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A Physics of Mental Life:
Spinoza's Use of the Geometrical Method and his Scientific Theory of the Emotions

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Abstract

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This thesis introduces the geometrical method as an interpretive framework for examining and elucidating key features of Part III of Spinoza's *Ethics*. In doing so, it presents Part III as a modern, penetrating and deeply coherent account of the human emotions. Specifically, it aims to: 1) examine the scientific nature of Spinoza's theory of the emotions, 2) set it apart from strictly descriptive theories of the emotions, and 3) clarify several of the text's somewhat perplexing features. I argue that understanding the key components of Spinoza's scientific method helps makes *sense* of his theory of the emotions. Spinoza's commitment to the principle of homogeneity explains his decision to extend rational inquiry to the problem of the emotions, and tracing out his application of the geometrical method helps uncover his rich, integrative theory of emotional experience. Section I addresses both of these methodological principles, and defends their role as important conceptual tools in Spinoza's scientific undertaking. Since the human being stands at the center of Spinoza's theory of the emotions, Section II begins by considering Spinoza's principle of parallelism, and explores its deep-seated implications for understanding the nature of the human body and, especially, the constitution of the human mind. Finally, Section III builds on these preparatory considerations to tackle the important connections between Spinoza's use of the geometrical method and his articulation of a modern, scientific theory of the emotions. It explains how an underlying framework organizes the seemingly disparate components of Part III, which in turn enabled Spinoza to elucidate the causal origins and essential properties of the most basic human emotions. I conclude with a brief consideration of how a more systematic and scientifically-oriented understanding of Spinoza's theory of the emotions could help contemporary scholars in the process of adopting it is as a paradigm for future scientific research.

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Adela Maciejewski Scheer made all of this possible, plain and simple.

Table of Contents

Introduction 1

Section I – The Principle of Homogeneity and the Geometrical Method 4

1. The Principle of Homogeneity 6
2. The Geometrical Method 7
   (i) The Geometrical Method in the Seventeenth Century 9
   (ii) Logic 11
   (iii) Mos Geometricus 16

Section II - The Human Being 20
1. The Principle of Parallelism 21
2. The Body 23
3. The Mind 26

Section III – A Physics of Mental Life 30

1. Vis Existendi 34
2. Projection on to Objects 38
3. Behavior: Affirmation and Negation 38
4. Human Interactions 39
5. Definitions 40

Conclusion - Spinoza's Theory of the Emotions as a Model for Future Inquiry 41

A Physics of Mental Life:
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Introduction

Cognitive science is emerging as one of the most prominent disciplines of the twenty-first century. One surprising consequence of this advancement is a renaissance in the study of the seventeenth-century philosopher, B. de Spinoza. Researchers in the philosophy of psychology, the cognitive sciences and the neurosciences are increasingly working together to understand the relationship between the body and the mind, and an important number of them are turning to Spinoza's treatment of this subject in the *Ethics* for possible answers.[1] They are proposing to adopt Spinoza's theory of the emotions as a new paradigm for analyzing the deluge of findings being produced in these rapidly-maturing disciplines. They are advocating this course in particular because, as Heidi Morrison Ravven explains, "recent evidence suggests that Spinoza may have gotten it right."[2] And despite the predictable difficulties of drawing on a relatively neglected and challenging model, William Meehan, a clinician, argues that "like anyone else, Spinoza becomes more accessible with familiarity, and the value of acquiring that familiarity is evidenced in the remarkable extent to which his insights and observations anticipated the findings of contemporary neuroscience and those of a variety of psychologists and philosophers of science. To understand Spinoza, I argue, is to understand, focus and enrich a paradigm shift that has already begun."[3]

Such renewed interest in Spinoza is undoubtedly a very welcome development, both for the study of his philosophy and for those respective areas which may make use of his ideas. It will bring much-deserved attention to his long-neglected theory of psychology, and it may well succeed in providing a valuable framework for the development of this emerging area of inquiry. Problematically, relatively little work has been done to prepare a framework for the transaction that it

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[1] Antonio Damasio, *Looking for Spinoza: Joy, Sorrow and the Feeling Brain*. London: Harcourt, Inc., 2003.
[2] H. M. Ravven, "Spinoza's Anticipation of Contemporary Affective Neuroscience," in *Consciousness and Emotion* 4 (2):257-290.
[3] Meehan, W., "Partem Totius Naturae Esse: Spinoza's Alternative to the Mutual Incomprehension of Physicalism and Mentalism in Psychology," in *Journal of Theoretical and Philosophical Psychology*, 29, (1), 47- 59.

is hoped will take place between the history of philosophy and the contemporary psychological sciences. In particular, the strongly systematic and explicitly *scientific* nature of Spinoza's theory of the emotions remains considerably underestimated in the scholarly literature. Though a number of remarkable works of scholarship have been devoted to Spinoza's commitment to the sciences and, in particular, to his use of the geometrical method, virtually none of the implications of these studies have been brought to bear on Part III of the *Ethics*.[4] This has resulted in a number of disappointingly superficial accounts of Spinoza's theory of the emotions.[5]

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[4] Spinoza's use of the geometrical method has often been debated in the literature. Many remarkable works of scholarship have been devoted to the subject, and ongoing discussions examine how exactly the method is to be understood. A number of scholars, including Gueroult, Hubbeling and De Dijn, have argued that the geometrical method must be regarded as an 'inventive' method which generates new knowledge. By contrast, others have argued that the method must strictly be understood as a means of orderly demonstration of what is already known. See Audié, Fabrice, *Spinoza et les mathématiques*. Paris : Presses de l'Université Paris-Sorbonne, 2005; Cassirer, Ernst, *Das Erkenntnisproblem in der Philosophie und Wissenschaft der neueren Zeit*, Vol. 2. Berlin: Verlag von Bruno Cassirer, [1907], 3-46; Curley, Edwin, *Behind the Geometrical Method*, A Reading of Spinoza's Ethics. Princeton: Princeton University Press, 1988; Curley, Edwin, "Spinoza's geometric method," in *Studia Spinozana* 2, 1986, 151-169; De Dijn, "Historical remarks on Spinoza's theory of definition,' in J. G. van der Bend (ed.), *Spinoza on knowing, being and freedom: proceedings of the Spinoza Symposium at the International school for philosophy in the Netherlands, Leusden, September 1973*. Assen: Van Gorcum, 1974, 41-50; De Dijn, "Conceptions of philosophical method in Spinoza: logica and mos geometricus," in *Review of Metaphysics* 40 (1986), 55-87; Goldenbaum, Ursula, « Daß die Phaenomene mit der Vernunft übereinstimmen. Spinoza's Versuch einer Vermittlung von geometrischer Theorie und experimenteller Erfahrung « in *Gottfried Wilhelm Leibniz im philosophichen Diskurs über Geometrie und Erfahrung*. Berlin: Akademie Verlag, 1991; Guéroult, Martial, *Spinoza: Dieu*. Paris: Aubier-Montaigne, 1968, 9-40; Hubbeling, H.G., *Spinoza's Methodology*, 2nd Ed. Assen: Van Gorcum & Company, 1964. Hubbeling, "La Méthode axiomatique de Spinoza et la definition du concept de Dieu," in Raison présent no 43. (1977), 25-36; „ The development of Spinoza's axiomatic (geometric) method: the reconstructed geometric proof of the second letter of Spinoza's correspondence and its relation to earlier and later versions," in *Revue internationale de la philosophie* 31 (1977), 53-68; McKeon, Richard, "Causation and the geometric method in the philosophy of Spinoza," in *The philosophical review* 39 (1930), 178-189, 275-96; Parrochia, Daniel, *La Raison systématique: essai d'une morphologie des systèmes philosophiques*. Paris Vrin, 1993; Rice, Lee C., "Methodology and modality in the first part of Spinoza's Ethics," in J. G. van der Bend (ed.), *Spinoza on knowing, being and freedom: proceedings of the Spinoza Symposium at the International school for philosophy in the Netherlands, Leusden, September 1973*. Assen: Van Gorcum, 1974, 144-155; Savan, David, "Spinoza: scientist and theorist of scientific method," (eds.) Grene, Marjorie and Deborah Nails, *Spinoza and the Sciences*. Boston: Kluwer Academic Publishers, 1986, 95-121; Scholz, J., 'Über die geometrische Methode in der Ethik des Spinoza," in *Jahresberich über die Stadtschule* [...] zu Spremberg. Spremberg: Säbisch, 1863, 3-17; Steenbakkers, Piet, "Ordo geometricus: shell or kernel," in *Spinoza's Ethica from Manuscript to Print: Studies on text, form and related topics*. Assen: Van Gorcum &Company, 1994; Wolfson, Harry Austryn, The philosophy of Spinoza, vol. 1. Cambridge: Harvard University Press, 1983 [1934], 3-60.

[5] See Alquié, Ferdinand, *Le Rationalisme de Spinoza*. Paris : Presses Universitaires de France, 1981; Bennett, Jonathan, *A Study of Spinoza's Ethics*. Indianapolis: Hackett, 1984; James, Susan, *Passion and Action: The Emotions in Seventeenth-Century Philosophy*. New York: Oxford University Press, 1997; LeBuffe, Michael, "The Anatomy of the Passions," in *The Cambridge Companion to Spinoza's Ethics*, ed. Olli Kostinen. Cambridge: Cambridge University Press, 2009; Shmueli, Efraim, "The Geometrical Method,

This thesis introduces the geometrical method as an interpretive framework for examining and elucidating key features of Part III of Spinoza's Ethics. In doing so, it presents Part III as a modern, penetrating and deeply coherent account of the emotions. Specifically, it aims to: 1) examine the scientific nature of Spinoza's theory of the emotions, 2) set it apart from strictly descriptive theories of the emotions, and 3) clarify several of the text's somewhat perplexing features. I argue that understanding the key components of Spinoza's scientific method very simply helps makes *sense* of his theory of the emotions. Spinoza's commitment to the principle of homogeneity explains his decision to extend rational inquiry to the problem of the emotions, and tracing out his application of the geometrical method helps uncover his rich, integrative theory of emotional experience. Section I addresses both of these methodological principles, and defends their role as important conceptual tools in Spinoza's scientific undertaking. Since the human being stands at the center of Spinoza's theory of the emotions, Section II begins by considering Spinoza's principle of parallelism, and explores its deep-seated implications for understanding the nature of the human body and, especially, the constitution of the human mind. Finally, Section III builds on these preparatory considerations to tackle the important connections between Spinoza's use of the geometrical method and his articulation of a modern, scientific theory of the emotions. It explains how an underlying framework organizes the seemingly disparate components of Part III, which in turn enabled Spinoza to elucidate the causal origins and essential properties of the most basic human emotions. I conclude with a brief consideration of how a more systematic and scientifically-oriented understanding of Spinoza's theory of the emotions could help contemporary scholars in the process of adopting it is as a paradigm for future scientific research.

Personal Caution, and the Idea of Tolerance," in *Spinoza: New Perspectives*, ed. Robert Shahan and J.I. Biro. Norman: University of Oklahoma Press, 1978; Bidney, D. (1940). *The psychology and ethics of Spinoza: a study in the history and logic of ideas*. New Haven: Yale University Press; Davidson (1999).There are, however, also important exceptions: Barabas, Francoise, *Spinoza: La science mathematique du salut*. Paris : CNRS Editions, 2007; Beyssade, Jean-Marie, "De l'emotion interieur de Descartes a l'affect actif de Spinoza," in *Spinoza: Issues and Directions: Proceedings of the Chicago Spinoza Conference*. ed. Edwin Curley and Pierre-Francois Moreau. Leiden: Brill, 1990; Wartofsky, Marx (1973). "Action and Passion: Spinoza's Construction of a Scientific Psychology," in *Spinoza: A Collection of Critical Essays*, Marjorie Grene, Ed. Anchor Books, 1973; Wolf, A., *Spinoza's Short Treatise on God, Man & his Well-Being*. London: Adam and Charles Black, 1910.

Section I – The Principle of Homogeneity and the Geometrical Method

This section examines Spinoza's commitment to the principle of homogeneity, and his conception of and adherence to the geometrical method.

Spinoza is a prominent representative of early modern philosophy. Alongside Descartes and Leibniz, he is widely regarded as a leading figure in seventeenth-century rationalism, and he is often singled out with regard to his naturalistic metaphysics. Regrettably, these resilient identifications have managed to eclipse his significant involvement with the scientific developments of his time.[6] Although considerable attention has been devoted to Spinoza's philosophical contributions to epistemology and ethics, far less emphasis has been placed upon his achievements in mathematics, physics and optics.[7] His important correspondences with Christian Huygens and Robert Boyle, the latter mediated by Henry Oldenburg, are relatively unknown, and the authorship of his two mathematical treatises, *The Algebraic Calculation of the Rainbow* and *Calculation of Chances*, remains in dispute.[8] Fortunately, contemporary scholarship is beginning to reconsider Spinoza's more scientifically-oriented spheres of thought.

The precise nature of Spinoza's relationship to science is the subject of much debate. Some scholars have argued that Spinoza was, in fact, very deeply involved in the scientific developments of his time. As David Lachterman observes, "that Spinoza had more than a passing or amateurish interest in the new physics is rather quickly apparent from his correspondence. His letters to and from Henry Oldenburg, Christian Huyghens, and Leibniz show that he was treated as their equal in matters of scientific controversy; his range of expected expertise was not limited to lens-grinding. Leibniz, for example, sent him in 1671 a copy of his *Hypothesis Physica*, presumably confident of a well-informed assessment. Moreover, elements of Spinoza's own work testify to an abiding interest

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[6] See Alan Gabbey, "Spinoza's Natural Science and Methodology," in *The Cambridge Companion to Spinoza*, Ed. Don. Garrett. Cambridge: Cambridge University Press, 1996, 142-191.
[7] See Jonathan I. Israel's chapter entitled "Spinoza, Science, and the Scientists," in *Radical Enlightenment: Philosophy and the Making of Modernity*. Oxford: Oxford University Press, 2001, 242-257.
[8] Alan Gabbey, "Spinoza's Natural Science and Methodology," in the Cambridge Companion to Spinoza, Ed. Don Garret. Cambridge: Cambridge University Press, 1996, 152-155.

in, if not preoccupation with, science. Significantly, it was the second and third books of Descartes' *Principles* that Spinoza chose to demonstrate in geometrical rigor when tutoring a young student; it was only at the urging of Louis Meyer that he added on his exposition of the First Book."[9] The correspondence shows, too, that Spinoza not only discussed the experiments of others but frequently conducted his own, examining the properties of nitre and other physical phenomena.[10]

By contrast, a different group of scholars has sought to downplay Spinoza's interest in the sciences. David Savan, for example, has argued that although Spinoza was "thoroughly competent and acquainted with some of the best work of his time, he contributed little of importance to research and theory."[11] In even stronger terms, Nancy Maull has argued that Spinoza "does not, alas, fit comfortable in the line-up of scientific 'great,' either theoretically or by virtue of some concrete scientific achievement. He was, of course, a great thinker and a great philosopher. But his philosophy was strikingly disconnected from the sifting and interrogating science that went on around him. His own interest in experimental science is well-documented, but it was carefully bracketed from his larger metaphysical concerns. Philosophically, as opposed to biographically, he was as remote from the elementary 'doing' of science and especially from the idea of learning by experience as Plato was."[12]

It is perhaps most accurate to say that Spinoza enjoyed a unique relationship to seventeenth-century science. Although he was aware of many contemporary scientific developments of his time and even conducted his own scientific experiments, as Lachterman rightly points out, it is also true that Spinoza was less concerned than many of his contemporaries were with making specific scientific advances in already-established areas of inquiry. Rather, he sought to extend scientific inquiry into several areas which had previously been considered exempt from scientific investigation.

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[9] Lachterman 77-78.
[10] Gabbey, 148-152.
[11] David Savan, "Spinoza: Scientist and Theorist of Scientific Method," in *Spinoza and the Sciences* (Boston Studies in the Philosophy of Science, Vol. 91), Eds. Marjorie Grene and Debra Nails. Boston: D. Reidel Publishing Company, 1986, 95-124, 97.
[12] Nancy Maull, in *Spinoza and the Sciences* (Boston Studies in the Philosophy of Science, Vol. 91), Eds. Marjorie Grene and Debra Nails. Boston: D. Reidel Publishing Company, 1986, 3.

In particular, he sought to extend scientific investigation to the study of human beings. As Alan Gabbey has argued, it is precisely this extension which constitutes one of "Spinoza's most powerful" ideas, and prepares the way for what he calls "the noblest lesson Spinoza took from his own philosophical vision." [13] In this way, Spinoza may be said to have been more steadfast and reflective in his scientific commitments than many of his contemporaries. In what follows, I examine two key methodological principles which helped inform and advance Spinoza's scientific investigations of human life.

1. The Principle of Homogeneity

Spinoza's commitment to the extension of science is anchored in his conception of nature as a single, infinite substance. In one of the few passages pertaining explicitly to his methodology in the *Ethics,* he explains, "my argument is this: in Nature, nothing happens which can be attributed to its defectiveness, for Nature is always the same, and its force and power of acting is everywhere one and the same; that is, the laws and rules of Nature according to which all things happen and change from one form to another are everywhere and always the same. So our approach to the understanding of the nature of things of every kind should likewise be one and the same; namely, through the universal laws and rules of Nature."[14] Similarly, in the *TTP*, he argues, "nothing can happen in Nature to contravene her own universal laws, nor yet anything that is not in agreement with these laws or that does not follow from them." [15] Correspondingly, everything in nature should be studied using systematically scientific principles and methods.

David Lachterman has proposed to interpret Spinoza's holistic approach using what he calls the 'principle of homogeneity.' According to the principle, a rational theory of physics demands "homogeneity both of explanatory principles *and* the behavior of the corporeal phenomena to be explained."[16] In physics, Lachterman explains, the subject matter must be perceived as being

[13] Gabbey, 181-182.
[14] Preface to Part III.
[15] *TTP: Cite.*
[16] Lachterman, 82-83.

ontologically consistent and, correspondingly, must be examined in a unified and systematic way. I propose to extend the principle of homogeneity to apply not only to Spinoza's understanding of physics, but to his conception of science in general. I propose to do so for two reasons: first, because Lachterman's principle synthesizes Spinoza's position that "Nature is always the same" compactly and efficiently, and second, because it reformulates Spinoza's account in such a way that it becomes a standard for inquiry. This standard for inquiry will, in turn, be essential for understanding Spinoza's departure from Descartes' own analysis of the emotions, examined in Section II (below).

Drawing on an expanded version of Lachterman's concept, then, I argue that Spinoza's commitment to the principle of homogeneity in fact represents a key motivating force behind what Gabbey calls 'Spinoza's most powerful idea.' [17] I think Spinoza's adherence to the principle played a key role in his decision to extend scientific inquiry to study of the emotions, and thereby set his philosophy on a new and innovative path. As he reasons straightforwardly in the *Ethics*: "emotions such as anger, hatred, envy, etc., considered in themselves, follow from the same necessity and virtue of nature as other particular things: and therefore they acknowledge certain causes through which they are understood, and have certain properties equally worthy of our knowledge as the properties of any other thing." [18] As a result, the emotions must be understood as following from the same, necessary laws of Nature, and ought to be investigated just as other phenomena in Nature are investigated. I argue that Spinoza's commitment to the principle of homogeneity prompted him to undertake a rigorous and innovative analysis of the emotions, and eventually led him to formulate the account which makes up Part III of the Ethics.

2. The Geometrical Method

The second and more perplexing methodological feature of Spinoza's investigations is the geometrical method. Spinoza's philosophy is undoubtedly and inextricably bound up with the geometrical method, but what exactly *is* it? why should Spinoza have been committed to it? and how

[17] Gabbey, 181-182.
[18] Preface to Part III.

exactly did he conceive of it with respect to his philosophy? The Spinoza literature has not always been of one mind on this subject, and it is worth taking the time to consider some of its basic features before going on to examine how Spinoza employed it in his work.

In his discussion of the subject, Hermann De Dijn cheerfully characterizes the scholarly situation regarding the geometrical method in the following way. "In the Spinoza-literature," he writes,

> all sorts of interesting questions have been discussed with respect to the geometrical way of thinking: whether the geometrical way of thinking is more than an expository device, or than a convenient literary form; whether it is more than a mere method or disposition of already acquired truths ordered in such a way so as best to transmit learning; whether it is a method comparable to what we today call an axiomatic method; how this way of thinking is related to those parts of the *Ethics* which don't seem to use it (Prefaces, Appendices, Scholia); what is the relation (if any) between the geometrical method present in the *Ethics* and certain methodological ideas of the *TIE*; what is the relation (if any) between Spinoza's explicit definitions of knowledge of the second and third kind (in the *Ethics*) and the actual development of the geometrical way of thinking; what are the historical relations with other conceptions of philosophical method (Descartes, Hobbes, Clavius),

and so forth. [19] Of course, what he is implying here is that there is relatively little or almost no agreement as to how the preceding questions may best be answered. In what follows, I will suggest that an important portion of these disagreements could well be clarified simply by distinguishing between two different ways in which Spinoza himself uses the concept of method ('*methodus*') in his writing. Following De Dijn's interpretation, I propose to distinguish between, first, his notion of 'Logic,' or the metatheoretical method, as set out in the *Treatise on the Emendation of the Intellect*, and, second, his conception of the 'geometrical method,' as concretely adopted and applied in a letter to Henry Oldenburg, in the *Principles of Cartesian Philosophy,* in the *Treatise on God, Man and His Well-Being,* as well as in the *Ethics*. [20] More specifically, I will show that Spinoza's 'Logic,' or metatheoretical method, serves to provide the theoretical underpinnings or foundations for the concrete application of the 'geometrical method.'

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[19] De Dijn, "Method in Spinoza," in *Review of Metaphysics* 40, 64-65.
[20] De Dijn, "Method in Spinoza," in *Review of Metaphysics* 40, 56.

My argument may be divided into three main parts. First, I present a brief historical overview of the geometrical method in the seventeenth century, and emphasize that it was the object of much philosophical and methodological debate. Second, I suggest that Spinoza made his own contribution to this debate in his *Treatise on the Emendation of the Intellect* by outlining the principles of his own 'Logic' or metatheoretical method, and also by making several specific references to the basic features of the geometrical method. Third, I attempt to provide a basic but serviceable characterization of Spinoza's conception of the geometrical method, both by drawing on Spinoza's references to it in the *Treatise*, as well as by analyzing his concrete application of it in the *Ethics*. The latter portions of this section are strongly indebted to Herman De Dijn's article entitled, "Conceptions of Philosophical Method in Spinoza: Logica and Mos Geometricus." [21]

(i) The Geometrical Method in the Seventeenth Century

The geometrical method was a revolutionary development in seventeenth-century thought. Though viewed with a kind of contempt in twenty-first century academic thought, it once represented the standard for scientific inquiry, and promised to serve as a model for all future knowledge. As Ursula Goldenbaum explains, "for Hobbes, Descartes, Arnauld, Pascal, the geometrical method was absolutely exemplary in its scientific rigor and its independence from sensory illusions and ideological interests."[22] Pascal formulated the geometrical method in five basic rules. They were subsequently taken up by Arnauld and Nicole in the *Logic of Port Royal*, as follows: for definitions: 1. "To admit no terms in the least bit obscure or equivocal without defining them," and 2. "To employ in the definitions terms only perfectly or already explained"; for axioms: 3. "To demand as axioms only truths perfectly evident"; and finally, for demonstrations: 4. "To prove all propositions which are at all obscure, by employing in their proof only the definitions which have preceded, or the axioms which have been accorded, or the propositions which have been already demonstrated, or the

[21] De Dijn, "Method in Spinoza," in *Review of Metaphysics* 40, 55-78. See also, Hermann De Dijn, *Spinoza: The Way to Wisdom.*West Lafayette: Purdue University Press, 1996.
[22] Goldenbaum, "Daß die Phaenomene mit der Vernunft übereinstimmen. Spinoza's Versuch einer Vermittlung von geometrischer Theorie und experimenteller Erfahrung « in *Gottfried Wilhelm Leibniz im philosophichen Diskurs über Geometrie und Erfahrung*. Berlin: Akademie Verlag, 1991, 87.

construction of the thing itself which is in dispute, when there may be any operation to perform," and 5. "Never to abuse the equivocation of terms by failing to substitute for them, mentally, the definitions which restrict and explain them."[23] Together, these five rules were intended to prescribe the standards for a systematic, scientific demonstration of knowledge.

Perhaps in part because of its very significance during this period, the geometrical method was the subject of important philosophical debates at the time. Numerous prominent authors discussed its exact nature and applicability, and many were particularly concerned with the problem of true starting points and true ideas in the process of inquiry. As Ursula Goldenbaum explains, "these questions were not only concerned with thoroughly settling this issue against the skeptics, whose arguments were very present in seventeenth-century discussions; their answer was also important for a consistent foundation for modern philosophy, as opposed to the traditional scholastic philosophy." [24] Descartes sought to resolve the problem with a metaphysical proof of an undeceiving God, who would in turn guarantee true ideas. Hobbes hoped to circumvent it by securing certain knowledge by causal definitions, from which further certain knowledge could then be derived. However, because Hobbes had claimed that all definitions we would start reasoning with would depend on us, he was then strongly criticized by Arnauld and Leibniz, both because of its subjectivism and because of its denial of a metaphysical proof of God and the immortality of the soul. And against them, Malebranche further maintained that "ideas are not subjective, and have something objective that is independent of human subjectivity in themselves[;] we do not produce these ideas ourselves, but rather they can only be perceived in God."[25] Spinoza took on these very same questions in the *Treatise on the Emendation of the Intellect*, and attempted to outline his own

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[23] Arnauld and Nicole, *The Port-Royal Logic,* Trans. Thomas Spencer Baynes. Edinburgh: Hamilton and Adams, Co., 1861, 317-318.
[24] Goldenbaum, "Daß die Phaenomene mit der Vernunft übereinstimmen. Spinoza's Versuch einer Vermittlung von geometrischer Theorie und experimenteller Erfahrung « in *Gottfried Wilhelm Leibniz im philosophichen Diskurs über Geometrie und Erfahrung*. Berlin: Akademie Verlag, 1991, 87.
[25] Goldenbaum, "Daß die Phaenomene mit der Vernunft übereinstimmen. Spinoza's Versuch einer Vermittlung von geometrischer Theorie und experimenteller Erfahrung « in *Gottfried Wilhelm Leibniz im philosophichen Diskurs über Geometrie und Erfahrung*. Berlin: Akademie Verlag, 1991, 89-90.

philosophical understanding of them.[26] In doing so, he outlined the principles of his 'logic,' or metatheoretical method, and thereby prepared the foundations for his subsequent application of the geometrical method.

(ii) Logic

The *Treatise on the Emendation of the Intellect* is one of Spinoza's earliest works, and offers his most extensive discussion of truth, knowledge and methodology. It explicitly takes on the question of establishing a philosophical starting point and, in consequence, uses the term 'method' in two distinct ways. At a metatheoretical level, Spinoza refers to 'method' as a process of grounding and systematizing philosophical inquiry. At different points in the *Treatise*, he calls this kind of method the 'true method,' 'reflexive knowledge,' and a 'discourse about reasoning.' [27] Based on a reference in the Preface to Part 5 of the *Ethics*, De Dijn refers to this first kind of method as Spinoza's 'Logic.'[28] For the sake of clarity and consistency, I will follow him in this regard.

In discussing the *Treatise on the Emendation of the Intellect,* De Dijn emphasizes an important difference between Spinoza's Logic and his conception of the geometrical method. He explains that in the *Treatise*, "a distinction is made between *the way to acquire* the method (which is the *modus medendi intellecus*) and *the method itself* (or *modus intelligendi*)."[29] For its part, the Logic corresponds to the 'way to acquire the method' and, more specifically, is oriented toward "emending the intellect and purifying it, as far as is feasible at the outset, so that it may succeed in understanding things without error and

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[26] Goldenbaum, "Daß die Phaenomene mit der Vernunft übereinstimmen. Spinoza's Versuch einer Vermittlung von geometrischer Theorie und experimenteller Erfahrung « *Gottfried Wilhelm Leibniz im philosophichen Diskurs über Geometrie und Erfahrung*. Berlin: Akademie Verlag, 1991, 90.

[27] *TIE* 36-37.

[28] De Dijn, "Method in Spinoza," in *Review of Metaphysics* 40, 56. The reference in the Preface to Part 5 reads, "It is no part of my design to point out the method and means whereby the understanding may be perfected, nor to show the skill whereby the body may be so tended, as to be capable of the due performance of its functions. The latter question lies in the province of Medicine, the former in the province of Logic." De Dijn argues that "the *Tractatus* can be called [Spinoza's] *Logic* (or Methodology) after a usage of the term *logica* current in the 17th Century" (56, ft. 2). See also, De Dijn, "The Significance of Spinoza's Treatise on The Improvement of the Understanding," in *Algemeen Nederlands Tijdschrift voor Wijsbegeerte* 66 (1974), 2.

[29] De Dijn, "Method in Spinoza," in *Review of Metaphysics* 40, 57-58. A little bit further, he reiterates this idea, explaining, "Spinoza explicitly says that the method is *not* the same as the understanding of the causes of thing, *nor* is the same as the reasoning process required for their understanding: indeed, it is reflective knowledge. The heart of the [metatheoretical] method consists in reflective getting to know what it is to undestand, *what is the nature* of the true idea, and accordingly what is our power to understand. "

as well as possible."[30] As Spinoza emphasizes in the *Treatise,* the Logic "is not reasoning itself, which leads to the understanding of the causes of things, and far less is it the understanding of the causes of things."[31] Rather, it outlines the principles that must be considered *before* one can undertake a systematic inquiry into real things in nature. These preparatory principles include basic rules for living well, the principle and nature of a true idea, the nature of other kinds of ideas, the *standards* of a good definition, the proper way to proceed in ordering our perceptions, and the properties of the intellect. De Dijn explains, "the Logic is a methodo*logy*, *talk about* the way to go, in which the methodologist explains to the reader the way of non-haphazard, methodical thinking, indicating which steps to take, in which the stages of the method to engage in successively. The logic or methodology is the work of a superior consciousness which always knows the non-haphazard way or [second kind of] method (which, as we will see, consists in reflective knowing concerning the nature and power of intellectual thinking) which will lead to a systematic and expeditious possession of all the knowledge necessary to obtain salvation." [32] In slightly different terms, the Logic serves to secure the foundations of inquiry and enables the activity of reasoning itself to then get underway successfully. [33]

In the *Treatise on the Intellect,* Spinoza outlines his Logic in two parts. In the first part, he proposes to resolve the problem of the methodological starting point by anchoring logical reasoning in what he describes as innate intellectual tools. Drawing an analogy to material tools, Spinoza reasons that, in one sense, the production of one tool seemingly requires the existence of a pre-existing tool to make it with, and so on into infinity. In practice of craftsmanship, however, human beings begin with very simple tools and slowly progress to more complex ones. Spinoza reasons that in just the same way, the intellect begins with simple, inborn tools and gradually moves forward to more sophisticated ones, advancing to scientific knowledge and even wisdom.[34] He explains, "at first, with the tools they were born with, men succeeded, however laboriously and imperfectly, in making

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[30] *TIE* 17.
[31] *TIE* 37.
[32] De Dijn, "Method in Spinoza," in *Review of Metaphysics* 40, 56.
[33] De Dijn, "Method in Spinoza," in *Review of Metaphysics* 40, 57
[34] *TIE* 31.

some very simple things; and when these were made they made other more complex thing with less labor and greater perfection." [35] In just the same way, then, "the intellect by its inborn power makes intellectual tools for itself by which it acquires other powers for other intellectual works, and from these works still other tools – or capacity for further investigation – and thus makes steady progress until it reaches the summit of wisdom." [36] As such, Spinoza argues, the starting point of methodology need not become a case of inquiry extending 'backward' into infinity. To find the best method of seeking the truth, there is no need of another method for seeking the method of seeking the truth, and there is no need of a third method to seek the second method, and so on to infinity."[37] Rather, the intellect simply begins with basic, innate tools, which Spinoza identifies as true ideas, and it able to proceed from there. [38]

For Spinoza, the mind arrives at true ideas by gradually constructing them. But what exactly does this mean? Spinoza explains his conception using the example of a circle. To form the idea of a sphere, he writes, we conceive of a semicircle rotating about its center. We slowly and gradually refine the idea until we arrive at a true account. Vitally, we will know a true idea when we have arrived at it, Spinoza argues, because true ideas express a kind of internal coherence. "A circle is one thing," he reasons," and "the idea of a circle another. For the idea of a circle is not something having a circumference and a center, as is a circle, nor is the idea of a body itself a body."[39] A circle is something that has a circumference and so on; but a true *idea* of a circle expresses its efficient cause, that is, it expresses the idea of a circle as "a space described by a line of which one point is fixed and the other is movable."[40] In this way, the true idea of a circle exists independently of its object, and is,

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[35] *TIE* 31.
[36] *TIE* 31.
[37] *TIE* 30.
[38] *TIE* 33. In a letter to Ehrenfried Walter von Tschirnhaus, Spinoza makes a careful distinction between what he calls 'true' and 'adequate' ideas, explaining, "I recognize no difference but this, that the word 'true' has regard only to the agreement of the idea with its object (ideatum), whereas the word 'adequate' has regard to the nature of the idea in itself. Thus there is no real difference between a true and an adequate idea except for this extrinsic relation" (Letter 60). In other words, the designation of an idea as a true idea refers to the degree of correspondence between an object and its idea. By contrast, an adequate idea refers to the idea's own internal standard of certainty.
[39] *TIE* 33, added emphasis mine.
[40] Letter 60.

in turn, itself intelligible. This means that when we know what a circle is, we are also able to know *that* we know, so that true ideas serve as their own epistemological starting-points. As Spinoza explains, truth is "intrinsic to the thought itself, without reference to other thoughts." [41] This means that "we may form simple ideas at will without any danger of error," and they in turn act as the basic intellectual tools or building blocks of intellectual inquiry, establishing a certain standard for the investigation of real things. [42] As such, we do have true ideas and, as Spinoza puts it, they are certainty in themselves.[43]

Spinoza's solution to the problem of starting points enables him to prepare the second stage of his Logic, which involves establishing rules for perceiving unknown things. He does this by adopting the concept of the true idea as a standard for certain knowledge, and describes the proper way to examine, understand and order real things in Nature. There are two steps to the process. First, we must secure "clear and distinct" ideas, or definitions, of real things; and second, we must organize our ideas "in such a manner that our mind, as far as possible, may reproduce in thought the reality of Nature, both as to the whole and as to its parts."[44] The first task requires that things be understood, that is, that we conceive of them through their essences, if they are self-caused, or through their proximate causes, if they are caused. Spinoza emphasizes that this inquiry must engage with existing and particular things. "As long as we are engaged in an enquiry into real things," he writes, "it will never be permissible for us to draw a conclusion from what is abstract, and we shall take great care not to mix the things that are merely in the intellect with those that are in reality."[45] For this reason, Spinoza's logic stipulates inquiry must begin by working toward the definitions of certain real things.

In his Logic, Spinoza outlines the four conditions of a sound definition in the following way. To define something that is in itself uncaused, a good definition must 1) exclude all irrelevant causes, 2)

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[41] Letter 60.
[42] *TIE* 72.
[43] *TIE* 33, 35.
[44] *TIE* 91.
[45] *TIE* 93.

affirm its existence, 3) avoid the use of abstractions, and 4) account for all of its properties.[46] A good definition of something caused though expresses its proximate cause and accounts for all of its properties.[47] Vitally, Spinoza explains that, much as in the process of constructing true ideas, we arrive at good definitions of things through a gradual process of fine-tuning and improvement. [48] "The correct path to discovery," he writes," is to develop our thinking from the basis of some given definition, and progress will be more successful and easier as a thing is better defined."[49] In this way, we may begin by defining a circle as 'a shape that has no corners'; we can then improve it to 'a two-dimensional shape whose points are equidistant from the center'; and we may then arrive at its true, constructive definition, as "a figure defined by a line of which one end is fixed and the other movable."[50] By gradually improving our definition of something, we arrive at intuitive knowledge, and attain a true idea of it

The second step in the process of perceiving unknown things consists in the ordering, arrangement, and unification of our true ideas.[51] Spinoza reasons that this task must begin by examining whether there is a being which is the cause of all things and undertake to understand the nature of this being. This will help us to proceed "in accordance with the chain of causes from one real being to another real being," and enable us to reproduce Nature in our mind as accurately as possible. Moreover, we should only attempt to understand the series of fixed and eternal things, and not the sequence of mutable particular things. He explains that "although these fixed and eternal things are singular, by reason of their omnipresence and wide-ranging power they will be to us like universals, i.e., the genera of the definitions of particular mutable things, and the proximate causes of all things."[52] By contrast, the human intellect is categorically unable to reconstruct the infinite series of mutable particular things. It must therefore endeavor to understand the fixed and eternal things,

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[46] *TIE* 97.
[47] *TIE* 96.
[48] Of course, true ideas and definitions are also one and the same thing.
[49] *TIE* 94.
[50] *TIE* 96.
[51] *TIE* 99.
[52] *TIE* 101.

and proceed as carefully as possible by deduction. Spinoza reasons that "when the mind attends to some thought so as to examine it and to deduce from it in proper order what can legitimately be deduced, if it is false, the mind will detect its falsity; but if it is true, the mind will proceed fruitfully without interruption to deduce truths from it." [53]

How exactly is one to proceed? Problematically, the *Treatise on the Emendation of the Intellect* remains unfinished at this point in the text, so that only the first half of the Logic is fully explained. Although Spinoza remained interested in these questions of method well into his writing the *Ethics*, he never returned to the manuscript of the *Treatise* in order to finish it**.** It is left up to the reader to reconstruct the relationship between the Logic of the *Treatise* and the geometrical method it was intended to introduce.

(iii) Mos Geometricus

De Dijn recognizes many of the difficulties bound up with the unfinished *Treatise*, but proposes to characterize the relationship between the Logic and the geometrical method in the following way:

> Spinoza's only explicit methodology, the *Tractatus de Intellectus Emendatione,* is not reducible to an exposition of the geometrical method as present in the *Ethics*. It mainly consists in a reflection on the nature, power and properties of true thinking (or of the intellect). This reflection is supposed to yield the means to *invent* new truths in the right order. But this right order requires a reflection on the nature of the intellect in order to lead to knowledge of God and of universal principles, allowing us in a *downward* movement (and with the aid of rules of invention) to invent the truth concerning particular things, and so to arrive at wisdom. [54]

In this way, De Dijn proposes to divide the geometrical method into two main components: into an 'upward,' analytic component, which attempts to arrive at knowledge of the essence of intellect, and a 'downward,' synthetic component, which would work from the essence of intellect, to deduce the nature of all of truths. De Dijn argues that although Spinoza does not explicitly talk about the geometrical method in the *Treatise*, this early text nevertheless contains several key passages which can help elucidate it, especially with respect to the 'downward,' synthetic component of the method. Similarly, he argues that "we must look upon the *Ethics* as displaying the geometrical method at

[53] *TIE* 104.
[54] De Dijn, "Method in Spinoza," in *Review of Metaphysics* 40, 77.

work," in an effort to understand how Spinoza intended for the 'downward,' synthetic component to work. [55]

The 'upward,' analytic component of the geometrical method is the more difficult of the two to reconstruct, because it is not explained in any systematic way in the unfinished *Treatise*, and is not exhibited in the completed form of the *Ethics* (which presents only the 'downward' component – see below). As De Dijn remarks, "the methodological considerations about what is the heart of the synthetic geometrical method, the theory of genetic [or 'causal'] definition, tell us how the definition of the intellect and the deduction of truths *from* this foundation should look (the conditions of a true definition), but they do not tell us *how to arrive* at this definition" of the intellect in the first place.[56] Nevertheless, the *Treatise* provides several clues for understanding the general arc of the method's 'upward' component. As Spinoza reasons toward the end of the *Treatise*, "the foundation which is to give direction to our thoughts can be nothing other than knowledge of what constitutes the specific reality of truth, and knowledge of the intellect, its properties and powers. For when this is acquired, we shall have a foundation from which we shall deduce our thoughts, and a path by which the intellect, according to its capacity, may attain knowledge of eternal things, taking into account, of course, the powers of the intellect." [57] Hence, first, the 'upward' component of the method may begin by separating the imagination from the intellect; second, it should probably go on to the *properties* of intellect; and finally, third, it must work to gain insight into the essence of intellect, or, in other words, to secure the true definition of intellect. [58] Of course, this is only a very broad sketch – as De Dijn repeatedly emphasizes, since the *Treatise* was left unfinished, "we do not exactly know how Spinoza thought the crucial [upward] part of the method (through reflection to come to knowledge of the nature of the intellect and then to the true idea of God) should be accomplished; we do not even know for certain whether Spinoza considered this program to be realizable." But we

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[55] De Dijn, "Method in Spinoza," in *Review of Metaphysics* 40, 64
[56] De Dijn, "Method in Spinoza," in *Review of Metaphysics* 40, 62.
[57] *TIE* 105.
[58] *TIE* 106, 108.

may at least secure some sense of what might be required, given what is known about the 'downward,' synthetic component of the method. [59]

The 'downward,' synthetic component of the geometrical method is easier to analyze, in part because Spinoza discusses it in somewhat more detail in the *Treatise,* and in part because it is exhibited with some degree of clarity in the *Ethics*. Nevertheless, it remains the subject of much debate, and I cannot hope to provide a systematic analysis of it here. Rather, I will limit myself to a basic sketch of the synthetic component of the method, and draw attention to some of the features which play a particularly important role in the development of Spinoza's treatment of the emotions.

De Dijn characterizes the 'downward' component of the geometrical method as "a synthetic method of thinking, centered on the notions of definition and demonstration (and not simply truth-preserving derivation of propositions from axioms). This method does not make sense apart from the actual development of adequate ideas in the mind, going from the innate idea of God down to the understanding of particular things. This downward movement seems to require the interplay of knowledge of 'universal' things and principles (e.g. infinite modes of Extension and general laws of movement of bodies) and of rationally checked experience."[60] Although very compact, De Dijn's account points to several features which define the synthetic component of the geometrical method.

First, Spinoza's application of the method is necessarily anchored in the definition of intellect, or God. As Spinoza explains in the *Treatise,* "for the mind to reproduce a faithful image of Nature, it must draw all of its ideas from that idea which represents the source and origin of the whole of Nature, so that may likewise become the source of other ideas" – that is, it must begin with the idea of God.[61] This means that the *Ethics* necessarily begins and 'unfolds'? in their necessary order. Second, the 'downward' component of the geometrical method begins from true, causal definitions (or essences) and deduces essential properties from them, which then take the form of

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[59] Fortunately, for the purposes of the present undertaking, the problem of the 'upward,' analytic method can also temporarily be set aside. It is more essential to understand the exact nature of the 'downward,' synthetic component of the method, since it is this portion which proves to be so influential in Spinoza's treatment of the emotions.

[60] De Dijn, "Method in Spinoza," in *Review of Metaphysics* 40, 78.

[61] *TIE* 106, 108.

individual propositions. As De Dijn and others have emphasized, this relationship between definitions and demonstrations corresponds to a process of *invention.*[62] Spinoza writes in the *Treatise,* "as long as we are engaged in an inquiry into real things, […] the most secure conclusion is to be drawn from some particular affirmative essence, i.e. from a true and legitimate definition." [63] And again, he characterizes "the correct path of *discovery*" as proceeding from a pre-established definition. [64] This means that even the synthetic component of the geometrical method is not one of mere demonstration, but one which generates new knowledge over the course of process of its development. Finally, as De Dijn argues, although the 'upward,' analytic component of the method in some ways precedes its 'downward,' synthetic counterpart, it is the latter which is nevertheless more 'essential' and complete. Based on an analysis of *Ethics* Parts I and II, De Dijn writes, the "upward movement must be inserted in a downward movement of understanding things in light of our understanding of God and the universal things and principles […] the "real *methodus inveniendi* seems to be no other than the synthetic deduction of things from God mediated by the knowledge of the universal principles of nature and the input from experience." [65] As such, both components of the geometrical method intersect to form a single, integrated mode of inquiry and demonstration.

All three of these features inform Spinoza's treatment of the emotions in Part III of the *Ethics*. In Section II, I consider the unity of Spinoza's argument, focusing on his analysis of the body and mind in Part II. In Section III, I then go on to relate the 'inventive' or 'productive' nature of the geometrical method to Spinoza's study of the emotions in Part III, and emphasize the importance of both its 'upward' and 'downward' components in his investigation.

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[62] De Dijn, "Method in Spinoza," in *Review of Metaphysics* 40, 69. See also, M. Gueroult, *Spinoza I*, 35.
[63] *TIE* 106, 93.
[64] *TIE* 106, 94, added emphasis mine.
[65] De Dijn, "Method in Spinoza," in *Review of Metaphysics* 40, 72.

Section II - The Human Being

This section examines Spinoza's principle of parallelism and his resulting conception of the human being.

Spinoza's use of the geometrical method governs the development of the *Ethics*. Part I begins with an analysis of infinite substance and presents a systematic account of Spinoza's metaphysical system. Part II moves to the study of infinite and finite modes, and presents a careful examination of the physical world. As Spinoza explains in the Preface, in this part, he passes on to "the explication of those things that must necessarily have followed from the essence of God, the eternal and infinite Being; not indeed all of them – for we proved in Proposition 16, Part I that from his essence there must follow infinite things in infinite ways – but only on those things that can lead us as it were by the hand to the knowledge of the human mind and its utmost blessedness."[66] For this reason, Part II examines the nature of the human being and, correspondingly, its opening propositions prepare the foundations for Spinoza's examinations of the human body as well and even more, the human mind.

Scholars often pass over the relationship between Parts II and III of the *Ethics*, erring on the side of either ignoring the connections altogether, or by putting too much emphasis on Spinoza's interest in psychology.[67] Both of these approaches are misguided. Spinoza's principle of parallelism defines his understanding of the human being, and the human being underlies all emotional experience. It is therefore necessary to understand Spinoza's conception of the human body and, in particular, the human mind, before tackling his treatment of the emotions. In addition, a more systematic approach to the text helps illuminate Spinoza's commitment to the principle of homogeneity, and reveals the continuities between his metaphysical, physical and psychological

[66] Preface to Part II.

[67] Bidney and Wartosfky are representive of these tendencies. On the one hand, in his *Spinoza's Psychology and Ethics*, Bidney does not consider Part II of the *Ethics*. On the other, in his article entitled, "Action and Passion: Spinoza's Construction of a Scientific Psychology," Marx Wartofsky argues that the *Ethics* "was not a philosophical or theological exercise in its own right," but rather, that Spinoza's metaphysics were undertaken "in service of" a "consistent scientific methodology which would include the domain of psychology" (333). This is to put things too strongly in the opposite extreme.

theories. In what follows, I begin by analyzing Spinoza's principle of parallelism, go on to consider his treatment of the human body, and conclude by examining his conception of the human mind.

1. The Principle of Parallelism

In the beginning of Part II, Spinoza explains that the idea of God is necessarily one and comprises both his essence and everything that necessarily follows from it.[68] Since God's essence is expressed in an infinite number of attributes, each specific mode, or individual entity, is also expressed in infinite ways. [69] However, Spinoza reasons that Extension and Thought are the only particular attributes of God which humans can know.[70] This means that, for example, an individual circle is expressed in infinite ways, but as human beings, we are only able to experience it in two ways: under the attribute of Extension, as an extended object existing in Nature, or under the attribute of Thought, as the idea of this existing object. Vitally, Spinoza's principle of parallelism emphasizes that "the order and connection of ideas is the same as the order and connection of things." [71] This means that the circle existing in extension and the circle existing in thought is one and the same circle, but is simply expressed under two different aspects.

Spinoza draws on the principle of parallelism to show that, insofar as the geometrical method must demonstrate the proximate causes of determinate things or modes, it is necessary to keep the respective sequences of causes in order and, vitally, separate. The sequence of causes of the modes of extension, or physical things, must begin with the attribute of Extension and work its way forward by means of deduction; in much the same way, but perfectly independently, the sequence of causes of the modes of thought, or ideas, must begin with the attribute of Thought and work its way forward by means of deduction. Vitally, the two chains of deduction must never intersect to trade or exchange causal explanations. Spinoza explains, "as long as things are considered as modes of thought, we must explicate the order of the whole of Nature, or the connection of causes, through

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[68] *E*II, P4, P3.
[69] *E*I, D6.
[70] *E*II, P1, P2
[71] *E*II, P1, P7.

the attribute of Thought alone; and in so far as things are considered as modes of Extension, again the order of the whole of Nature must be explicated through the attribute of Extension only."[72] In this way, Spinoza secures two important methodological principles. First, he shifts his attention from the metaphysical order of substance and its attributes, 'down' to the level of their determinate and finite modes. Second, he defines the parameters of his forthcoming examination and provides a blueprint for his argument. In doing so, he is able to emphasize that his reasoning will follow not one line of causation but two, and thereby reflect the order and connection of things stemming from God as accurately as possible - that is, from the *two* known attributes of Extension and Thought.[73]

Spinoza's principle of parallelism is essential to understanding his conception of the human being. As Matthew Homan helpfully explains, "the human being *instantiates* parallelism under the attributes of thought and extension. Any given human being is constituted by modes of the attribute of thought, as well as the parallel modes of extension. While each mode of thought and extension which constitutes a human being is also expressed in infinite other attributes in God, human beings have ideas of only thought and extension."[74] As Spinoza argues in Proposition 10, "substance does not constitute the form of man," but rather, "the essence of man is constituted by definite modifications of the attributes of God." [75] In Proposition 13, he goes on to explain that "man consists in mind and body."[76] As he explained in the preceding propositions, he must therefore examine these two aspects of the human being separately and under their respective attributes. For this reason, Spinoza first begins by studying the human being under the aspect of extension, or as a physical body, and then shifts to a consideration under the aspect of thought, as a consideration of the mind.

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[72] *E*II, P7, Sch.
[73] For a more detailed discussion of the relationship between attribute, infinite immediate mode and determinate mode, see Proposition 9, and Herman De Dijn's *Spinoza: The Way to Wisdom*. Purdue University Press: West Lafayette, Indiana, 1996, 202-204.
[74] "Conclusions Without Premises: Sense-Perception in Spinoza." Presentation at the Friday Philosophy Forum, February 25, 2011. Added emphasis mine.
[75] *E*II, P10, Cor.
[76] *E*II, P10, Cor.

2. Body

Spinoza anchors his discussion of the body in a special set of demonstrations introduced in Part II, between Propositions 13 and 14. These demonstrations examine the basic nature of physical bodies and articulate basic principles of motion and rest, identity, and interaction. Although these distinct demonstrations are sometimes referred to as the 'physical digression,' they are far from being actual 'digressions' - rather, they prepare the groundwork for Spinoza's analysis of the human body and, further, for his systematic examination of the mind. As David Lachterman observes, "if Part I is the proper starting point in respect to the *ordo essendi*, because substance is prior to modifications, [then] the 'physical digression' answers in turn to the *ordo intelligendi*, inasmuch as bodies and, in particular, our own bodies, are the objects of our thinking from the start."[77] It is thus worth taking some time to understand how Spinoza's analysis of physical bodies works.

Spinoza analyzes the nature of physical bodies in three basic stages. He begins by examining simple bodies, goes on to consider composite bodies and, finally, presents six postulates pertaining specifically to *human* bodies. He proceeds using a distinctive two-step method designed to analyze discrete, finite modes. First, he isolates a basic entity and explores its internal conditions of *identity*. Second, he then goes on to examine its *interactions* with other entities in the environment. In this way, Spinoza studies the nature of the most basic physical units, simple bodies, in Axioms 1 and 2 and the first three Lemmata, and examines how these entities interact with other bodies in Axioms 1^1 and 2^2. He then reuses this method to analyze composite bodies in the Definition, and to consider the nature of human bodies in the Postulates.

Simple bodies are finite, determinate modifications of substance, as considered under the attribute of Extension. [78] They are either in motion or at rest and, if they are in motion, they move at varying

[77] Lachterman 84.

[78] Lachterman has suggested that Spinoza uses simple bodies as broadly theoretical entities, "whose main, if not unique, explanatory burden is to anchor subsequent complex systems to the most elementary features of entities devoid of complexities, and exhibiting distinctiveness only via their immediately comprehensible relations of motion and rest." One this account, simple bodies provide a logical account of elemental physical entities, and enable Spinoza to analyze the nature and behavior of their more composite counterparts.

speeds. In accordance with the principle of inertia, the motion of each simple body is determined "by another body, which likewise has been determined to motion or rest by another body, and that body by another, and so ad infinitum."[79] These varying degrees of motion and rest enable simple bodies to be distinguished from one another, and thereby generate distinct, individual identities.

Simple bodies, in turn, affect each other in accordance with two basic principles. First, bodies are affected in different ways, depending on the nature of the affecting body, as well as on the nature of its affected counterpart. For this reason, "one and the same may move in various ways in accordance with the various natures of the bodies causing its motion; and, on the other hand, different bodies may be caused to move in different ways by one and the same body."[80] Second, bodies interact according to a principle of collision. Spinoza reasons that when "a moving body collides with a body at rest and is unable to cause it to move, it is reflected so as to continue its motion, and the angle between the line of motion of the reflection and the plane of the body at rest with which it has collided is equal to the angle between the line of incidence of motion and the said plane."[81] As Alan Gabbey points out, Spinoza here expands on a principle drawn from Descartes' *Principles of Philosophy*, but somewhat misinterprets Descartes' position in the process. Gabbey explains that Descartes' law of conservation (*Principles of Philosophy* 2.36) has very narrow applications with respect to motion, which Spinoza did not recognize in his own reformulation of it. [82] Rather, he sought to extend the law in order to illustrate the impact of two bodies in collision, and thereby sought to provide a basic account of physical motion.

Spinoza uses the principles of interaction to go on and explain the formation of composite bodies. He explains that "when a number of bodies of the same or different magnitude form close contact with one another through the pressure of other bodies upon them, or if they are moving at

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[79] *E*II, P13, Lem. 3.
[80] *E*II, P13, Ax. 1 .
[81] *E*II, P13 Ax. 2 .
[82] Alan Gabbey,"Spinoza's Natural Science and Methodology," in the Cambridge Companion to Spinoza, Ed. Don Garret. Cambridge: Cambridge University Press, 1996, 162. Notably, Gabbey also argues that Spinoza can "scarcely be expected to have made the necessary emendations to Descartes's theories of motion and of collision that were to be the combined revolutionary contributions of Huygeyns, Leibniz and Newton."

the same or different rates of speed so as to preserve an unvarying relation of movement among themselves, these bodies are said to be united with one another all together to form one body or individual thing, which is distinguished through this union of bodies."[83] Composite bodies are thus essentially clusters of other bodies – simple or themselves already composite – which assimilate into a single body and express a uniform ratio of motion and rest. If the bodies maintain close contact along large portions of their surface area, they are hard; if they do so along small parts of their surface area, they are soft; and those who have some parts that are in motion are identified as being liquids.[84]

As had been the case with simple bodies, the unique and differentiated identities of composite bodies are determined according to their varying degrees of momentum. And much as he had in Proposition 10, Spinoza now draws on this principle to challenge the Aristotelian conception of substance, maintaining, instead, that "bodies are not distinguished in respect of substance." Individual parts of a composite body may retain their individual natures, change in size, change their rate of motion, or even be replaced, all without altering the overall identity of the composite body, as long as the latter's proportion of motion and rest remains the same.[85] For example, a small entity may absorb an entity many times larger than itself and still maintain its identity. As a result, Spinoza concludes that a "composite individual can be affected in many ways and yet preserve its nature."[86]

Based on his analysis of composite bodies, Spinoza goes on to formulate six postulates concerning the nature of the human body. In keeping with the geometrical method, where postulates correspond to statements which are considered to be self-evident (and therefore do not need to be demonstrated), Spinoza does not demonstrate any of these six postulates. Rather, he presents them as the starting points for deducing further propositions, namely, those propositions regarding the nature and workings of the mind.

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[83] *E*II, P13, Def.
[84] *E*II, P13, Ax 3 .
[85] *E*II, P13, Lem. 4-7.
[86] *E*II, P13, Sch.

He maintains that the body is composed of "very many individual parts of different natures, each of which is extremely complex"; that those components can be hard, soft or even liquid; that they, and consequently the body itself, are "affected by external bodies in a great many ways"; that the body needs many other bodies for its preservation, and is thereby continually regenerated; that "when a liquid part of the human body is determined by an external body to impinge frequently on another part which is soft, it changes the surface of that part and impresses on it certain traces of the external body acting upon it"; and that the body can itself move other, external bodies and affect them in many ways.[87] In this way, Spinoza follows his analysis of physical bodies through to arrive at a basic conception of human bodies.

2. The Mind

In examining the nature of the mind, Spinoza upholds his promise to analyze each sequence of causality under its respective attribute and renews his analysis from the beginning, starting from the attribute of Thought. He has already shown that one of God's infinite attributes is Thought, and that the essence of man is constituted by definite modes of the attributes of God. From this, he now deduces that, since man thinks (Ax. 2), the essence of man is specifically constituted by modes of thinking.[88] In this way, the human mind must be understood as "part of the infinite intellect of God," such that "when we say that the human mind perceives this or that, we are saying nothing else but this: that God – not in so far as he is infinite but in so far as he is explicated through the nature of the human mind, that is, in so far as he constitutes the essence of the human mind – has this or that idea."[89] Just as the body exists within the infinite, causal sequence of extended objects, so the mind exists as part of the infinite, causal sequence of ideas. But what exactly is the mind as an entity in itself or, in other words, what is the mind when it is considered as an individual, determined and finite mode of Thought?

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[87] *E*II, P13, Postulates 1-6.
[88] *E*II, P11.
[89] *E*II, P11, Cor.

Spinoza presents a remarkably compact argument defining the nature of the mind in Proposition 11 of Part II.[90] His demonstration is anchored in the principle that the idea constitutes the most elemental or primary mode of Thought. Since, according to Axiom 3, an idea can exist without other, more complex modes of thinking, but all of these modes require an idea toward which they are directed, the idea is "prior" in the sequence of causality in thought. This means that "the idea is that which basically constitutes the being of the human mind," acting as a kind of platform for all of the other modes which exist in a given individual. This platform is the mind. And what kind of idea is it, exactly? Spinoza argues that it must be an idea of an actually existing thing, since, according to the principle of parallelism, "the order and connection of ideas is exactly the same as the order and connection of things." [91] Furthermore, it must be the idea of a finite, actually existing thing, because, following from Proposition 11, an infinite thing necessarily exists, and the essence of man does not involve necessary existence. [92] Thus "that which constitutes the actual being of the human mind is basically nothing else but the idea of an individual, actually existing thing."[93] Or, in slightly different terms, the mind is 'everything that is perceived' of a particular, actually existing thing, and this particular, actually existing thing is the body, since, according to Axiom 4, what we perceive is "a certain body […] affected in many ways."[94] Thus, the human mind consists in the idea of a particular human body and, Spinoza concludes, "man consists of mind and body, and the human body exists according as we sense it."[95]

From Proposition 14 onward, Spinoza is able to combine his knowledge of the human body and the human mind in order to analyze the nature of human perception. He has already shown that the human body is "affected by external bodies in a great many ways."[96] He has also shown that the

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[90] As Spinoza himself acknowledges: "at this point our readers will no doubt find themselves in some difficulty and will think of many things that will give them pause." He emphasizes: "proceed slowly step by step."
[91] *E*II, P7.
[92] *E*II, P11.
[93] *E*II, P11.
[94] *E*II, Ax.4, P12, P13.
[95] *E*II, P13, Cor.
[96] *E*II, P13, Post. 3.

mind perceives everything that happens in the human body or, more accurately, that the ideas of what happens in the body are precisely what constitute the mind. Accordingly, he is now able to demonstrate that "the human mind is capable of perceiving a great many things," and to examine two essential features of human perception. First, the mind can only perceive external bodies through the ideas of the affections of its own body.[97] For the mind is the idea of the body and, as Spinoza explains in his proof, "if the human body is not affected in any way by an external body, then neither is the idea of the human body – that is, the human mind – affected in any way by the existence of that body; i.e. it does not in any way perceive the existence of that external body. But insofar as the human body is affected in some way by an external body, to that extent it perceives the external body."[98] To this extent, perception depends on the body's interaction with the external world. Spinoza proposes to "retain the usual terminology" and calls the ideas of the affections of the human body 'images' (*imagines*)."[99] Second, Spinoza argues that when the body is affected by an external body, the idea of this affectation involves the nature of the human body as well as the nature of the external body.[100] This implies that the human mind is capable of perceiving external bodies, but also that "the ideas we have of external bodies indicate the constitution of our own body more than the nature of the external bodies."[101] In other words, the process of perception markedly reconfigures what is perceived, and although true knowledge is possible, it cannot simply be attained through everyday perception.

Indeed, Spinoza argues that when the human mind imagines an external body, it does not have adequate knowledge of it.[102] Recalling that the idea of an affection of the human body involves both the nature of the external body and the nature of human body perceiving it, Spinoza returns to the 'bigger picture' – to the sum of all modes of the Thought – to explain that, "in so far as the external body is an individual thing that is not related to the human body, the idea or knowledge of it

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[97] *E*II, P26.
[98] *E*II, P26.
[99] *E*II, P17, Sch.
[100] *E*II, P16.
[101] *E*II, P16, Cor.2.
[102] *E*II, P26, Cor.

is in God in so far as God is considered as affected by the idea of another thing which is prior to the said external body. Therefore an adequate knowledge of the external body is not in God in so far as he has the idea of an affection of the human body; i.e. the idea of an affection of the human body does not involve an adequate knowledge of an external body."[103] That is, since the external body is not fundamentally related to the human body it is acting upon, its adequate idea - when understood in its place within the complete sequence of causes (i.e., in God, considered under the attribute of Thought) – its adequate idea contains its proximate cause, or the thing which is prior to it, rather than the thing it in turn affects, namely, the human body. This, in turn, implies that the idea of the affection of the body does not encompass an adequate idea of the external body. In other words, when the mind imagines external objects, it indeed imagines then, but does not thereby have adequate knowledge of them. In much the same way, the human mind perceives the human body and even itself, but it does not have adequate knowledge of either. However, the mind only knows its own body through the ideas of its affections. [104]

Much scholarly attention has been devoted to Spinoza's famous definition of the mind, and it is not necessary to 'reinvent the wheel.' Instead, I would like to emphasize that while the concept of 'an idea of the body' has largely been understood as a starting point for elucidating Spinoza theory of knowledge and truth, it also forms the basis for examining the entirety of mental life. [105] An overwhelming proportion of Part III is devoted to mental experiences that fall outside the narrow bounds of adequate knowledge, and they should be more adequately recognized as part of the broader continuum of thought. They are still governed by a necessary set of causal laws, and it is these laws which Spinoza sets out describe and deduce in the early portions of Part III. It is only once he has articulated a comprehensive, causal system of thought that he goes on to use its principles to give constructive definitions of the individual emotions.

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[103] *E*II, P25.
[104] *E*II, P21-23, 29.
[105] A number of scholars have gone so far as to say that Spinoza doesn't really have an account of consciousness[…]

Section III – A Physics of Mental Life

This section provides a detailed analysis of Spinoza's theory of the emotions. It uncovers an underlying framework organizing the seemingly incoherent components of Part III, and helps explains how Spinoza was able to elucidate the causal origins and essential properties of the most basic human emotions.

Let us now return to Spinoza's programmatic remarks in the *Treatise on the Emendation of the Intellect*. In his earliest text, Spinoza catalogues those sciences which he deems to be essential to the pursuit of happiness. He identifies them as the natural sciences, the study of social order, the advancement of medicine and mechanics and, finally, the furthering of moral philosophy and a theory of education. He characterizes these sciences as those which are directly necessary to his philosophical purpose and, remarkably, he pursues his own study of a number of them in the *Ethics* (natural science, moral philosophy), the *TTP* (the social order) and in the *TIE* itself (epistemology and education). At the same time, it is interesting to note that Spinoza believes it is only necessary "to understand as much about Nature as suffices for acquiring such a nature," and continually emphasizes the importance of directing "all the sciences to one end and goal, to wit (as we have said), the achievement of the highest human perfection. Thus everything in the sciences which does nothing to advance us towards our goal must be rejected as pointless – in short, all our activities and likewise our thoughts must be directed toward this end." [106] In the *TIE*, it is not yet immediately obvious how this prioritization of the sciences will unfold, or, more specifically, how it will inform his emerging interest in the natural sciences. But by the time of the *Ethics* and, concretely, by the time of the transition from Part II to Part III, it is clear that Spinoza's studies of the body and mind have advanced simply and precisely 'as much as suffices' for the advancement of his aims (namely, the achievement of happiness), and having secured these advancements, he may now proceed to consider the next area of scientific interest. Correspondingly, it is in this spirit that, at the end of Proposition 13, Spinoza writes, "if my

[106] *TIE* 16.

intention had been to write a full treatise on body, I should have had to expand my explications and demonstrations. But I have already declared a different intention," namely, the intention of developing a complete treatise on the emotions. [107]

In Part III, Spinoza upholds his commitment to the principle of homogeneity and extends his application of the geometrical method to the realm of mental states. In doing so, he takes an unprecedented step in the history of ideas, and formulates a thoroughly modern, scientific psychology, or what I will call a 'physics of mental life.' [108] Rather than describe a kind of taxonomy, then, Spinoza sets out to truly analyze and *understand* the causal structures of the emotions, and thereby lays the foundations for understanding their central role in experience.

For a twenty-first century reader, it may be difficult to appreciate just how radical Spinoza's envisioned undertaking was. At the time of its publication, however, it was met with "shock and indignation," and careful reading of the Preface to Part III shows that Spinoza was well aware of the controversial nature of his treatment of the emotions. While Parts I and II were introduced almost without any prefaces, the Preface to Part III seems to brace itself for resistance, and carefully lays the rhetorical foundations for the challenging demonstrations to come. Although it is calm and understated in style, it is equipped with several rigorous arguments. And, uncharacteristically for Spinoza, it opens with a decisive critique of both his philosophical predecessors and of his prospective detractors. He remarks, "most of those who have written about the emotions [*affectibus*] and human conduct seem to be dealing not with natural phenomena that follow the common laws of Nature but with phenomena outside Nature," and even those who offer "sage counsel" concerning human conduct have failed to understand the causes of underlying the emotions. [109] By contrast, Spinoza acknowledges that his critics "will doubtless find it surprising that I should attempt to treat of the faults and follies of mankind in the geometric manner, and that I should propose to bring

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[107] *E*II, P13.
[108] Although both characterizations have their advantages and disadvantages, I will frequently tend toward the latter, since it contains a helpful nod toward Spinoza's extension of the geometrical method and, further, since it serves to continually underscore the deeply-rooted continuity between Spinoza's study of physical bodies, of the mind, and of the emotions.
[109] Preface to Part III.

logical reasoning to bear on what they proclaim is opposed to reason, and is vain, absurd, and horrifying."[110] But he preempts any potential charges by outlining a compact but rigorous argument justifying his proposed undertaking. He explains, "my argument is this: in Nature, nothing happens which can be attributed to its defectiveness, for Nature is always the same, and its force and power of acting is everywhere one and the same; that is, the laws and rules of Nature according to which all things happen and change from one form to another are everywhere and always the same. So our approach to the understanding of the nature of things of every kind should likewise be one and the same; namely, through the universal laws and rules of Nature."[111] By extension, the emotions must be understood as following from the same, necessary laws of Nature, and, consequently, they must be investigated just as other phenomena in Nature are investigated, i.e., using the geometrical method. "Therefore," Spinoza writes, "the emotions of hatred, anger, envy, etc., considered in themselves, follow from the same necessity and force of Nature as all other particular things. So these emotions are assignable to definite causes through which they can be understood, and have definite properties, equally deserving of our investigation as the properties of any other thing."[112]

These few, short sentences articulate one of Spinoza's most essential theses in the *Ethics*, but often go unnoticed or, at best, unconsidered. It may help to elucidate them by rewriting them in the following way:

1: the laws and rules of Nature are everywhere and always the same
2: the emotions follow from the same necessity and force of Nature as all other particular things
3: our approach to the understanding of the nature of things of every kind should likewise be one and
the same
C: therefore, the emotions are assignable to definite causes through which they can be understood; and
have definite properties, equally deserving of our investigation as the properties of any other thing.

In this format, we recognize 1-3 as reformulating what Lachterman had called the principle of homogeneity, and applying it to the specific sphere of the emotions. Since the laws of Nature apply

[110] Preface to Part III.
[111] Preface to Part III.
[112] Preface to Part III.

to all things, they must apply to the workings of the emotions; and since the laws of nature apply to the emotions, the same methods that are used to study other phenomena must be used to study the emotions. It follows that the geometrical method must be extended and applied to the study of the emotions. Correspondingly, in C, we recognize Spinoza's explicit intention of analyzing the proximate causes of the emotions, and of thereby determining their individual, essential properties.

It is against the backdrop of this carefully reasoned argument that Spinoza then makes his infamous remark: "I shall, then, treat of the nature and strength of the emotions, and the mind's power over them, by the same method as I have used in treating of God and the mind, and I shall consider human actions and appetites just as if it were an investigation into lines, planes, or bodies."[113] And as the preceding analysis should make clear, Spinoza by no means intends to express 'sadness' in algebraic form, or to graph 'anticipation' along the *x* and *y* axes. Rather, by analyzing the emotions using the geometrical method, he proposes to do them justice, and to come to a full understanding of how they are caused in the human body and mind, how they form our experience of consciousness and inform our daily activities, and how they may lead us to live better lives.

Spinoza acknowledges that examining the emotions will be difficult. While it is relatively easy to conceive of a single body as part of an infinite, causally-governed whole, it is not nearly so easy to arrive at a comparable understanding of a single *idea.* As Spinoza explains in a letter to Henry Oldenburg, the human mind is limited in its cognitive perspective, and thus imagines that its ideas are self-generated, rather than existing as parts of an infinite series of ideas. In the letter, Spinoza describes the human mind being akin to "a tiny worm living in the blood, capable of distinguishing by sight the particles of blood – lymph, etc. – and of intelligently observing how each particle, on colliding with another, either rebounds or communicates some degree of its motion, and so forth."[114] But the worm can have "no idea as to how all the parts are controlled by the overall nature of the blood," and in much the same way, the mind cannot immediately perceive its true nature under the

[113] Preface to Part III. Criticisms of this phrase:
[114] Letter 32.

attribute of Thought.[115] In a related argument in the *Ethics*, Spinoza remarks that individuals are "conscious of their actions and ignorant of the causes by which they are determined," and this, in turn, makes it particularly difficult to analyze and understand the own emotions.[116]

The geometrical method provides Spinoza with a kind of rational 'vantage point' from which to study the emotions. It does not rely on the conscious experience of the emotions, but rather dictates that their origins and nature must be studied causally, that is, by demonstrating how particular affectations of the body produce individual emotions. Accordingly, Spinoza begins the opening propositions of Part III to transition between his analysis of the mind, as the idea of the body, and his systematic analysis of the emotions, as the *ideas* of the affectations of the body.

1. Vis Existendi

Spinoza's theory of the emotions is based on the principle that each body possesses a certain 'power of activity,' or force of existence (*vis existendi*). Spinoza refers to this power as the entity's essence or 'conatus,' whereby "each thing, in so far as it is in itself, endeavors to persist in its own being." He also refers to it as each individual's degree of reality or perfection.[117] Spinoza invokes the principles of identity and interaction, first developed in his analysis of physical bodies, to define an individual's power of activity as her ability to preserve her identity in the face of interactions with others. He explains, "the human body can be affected in many ways by which its power of activity is increased or diminished; and also in many other ways which neither increase nor diminish its power of activity."[118] As such, every individual's power of activity fluctuates over the course of both her everyday experiences and her life, according to her interactions with the surrounding environment. And these fluctuations, in turn, constitute the root cause of emotional experience. For Spinoza, the

[115] Letter 32.
[116] *E*III, P2, Sch.
[117] *E*III, P4, Preface to Part IV – incomplete.
[118] *E*III, Post 1.

emotions consist in "the affections of the body by which the body's power of activity is increased or diminished, assisted or checked, together with the ideas of these affections."[119]

Spinoza argues that fluctuations in the body's power of activity are, by definition, paralleled in the mind's capacity to think. The mind is necessarily conscious of its conatus, he explains, and "whatsoever increases or diminishes, assists or checks, the power of activity of our body, the idea of said thing increases or diminishes, assists or check the power of thought of our mind."[120] This must be the case for two reasons: first, because the order and connection of things is the same as the order and connection of ideas, and second, because the mind is simply everything that is perceived of the body. The mind is the sum of the perceptions of the body, so when an external body affects an individual's own body, he or she is conscious of the idea of this affection in his mind. Correspondingly, when this affection of the body increases or decreases his or her *vis existendi*, it is mirrored by an idea of this increase or decrease, which, descriptively, he or she experiences as a certain kind of emotion, namely, as the emotions of pleasure or pain. As in the analysis of physical bodies, whose identities were defined by proportions of motion and rest, so the constitutions of individual emotions are determined by increases and decreases in an individual's power of activity, and his or her associated power of thought. Spinoza explains, "we see then that the mind can undergo considerable changes, and can pass now to a state of greater perfection, now to one of less perfection, and it is these passive transitions (passiones) that explicate for us the emotions of Pleasure (leatitia) and Pain (tristitia)."[121] 'Pleasure' consists in the "passive transition of the mind to a state of greater perfection," while 'pain' corresponds to the "passive transition of the mind to a state of less perfection."[122] When the mind is conscious of its conatus, it experiences what Spinoza calls 'will,' and he identifies these three emotions – pleasure, pain and desire – as the three primary emotions of human experience.

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[119] *E*III, D3.
[120] *E*III, P9, P11.
[121] *E*III, P11, Sch.
[122] *E*III, P11, Sch.

Spinoza expands on this basic emotional framework in accordance with three guiding principles. First, he specifies that, according to the definition of conatus, each individual endeavors to not only persist in his or her existence, but to *increase* his or her power of activity. This means that the mind is a kind of self-motivating force which, by its very nature, is constantly seeking to strengthen and improve itself. It is naturally inclined towards those things which increase its power of activity, and equally averse to those things which decrease its power of activity. The mind endeavors to "think of those things that increase or assist the body's power of activity," and, at the same time, to think of those things that exclude the existence of things which decrease its power of activity.[123] In light of this, Spinoza identifies 'love' as the experience of pleasure, accompanied by the idea of an external cause, and 'hate' as the experience of pain, accompanied by the experience of an external cause.

Second, Spinoza argues that the mind has a natural tendency toward association, so that when the mind "has been affected by two emotions at the same time, when it is later affected by the one it will also be affected by the other." This tendency helps explain why individuals often love things that actually decrease their power of activity, and hate things that increase it. Spinoza explains, "let it be supposed that the mind is affected by two emotions simultaneously, of which one neither increases nor diminishes its power of activity, and the other increases it or diminishes it." Because of the mind's tendency to associate two coinciding emotions, it will be affected by a neutral emotion and automatically call up its positive or negative associate. This will lead the mind to experience pleasure or pain, even when it is only being affected by an emotion that, in reality, neither increases nor diminishes its power of activity. In much the same way, the mind perceives similarities between objects, and associates pleasure and pain with objects that are only similar to those objects that really do produce pleasure pain. As a result, the mind comes to love and hate things which, against its expectations, do not actually cause it to experience pleasure or pain. And these processes, in turn, help account for a phenomenal range of emotional experiences which, on the face of it, do not seem

[123] *E*III, P12-13.

to follow from any straightforward relationship between conatus, external stimulus and the experience of an emotion.

Third, Spinoza's argues that these basic functions of the mind interrelate to cause further, more complex kinds of emotions. Between Propositions 19 and 49, he examines our regular reactions to pleasure and pain, will, love, and hatred, as well as to other individuals in order to elucidate a preliminary set of our emotional experiences. Of course, he does not intend to analyze all the possible emotions. Every emotion affects every individual differently, and may even affect the same individual in different ways at different times; each specific, bodily affect produces an equally distinct or particular emotional reaction; and there are infinitely many "kinds of pleasure, pain, desire[,] and consequently[,] of every emotion that is compounded of these [...] or of every emotion that is derived from these [...] as there are kinds of objects by which we are affected." So this would be to try and analyze an infinite set of emotions. Rather, Spinoza proposes to outline a general system for our most essential emotions, and to provide the causal underpinnings for emotions such pleasure and pain, emulation and gratitude, and even dissipation and drunkenness.

Unfortunately, Propositions 19 to 49 are systematically passed over in the Spinoza literature. Because they examine the emotions so specifically and in such a detailed way, they invariably are grouped together without actually being understood. Even Marx Wartofksy, a genuinely careful scholar of the psychology, confesses that he will only treat this section of Part III "structurally," i.e., that he will simply consolidate these thirty-plus demonstrations and draw general conclusions from them. By contrast, I maintain that each of these propositions must be examined individually. It is only by tracing Spinoza's application of the geometrical method to the individual emotions that this portion of his philosophical project comes to light. I argue that in each of these propositions, Spinoza analyzes the causal structures of each of the emotions and, vitally, that he thereby prepares the way for the end of Part III, where he articulates their respective *causal definitions*. It is precisely this task to which Spinoza refers as the treatment of "the nature and strength of the emotions," and it is worth taking the time to understand exactly how it works.

2. Projection on to Objects

In Propositions 19 to 24, as well as in Propositions 48 and 49, Spinoza expands the dynamics of pleasure and pain. He demonstrates that we not only experience positive and negative emotions when we ourselves are directly affected, but that we are also affected when we imagine that objects of interest – that is, objects we either love or hate directly – are affected. In other words, our perceptions of other entities' interactions produce further emotions of pleasure and pain, depending on whether they influence, or appear to influence, our own power of activity. In this way, Spinoza demonstrates that:

P 19	when we imagine an object of our love is preserved, we feel pleasure
P 19	when we imagine an object of our love is destroyed, we feel pain
P 21	when we imagine an object of our love feels pleasure, we feel pleasure
P 21	when we imagine an object of our love feels pain, we feel pain
P 48	love toward an object is destroyed with the pleasure associated to it is attributed to a different cause
P 49	love felt toward a free entity is felt with greater intensity than love felt toward a necessary entity
P 19	when we imagine an object of our hatred is preserved, we feel pain
P 20	when we imagine an object of our hatred is destroyed, we feel pleasure
P 23	when we imagine an object of our hatred feels pleasure, we feel pain
P 23	when we imagine an object of our hatred feels pain, we feel pleasure.
P 48	hatred toward an object is destroyed with the pain associated to it is attributed to a different cause
P49	hatred toward a free entity is felt with greater intensity than hatred felt toward a necessary thing[124]

3. Behavior: Affirmation and Negation

In Propositions 25, 26, 28, and 36, Spinoza examines how feelings of pleasure, desire, and pain, as well as of love and hatred, motivate our basic behaviors. At the most essential level, we endeavor to affirm whatever causes us pleasure or which we imagine causes us pleasure. By contrast, we endeavor to avoid whatever causes us pain, or what we imagine causes us pain. Just as an amoeba invariably moves toward sugar and shies away from salt, so human beings predictably seek to increase their power of activity, and avoid decreasing it. Accordingly, Spinoza deduces that:

[124] *E*III, P19-24, 48-49.

P 25 we endeavour to affirm whatever causes us pleasure
P 25 we endeavour to affirm whatever causes the object of our love pleasure
P 26 we endeavour to affirm whatever causes the object of our hatred pain
P 28 we endeavour to bring about whatever is conducive to pleasure
P 36 when we recall something which once brought us pleasure, we endeavour to possess it again
in the same circumstances

P 25 we endeavour to negate whatever causes us pain
P 25 we endeavour to negate whatever causes the object of our love pain
P 26 we endeavour to negate whatever causes the object of our hatred pleasure
P 28 we endeavour to remove or destroy whatever is conducive to pain.
P 36 when we are unable to possess something which once brought us pleasure, we feel pain.[125]

4. Human Interactions

Finally, in Propositions 29 to 35, and in Propositions 40, 41, 43 and 44, Spinoza discusses the increasingly complex emotions produced when human beings interact with one another. We imagine that our interlocutors experience pleasure, desire and pain, and that they love and hate the objects and people in their environment. These imaginings, in turn, stimulate further emotions in us. In keeping with this, Spinoza argues that:

P 29 we endeavour to do what we imagine others regard with pleasure
P 30 when we do something that we imagine affects others with pleasure, we regard ourselves
with pleasure
P 41 if someone loves without a perceived cause, we will love them in return
P 34 the more we imagine that something loves us, the greater the pleasure we take in ourselves
P 33 when we love something similar to ourselves, we endeavour to make it love us in return
P 31 when we imagine that someone loves or desires something we love or desire, we love or
desire that thing even more
P 32 when we imagine someone loves something that only one person can possess, we endeavour
that he or she should not possess that thing
P 35 "if anyone thinks that there is between the object of his love and another person the same or a more intimate bond of friendship than there was between them when alone used to possess the object loved, he will be affected with hatred towards the object loved and will

[125] *E*III, P25, 26, 28, 36.

envy his rival."

P 29 we avoid doing what we imagine others regard with aversion
P 30 when we do something that we imagine affects others with pain, we regard ourselves with
pain
P 31 when we imagine that someone hates something we hate, we hate that thing even more, but
"if he dislikes what we love, or vice versa, then our feelings will fluctuate."
P 43 hatred is increased by reciprocal hatred, but may be destroyed by love
P 44 hatred that is overcome by love passes into love, and is greater than if it had not been
preceded by hatred. [126]

Together, the causal reactions analyzed in Propositions 19 to 49 form the substance of our emotional lives. Based on his analysis, Spinoza is now able to set out the specific *definitions* of forty-eight essential human emotions. He will not describe the emotions, as Descartes did in his *Passions of the Soul*. In keeping with the geometrical method, he will instead provide constructive definitions of the most essential emotions produced in human experience.

5. Definitions

In the *Treatise on the Emendation of the Intellect,* Spinoza writes that the correct path to discovery begins "from the basis of some given definition" and progresses until the object of inquiry is well defined.[127] This is precisely the approach he adopts in his concluding analysis of the emotions. Having considered the causes structures of many important mental states in Propositions 19 to 49, he ends Part III of the *Ethics* with a set of the causal definitions of the most essential emotions. He explains that he will "*repeat* those definitions" which he had already discussed, but this time, he will consider them in their "proper order, accompanied by such observations as I think necessary in each case." [128] He defines 48 basic emotions, ranging from pleasure and pain to benevolence, drunkenness, and lust.

Although it is not necessary to examine each definition in detail, considering a pair of examples may help illustrate Spinoza's approach. From Proposition 18, for instance, which states that "from the image of things past or future man is affected by the same emotion of pleasure or pain as from

[126] *E*III, P29-35, 40, 41, 43-44,
[127] *TIE* 94.
[128] *E*III, P59.

the image of a thing present," Spinoza formulates Definition 12, which states that "Hope is an inconstant pleasure arising from the idea of a thing future or past, of whose outcome we are in some doubt." [129] Similarly, from the scholium to Proposition 26, which states, "we see that it easily happens that a man may have too high an opinion of himself and of the object loved," Spinoza arrives at Definition 28, which states that "Pride is thinking too highly of oneself by reason of self-love." [130] And so forth. In each case, Spinoza draws on his geometrical deduction to elucidate the given emotion's essential origin and properties, and thereby arrives at an understanding of its true nature. This prepares the foundations for his analysis of human bondage, or what he calls, "the strength of the emotions." [131]

Conclusion - Spinoza's Theory of the Emotions as a Model for Future Inquiry

As may be seen from a detailed analysis of Part III of the *Ethics,* Spinoza's theory of the emotions does not provide an 'anatomy' or 'taxonomy' of the emotions. Instead, it provides a *causal* understanding of the origin of each emotion and, correspondingly, explains each emotion's individual constitution, together with its essential properties. In doing so, it is fair to say that Spinoza anticipated the causal accounts which were to emerge from the twenty-first century cognitive sciences. [132]

I have argued that if Spinoza had failed to uphold his commitment to a unified, rational science, he would not have extended the geometrical method to the phenomena making up human life; and if he had exempted the human body and mind from the laws of nature, he could not have formulated those parts of the *Ethics,* namely, Parts II and III, which contain his farsighted conception of the emotions. I have also tried to show that the geometrical method must be understood as a fundamentally formative feature of the theory of the emotions, and one which informed it from its

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[129] *E*III, P18, D12
[130] *E*III, P26, D28
[131] *E*IV, Preface.
[132] See Curley, Edwin, *Behind the Geometrical Method*, A Reading of Spinoza's Ethics. Princeton: Princeton University Press, 1988.

most general elements, down into its most detailed demonstrations. The geometrical method enabled Spinoza to truly define and *understand* the nature of human emotions.

By way of conclusion, I would now briefly like to suggest that Spinoza's theory of the emotions can and ought to be used as a model for new psychological findings.[133] On Spinoza's own account, the deductive and experimental methods necessarily complement one another, and should be used together for the advancement of knowledge. [134] As he writes in the *TIE,* it is important to know and be familiar with "those aids, all of which will serve to assist us in knowing how to use our senses[,] and to conduct experiments under fixed rules and proper arrangement, such as will suffice to determine the thing which is the object of inquiry."[135] When performed using careful practices and methods, Spinoza emphasizes, it is, in fact, from these very experiments that "we may finally infer what are the laws of eternal things," and it equally from experimentation that "we may gain insight into inmost nature."[136]

In addition, Spinoza's own correspondence seems to suggest that he would have been happy to see that twenty-first century technologies may finally be able to put his ideas to the test. As he wrote in a letter to Henry Oldenburg, on the subject of the Second Anglo-Dutch War (1665-1667),

> these troubles move me neither to laughter nor again to tears, but rather to philosophizing, and to a closer observation of human nature. For I do not think it right to laugh at nature, and far less to grieve over it, reflecting that men, like all else, are only a part of nature, and that I do not know how each part of nature harmonizes with the whole, and how it coheres with other parts. And I realize that it is merely through such lack of understanding that certain features of nature – which I thus perceived only partly and in a fragmentary way, and which are not in keeping with our philosophical attitude of mind – once seemed to me vain, disordered and absurd. But now I let everyone go on his own way. [137]

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[133] See Antonio Damasio, *Looking for Spinoza: Joy, Sorrow and the Feeling Brain*. London: Harcourt, Inc., 2003; Meehan, W., "Partem Totius Naturae Esse: Spinoza's Alternative to the Mutual Incomprehension of Physicalism and Mentalism in Psychology," in *Journal of Theoretical and Philosophical Psychology*, 29, (1), 47- 59.
[134] *TIE* 84.
[135] *TdIE* 103.
[136] *TdIE* 103.
[137] Letter 30.

That is, Spinoza would have encouraged us, as contemporary students of philosophy, to take up these new findings in the cognitive sciences, and to use them in our philosophical inquiries, as well as in our own strivings toward an ethical way of life.