, represents one of only a few viable possibilities.

The possibilities I have in mind here are candidates for a philosophical-theological account of creation since, to be sure, Leibniz's metaphysics of harmony requires a theistic context. This need not be Leibniz's brand of theism, but must be one where it is meaningful to ask after the manner in which finite things proceed from a perfect being. There are legitimate candidates other than Leibnizian harmony for the "good" to be effected in creation (or emanation). Though Leibniz attempts to hold together simplicity, plenitude, order, and moral perfection in his conception of harmony, each of these *simpliciter* could plausibly be the end sought in creation, and there would of course be ways to combine and interweave these ends other than Leibniz's. Yet, when all is said and done, I believe the coherence, detail, and subtlety we have uncovered in Leibniz's account of harmony would place it among the last plausible possibilities standing.

Finally, let me suggest one further contribution this dissertation makes to our understanding of Leibniz. I believe we have brought out something of the depth of Leibniz's vision of the world, of his philosophical spirit. In part because Leibniz left us with no magnum opus, no systematic, geometrical presentation of his philosophy, it is tempting to isolate his different interests, to bifurcate Leibniz into, on the one hand, the rigorous rationalist, logician, and mathematician and, on the other, the quasi-mystical speculative metaphysician. Tracing the growth of Leibniz's metaphysics of harmony has given us an example of how these two sides of Leibniz coincide. The theory of

[2] Adams, *Determinist, Theist, Idealist*, 5.

preestablished harmony is no doubt abstract and speculative, but the steps Leibniz takes to arrive at this theory, especially his young reflections on the meaning of harmony, are more rational than fanciful.

In his correspondence with Samuel Clarke, Leibniz denies that the preestablished harmony between soul and body is a perpetual miracle. It is rather, he says, "a perpetual wonder, as many natural things are."[3] As our investigation of Leibniz's metaphysics of harmony has shown, there are not two Leibnizes. There is a single thinker imbued with a deep sense of wonder.

[3]G VII, p. 412; Clark, 85.

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