Diagrammatic Immanence

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Introduction

Now, in its turn, consider also how the intelligible section should be cut.

How?

Like this: in one part of it a soul, using as images the things that were previously imitated, is compelled to investigate on the basis of hypotheses and makes its way not to a beginning but to an end; while in the other part it makes its way to a beginning that is free from hypotheses; starting out from hypothesis and without the images used in the other part, by means of forms themselves it makes its inquiry through them.

Plato, *Republic*

I could talk talk talk talk talk myself to death / but I believe I would only waste my breath / ooh show me ...

Roxy Music, 'Re-Make/Re-Model'

The present book develops an immanent ontology of relations based on the dynamics of formal diagrams. Elements of Spinoza's metaphysics of immanence, Peirce's semiotics and Deleuze's philosophy of difference are here integrated in an ontology of diagrammatic relations expressed formally in the framework of elementary category theory. The book has three broad goals: to outline an integrative approach to the problem of immanence in Spinoza, Peirce and Deleuze; to develop a model of ontology based on diagrammatic relations; and to introduce some of the most important constructions and basic techniques of category theory to a philosophically but not necessarily mathematically informed audience. The book thus brings together a philosophical concept (immanence), an experimental methodology (diagrams) and a contemporary field of mathematics (categories). Throughout the text the relations and overlaps across these areas are emphasised

and the connections among them foregrounded. The three areas correlate roughly to three central theses:

- Immanent metaphysics entails relational ontology.
- Diagrams are the appropriate method for investigating immanence immanently.
- Category theory is the appropriate mathematics for modelling and investigating diagrams.

The book's overarching aim is to show the inner coherence of these three claims and to suggest something of why contemporary philosophy ought to care about them. The remainder of this introduction offers a synopsis of each thesis, some general remarks to place the overall argument in context, and an outline of the topics treated in each chapter.

IMMANENT METAPHYSICS ENTAILS RELATIONAL ONTOLOGY

To make sense of this initial claim, the terms 'metaphysics' and 'ontology' obviously need to be distinguished and clarified. 'Metaphysics' here is meant to refer to the philosophical study whose object is the most general structure of being, whatever that in fact is. Metaphysics aims to express how beings, whatever those in fact turn out to be, hang together or, to put it otherwise, how they stand among and with respect to one another. Regardless of what exists, it investigates reality's fundamental articulations. In this way, metaphysics often involves a division of being into various types of entities, for instance ideas and physical things (a dualist metaphysics) or God and the created world (a traditional theist metaphysics), but it tends more essentially to express a compact list of formal categories or Great Kinds in the style of Plato's *Sophist* whose conjugations delineate what is necessary, possible and impossible for particular beings. It thus tends to maintain close connections with logic, whether formally or

informally.

'Ontology' on the other hand is understood to suggest the catalogue of what in fact exists, what Russell colourfully described as the 'ultimate furniture of the world'.[1] If there are badgers, that is an ontological matter. If badgers, like everything else, must come to be and pass away in time, such is an issue for metaphysics. The usages invoked here are probably closer in spirit to the way these terms are used in contemporary analytic philosophy than in post-Heideggerian continental thought, but in any case nothing much hangs on this choice of semantics. It is simply introduced in order to help make the term 'immanence' a bit more precise at the outset. It is assumed that some such distinction between the 'structure' and the 'content' of reality is necessary to get any foothold whatsoever when scaling certain philosophical inclines.

At any rate, in the senses just sketched metaphysics and ontology are obviously closely related concepts. Just how closely related is itself a metaphysical question. There would be little sense from a metaphysical standpoint to dualism, for instance, if there were no beings at all. However, even if nothing existed (the ontologically void position sometimes called 'nihilism' in contemporary analytic literature) not all metaphysical problems would necessarily be settled. *How* exactly 'nothing exists' – the structure of nothingness or emptiness – might very well remain a source of dispute, as in certain divergent lines of Mahayana Buddhism. Typically, metaphysical questions abstract from ontological ones at least provisionally, but often only then to use this very act of abstraction as a kind of leverage for transposing their own structure back onto beings, 'finding' it there where it has in fact merely been projected. This insight is at the heart of Kantian critique. It is also what brings Kant's transcendental method to within a hairsbreadth of immanence, were it not for the impassable limit separating thought from the thing-in-itself in

Kant. For philosophies of immanence such limits can only be at best provisional and merely local.

'Immanence', roughly, names then any metaphysical position or method rejecting the notion that the ultimate structure of reality may be investigated independently of its real content in the way that Kant's, for example, does. Immanence disallows 'one-way' arrows from metaphysics to ontology, or from logical grammar to real semantics. Thus, to put it positively, immanence attributes a universally self-modelling structure or global plasticity to the fold of metaphysics and ontology, or of being and beings. Furthermore, it posits this ultimate chiasmus to hold without remainder, without 'exterior'. Immanence on these terms appears then as the type of metaphysical-ontological position that withholds the final pertinence of this very distinction. It is a metaphysical position because it involves a claim about how things ultimately hang together, but its claim of how things hang together is in part the claim that they do not hang together in any way that is illuminated finally by differentiating between what is and how what is is structured. The thesis above simply states that any such metaphysical view implies a generalised relationality at the level of ontology, an ontology of relations and not objects.

Arguably, something like an intuition of immanence impels and grounds the western philosophical tradition at its very inception. The earliest Ionian and Eleatic thinkers did not so much think universally for the first time as express a peculiarly new style or flavour of universality in thought. When Thales claimed all to be water or Anaximander the elements of the world to be condensations of the cloudy *apeiron* or Parmenides truth to be One, in each case a certain milieu was established or marked out for thinking the global real locally through itself, that is, for thinking it immanently. *Physis* for pre-Socratic philosophy was in general necessarily both object and method, and at the most basic level of

explanation, the explaining and the explained were understood to coincide. It is convenient to take the more overtly 'materialist' figures here as exemplary, since this enables an especially vivid contrast with the next step in the familiar narrative.

The antagonist or dialectical complement of immanence is, of course, transcendence. As Socratic irony transformed into Platonic institution, a break with immanence followed naturally from the fundamental critique of materialism by ideality: ideas, concepts, the forms that are thought by thought – these just are not the kinds of things that physical things are or could be. Thus to think the unity of the All there must be at least a sufficiently real gap or crack in the All itself to separate ideas from material things. With the important exceptions of such liminal figures as Eriguena and Bruno, dualism via transcendence provided the canonical scheme of metaphysics through the middle ages up to the early modern period, until with the figure of Spinoza the metaphysics of immanence found its great modern articulation. Spinoza's more or less definitive account of immanent metaphysics in the *Ethics* still stands as the touchstone of the concept of immanence for the entire subsequent tradition. In particular, Spinozist radical immanence haunts subsequent philosophers in their various attempts to reconcile immanence with transcendence in multiple ways, sometimes directly, often through displacements into rejected mystical or spiritualist guises. This is evident for instance in both Kant and Hegel, the former under the shadow of Swedenborg and the latter the shadow of Boehme. In the twentieth century, Husserlian phenomenology marked a revival of the term 'immanence', ascribing it to the mutual enfolding of object and method in the investigation of conscious experience. Today, the term has become something of a rallying-cry for strains of philosophy like that of Deleuze and certain varieties of contemporary materialism and new realism.

At any rate, history and polemics are of little concern. It is not really the point of this book to argue for an immanent metaphysics or to mount a philosophical critique of transcendence. Instead, within the limits of the first thesis, it is simply a matter of proposing and defending what is claimed to be a necessary implication of any immanent metaphysics. If immanence is how reality is ultimately structured, then ontology is ineluctably constrained to relations. Things must be relations 'all the way down' (however far that is) without remainder. It is normally thought that there are things, or objects. It is also commonly understood that relations depend upon there being things that they relate. It is argued here that if immanence is correct metaphysically speaking, then this normal way of thinking is wrong on both counts, or rather both these 'truisms' must be elaborated and ultimately understood in ways contrary to their usual senses. They should finally be expressed solely as claims involving distinctions among kinds or degrees of relations themselves. 'Things' in the usual sense are ultimately no more than relations of some kind or another that hold or do not hold among other sorts of relations, and so on.

The arguments in support of this claim are primarily advanced in the discussion of Spinoza in Chapter 1, but Spinoza's philosophy is taken as emblematic in this regard for any consistent metaphysics of immanence. So it is not simply a claim about Spinoza's own thought, but about the ontological implications of the *kind* of metaphysics Spinoza proposes. If the argument is found convincing, some readers might therefore choose to take it as a premise for a *reductio* style argument against any metaphysics of immanence. Fair enough. In the present context, it provides the basis for posing a further question: if Spinozist metaphysics is in the relevant respects actually correct and things are thus ultimately relations, what would and should this entail

methodologically for philosophy?

DIAGRAMS ARE THE APPROPRIATE METHOD FOR INVESTIGATING IMMANENCE IMMANENTLY

The central claim of the present work is that because it is possible both to represent and to instantiate an ontology of relations by means of diagrammatic notation, diagrams are particularly efficient tools for studying relations by means of relations themselves, that is to say, immanently. Under philosophical conditions of immanence, method and object must do more than merely conform to one another, they must partly overlap if not fully coincide. Because of their partial coincidence of representational power and relational instantiation, diagrams are especially suited to philosophical inquiry into the metaphysics of immanence.

Explaining fully what diagrams are and how they work will be tasks for the book as a whole. Nonetheless, at this stage diagrammatic method may be at least schematised by the following principles:

(1) Diagrams imply a partial blurring of the distinction between sense and notation, or between object and sign. In other words, diagrams are essentially iconic. They are what they mean. One effect of the seldom questioned linguistic dominance in philosophical method is that the peculiar and restricted form of semiotic relation that holds generally between words (or sentences) and things (or propositions, states of affairs and so forth) is often transferred uncritically to the relation between thought and what thought thinks. Diagrammatic thought is situated on a terrain wherein problems of linguistic signification and representation are relatively circumscribed from the outset. This is because diagrams are constituted always to some degree by a mode of representation (*Vorstellung*) that is *also* an 'immediate'

non-linguistic presentation (*Darstellung*), for instance via sense perception or physical movement. If *Vorstellung* is the mark of the transcendent sign, *Darstellung* tends intrinsically towards a model of immanent signification, meaning not necessarily the simple identity of sign and thing, but their at least minimal overlap and ontological continuity. Diagrams thus represent systems of relations and at the same time instantiate (at least some of) those relations directly. In this way the 'content' of a diagram is already at least partly present directly and immediately in its 'form'. Its syntax is already an instance of its semantics.

(2) Diagrams are always realised within some already given system of relations that serves as an ambient environment for their inscription and selection. Diagrams are made or picked out from among pre-existing structures, which may be relatively abstract or more concrete depending on the case but which must at any rate exist as real systems of relations already instantiated in some differentiated field. It is not necessary to decide questions of materiality and ideality in this regard (if true ontology includes immaterialities, so be it) but every diagram must still be made or inscribed – and hence indexed – 'somewhere' in a pre-existing relational domain of some kind, whether among things, concepts, images or something else, using the structures and relations already to be found there. In a very general sense, this implies a certain 'spatialisation' of diagrammatic thought, although the kinds of spaces in which diagrams may be inscribed are much more varied than is probably commonly considered. Diagrams in this enlarged sense are not necessarily two-dimensional drawn or written structures or even spatio-temporal objects. Nonetheless, sketches drawn on paper will serve as paradigmatic diagrams for present purposes. We are after all communicating via paper and ink (or perhaps with pixels on some electronic screen – you are obviously in a better position to know this than I am). In any case,

the two-dimensionality and relative stasis of the current medium should not lead to a narrowing of conception. The more familiar kind of diagram is in fact only a special case of a much more general notion of diagram that it is the task of this work to develop, yet in order to clarify this more general notion we will make extensive use of the special case. The diagrams themselves are thus both explicatory instruments and illustrative examples. The very possibility of being both at once will prove to be one of the most powerful aspects of diagrammatic expression. Diagrams may be – and indeed are – constructed anywhere (everywhere), from anything (everything).

(3) Diagrams function according to a formal reversibility between stipulation and evaluation, or between abstraction and selection. A diagram highlights certain relations among a local system of relations by actualising new relations, precisely those that determine the diagram itself with respect to its user and its use. When certain subsystems of relations are abstracted from their immediate context, they naturally form a diagrammatic 'unit' that may be used to pick out other systems of its relevant type. Every stipulated part of a diagram becomes by that very token a tool of comparative evaluation. It is here that the self-modelling and plastic character of immanence positively infests the diagram and energises it. Obviously the dynamics of this process itself will need to be further specified and to some degree formalised. Such is the work especially of Chapters 3 and 4, the theoretical core of the book. Indeed in Chapter 4 we will formalise a rigorous theory of diagrammatic signs within the mathematics of category theory using the specific structure of presheaves.

The formal reversibility or quasi-invertibility that holds between abstracting structures and selecting parts of diagrams serves as the ground for conceiving 'conventionality' in the broad sense of common agreement on semiotic vehicles in a way

consistent with the metaphysics of immanence. It is also the basis on the same terms for understanding processes of 'paideia' in the sense of the regimented communication of knowledge. In the terminology of Peirce that will be examined in Chapter 3, it has the general character of 'thirdness' or 'symbolicity'.

Diagrams are understood here as a general type of sign. To explain what diagrams are is to indicate how they signify. What specifies diagrammatic signs as contrasted, at least initially, to linguistic signs as usually understood – taking words as paradigmatic – is that typically the parts of diagrams are also diagrams *and* the signifying power of parts and whole arises naturally at least as much as conventionally from the evident relations that structure them. Rather than drawing a sharp line between linguistic and diagrammatic representation, however, it is more in the spirit of the view of diagrammatic immanence advocated here to conceive the former as a species of the latter, one in which the diagrammatic structure tends to be more abstract and less directly evident. In any case, a diagram *as such* will be conceived as a manifest system of relations that signifies something that also instantiates some relevant part of that same system of relations. In addition, the mode of signification itself must depend to some appropriate degree upon this homology of relations. In other words, the *how* of diagrammatic signification will lean heavily, in a loadbearing way so to speak, on the *what* of relational structure common to sign and significance.

Consider the sorted collection of generic diagram parts in Figure 0.1. In each case, to describe *what the thing is* is already to indicate *how it might signify* diagrammatically. These dots, arrows, lines and frames will serve as basic elements of the diagrammatic syntax that we will employ throughout the text.
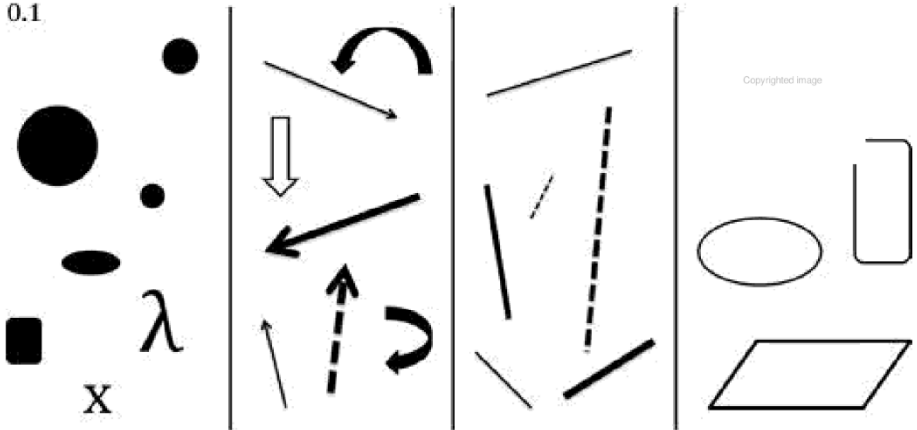
What is a dot? Dots are simple differences, lacking internal differentiation or evident structure, set off against a contrasting background. They are simple, but they are not points. They are extended and cover a continuous area in a homogeneous manner, like a stain (it is important to note that this description is already to some extent stipulative; it guides perception). What then will a dot 'mean'? Something, some thing. Anything that has the relevant structural similarity to a dot: indicable unity. Conversely, anything with such a structure may be treated diagrammatically as a 'dot' of this sort in its own right. Dots thus function naturally like variables in standard formal syntax, with the important difference that in general they are determined indexically ('this one here') and not via an axiomatic iterability (repeating a dot makes it different). From the diagrammatic point of view, then, formal variables like 'X' or the Greek letter lambda may be understood as aesthetically degenerate dots, dots that carry just a bit too much information, too much irrelevant structure for their intended purpose. Of course, this extra information is sometimes quite useful. In accordance with our diagrammatic method we will require that the meaning of the dot (its 'semantics' in a broad and rough sense) be instantiated *at least* in itself. The class of what it can represent must include at a minimum the dot itself as well as a

dot *as such*, which is to say, by extension, all actual and conceivable dots.

What is an arrow? An arrow is a path drawn from somewhere or something to somewhere or something else. It possesses the unity of a line, and is thus a special sort of dot, one with two distinct 'ends'. In addition, the two ends of the line are ordered, that is, one comes first and the other comes next, the arrow's tail and its head. To establish the difference between the tail and the head of the arrow, one endpoint is specially marked, which is what makes an arrow an arrow and not just a line segment or a mere arc. What will an arrow mean? Besides signifying itself and other arrows, its naturally iconic semantics include any ordering or asymmetrical relating of two things, any path in a space, and any process or interval with a beginning and an end. Conversely, any of these latter structures may be treated diagrammatically as an arrow in its own right, under appropriate conditions.

What is a line? A line is an arrow minus the distinction of head and tail. It connects its endpoints by tracing a link through the space they share, and it separates neighbourhoods in a plane along its length. Some of its possible meanings may be surveyed by examining the many contexts where lines of various sorts are drawn.

Finally, what is a frame? A frame distinguishes an inside and an outside and gathers the contents of its interior. It is like a hollow dot that may perhaps be 'filled' with other things, other diagrams. A frame's meanings are at least as diverse as those of all possible territorial boundaries.

This is neither a formally defined nor an exhaustive collection of diagram parts. Diagrams may be composed of anything whatsoever, even ideal entities such as mathematical concepts. But in any case the quite limited diagrammatic toolbox indicated in Figure 0.1 remains capable of a great range of expression, in part

because these particular tools may be reproduced and composed with one another in a great variety of topologically interesting ways. Structures of dots and arrows alone will be sufficient in their own way to organise the diagrammatic structure immanent to category-theoretical mathematics, although liberal supplements of lines and frames of various kinds will certainly ease the presentation and its deciphering significantly.

CATEGORY THEORY IS THE APPROPRIATE MATHEMATICS FOR MODELLING AND INVESTIGATING DIAGRAMS

If diagrams in general prove useful material for modelling and investigating relations in an immanent manner, how should the formal workings of diagrams themselves be modelled and investigated? The third thesis asserts that categories in the sense of the mathematics of category theory may serve as a rigorous and theoretically rich platform for treating diagrammatic relations as such. Mathematical categories may be understood roughly as systems of relations that organise objects of a given type, the characteristics of such objects being determined (from the perspective of the given category) solely in terms of their concomitant system of relations. There is thus a naturally 'pragmatic' epistemology intrinsic to categories: from the standpoint of category theory objects are investigated and known only via their interactions with other objects, not 'in themselves'. The space of possible maps from one object to another determines what can be known of those objects as such. Over the past several decades, category theory has proven extraordinarily successful in unifying diverse fields of mathematics and providing a less arbitrary and more productive foundation for mathematics than set theory. Because of its intrinsic orientation towards relations, it connects more readily and with fewer idealist assumptions than set theory to the real world and its component structures.

Of course category theory did not spring Athena-like from the head of Zeus as a fully-developed autonomous branch and potentially revolutionary foundation for mathematics. Rather, it emerged initially in a quiet, germ-like and natural way within the field of algebraic topology. In 1945, Samuel Eilenberg and Saunders Mac Lane published the long article 'General Theory of Natural Equivalences' which first introduced what would become the basic elements of category theory, including the mappings specific to categories, functors and natural transformations, in the context of homotopies. Later, with the explicit introduction of adjoint functors by Kan in the 1950s and then especially with the formulations of topoi by Grothendieck, Lawvere and Tierney, among others, category theory began to take on the character of an autonomous mathematical discipline involving its own internally formulated problems and research programmes. Since the turn of the millennium, category theory has advanced rapidly with the study of n-categories and with diverse ramifications throughout mathematics as well as in logic, computer science, physics and other sciences. It has strongly impacted the recent and highly promising development of homotopy type theory.

Category theory itself makes extensive use of diagrams as a rigorous formal notation for expressing statements and demonstrating proofs. With these categorical diagrams come new mathematical practices, in particular the notational *habitus* of 'diagram-chasing'. In the present book the aim is to elicit the emergence of category theory and its indigenous diagrammatic notation in a somewhat different fashion, beginning from within the Spinozist metaphysics of affective relations. What is most interesting from this perspective is how diagrammatic expression comes equipped with its own naturally ordered degrees of rigour and intuitive, explanatory power. It is the capacity of diagrams to tend smoothly towards their increasingly rigorous formulation

and to deform when necessary into more practical and experimental tools that makes them especially important here. There is a pedagogical and communicative dimension to how diagrams work that is both distinct from and yet correlative to their efficiency as a mathematical formalism within the theory of categories.

What do diagrammatic methods derived from category theory have to offer philosophy? One background assumption of the present book is that the global practice of philosophy is enlivened by institutional and methodological pluralism. In philosophy as elsewhere, monocultural dynamics are often contrary to adaptability and tend to sterility. The introduction of new methods in philosophy not only might facilitate solving old problems, it may also help to bring into focus the often unseen presuppositions and limits built into more established and familiar methods. In philosophy, language (both oral and written) has achieved such dominance as the basic tool of thought that it is often assumed without question that philosophy is and always has been nothing more than a species of linguistic practice (perhaps in more recent times supplemented with some elementary logical tools). Yet the history of philosophy provides many examples of diverse non-linguistic philosophical practices, from the visualisation exercises and theurgic rituals of ancient philosophers, to the pictorial art of memory carried from antiquity through to the early modern period, or the alchemical experiments of the Renaissance.[2] As already suggested, one key theoretical problem to which the present book responds is that of the conflictual if not contradictory relation between the traditional linguistic-discursive form of philosophy on the one hand and the drive to metaphysical immanence and its formal expression on the other. Breaking out of language's panopticon in one way or another has been on the philosophical agenda for quite some time, but this aim

has taken on a certain intellectual and increasingly institutional urgency in the wake of the somewhat narrow-minded 'linguistic turn' that established itself as the hegemonic form of Anglophone philosophy in the previous century and in many ways still holds sway. A resurgence of interest in speculative and formal metaphysics and a variety of broadly pragmatist programmes arriving from different quarters are healthy and enlivening signs on the contemporary philosophical scene. This book follows along both these currents and looks to their confluence. Category theory offers a versatile collection of formal tools for accomplishing this.

The presentation of the main text alternates between chapters focusing on philosophical concepts and chapters introducing formal methods in the mathematics of category theory enabling these concepts to be brought into the unity of a systematic theory. The argument thus proceeds in a zigzag fashion. Chapters devoted to the distinct conceptualisations of immanence in Spinoza, Peirce and Deleuze alternate with chapters introducing and developing the fundamental objects and operations of category theory. Conceptual motivations arise in each of the philosophical chapters for the specific formal instruments elaborated in the subsequent mathematical ones. Diagrams appear throughout but are especially prevalent in the chapters on categories. If the overall plan is successful, the zigzag presentation should function as a kind of zipper aligning and locking together the conceptual, methodological and mathematical notions at issue. Thus, the back-and-forth motion between odd and even numbered chapters ought to be understood as implying or inducing a virtual synthesis – the real object of the book – running parallel between its otherwise at least seemingly independent philosophical and mathematical trajectories. This synthesis itself is the concept of 'diagrammatic immanence'.

This seems to be the appropriate place to signal some

background and collateral connections that for reasons of space and smoothness of presentation did not always find their way explicitly into the body of the text. They represent multiple open lines of research linked to the present proposal and together sketch out a certain theoretical milieu in which it is probably most fittingly situated. On the philosophical side, besides the main trio of Spinoza, Peirce and Deleuze, the theoretical background that has shaped the present work comes on the one hand from a mostly French cohort: Albert Lautman, Jean Cavaillès, Gilbert Simondon, Alain Badiou and Fernando Zalamea, and on the other from a group of more analytically oriented Anglophone philosophers: Timothy Williamson, Theodore Sider, Graham Priest, Robert Brandon and Stewart Shapiro.[3] On the more methodological side, the study and use of diagrams as a viable philosophical notation has long possessed a relatively minor and subterranean status in the fields of logic and the philosophy of logic. Nonetheless, the literature on diagrammatic logic and diagrammatic reasoning is far more extensive than may be outlined here in even a cursory way, and it is quickly growing. Several sources, however, stand out as especially relevant to the approach pursued here. I would like to mention John Mullarkey's *Post-Continental Philosophy*, the writings of Gilles Châtelet, the Peircean studies of Frederik Stjernfelt and the work of Franck Jedrzejewski.[4] Other central works in the literature on Peirce's diagrams in particular are indicated in the notes to Chapters 3 and 4. Finally, the mathematical literature on category theory is vast and fruitfully multiplying at an astonishing rate.[5] Besides the ocean of technical work in category theory itself and in various specialised branches of mathematics, logic and computer science, there is a nascent subliterature of category theory oriented especially to the employment of category theoretical methods in the physical sciences that is particularly relevant to the approach pursued here. Among others, the work of

Ellis Cooper, Michael Epperson and Elias Zafiris, and David Spivak should be highlighted.[6] This work has deep and largely unexplored connections with a variety of contemporary proposals in metaphysics and philosophy of science, such as those of structural realism and scale-free systems analysis, in the work of Steven French and Mariam Thalos, as well as links to systems-theoretical work in the social sciences like that of Niklas Luhmann.[7]

It is important to be clear on two things that will *not* be found herein. First of all, there cannot be anything approaching full and comprehensive presentations of the philosophical systems articulated by Spinoza, Peirce and Deleuze respectively. I am treading among the footsteps of giants and must forfeit any claim to completeness when mapping the territory. By the same token, there is no attempt made here to forge some sort of global synthesis or unified narrative of the three thinkers. It is no claim of this book that these three philosophers are somehow 'saying the same thing' or are 'part of one story', only that they have something structural in common: immanence – which may yet become fully diagrammatic. It is impossible to give all the necessary introductory background on their respective systems: the reader is assumed to be somewhat philosophically informed. More importantly, the reader is asked to advance through the text in an active and abductive mode, forming and testing hypotheses, sketching and experimenting on diagrams, and sprinkling grains of salt when appropriate. Despite the above formulation of 'theses', I am not especially concerned to elicit anyone's philosophical conviction in particular philosophical views or textual interpretations, but rather to advocate for a novel approach to some important traditional questions and to enable the construction of new and possibly more interesting problems via diagrammatic techniques and category-theoretic mathematics. It is more a matter here of forging useful philosophical tools than of

trying to win academic disputes.

Secondly, this is not and should not be a mathematics textbook. The presentation of category theory in Chapters 2, 4 and 6 is selective (which is to say, fragmented and incomplete); accessible (that is, oriented towards intuitive insight rather than formal proof); and tendentious (namely, looking to philosophical and not primarily mathematical or scientific application). Curious mathematicians who might find material of interest here should keep in mind that the book is written not for them but explicitly for the intelligent *non*-mathematician. That said, I have made every effort to balance clarity and rigour within the rather severe restrictions inherent to the project as a whole. Readers with little or no mathematical training yet in possession of a basic philosophical fluency in conceptual operations of abstraction, generalisation, hypostasisation and logical inference should be capable of tracking the progressively determined mathematical constructions from the most basic (order-structures and functions) to the fairly sophisticated (adjoint functors, presheaf categories and topoi) without the need for external supplementation or undue hair-pulling. In this respect, from a purely mathematical standpoint the even numbered chapters may be seen as an unusual and truly introductory hybrid approach – partly intuitive and partly formal – to the otherwise thoroughly abstract realm of mathematical categories. If the latter only come to be understood at best in their broad conceptual outlines, that will count as an unmitigated success from the present standpoint.[8]

A brief note on terminology: I bow to standard usage and treat the adjective form of category as 'categorical'. This has nothing to do with the more familiar philosophical and logical notions of, for example, 'categorical' statements, syllogisms or imperatives. I cannot, however, bear the lexical monstrosity of 'toposes' and instead call topoi 'topoi'. Generally in the text when traditional

variables are used, categorical objects (dots) are represented by capital letters (X, Y, Z), categorical arrows by italicised lower case letters (*f, g, h*), categories themselves by boldface capitals (**C, D**) and functors by italicised capitals (*F, G*). Any deviation from these protocols should be quite clear from the context.

The chapter by chapter organisation is as follows. Chapter 1 elaborates a series of themes in Spinoza's *Ethics* flowing from its central assertion of a metaphysics of immanence: the rhetoric and ethics involved in the geometrical method of presentation, the doctrine of relational individuation, the epistemological consequences of Spinoza's affective understanding of language, and finally the consolidation of these issues in Spinoza's concept of the 'third kind of knowledge'. What emerges from this sequence is a unified approach to interpreting Spinoza's immanent metaphysics through the concept of diagrammatic relations. For Spinoza, individuals are determined by regularities of relations among the parts that compose them, yet at the same time Spinoza's ontology of the affects entails that individuals are determined essentially by what they can do and what can be done to or with them. Conceiving such relations as diagrammatically structured is to understand them as existing concretely and as being structured nonetheless according to the possible ways they may affect and be affected by others. Such a diagrammatic interpretation of Spinoza presents an ontologically univocal and yet essentially relational and pragmatic conception of entities.

Chapter 2 shifts to more purely methodological terrain. How, if the general relational immanence proposed by Spinoza's *Ethics* is in fact true, should cognitive projects of all sorts, including philosophy, be most intelligently and effectively pursued? This chapter introduces the basics of category theory in view of the broader proposal that this branch of mathematics has key philosophical significance, especially for conceptualising

immanence. In effect, the analysis of Spinoza in Chapter 1 in terms of diagrammatic relations is translated here into the basic conceptual and formal framework of categories. The presentation proceeds through several intuitive mathematical structures – directed graphs, partial orders and functions – as a way to lead smoothly into the fundamental concepts of categories and functors.

Chapter 3 turns back from mathematics to philosophy and examines Peirce's semiotic conception of triadic relations, a conception which is at once metaphysical, ethical and epistemological. Most importantly, Peirce's semiotics enables a continuity to be thought between forms of practice and types of signs. In contrast to the dyadic Saussurean sign, from Peirce's point of view signs are patterns of practical relations themselves and are thus correctly modelled by triadic and not dyadic relations. In this way, a general ontological framework of pragmatic relations as signs works to support and helps to clarify Spinoza's doctrine of relational individuation. The shared framework is one in which relations (both 'internal', that is, those constitutive of individuals, and 'external', namely those through which individuals affect one another) take both logical and ontological priority over the terms they relate. The core division of Peirce's semiotics into three kinds of sign – icon, index and symbol – becomes in this light a means for treating immanent ontological relations among entities as essentially variable forms of signification. On the basis of Peirce's semiotics, a constructive theory of diagrams is then outlined coordinating three phases of selection, experimentation and evaluation.

Chapter 4 continues the methodological line begun in Chapter 2 and extends the technology of diagrammatic and categorical mappings from arrows within categories and functors between categories to natural transformations between functors. In both

Spinoza and Peirce, the problems of representation and signification under conditions of immanence appeared as especially salient. The category-theoretical framework continued in this chapter begins to address these strictly philosophical problems from a purely formal standpoint in which the difference between 'internal' and 'external' categorical determinations serves as a basis for reconceiving the internal and external relations of entities understood as diagrammatically structured. The key insight is a continuation and extension of that begun in Chapter 2, namely that within the framework of category theory categories themselves may appear as objects with well-defined systems of relations to one another via functors. Such systems of relational objects and meta-relations among them can constitute categories in their own right. This formal 'flattening' of meta-systems and meta-relations back onto the systems and relations they relate is in this chapter lifted to the level of functors themselves: whereas functors in category theory are essentially mappings between categories, natural transformations are structure-preserving mappings between functors (mappings between mappings). Taken together, they form categories of functors, or functor categories. With this notion in hand and after introducing the important categorical concept of presheaves, it then becomes possible to define presheaf categories as a species of functor category. These are then used to construct a categorical theory of diagrammatic signs based on presheaves. This categorical theory is closely linked to the earlier presentation of diagrams in terms of Peirce's semiotics, and a concise example of how the theory works is provided drawn from Peirce's logical notation of Existential Graphs.

Chapter 5 introduces the problematic of creative difference into the concept of diagrammatic immanence, linking the insights of Deleuzian philosophy to the issues previously raised by Spinoza

and Peirce. This chapter shows in particular how Deleuze's reading of Spinoza connects up with the central theses of *Difference and Repetition* and *The Logic of Sense* in such a way that the dominance of the cognitive ego is displaced in favour of a diagrammatic conception of mobile and collective sign-systems oriented towards relational construction. In particular, this applies to the actors and traditions within philosophy itself. The sense of philosophy (according to the Deleuzian conception of sense as expressive virtuality) must be mapped directly onto the immanence it proclaims, thus raising a series of questions concerning the role of the 'Non-' or Other in Deleuze's thought with respect to which philosophy itself learns to become.

Chapter 6 continues the line of formalisation developed through Chapters 2 and 4. It examines two higher-order categorical concepts with deep connections to logic: adjunctions and topoi, and links these to the important and far-ranging logical difference between Boolean and Heyting algebras. Taken together, these formal constructions provide the subtle and delicate necessary tools for further immanent philosophical investigation of the world of diagrammatic signs.

Notes

1. Bertrand Russell, *Introduction to Mathematical Philosophy*, p. 146.
2. For some examples of such practices, see Pierre Hadot, *Philosophy as a Way of Life* and Frances Yates, *The Art of Memory.* These two texts, both of which examine past philosophical practices far removed from the philosophical mainstream today, should be understood as constantly present in the ensuing proposal as a kind of subterranean historical reference.
3. For representative works, see Albert Lautman, *Mathematics, Ideas, and the Physical Real*; Jean Cavaillès, 'On Logic and the Theory of Science'; Gilbert Simondon, *L'individuation à la lumière des notions de forme et d'information*; Alain Badiou, *Being and Event* and *Logics of Worlds*;

Fernando Zalamea, *Synthetic Philosophy of Contemporary Mathematics*; Timothy Williamson, *Modal Logic as Metaphysics*; Theodore Sider, *Writing the Book of the World*; Graham Priest, *Beyond the Limits of Thought*; Robert Brandom, *Between Saying and Doing*; and Stewart Shapiro, *Philosophy of Mathematics.*

4. John Mullarkey, *Post-Continental Philosophy*, especially ch. 5; Gilles Châtelet, *Figuring Space: Philosophy, Mathematics and Physics* and 'Interlacing the Singularity, the Diagram and the Metaphor'; Frederik Stjernfelt, *Diagrammatology* and *Natural Propositions*; and Franck Jedrzejewski, *Ontologie des Catégories.*

5. The best beginner's introduction to category theory is William Lawvere and Stephen Schanuel, *Conceptual Mathematics.* Saunders Mac Lane, *Categories for the Working Mathematician* is a standard reference in the field. Highly recommended for readers with some basic mathematical training is Steve Awodey, *Category Theory.* My own admittedly informal 'diagrams-only' approach is greatly indebted to Peter Freyd's quite technical and still largely underappreciated work. See Peter Freyd and Andrej Scedrov, *Categories, Allegories.*

6. Ellis Cooper, *Mathematical Mechanics*; Michael Epperson and Elias Zafiris, *Foundations of Relational Realism*; and David Spivak, *Category Theory for the Sciences.*

7. See Steven French, *The Structure of the World*; Mariam Thalos, *Without Hierarchy;* Niklas Luhmann, *Social Systems.*

8. In particular, I have prescinded from tedious set-theoretical concerns with size and thus with the largely artificial distinction between concrete and abstract categories. These issues, while certainly important mathematically, are philosophically irrelevant and even misleading at an introductory level and for present purposes. In general, highly technical issues and exceptions are passed over in silence. Diderot dreamt of strangling the world's last king with the intestines of the last clergy. With somewhat less violence we may nonetheless similarly invite both lazy hand-waving thinkers and nit-picky pedants to gather together in an adjacent, sound-proofed room, where they will no doubt rage quite justly at one another.

Spinoza and Relational Immanence

> The more we understand singular things, the more we understand God.
>
> Spinoza, *Ethics* Vp24

A distinctive feature of Spinoza's thought is that it rejects any explanatory mechanisms grounded in mystery or *de jure* unknowability, in particular any explanatory criteria of experience and knowledge that would rely on 'objects' external to the mind. While Spinoza concedes that 'a true idea must agree with its object', he understands philosophical explanation to be grounded properly not in truth but in *adequacy*: 'By adequate idea I understand an idea which, insofar as it is considered in itself, without relation to an object, has all the properties, *or* intrinsic denominations of a true idea.'[1] From a Spinozist point of view, then, empiricism in anything like the Lockean style is a philosophical non-starter. For Spinoza, it will never be sufficient to rest any explanation of experience, knowledge or power on the sheer fact that it is given. No doubt one always begins with what is given, but on Spinoza's terms philosophy fails to think adequately if the given functions for it as an answer and not solely as a relative starting-point. Thought itself is a transitive activity and a continuous process, and so beginnings are as such exterior to thought. Because for a philosophy of immanence nothing can be absolutely exterior to thought, such thinking cannot countenance absolute beginnings. Among other reasons this is why the undivided term 'God, or Nature' in Spinoza must be understood not as a foundation or ultimate principle but rather as an

incontrovertible milieu: real immanence.

If certainly no Lockean empiricist, Spinoza does seem to be grouped readily among the early modern 'rationalists'. And sure enough, Spinoza shares with Descartes and Leibniz a resolute willingness to blur if not entirely efface the distinction of logic – and mathematics – from metaphysics. For reason as such, conceptual and formal relations, not the experiential contents of the senses, are eminently knowable. Hence metaphysics as the rational science of reality's ultimate structure is feasible. Yet unlike Descartes and Leibniz, Spinoza makes no important contributions to mathematics and indeed demonstrates no exceptional aptitude in that arena. Perhaps this is because in Spinoza the deductive character of mathematics is immediately ontologised. There is no separable context in Spinoza's metaphysics for positing merely abstract entities like forms or numbers that would serve as the proper regional domain of deductive structure. For Spinoza rational deductive structure simply and immediately is what is. Metaphysics directly implicates ontology, without remainder.

Moreover, in both Descartes and Leibniz space is reserved for the decisive mystery of the will. In Descartes – Augustinian and Pelagian by turns – the human will's arbitrary power raises human beings almost to godlike status (it is the only thing infinite in us, other than the idea of God). And in Leibniz the will accounts for the single divine choice of which among the merely possible worlds to actualise in fact. Yet Spinoza rejects both human and divine will as philosophically explanatory. Among at least these three, then, it is only Spinoza who articulates a genuinely thoroughgoing rationalism, that is, a deductive determinism excluding any real power attributable to the will. In this respect, Spinoza appears to be aligned with the strict necessitarian materialism of such seventeenth-century thinkers as Hobbes and

Gassendi, although the Spinozist God remains equally irreducible to causal mechanics. Mechanical causation, while certainly exhibiting necessity, still remains a form of exterior determination and does not attain the more radical necessity of immanence. In any case, as compared with Descartes and Leibniz it is Spinoza alone among the 'rationalists' who has the courage to equate the belief in an arbitrary power of wilful decision with the objective stupidity of a rock that once thrown thinks it has chosen so. For Spinoza only a mind that has failed to think things through adequately would identify true liberty with mere individual choice.

In opposition to such voluntarist conceptions of human action, Spinoza rejects any conception of mind that holds will and intellect separate, thus allowing for discontinuity between *what* is understood and *whether and how* one affirms or denies its truth. In contrast to the Cartesian and Sceptic-Academic distinction of perception from judgement, for instance, Spinoza asserts in Part Two of the *Ethics* that '[i]n the mind there is no volition, *or* affirmation and negation, except that which the idea involves insofar as it is an idea'.[2] One major difference between Spinoza and Descartes is found then in the conception of the self implied by this unity of will and intellect. By identifying will and intellect Spinoza rejects the Cartesian egoic conception in which the self or subject is able to stand removed from the objects of its regard and to judge or know them in relative freedom. In Spinoza's conception, human beings are not sites of subjective transcendence but rather immanent parts of nature. In his preface to Part Three, Spinoza writes:

> Most of those who have written about the affects, and men's way of living, seem to treat, not of natural things, which follow the common laws of Nature, but of things which are outside Nature. Indeed they seem to conceive man in Nature as a dominion within a dominion [*imperium in imperio*]. For they believe that man disturbs, rather than follows, the order of Nature, that he has absolute power

over his actions, and that he is determined only by himself.[3]

The geometrical order of the *Ethics*, to which we will return,serves in this way as a metaphor for Spinoza's theory of mind.[4] The mind in its everyday functioning is like an ambiguous demonstration cut off in part from the axioms and theorems that support it. Reasonable thinking and reasonable life, on the contrary, are like coherent demonstrations, explicit truths, consistent integrations of principles, contexts and consequences.

On this basis Spinoza's deep mistrust of natural language becomes intelligible. He dismisses what he calls the 'first kind of knowledge', or 'knowledge through signs', because he understands such signs to be merely arbitrary connections between certain sounds or combinations of letters and pseudo-concepts or 'picture-thoughts' in the imagination. Words for Spinoza are little more than historical sedimentations of the same human puffery that asserts the will's power to choose. The very conventionality of natural language damns it philosophically. Like Wittgenstein two and a half centuries later, Spinoza will think with maximum caution in face of 'the bewitchment of our intelligence by means of language'.[5] And at least like the Wittgenstein of the *Tractatus*, Spinoza aims to remedy the inevitable falsifications and inadequacies of natural language with a formal presentation and a formal understanding. For Spinoza such formally adequate modes of thinking are embodied directly in the 'geometrical method' of the *Ethics*.

Gone with dependence on human words in order to think is any need among canons of philosophical explanation for external 'reasons to be' in Spinoza. The single, absolutely infinite network of immanent causation replaces the traditional reliance on (and shuttling between) efficient and final causality. Unlike every theologised or crypto-theologised demand for causal sequences to end their chain in divine creative *fiat* or spontaneous eventful

upsurge, Spinoza's philosophy takes existence plainly to be the default of essence.[6] The irony is that only such a thoroughgoing rationalism opens thought to immersion in a rose-like Real that is *absolutely* 'without why'.[7]

Thus we come to the core of Spinoza's immanent metaphysics. For Spinoza Nature (or God, since they are the same thing and words do not matter) is not only infinite, but *absolutely* infinite: 'By God I understand a being absolutely infinite, that is, a substance consisting of an infinity of attributes, of which each one expresses an eternal and infinite essence.'[8] It follows that all negations and limits within being can only be local and selective. The import of Spinoza's alltoo-misunderstood remark *omnis determinatio est negatio* is not at all the reality and ubiquity of negation but rather the ultimate unreality of any final or absolute determination.[9] There are no absolute cuts between one thing and the next in Spinoza's metaphysics, only more or less attenuated relations corresponding to variable degrees of commonality. Such relations (the affects and common natures) are themselves *constitutive* of higher-order entities, in such manner that the boundary between *relatum* and *relatio* is always at best localised and relatively unstable. To put it in more Spinozist terminology, the clear conceptual and systematic distinction between modes of substance on the one hand and the affects and common natures that structure these on the other does not in fact differentiate two separate real types of being but rather provides complementary perspectives on infinite substantial expression itself. What is, is expressed as structure. Ontology is just local metaphysics.

To develop the reading just sketched, this chapter begins by reviewing the overall structure of the *Ethics* and examining the role of unity and relations within it. It then turns to the geometrical order of the text and shows how this method of presentation raises unique interpretive issues for treating the

Ethics as an ethics, that is, as a guide to praxis. These same issues arise in a transposed form in the problem of modal individuation and are partly resolved there. When the Spinozist account of individuation is in turn applied to language, a thoroughly affective theory of linguistic representation comes to light, indicating how the powers inherent to language express only a limited region of the potentials of thought. Finally, this sequence concludes by considering the role of the third kind of knowledge, traditionally one of Spinoza's most contentious notions, in light of the preceding analyses, and proposing a pragmatic and implicitly diagrammatic interpretation of this singular conception of thought's power.

UNITY AND RELATIONS IN SPINOZA'S *ETHICS*

It will be helpful first to review the main outlines of Spinoza's text. As indicated by its full Latin title – *Ethica Ordine Geometrico demonstrata, et In quinque Partes distincta* – Spinoza's *Ethics* is articulated in five main segments, or parts.[10] Two interpretive tasks follow from this division: (1) following the transitions and developments from one part to the next; and (2) understanding the five-part series as a whole in the unity of its sense.

Part One – 'Of God [*De DEO*]'[11] – presents the most general features of Spinoza's metaphysics: the unity of substance, the infinite attributes, and the modifications, or modes of those attributes. These three terms – substance, attribute and mode – become the basic metaphysical framework for Spinoza's ensuing discussions. In a concentrated series of propositions and demonstrations Spinoza quickly establishes the existence and unity of a single substance – God, or Nature – in which all things exist.[12] From the essence of this single substance necessarily 'follow infinitely many things in infinitely many modes [...]'.[13] Spinoza argues at length that all things are as they are through the

necessary consequences of the divine nature – the primary emphasis throughout is on causal order and necessity: 'Things could have been produced by God in no other way, and in no other order than they have been produced.'[14]

The passage from Part One to Part Two, 'Of the Nature and Origin of the Mind [*De Natura & Origine MENTIS*]', marks a specification within this all-encompassing field of a domain with particular relevance for human beings. Among the infinite attributes of the one substance, Spinoza examines the two of which human beings consist as singular modes – thought and extension. Spinoza begins Part Two with God's power of thinking and concludes as in Part One with an affirmation of necessity as the identity of will and intellect.[15] Yet in distinction from Part One, Spinoza here emphasises 'how much knowledge of this doctrine is to our advantage in life'.[16]

The hinge that both separates and links Part Two with Part Three is a shift from the more general and static discussion of ideas and bodies in Part Two towards a consideration of their interactive affects, their ways of affecting and being affected by one another.[17] Part Three is entitled 'The Origin and Nature of the Affects [*De Origine & Natura AFFECTUUM*]', that is, the relational actions and passions of bodies (and their corresponding ideas). Here Spinoza outlines the dynamics of the affects and specifies a number of increasingly complex and differentiated human affects arising from the 'primary' trio of desire, joy and sadness and including such familiar emotions as love, hate, devotion, hope and fear, gladness, remorse, pity and gratitude.[18]

In passing from Part Three to Part Four the dominant note of Spinoza's text shifts from description to prescription. The theme of Part Four is 'Of Human Bondage, *or* the Powers of the Affects [*De SERVITUTE Humana, seu de AFFECTUUM VIRIBUS*].' Thus the main subject of Part Three, the affects, continues, but here in relation to

the 'desire to form an idea of man, as a model of human nature which we may look to' in order to understand the negative consequences of the affects' powers over us.[19]

Ethical prescription also motivates Part Five, 'Of the Power of the Intellect, *or* on Human Freedom [*De POTENTIA INTELLECTUS, seu de LIBERTATE Humana*].' The respective titles of the two final parts thus signal how the movement from Part Four to Part Five is expressed through a pair of coordinated transitions: an analytic shift from affective to intellective power and an emancipatory movement from bondage to freedom. In Part Five the theme of God's unity from Part One returns in the form of the 'idea of God' to which singular ideas are necessarily referred in the 'intellectual love of God'.[20] In this there appears a key to understanding not just the series of steps from one part to the next but the immanent unity of the series itself.

Throughout the text, Spinoza's immanent metaphysics (developed most fully, it should be noted, in a book entitled *Ethica*) emphasises unity, particularly the unity of God and Nature in Part One and the unity of body and mind (the identity of extended and thinking modes, in Spinoza's terminology) in Part Two. The very form of these 'unities' raises particular problems for interpreting Spinoza's thought. The terms in which Spinoza presents them are not unique to Spinoza, of course, but are in each case inherited from tradition, whether theological or philosophical, ancient or contemporary. His novel account of immanence is thus cobbled from diversely given materials, and the account itself consists primarily in how these materials themselves are conceptually transformed by being syntactically rearranged.[21] This occurs at each of the three primary levels of Spinoza's theoretical apparatus – substance, attribute and modes – and the problem of formal unity and relational difference manifests itself differently at each level.

At the level of substance, as we have seen, Spinoza affirms the unity of a single substance. Spinoza inherits the question of unity at this level especially from medieval Jewish and Muslim theologians, for whom God's unity is a primary subject for thought and the relationship between God and the created universe is an important and contentious theme.[22] In treating this traditional theme, Spinoza breaks with traditional interpretations of God's transcendence by identifying the terms God and Nature together in the concept of one universal *substance*, which he defines as 'what is in itself and is conceived through itself, that is, that whose concept does not require the concept of another thing, from which it must be formed'.[23] This single substance, itself alone 'absolutely infinite' and from which 'must follow infinitely many things in infinitely many modes', may be designated equally well in Spinoza's view as *Deus* or *Natura*, God or Nature.[24] This substance is one, or unity in an ultimate, almost Parmenidean sense.

At the level of the attributes, the problem of unity appears primarily as the relation or identity of the two attributes in which human being is involved, those of thought and extension.[25] Like the unity of God and Nature, the question of the essence of the relationship here is also a problem Spinoza inherits from tradition. In this case, however, it is the newly established Cartesian tradition that Spinoza inherits and whose disjunct terms he sets in parallel order. More broadly still, the problem appears at this level in the distinctions among all the attributes in their infinite diversity, since for Spinoza there are an infinite number of attributes, not only those of thought and extension. As the relation between this level and the preceding one, the problem of unity appears also with regard to the metaphysical distinction between substance and attributes themselves.[26] The attributes are many, yet the unity they share and express is the unity of substance.

Finally, the problem of unity comes into play equally at the level

of individual modes (singular bodies and the ideas, or minds, of those bodies).[27] This is expressed first of all in Spinoza's identification of ideas and bodies. In contrast to the Cartesian distinction of thinking and extended substances (minds and bodies), Spinoza identifies ideas and bodies as expressions of one and the same mode of substance under distinct attributes. Here too the unity of and relation between the levels of substance and modes becomes an issue. The modes are individuated unities, yet they are plural and relational in essence. Still, they are modes *of* one substance. But in what sense?

This problem of formal unity arises for substance, attributes and modes in distinct ways, yet extending across and linking these three levels of Spinoza's theoretical framework is the question of *ethical practice.* Spinoza's metaphysics implies and expresses an ethics. Spinoza's *Ethics* is in fact an ethics in precisely the sense that its primary bearing is upon how one lives and acts. To this extent the philosophical problem of unity is expressed primarily as a problem of *practical relation*, first of all as the signifying relation between Spinoza's text and the possible contexts of its reading or use. It is clear especially in the contrast between Parts Three and Four on the one hand and Part Five on the other that *reason* is Spinoza's answer to the question of how one should live if one is to be free. Reason is itself the passage from the bondage of passion to the freedom of action, from the external power of the affects to the power of human freedom. Reduced to its most basic formulation, Spinoza's answer appears much like the answer given by the ancient Stoics: one's life should be lived in accordance with reason. From an ethical perspective, rationality is only secondarily a means of knowledge. Primarily, reason is a mode of conduct. In other words, reason itself for Spinoza is a form of practical relation. As essentially practical, reason enacts and produces the unity of part with part and of part with whole, and in this way

reason expresses unity not because it subsumes a diversity of themes under a common theoretical form, but because it involves a relational way of being that is one of *agreement* (*convenire*).[28]

At stake is the distinction and relation internal to any ethical text between its theoretical meaning and its practical programme. On the one hand, there are the various logical and conceptual relations that constitute the systematic structure of the *Ethics.* On the other hand, there are the various relations of bodies, ideas and whatever else there may be that constitute the actual world itself (regardless of whether one accepts the premises and conclusions of Spinoza's metaphysics). Readers of the *Ethics* are inevitably caught up in these concrete worldly relations in myriad ways, and any interpretive strategy that would take the *Ethics* as a practical guide for action is faced with the task of outlining possible relations of agreement between the internal system of the *Ethics* and the wider and more complex world of human activity to which that text's meaning is addressed. The problem expressed here is, more generally, that of *signification* for ethics: how does one indicate, model or describe modes of practical relation in a way that facilitates effective translation into unforeseen contexts? In particular, how does one accommodate a discourse of ethical prescription within the framework of a necessitarian and thoroughly rationalist metaphysics? If there is a mystery in Spinoza, it is not the mystery of the cosmic or trans-cosmic All. It is the mystery of the mystery: how can there be (the illusion of) separation, mutilation or fragmentation of beings at all? Without a gap or crack between what is and what ought to be, why should there be an *Ethics* in the first place? What is a primer in immanence *for*?

The problem of practical relation as it appears in Spinoza's *Ethics* may be clarified by way of an analogy drawn from the mathematics of Spinoza's own day. Descartes' *Geometry*, published

in the generation just prior to Spinoza's intellectual maturity, first established modern analytic geometry as the mapping of algebraic relations between real numbers onto geometrical relations between lines and figures in a Euclidean plane.[29] In Descartes' text, '*l'unité*' serves a central terminological and methodological role. 'Unity' represents the arbitrary choice of a fixed geometrical magnitude, 'one line', as Descartes writes, 'which I shall call unity [*que je nommeray l'unité*] in order to relate it as closely as possible to numbers'.[30] Once chosen, this unique magnitude (corresponding to the quantity 1) stands in fixed proportion to all other possible finite magnitudes in a Euclidean space. Since relations between the parts of geometrical figures may at every point be expressed or measured by the construction of lines, that is, magnitudes, it becomes possible on this basis to express geometrical relationships in terms of relations of numbers. This transformation of geometrical form into numerical proportion thus enables the rigorous, isomorphic translation of geometry into algebra. Establishing the conditions of possibility for such translation constitutes one side of Descartes' methodology; the other consists in using the established relation to then solve specific problems.[31]

How does Descartes' method work? To make Cartesian analytic geometry feasible, one must first designate an arbitrarily long, finite, continuous line segment as corresponding to the discrete quantity 'one' (or unity). It then becomes possible to express infinitely many (Euclidean) geometrical relations as corresponding uniquely to definite mathematical (numerical/algebraic) relations and vice versa. Thus Descartes' method institutes and enables a far-reaching and systematic correspondence – algebra to geometry – by first establishing a single, minimal correlation, the number one to the length of a chosen line segment.[32] The large-scale correspondence of algebraic and geometric relations does not proceed tautologically of itself (no point, no line is in itself a

number), but is rather constituted hypothetically by the choice of a determinate 'unity'. To call such a choice hypothetical is not to question its validity (which can be demonstrated clearly to anyone who examines its results or effects), but only to emphasise its original contingency. It is to recognise that while its logical modality is not itself that of necessity, precisely *this particular kind of choice* does necessarily make a large-scale, rigorously demonstrable one-to-one correspondence of algebraic and geometrical relations possible. While in a certain sense it does not matter *which* definite magnitude is chosen as 'unity', the very possibility of analytic geometry as a mathematical science depends on the choice of *some such* definite magnitude. We may thus distinguish the relative necessity *that* a singular magnitude be chosen (for the definite purpose of establishing a correlation of algebra and geometry) from the relative indifference of *what* magnitude is in fact actually chosen.

The form of discursive presentation in Spinoza's *Ethics* may be understood as analogous to the relation-forming function of 'unity' in Descartes' *Geometry.* In reading the *Ethics*, practice is the mode of interpretation that translates text to context. Yet in relating the ideas expressed in the axiomatic system of the *Ethics* to the complex fields of worldly experience, a 'unity' has to be established bringing these systems of different kind into relation. A common term needs to be posited to make them commensurate. The discursive form of the *Ethics* offers itself as a *model* for this common term, but it is only interpretive practice itself that is able to play the role concretely.

According to the theoretical framework of Spinoza's *Ethics*, the very relation between the two orders – the textual and the worldly – must be understood from within the perspective of an immanent metaphysics. So what 'unity' would suffice to relate text and context? In Part One of the *Ethics* Spinoza shows how certain

traditional arguments against attributing corporeality to God proceed 'from the fact that they suppose an infinite quantity to be measurable and composed of finite parts'.[33] In line with Spinoza's implied position here, any finite unity would thereby be insufficient to make the absolute infinity of a single substance proportional to any finite part of itself. Required instead would be an infinitely developmental form of relation, a relational process or method able to test and correct itself without limit rather than a static identity relating text and application according to a uniform model. Rather than answering the question who or what provides the unity of practice in Spinoza's *Ethics*, we must instead ask *how the unity functions* according to these criteria. The unity bridging text and context, theory and practice for Spinoza must itself be relational in an at least potentially infinite manner.

Descartes' analytic geometry enabled the rigorous translation of algebraic and geometric relations on the basis of a posited 'unity' of linear magnitude. For Descartes' method the positing of the choice is necessary but the particular choice made remains indifferent. Yet if we follow the line of thought from the analogy above, we must note that the reader of Spinoza's *Ethics* already finds him or herself immersed in a field of cultural, social, political and linguistic particularity, engaged in specific projects and constituted as an individual personality involved in concrete relations. The 'unity' relating text and context is already at least partially given in principle as the set of habitual practices in which any reader of the *Ethics* is already engaged. Yet in its general applicability, the *Ethics* cannot speak to its readers in their concrete singularity but must offer whatever ideas and practices it enfolds in a single, unified way to a general audience.[34] Whatever relation the *Ethics* means to establish between text and context must be expressed in the work's own communicative form. The text of the *Ethics* anticipates and addresses this necessity by

casting its themes and arguments according to a particular form of abstraction: the geometrical method, a practical diagram of purely conceptual relations.

DEMONSTRATING GEOMETRICAL ORDER: SPINOZA'S DIAGRAMMATIC METHOD

The *Ethics* presents itself to its readers in geometrical order, an order at once programmatic and hermeneutic. To a significant extent it is this presentational form of definitions and axioms, propositions and demonstrations borrowed from Euclid's *Elements* that unifies the five main parts of the *Ethics* and the passages from one part to the next.[35] Interpreting the *Ethics* accurately requires following and understanding the various series of progressive demonstrations with diligence and care. Indeed, the *Ethics*' geometrical order appears both to indicate and to typify the kind of thinking which Spinoza understands to possess 'the power of ordering and connecting the affections of the body according to the order of the intellect', the very power of reason.[36]

The geometrical order has two sides. On the one hand it serves as a genre of philosophical presentation, a way of communicating ideas and their logical relations.[37] In this respect the geometrical order or method may be distinguished from other forms of philosophical presentation, such as those developed in the ancient and medieval schools and those in general use today: dialogues, lectures, essays, articles, dissertations, all the various genres of philosophical saying.[38] One way the geometrical order is unusual among these other alternatives is in its degree of apparent depersonalisation. In distinction from the *pro* and *contra* method of Scholastic disputation, for example, which presumes distinctly opinionated individuals or at least points of view, a Euclidean proof does not weigh two sides of an argument, but rather arrives at demonstration through purely ideal constructions whose

diagrammatic demonstrations of this kind make such implicit yet necessary consequences both vivid and clear, and a valid demonstration of this sort is thus a constructive act of the mind that is in the very process of its activity an understanding and affirmation of the truth it discloses.

For Spinoza, this way of proceeding moves contrary to the 'picture-thinking' of representation since the mind's power to affirm or deny the object of its thought cannot be detached from the intrinsically dynamic form of that thought itself, the active evolution of its necessary properties. Spinoza writes, 'We must investigate, I say, whether there is any other affirmation or negation in the mind except that which the idea involves, insofar as it is an idea [...] *so that our thought does not fall into pictures.*'[43] And elsewhere, 'For to have a true idea means nothing other than knowing a thing perfectly, *or* in the best way. And of course no one can doubt this unless he thinks *that an idea is something mute, like a picture on a tablet*, and not a mode of thinking, namely, the very [act of] understanding.'[44]

Spinoza's interpreters have disagreed over how seriously to take the *Ethics'* geometrical order as an essential component of its meaning. These readers may be sorted roughly into two camps: those for whom the geometrical order is primarily a formal trapping for philosophical views that could just as well be translated into other idioms without loss; and those for whom the geometrical form of argumentation is inseparable from the *Ethics'* own distinctive philosophical content. The former camp includes figures such as Wolfson who claims in a classic study of Spinoza that one could reconstruct the whole of the *Ethics* by simply cutting up and rearranging the texts of various classical, medieval and early modern thinkers whom Spinoza drew on as sources, with the majority of these fragments coming from but three thinkers: Aristotle, Maimonides and Descartes.[45] More recently Curley

follows Wolfson in seeing the geometric treatment of Spinoza's thought as at least partly obscuring the actual historical origins of Spinoza's ideas, in particular his contentious dialogue with his immediate, early modern predecessors, especially Descartes and Hobbes, 'a dialogue the geometric presentation served to conceal, and was, perhaps, partly designed to conceal'.[46]

The second camp includes thinkers such as Gueroult who take the geometrical presentation of the *Ethics* to be essential to Spinoza's thought, not just in form but equally in content.[47] Indeed, for this camp the form or structure of Spinoza's presentation constitutes the very meaning it is meant to convey. Thus in reading Spinoza's text Gueroult himself redoubles Spinoza's method through his own commentary, laying out in a structural manner the paths of deduction as they develop from proposition to proposition. For Gueroult the demonstrations themselves function as genetic ideas, replicating the processes of origination and development intrinsic to their specific objects: God, or substance in Part One, and the Mind, or power of thinking in Part Two.[48] Some philosophers strongly influenced by Marx such as Althusser and Negri – who rightly aim to link Spinoza's metaphysics explicitly with his separate analyses of society and collective power in the *Theologico-Political Treatise* and the unfinished *Political Treatise* – tend also to take this view since the impersonal, scientific rigour of geometrical proof promises to function as a kind of fulcrum for overcoming ideological misconceptions and developing emancipatory forms of thought.[49] For Negri, despite dismissing it at one point as 'fatuous' and 'the price that Spinoza paid to his epoch', the geometrical method nonetheless constitutes 'the methodologically constructed possibility of arranging the totality in propositions without shattering its intrinsic wholeness'.[50] The *Ethics*' geometrical order according to Negri becomes at once a representation and a

repetition of the constructive pluralist ontology it describes: 'The causal and productive geometric method is neither unilateral nor unilinear; it corresponds to the versatility that the univocality of being produces.'[51]

What distinguishes the two camps is primarily how the *Ethics* is understood in relation to earlier philosophical and theological traditions. Wolfson and Curley tend to see continuity (albeit dissembled by the form of the text itself) where Althusser and Negri (and to a lesser extent, Gueroult) see rupture or 'anomaly'. What is at stake in the dispute is thus largely a matter of questioning the power of formal abstraction relative to thought's historical production and reception.[52] If the geometrical or demonstrative method is truly no more than a secondary and unnecessary appendage – an extrinsic form – then we as readers remain free to disregard it and to penetrate beyond it to Spinoza's own historically conditioned philosophical views, the real content of the text. But if the demonstrative method is intrinsic to the actual sense of the *Ethics* as a way of thinking at least partially independent of historical and linguistic context, then not only must we attend carefully to its mode of presentation and follow its method in following Spinoza's thought, we must also call into question the presumption that such a work of philosophy functions in the first place to represent and defend philosophical 'views' at all.[53]

In general, as one emphasises the geometrical presentation of the *Ethics*, one necessarily emphasises the practical component of reading the text in a corresponding way. One moves from a disputational or dialogical model of philosophy to one closer to the formal deductive systems arising well after Spinoza, like those in twentieth-century logic which are at heart mathematical. At its limit, such a view would deny that Spinoza's text has any relevant linguistic or referential content at all but is instead simply a set of

formal operations and the relations they constitute. If the formal deductive method were to be entirely abstracted from its concrete instantiation in the *Ethics* as that text has come down to us, then nothing would warrant linking the method to any of the specific discursive contents of the *Ethics* at all. Spinoza's thought would become an attempt merely to indicate a pure method saying nothing, a deductive programme devoid of linguistic sense, a pure geometrical order without figure or form.[54] Rather than a set of philosophical judgements subject to discussion and debate, the *Ethics* on this reading would be something like a complex formal algorithm, expressible most nearly as a formal language. We will see how Hvidtfelt Nielsen develops such an approach to the *Ethics* in some detail below.

It should be clear in any case that the *Ethics* as Spinoza wrote it cannot simply be reduced to its geometrical presentation in this fashion. Critics of a strictly geometrical, demonstrative or deductive reading of the *Ethics* are quick to point out that Spinoza's demonstrations do not match the deductive rigour their geometric form would suggest.[55] If Spinoza meant his formal demonstrations to serve as the core method for following his thought, why would he have handled them so freely? There is in addition the undeniable importance of those parts of the text that in no way function within the deductive system proper. Each of Parts Three, Four and Five of the *Ethics* begins with a preface not contained in the text's network of explicit axioms, propositions and demonstrations but pertaining in essential ways to the philosophical meaning of Spinoza's thought. There is also the summarising *Appendix* to Part Four, in which Spinoza presents the conclusions drawn in the previous demonstrations in a more discursive fashion so that they may be 'seen at a glance'. There is as well Spinoza's own admission that the *Ethics* pertains neither to 'medicine' nor to 'logic', both of which need to be developed as

supplements to his work.[56] More importantly, Spinoza's frequent and often lengthy 'scholia' – commentaries and digressions from the strictly deductive framework – contain many of his finest insights and most important philosophical claims. To read the *Ethics* merely as a formal deductive system would imply disregarding these sections of the text, and a strictly formalist reading would be forced to ignore them entirely. Outside the geometrically demonstrative framework, they would thus be outside the *Ethics* 'proper'. This implies that there is more in the hermeneutical dimension of Spinoza's text than the merely programmatic dimension of geometrical proof would suggest.

Clearly, a purely formalist reading of the *Ethics* is untenable. But so too is a reading that would ignore the logic of geometrical order entirely and that would reduce its power of formal abstraction entirely to historical and contingent factors. Both sides must be held together despite their tension; the *Ethics* is both a culturally and historically embedded text addressed to situated readers and a formal structure in part irreducible to history. The geometrical order disengages from the person and time of Spinoza, but in order to understand this order in relation to its possible applications in practice, we must look at the concrete context in which Spinoza originally composed his *Ethics*, as well as the relevant features of any context in which it might be applied.

Scholars such as Israel have shown in detail the historical importance of Spinoza for the development of modern European conceptions of reason and freedom.[57] Yet the ideas of Spinoza circulated primarily through second-hand accounts of his theoretical claims, not through first-hand trials of his ethical and practical prescriptions – although it was the ethical consequences that were thought to follow from Spinoza's ideas that especially worried his critics.[58] Even in contemporary scholarship, to the extent that the practical orientation of the *Ethics* is recognised

concept of a 'living thing' or indeed a 'thing' as such? How would Spinoza understand the individual differences and stratifications within our imagined spectrum? In the unity and continuity of God, or Nature, where and how is discreteness manifest?

The problem of individuation took on new importance in early modern philosophy due to the emergence of a mechanistic conception of bodies and the Cartesian distinction of thinking and extended substances. The philosophical successors to Descartes, Spinoza among them, inherited this problem and addressed it each on his own terms.[64] This problem has engaged Spinoza's commentators as well on a variety of levels – metaphysical,[65] epistemological[66] and political.[67] One concern common to these various strata lies in asking how what constitutes the unity of an individual thing (whether a body, an idea or an essence in general) should be formulated in relation to Spinoza's distinctive conception of the unity of nature as a whole.

Spinoza claims that all individuals 'though in different degrees, are nevertheless animate', but qualifies this claim by interpreting the 'different degrees' of animation as different degrees of power determined by varying capacities to act and perceive.[68] Bodies are animated to a greater or lesser degree as they are capable of doing or experiencing more or fewer things:

> [I]n proportion as a body is more capable than others of doing many things at once, or being acted on in many ways at once, so its mind is more capable than others of perceiving many things at once. And in proportion as the actions of a body depend more on itself alone, and as other bodies concur with it less in acting, so its mind is more capable of understanding distinctly.[69]

On this view a table, for example, does have a soul – its mind or 'idea' – but a table's soul is capable of very few kinds of internally determined action. What a table does is in fact almost entirely exhausted by what is done to it.

What all the various degrees of animation share is how they constitute distinct individuality through the relative motions and affects of their component parts. Spinoza defines an individual as a composite of bodies which 'communicate their motions to each other in a certain fixed manner'. The complete definition is as follows:

> When a number of bodies, whether of the same or of different size, are so constrained by other bodies that they lie upon one another, or if they so move, whether with the same degree or different degrees of speed, that they communicate their motions to each other in a certain fixed manner, we shall say that those bodies are united with one another and that they all together compose one body or individual, which is distinguished from the others by this union of bodies.[70]

The relations of movement and rest among the component parts of this whole, taken together, constitute the essence or 'nature' of the individual in question. The 'manner' of this communication of motions is thus a fundamental component of the individual as such. *How* a body's various parts communicate their motions is a crucial aspect of *what* that thing is, its nature and unity.

The unity of a composite body is thus defined by Spinoza in terms of differential relations that compose it as a singular whole: 'Bodies are distinguished from one another by reason of motion and rest, speed and slowness, and not by reason of substance.'[71] This explains why they are *modes* of one substance and not independent substances themselves. Under the attribute of extension, such modal components are typically manifest as relative trajectories of bodies in space that may or may not affect one another in a variety of ways.

Affective relations are thus a sort of multi-scale ontological glue; in binding modes to one another, they constitute the modes themselves as local systems or parcels of variable relations that affect other such systems in similarly variable yet also partly

regular and determinate ways. This progressive 'scaling-up' of individuating relations has no finite limit: 'if we proceed in this way to infinity, we shall easily conceive that the whole of nature is one individual, whose parts, that is, all bodies, vary in infinite ways, without any change of the whole individual'.[72] This is the 'infinite mediate mode' which Spinoza elsewhere calls 'the face of the whole universe'.

To summarise, Spinoza's theory of individuation in the *Ethics* has four essential characteristics. Together, these provide the necessary framework for understanding individual modes as affective diagrams:

(1) Modes are relatively stable systems of relations among component parts. These systems themselves become stable internally when certain of their relations take on a canonical or determinative status with respect to others. Such determining relations are typically 'local equilibria' within some space of possible states.[73]

(2) A duality of determination and indetermination is constitutive of modes as such. No mode can be fully determinate because all of a mode's constituent relations are characterised by variable affordances with at least some degree of elasticity. On the other hand no mode can be fully indeterminate because it would then be independent of all relation and hence a substance, not a mode.

(3) Every mode exists by virtue of being relationally situated vis-à-vis its local environment in an immediately affective way. Existent modes are *actual*, and the relations in which they are embedded at any particular moment are immediately responsible for the increase or decrease of those modes' powers to affect and be affected by other modes. Two consequences follow:

A. Each mode consists of a duality of internal (system) and external (environment) relations.

B. Each mode involves a duality of active (determining) and
   passive (determined) affects.

(4) Processes of modal individuation are never absolutely
discrete, but are always finally determined through the ultimate
continuity of nature as a unique substance. Modes are local
inflections of a universal relational field, not separate 'things'.[74]

Take note of Figure 1.1. The diagram on the left is meant to
suggest in an intuitive way the dynamics of modal consistency. Its
arrows represent affective relations, and its dots represent modes
individuated at some level of organisation 'lower' than that
pictured. Such a distinction of levels or scales is essential to
Spinoza's conception of individuation and its structural
dependence on the doctrine of affects.[75] The diagram on the right
shows how the mode individuated by the relatively stable affective
relations pictured on the left becomes capable by that very process
of individuation of entering into higher-order affective relations
with other modes. To put it more exactly, it is only in respect to
such higher-order relations that the process of individuation at
the lower level can even be registered or identified.[76]

1.1
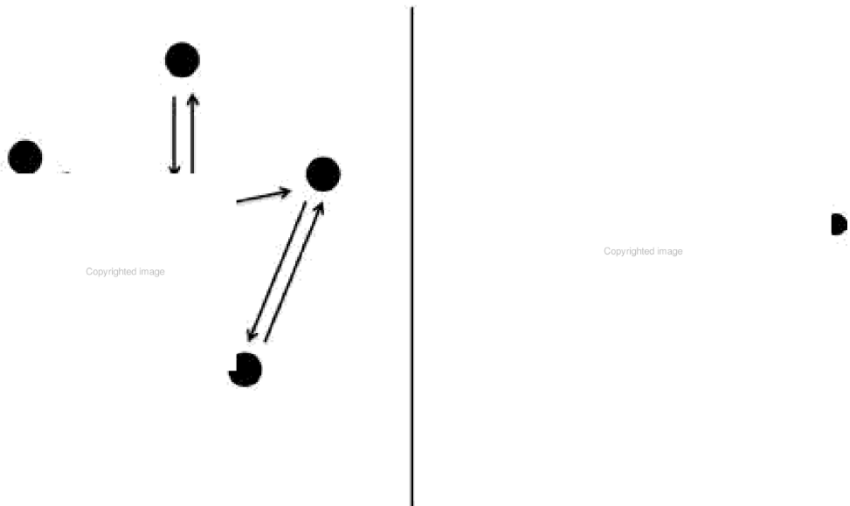
Individuation is thus always a matter of degree, never a binary criterion for membership in some special metaphysical kind, 'entities', distinguishable from properties or relations. The question 'how many individuals are there?' is meaningless for Spinoza, or, taken strictly, the answer is simply *one*: God-or-Nature. Anywhere we locate a set of bodies moving together with any degree of regularity – that is, practically anywhere we look or can imagine looking, short of absolute chaos – we are able to identify an individual in Spinoza's sense. The problem of individuation is thus primarily a matter of identifying the continuous 'selective' processes by which sets of relative motions attain relative consistency.

How does a set of component parts *attain* the consistency of a relatively fixed set of motions? How do individuals *become* individuals in any determinate sense? The question of what constitutes an entity can only be answered by indicating the process or event that consolidates or renders consistent a given set of relations of movement into a single, integrated whole *for something else* which they affect and by which they are affected. An individual is such that its component motions are united *for* something other than itself according to some specific way of affecting the latter. In contrast to the dyadic subject-predicate structure of representational judgement, the affective structure in Spinozist individuation involves essentially three term relations: X affects Y in manner Z. Affects are thus intrinsically potentialities or powers.[77] They range in their very essence across a spectrum of possible instances or expressions. See Figure 1.2. The arrow highlighted on the right in Figure 1.1 above is here elaborated as a range of possible relations to a variety of different individuals varying within conditions or affordances intrinsic to the affective relation (the arrow) itself.

In the human sphere, this is the point at which the Spinozist

direction of the opposite pole, that of generality. As we are then enveloped or led back in thought to more general kinds (herb→plant→living thing→thing) we approach the pole of maximum generality, where we would expect to find the most general forms of being, or categories.[79]

It is a commonplace that human beings are distinguished from the rest of nature by their collective participation in language: anthropology – the *logos* of 'humankind', or *anthropos* – states a pleonasm. Not only is language the medium of communication *about* all sorts of things, it is also the primary domain in which human individuals are recognised as such; it is in and through participation in language that human beings speak *to* and *for* one another. In the terms of our discussion of individuation we might say that the affect of linguistic communication individuates both human nature as well as the natures of singular human beings. This is not to say that language exhausts or even originates essential humanity, only that language is one very important thing humans do through which we are what we are. In this way we pass from the communication of the motions of the composite parts of bodies and natures in general to the singular problem of communication in the sense of *human language.*

Language is the point where the question of individuation may be asked of 'universals', or general ideas as they arise in contexts of human communication, giving rise to debates that have traditionally been framed in terms of nominalism and realism. Spinoza appears at first sight to be clearly a nominalist. If any two moving bodies can be described by a ratio of motions (for example, the ratio of the vectors corresponding to their velocity and direction) and are thereby considered to be 'communicating' their movements, then any pair of moving bodies chosen at random would constitute an individual. Such individuals and the general types by which they are called would be mere names. Similar cases

would hold for any number of bodies, and as a result all possible sets of relations of movements of actual bodies would have to be considered individuals. If communication is thus understood as merely abstract, quantitative relation (*ratio* in the mere sense of a mathematical ratio), then individuation loses any qualitative aspect and becomes simply an arbitrary assemblage of parts. In fact, however, Spinoza has provided a guard against this thoroughly nominalist conception through his doctrine of the affects. The question of whether two or more bodies are truly communicating their movements must be displaced onto the question of whether and how they *actually affect* one another. To genuine affects would then correspond genuine individuals. More importantly, different kinds of communication of movement would thus correspond to discrete and distinguishable affects. Thus the manner in which two or more bodies affect one another corresponds to the *way* they communicate their movements and therefore determines what sort of individual those bodies compose. The reality of distinguishable affects implies and envelops the reality of any structures that might conceptualise those affects or name them. The affects thus absorb and 'immanentise' any transcendent conception of *logos* as an a priori linguistic condition of thought.

Language would in this way be understood in terms of the kinds of affects it makes possible and the affective relations it sustains. We have seen how Spinoza's 'parallel postulate' claims that '[t]he order and connection of ideas is the same as the order and connection of things'.[80] This identification of ideal and material orders makes the problem of linguistic meaning an especially thorny one. The difficulty may be illustrated through the following example: a woman reads. This act of reading constitutes a complex, embodied event. It is a matter of bodies in motion, communicating affects in a variety of ways. She sits at a café on a

busy street. She sips her coffee. In one hand she holds a large, blue book. Her eyes scan the page, a rhythmic iteration from left to right in conjunction with a slower movement from top to bottom. The words – differentiated as patterns of black ink on a white page – evoke a series of sounds and images that combine and retroactively charge one another to produce the unity of a complex sense, a meaning *for* or *before* her.

How, on Spinoza's terms, are we to understand the woman's experience of this text's *meaning*? The seeming implication of *Ethics* IIp7 is that if meaning occurs in thought and is thus a complex of ideas, a sufficient description of this event of meaning will necessarily be parallel to a corresponding description of a complex of physical events. Meaning would be reduced to a set of related physical events, or rather identified with those events according to the parallel postulate. Yet our everyday experience of meaning mitigates against this. It is not just that the description is not detailed enough (that we must, for example, go all the way to a description of photons reflecting off the fibres of the page, individual neural firings in the woman's brain, and so on). Rather, what we mean (and experience) in the term 'meaning' would seem to be in principle irreducible to any such description.

Philosophers coming from perspectives as different as Althusser and Nielsen have seen this aspect of Spinoza's thought as a positive opportunity for eliminating or at least minimising the domain of meaning and advancing a consistent philosophical materialism.[81] The elimination of meaning in this way would accompany the elimination of the egoic subject as the ground of thinking. The domain of meaning would be effectively evacuated because the unity of a subject for whom meaning would, precisely, *mean* will have been exchanged for the standpoint of radical immanence. Thought, then, would no longer be the privileged domain of a subject, but rather the unity of an infinite attribute the order and

connection of whose parts would be strictly parallel to that of the world of things. In our example, the woman would no longer be thinkable as a 'kingdom within a kingdom'. She would be, rather, a local inflection in a continuous field of material (ideal) relations. Does such a conception entail the annihilation of meaning?

It is important to remember that the relations constituting the field are not themselves objects of possible representation, but are instead actual affects. In Spinoza's thought, the affective mingling of bodies (and the realm of ideas conceived as strictly parallel to this mingling) dissipates every illusion of thought as a mirroring of subject and representation. And it does seem as though the very generality and communicability of meaning would mitigate against any reduction of meaning to absolutely singular affective events. Yet perhaps the problem with our exemplary image of the woman reading is that by its very nature as example it has already fallen under the generalised illusion of representational thought, of presuming that the meaning of a text *and* the representation of that meaning must both somehow be thought-pictures. Surely *something* is present to the woman's mind as the object of her intentional regard, but any implicit theoretical model that already places conditions on what sort of 'something' that object might be tends to beg the question of how thought *actually relates* to what it thinks. In the end, the doctrine of the affects does not preclude representation, but merely circumscribes it and displaces its auto-foundational role in theorising thinking.

In particular, the dynamic character of the affects precludes any neutral, or strictly representational model of textual interpretation. Because ideas for Spinoza are always affective, and the interpretation of a text – like everything else – involves the movement and ordering of ideas, interpretation is itself necessarily affective through and through. Among other things, then, one cannot adequately grasp the meaning of Spinoza's own

text without simultaneously recognising the implications of one's very act of interpretation within the meaning thus generated. This self-reflective exigency is something the *Ethics* shares with any text that either implies or explicitly develops a more or less comprehensive theory of meaning or interpretation.[82] Yet the singular strategy of the *Ethics* involves leading any work of interpretation – in particular, the act of reading – back to a dynamic interplay of affects that renders them increasingly rational.

Spinoza ultimately reduces all affects to the three 'primitive' affects of desire, joy and sadness. Because of the universality of the affects, no interpretive method or procedure can be abstracted from the interplay and movement of affective dynamics. Not even a single step in any interpretative process is exempt from this reduction to the affects. Thus a Spinozist mode of reading opens the possibility at every stage to ask the question: What affects are being mobilised at this point in the reading? For Spinoza, the answer will always necessarily be plotted along the three dimensions of desire, joy and sadness and the multitude of affects generated through combinations and interactions of these. These are not rational foundations, but component vectors of a real space of relational becoming. Rationality, for Spinoza, consists of gradients of increasingly active relationality along pathways through this affective space (transitions from passive to active affects). Such gradients of affective power *explain* linguistic reason, or *logos*, as a special case rather than requiring explanation in terms of the latter.

Consider the demand for logical consistency. Apparent contradictions in meaning between two parts or phases of a single text (or often separate texts by a single author) are cause for displeasure, even a kind of righteous indignation in careful readers. Indeed, much contemporary philosophical work consists

relations between individuals who are themselves essentially, or naturally relational helps us to understand Spinoza's writings themselves as linguistic texts that nevertheless work practically to reorient language towards its intrinsically formal dimension.

It is helpful here to turn to the interpretation of Spinoza advanced in Nielsen's detailed study, *Interpreting Spinoza's Arguments*.[84] According to Nielsen, Spinoza's geometrical order of presentation and his affective-materialist conception of language work together to transform natural language use itself into the *mimesis* of a formal language. Nielsen's reading of linguistic practice in the *Ethics* finds in the text's logical form a kind of ethical prototype that anticipates the formal systems of logic developed by later analytic philosophers. Notable is Nielsen's reduction of this logic to *practice.* Nielsen understands Spinoza's use of the geometrical method as an attempt to produce within an inherited Scholastic Latin vocabulary something akin to the formal deductive systems that were only to emerge much later in the early twentieth century and that have become ever more sophisticated up to our current day. For Nielsen, Spinoza's aim in producing a deductive system was to pass from the ambiguities inherent within conventional language to the unqualified, formal certainties of logic. Thus, Nielsen's abstraction of a formal method from the *Ethics* provides a thoroughgoing critique of the linguistic form of the *Ethics* itself. In Nielsen's view, '[Spinoza's] usage was meant to help readers escape being trammeled by their ordinary verbal meanings (affects), and so to enable them to undertake the attempt at thinking along the same deductive lines as Spinoza thought he had been following in his writing.'[85]

Yet Nielsen emphasises that Spinoza is not only producing a formal logic, but intends by means of this logic to be able to reach scientific truths about the actual world. Formal truth and referential truth must thus somehow coincide, despite Spinoza's

Ethics as an endlessly self-deconstructing text.[89]

> On the basis of the theory of meaning and that of usage, a theory of verbal meaning may be constructed according to which natural language meanings come out as interable and affective events. Applying this result to *Ethica* itself, a text of a, once, very natural language, would make what *Ethica* might mean an ever changing subject inaccessible to reason (cognition).[90]

In other words, by taking the *Ethics* to be a kind of formal, interpretive operation that converts natural language meanings into unrepeatable, affective events and by then treating the text of the *Ethics* itself as the object of this same operation, the 'meaning' of the *Ethics* dissolves into a series of discontinuous and self-contradictory happenings. The *Ethics* thus becomes a complex version of the 'liar's paradox' in which an inhabitant of Crete exclaims that all Cretans are liars, although at a practical rather than theoretical level.

If this were the last word in interpreting the *Ethics*, then we would be left with a thoroughgoing scepticism with respect to its practical sense. Yet Nielsen does not use this as an argument against the cogency of Spinoza's argument. Instead, he sees this paradox – and Spinoza's own recognition of it – as the root cause of Spinoza's use of the geometrical method of demonstration as the form of his reasoning. Because Spinoza was aware of the inevitable ambiguities of natural language and was striving for the kind of knowledge represented by mathematics and exact physical science, Nielsen argues, he embedded his natural language assertions in a complex and self-critical logical structure that undoes natural language meaning at every step. In this way even while the natural language 'sense' of the text negates itself, the *Ethics*'s logical form remains intact and indeed positively and progressively infiltrates the cognitive practices of its careful readers somewhat as sketched in Figure 1.3. Nielsen writes,

must stress the limits within which his reading moves. Nielsen's bias is that of the formal logician for whom logical rigour is a basic criterion and goal. As a frame for his entire analysis Nielsen explicitly limits himself to the second kind of knowledge, claiming 'We want no truck with infinity, nor any other merely abstract entities; neither could we afford one, lest we jeopardize the whole idea of our investigation.'[94] To repeat, the 'whole idea' of Nielsen's investigation is to find in Spinoza's *Ethics* a mode of practical understanding that would escape the equivocal senses of everyday language. In short, Nielsen brackets the infinite at the same time and with the same gesture by which he brackets the singularly concrete (the 'initerable'). Both are a function of the ambiguities of natural language meanings. What Nielsen demonstrates with extraordinary rigour in his study (and the detail of his analysis can scarcely be indicated here) is that a formalist reading of the practical logic (language as use) inherent in the *Ethics* can be both consistent with Spinoza's text and highly relevant to current debates concerning the rigorous use of symbol systems in scientific practice when restricted to this domain. Yet to limit oneself to what Spinoza calls the second kind of knowledge (adequate but merely general ideas) is to limit oneself to only part of the *Ethics*. Spinoza's text also refers to and makes use of the third kind of knowledge, and it is precisely here that a wedge may already be inserted into the apparently formal and logical closure of Spinoza's text.

SPINOZA'S THIRD KIND OF KNOWLEDGE

In early 1678, less than a year after Spinoza's death, a coterie of his friends published and distributed his *Opera Posthuma* with the *Ethics* included, the author's identity indicated only by the initials 'B. D. S.'[95] With this act, the *Ethics*, the culminating product of decades of Spinoza's solitary thinking, intensive study and

later in Part Five:

> The best thing, then, that we can do, so long as we do not have perfect knowledge of our affects, is to conceive a correct principle of living, *or* sure maxims of life [*certa vitae dogmata*], to commit them to memory, and to apply them constantly to the particular cases frequently encountered in life. In this way our imagination will be extensively affected by them, and we shall always have them ready.[101]

The role of Spinoza's *Ethics* as a whole may be understood as that of a complex maxim of this type, and the problems involved in its interpretation and application need to be understood accordingly. The use of general maxims in handling particular cases recalls the Aristotelian problem of *phronesis*.[102] As Aristotle recognises, the philosophical investigation of ethics 'does not aim at theoretical knowledge' since ethics is by nature oriented towards something other than knowing a subject matter. Ethics is a matter of practical self-transformation: 'we are inquiring not in order to know what virtue is, but in order to become good'.[103] In this regard, any discursive presentation of ethics is confronted with a kind of paradox: what is said is typically general; what is done is always singular. Aristotle recognises the difficulty of providing a theoretical account of particular practices, 'for they do not fall under any art or precept but the agents themselves must in each case consider what is appropriate to the occasion, as happens also in the art of medicine or of navigation'.[104] Even a philosophy that posits or produces theoretical certainties still finds itself irremediably unsure in confronting the contingencies of practice.

The *Ethics* must be applied, and the means of application are themselves part of the subject matter of ethics as a mode of philosophy. How are we to conceive of a mode of relation comprehending both the specific interpretive difficulties of Spinoza's text and the problem of practical application in general?

By examining the problem of language and signification under the aegis of Spinoza's immanent and relational ontology, we have been led naturally to a broadly pragmatic conception of signs and meaning. Epistemology in Spinoza is integrated into ontology, and knowledge is always a matter of power and processes of individuation. Conversely, for Spinoza, ontology is essentially epistemic. What *is*, precisely in the degree and amplitude of its being, *knows*.

In Part Two of the *Ethics*, Spinoza distinguishes three kinds of human cognition, or knowledge (*cognitio*).[105] What differentiates the three kinds is the manner in which they are formed or received by the mind. The first kind of knowledge arises either (1) 'from singular things which have been represented to us through the senses in a way which is mutilated, confused, and without order for the intellect', which Spinoza calls 'knowledge from random experience'; or (2) 'from signs, for example, from the fact that, having heard or read certain words, we recollect things, and form certain ideas of them, like those through which we imagine the things'.[106] Either of these sources leads to potentially faulty judgements which Spinoza designates with two names, *opinion* and *imagination*. The second kind of knowledge, in contrast to the first, arises 'from the fact that we have common notions and adequate ideas of the properties of things'.[107] This Spinoza calls *reason*. Finally, the third kind of knowledge 'proceeds from an adequate idea of the formal essence of certain attributes of God to the adequate knowledge of the essence of things'.[108] Spinoza's name for this highest sense of knowledge is *intuitive knowledge*.[109]

The basic sense of Spinoza's first and second kinds of knowledge is clear enough. To know that Ulaan Bataar is the capital of Mongolia because the atlas says so and to act on that knowledge – say, to buy an airline ticket with the intention of travelling there – is to follow the first kind of knowledge. To understand gravity by

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