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As Fire Burns
Functional Work and Praxis in Ontology

by

Oliver J. Feltham BA (Hons)

Submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

Deakin University May, 2000
I certify that the thesis entitled: *As Fire Burns*

submitted for the degree of: *PhD*

is the result of my own research, except where otherwise acknowledged, and that this thesis in whole or in part has not be submitted for an award, including a higher degree, to any other university or institution.

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Abstract

The context: the historical and philosophical demise of the Marxist model of praxis as a unity of theory and practice organized by a Party in service of a Cause. The task: to remodel praxis by distinguishing it from functional work. The proving ground: the discourse of ontology. The thesis works through four types of ontology in its attempt to construct different ontological schemas for praxis and functional work. In the first three ontologies, Platonic, Aristotelian and relativist, ontological impasses occur in the accounts of the relation between one and the multiple, and of the existence of order. They prevent the successful construction of a schema for functional work. It is in the set-theory ontology of Alain Badiou that the means arise for the passage through these impasses and the definitive construction of distinct ontological schemas for functional work and praxis. This results in a new concept of praxis and a multiplication of its domains beyond politics to science, art and love.
Acknowledgements

Many thanks are due to those whose support and comments helped sustain my research: Justin Clemens, Ben Ernst, Duncan Fairfax, Alexis, Bryony, Chris, Doreen and Val Feltham, Tony Fry, Russell Grigg, Johanna Gullberg, Ralph Humphries, Chico Juliano, Andrew Lewis, Rebecca Lucas, Justine McGill, Violet Paine, Sarah Quy, Gisela Seliga, Cameron Tonkin, and Ben Tunstall.
Manual workers are like certain lifeless things which act indeed but act without knowing what they do, as fire burns.

Aristotle, *The Metaphysics*
Introduction

The fate of praxis in modernity

The philosophers have only interpreted the world, the point however is to change it.

For the Marxist tradition, Marx’s eleventh thesis on Feuerbach was not just a call to action, but also a call for another type of action in which philosophy and practice were united. Engels argued that the great struggle of communism was composed of three forms of struggle: political, economic and theoretical. ¹ Lenin said; “Without a revolutionary theory there can be no revolutionary movement.”² For these Marxists, the point was not simply to abandon philosophy but to simultaneously interpret the world and change it. To name this transformed unity of theory and practice they borrowed and reworked a concept from the tradition of philosophy — praxis — ancient Greek for action. There are two major problems in the Marxist thought of praxis. They emerge repeatedly throughout its history, from Lenin’s work to the disrepute in which it currently lies. All objections to Marxist political practice, and all other difficulties in its thought, derive from these problems.

The first problem is that of whether one term dominates the other in the unity of theory and practice. For example, Antonio Gramsci warns against a ‘mechanist’ conception of the unity of theory and practice wherein theory is subordinate to practice.³ Lenin termed such a conception ‘spontaneism’ or ‘opportunism’ whereby revolutionaries seized upon any opportunity for action without any accompanying analysis of its global potential and place in the wider struggle. Marx targeted the bourgeois democrat reformists in the German Social democrat movement for precisely the same tendency, opportunism, but with regard to their relation to the government of the day with their continual practical demands for petty reforms.⁴ Lenin, however, was accused of the opposite, of subordinating practice to theory. He spends the first two parts of What is to be Done? defending himself and his journal Iskra, from the charge of “dogmatism, doctrinarianism...[and] the violent strait lacing of thought.”⁵ Despite his convincing criticism of his opponent’s slogan ‘freedom of criticism’, the accusation stands.

⁵ “What is to be Done?”, 68.
since in the same text he claims that revolutionary theory leads revolutionaries and further, that working class consciousness must be trained to respond to all cases of tyranny from a Social Democratic point of view, ancestor of the infamous Party line. If revolutionary theory is in the dominant position in revolutionary praxis then it reinstates the very division of labour between intellectual and manual work that communism is supposed to overthrow. The legacy of this repetition is well known — it was embodied by a division between types of people in the revolutionary movement. In Lenin’s conception there is a division between the party as a vanguard of professional revolutionaries and the proletariat proper. In this reproduction of the division of labour, the dominant term in praxis — revolutionary theory — becomes the property of the dominant group in the revolutionary movement, the leaders. Indeed Lenin had to defend his conception of the party from precisely the accusation that it would result in a small number doing the thinking for all.

The result of these two variations of the problem — the domination of theory by practice or of practice by theory — would appear to be that the Marxist thought of praxis must steer a fine line between two evils, opportunism or dogmatism, or, in rough philosophical equivalents, between pragmatism and Platonism. In doing so what must be maintained is an articulation of what is done — the element of practice — with what is to be done — the element of theory.

The second problem in the thought of praxis is that of historical or economic determinism wherein revolutionary action is thought to take place in a series of events governed by the dialectical laws of history, according to which the dialectic of productive forces and forms of production eventually leads to the breakdown of capitalism and the emergence of communism. In 1917 Gramsci criticized precisely the ‘Marxism’ of the Second International for its economic determinism. If such laws determine not just the crises of capitalism but also revolutionary action itself, then one has the interesting situation in which whatever is done under the name of revolutionary action is correct since it must have taken place in accordance with the laws of history. Yet it is easy to ridicule any absolute determinism. What has proved more difficult for the Marxist tradition is to allow an element of freedom into praxis whilst maintaining that laws govern history.

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1 Ibid., 134, 104.
3 “What is to be done?”, 148.
4 The analogy concerns the relation between theory and practice, it does not imply that Platonism is dogmatic, nor indeed, that pragmatism is opportunist.
At the end of the twentieth century after the horrors visited upon the world by the so-called socialist states and the fall of the Berlin wall, communism and its praxis lie in disrepute. Those young today, who Lenin would have seen as potential recruits amongst the bourgeois intelligentsia for the Party, dismiss the idea of fighting for change, saying “I’m not out to save the world.” Any type of political praxis is seen as just another type of work but one which involves undue personal sacrifice—worse, which is utopian and out of step with the times. Political praxis bearing any relation to the Marxist model is seen as invariably useless, counterproductive or tyrannical—the doxa of the times says that its effects are either risible for their insignificance, or, if it does have some impact those effects are usually bad effects, counter to the goals of the movement, and finally if it meets with great success, it produces tyranny.

The fate of praxis in modernity is inseparably bound to the fate of Marxism. But Marxism has been destroyed. Whither praxis?

Remodelling praxis

In order to remodel praxis, one must start by working out exactly how it was modelled in the first place. To do that one must turn to the tradition of philosophy. If the fate of praxis is bound up with that of Marxism in modernity then the fate of Marxist thought is bound up with that of Western philosophy in the last three millennia. Marxism borrowed praxis from philosophy and tried to rework it, but philosophy is a cruel creditor, and there are no innocent loans. What it bequeathed to Marxism along with the loan, and without Marxism’s knowledge, was a matrix of possibilities for thinking the relation between theory and practice. The Marxist thought of praxis oscillated between the various possibilities of the matrix but it did not manage to find an exit. The way the matrix limited Marxist thought can be summed up quite simply: Marxist conceptions of praxis are indistinguishable from functional work. The matrix is that of philosophy’s thought of work, and in that thought, work is always functional.

To explain philosophy’s matrix of functional work, what is first required is a general definition: functional work is a directed transformation of a state of affairs carried out by an agent or agents in an ordered manner according to a knowledge in order to achieve a preconceived goal. The matrix offers two major forms of this goal, that is, there are two ways to describe work as functional. In the first, the goal of a work process is its immediate purpose, such as the production of a bike — I term this teleological function. In the second, the goal of a work process is to play a role in an encompassing functional whole, such as the oiling of a bike chain in the overall servicing of a bike — I term this operational
function. There is a dialectic of operational and teleological function such that neither is possible without the other. For example the teleological function of house-building is to produce houses. Its operational function, from the point of view of the state, is its role in the overall functioning or operation of the city — the role of providing shelter for citizens. Unless houses are made, shelter cannot be provided, so the operational function of house-building depends upon its teleological function. The inverse is also true. If one analyzes the work process of house-building one finds operational function at a micro level; there are a whole series of activities which play essential roles in the overall production of a house such as pouring the concrete slab and putting the framework together. Unless these activities are successfully performed — at an operational level of the production of a house — the teleological function will not be fulfilled.

An obvious objection to the ubiquity of philosophy’s matrix of functional work is to identify types of work that it cannot account for such as work that has no function. Take for example the activity of a Buddhist monk, whose work, as in the Myth of Sisyphus, consists of rolling a boulder up a hill, letting it roll down then rolling it up again all day long. This labour appears to be purposeless and so without function. But if one looks a little closer it is evident that it has operational function at a macro level since it plays a role in the monk’s overall spiritual training, the long-term goal being to train the monk to empty his mind. At a micro level, the teleological function of this work can be described as getting the boulder to the top of the hill, during the ascent, and getting it to the bottom of the hill during the descent. One can even discern operational function at a micro level of this work — the monk must balance the boulder well whilst rolling it and must avoid any potholes or crevices, otherwise the boulder will not get to the top of the hill. The lesson to be learnt from this example is that any talk of the function of work must be related to a level of analysis whether micro or macro.

Another major option in the matrix of functional work is that in which the role of practice comes to the fore. On a micro level it is termed problem solving and on a macro level, systemic adaptation to an environment. This variety of functional work is the most celebrated in contemporary capitalism, for it is best equipped to deal with fluctuations in supply and demand and the unpredictability of markets. Indeed one of the strongest ideologies of the times is a sort of positivist empiricism or pragmatism, best identified by its maxim ‘shit happens’. It holds that whatever the project is, problems will arise — the corresponding work will be fast problem solving. Harvey Keitel’s character in Pulp Fiction, the Cleaner, is paradigmatic in this regard as a model of efficacy in the face of disaster.
Yet however open and flexible this model of work may appear compared to classic examples of functional work such as house-building or mass production, it is still a type of functional work because its teleological function remains unshaken through all its adaptations to what happens. What is done at an operational level may well change—resources used, procedures, localities, designs—but at a macro level the end, the telos, remains the same; making a profit under capitalism, maintenance of the system’s identity for social systems.

It is within this matrix of functional work that the problems in the Marxist thought of praxis are played out. The matrix itself is merely a set of terms—work, knowledge or theory, telos / operation, part / whole, agency, necessity and reality—which combine in various articulations to program the basic variations of functional work. Marxist conceptions of praxis are indistinguishable from these variations for the following reasons.

In its Leninist conception, revolutionary praxis can be described as functional according to both its purpose and its role in a totality. Its purpose is to bring about the proletarian revolution. Its role in the dialectic of History is to achieve the closure of the capitalist epoch. Furthermore, each of the elements of the definition of functional work has its counterpart in Lenin’s conception of praxis. For example, Marxist praxis is designed to take place in an ordered fashion — following the Party line — and according to a knowledge — Marxist theory. It also has an agent, the Party as the vanguard of professional revolutionaries. At deeper level Marxist theory identifies the proletariat as the agent of history. One should quickly note that it is at this point that a common historical objection arises. Although most strains of Marxism insist that the proletariat does not immediately exist but must be produced out of the working class as the latter attains self-consciousness, this still presupposes the existence of a unified working class. Nothing is less certain in contemporary Western societies, which is not to say of course, that capitalism does not continue to create, even as it fragments them, its own underclasses.

Take the two problems in the Marxist thought of praxis. The first concerns the unity of theory and practice. If in this unity theory is in the dominant position, then nothing distinguishes praxis from any number of professions or trades such as dentistry or plumbing where the theory underlying a technical knowledge and various technological apparatuses guides the practice. If, on the other hand, practice takes the upper hand, then nothing distinguishes praxis from the overall practice of corporations, which continually adapt to external pressures and

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1 See “What is now in crisis is a whole conception of socialism which rests upon the ontological centrality of the working class” (E. Laclau, & C. Mouffe, Hegemony and Socialist Strategy [London: Verso, 1985], 2).
circumstances in order to survive. To expand on this last point, many believe that Marxism’s thought of praxis failed because it was too rigid, too doctrinaire—Lenin is often arraigned in this court—and that a true praxis would be one which was open to the reality of empirical events. What such a position fails to recognize is that the entire opposition between the rigidity of doctrine and pragmatic openness is internal to the Marxist problematic of praxis. As I’ve already mentioned, both Marx and Lenin ruthlessly criticized this ‘openness’ under the names of opportunism and spontaneism. Under this conception of pragmatic openness, praxis would become indistinguishable from problem solving, which is precisely one of major variations of functional work, the one in which the term ‘practice’ is privileged. It is evident that in both variations of the problem of the unity of theory and practice, praxis is indistinguishable from functional work.

Take the second problem. Praxis has an author, in the classical sense of the term. Its author is History as governed by the laws of the dialectic and as its author, History gives praxis both direction and meaning. For this reason, like functional work, praxis is a directed transformation, and according to one of the options of the matrix mentioned above, it has operational function — it plays a role in a totality.

The connection between the two problems in the thought of praxis is that once something is placed in the position of the author of a praxis, then the grounds are laid for the institutionalization of authority within the praxis. The authority of the leaders of a revolutionary movement in Lenin’s conception is grounded by their privileged relationship to the author of that movement, the dialectical laws of history. They are the ones who possess the revolutionary theory and as such know ‘what is to be done’. In short, what has long been held as the inevitable fate of Marxist revolutionary practice — contra its supposed final goal, the withering away of the state — is its institutionalization, its production of another state. Such a process begins by the reproduction of the division of labour mentioned above, between those in a privileged relation to the author of the movement and those who do not have such a relation. This is where the political objection to the Marxist model of praxis arises. There is a long history of authoritarian and dogmatic enforcements of doctrine and of internece violence that has accompanied self-named Marxist practices—similar in type to that of the Christian church. At its base is the assumption that there is one type of praxis alone, and that its laws, its order, its procedure and ultimately its goal are fixed once and for all by its author, history.

The thesis
Any rethinking of praxis must address philosophy’s matrix of functional work and find its limits. This is the first project of the thesis. Its proving ground is the discourse of ontology — the discourse on being qua being — since it is in this discourse that the matrix first came to being. The limits of the matrix turn out to be the limits of classical ontology and it is only in turning to a new type of ontology, set theory ontology, that the thesis is able to open another possibility than those of the matrix for the thought of praxis. This is where the second project of the thesis takes place, that in which the two problems in the Marxist thought of praxis are solved, and praxis is finally distinguished from functional work. Its approach can be sketched as a series of tasks, four in number.

First, praxis must be subtracted from any all-inclusive totality which would give it direction and meaning. This will result in a praxis without ground or guarantee, separated from any type of determinism. Second, praxis must have no privileged agent. The identity of its actors cannot be known before a concrete praxis occurs. This will prevent the immediate assumption of authority by certain actors, though it will not necessarily result in a utopian anarchic practice free of any instances of authority and power. Third, praxis must be subtracted from any pre-established knowledge, doctrine or set of laws. This will result in a praxis without party line. In this way the entire problem of exactly what constitutes the ‘theory’ and the ‘practice’ in a unity of theory and practice is replaced by the problem of what a thinking-in-action might be. Fourth, praxis must be subtracted from any preconceived goal in the form of an end, the Good, or the fulfilment of a role. This will not require the definition of some type of dysfunctional practice, but rather the thought of what, to use a neologism, an α-functional practice might be.

These four tasks can be summed up as follows: praxis must be subtracted from the One—whether that be the One of History, the One of Marxist revolutionary theory, or the One of the Party. The argument of this thesis is that this is the only way to distinguish praxis from functional work and rescue it from its current disrepute.

The thesis consists of two projects. The first is to determine the ontological schema of functional work. The second is to determine the ontological schema of praxis, thereby differentiating it from functional work. To explain the term ‘ontological schema’; in the set theory ontology that I use as a framework and eventually set out in chapter four — that developed by Alain Badiou — the ontological schema of any phenomenon or being is the particular relation between the one, the multiple and order that underlies its being. For example, in classical ontology an action is a species of movement, and thus a multiple, unified by the
one of its intention or its Good. Aristotle said that being is spoken of in many
techniques; one might well expect that ontological schemas result from each way of
talking about the being of a phenomenon — according to cause, quality, quantity,
actuality and potentiality, generation and destruction, negation and relation,
etcetera. However, in this thesis, in line with the set theory ontology it finally
adopts, each and every way that Platonic, Aristotelian and relativist ontologies
talk about the being of functional work is reduced to an ontological schema which
consists simply of a variation of three terms; the one, the multiple and order. For
example, in his ontology, Aristotle speaks of both the causes of production and of
its modality, but in my argument his analysis of production is reduced to the
schema of an ordered unified inclusive multiple.

At this point a qualification should be made to avoid confusion: the
ontological schema of a being is not the same as its real world conditions of
existence, necessary or sufficient. Those conditions and their relation to a being
— such as functional work — will themselves have ontological schemas. For
example, each of Aristotle’s four types of cause of the being of a house — form,
material, agent, purpose — is found in the real production of an actual house.
What I take from his investigation is the ontological schema of such causes as
they condition the existence of the house — the material cause of the construction
of a house is in itself a disordered non-unified multiple which is ordered and
unified by the form of the house.

The task of the first project of the thesis is to analyze the matrix of
functional work as it appears in various ontologies — reducing the matrix to its
bare bones via the construction of an ontological schema. In the first four
chapters, four different types of ontology — Platonic, Aristotelian, relativist and
set theoretical — are examined and judged according to their ability to produce a
consistent ontological schema of functional work. Three questions are brought to
each type of ontology: What are function and work such that there is functional
work? What is the ontological schema of functional work? What problem does the
latter raise for ontology? In the second project of the thesis, the four tasks of the
remodelling of praxis set out above are undertaken via the construction of an
ontological schema for praxis. This takes place in the chapter six alone.

The last of the three questions brought to each ontology is: ‘What
problems does the thought of functional work raise for ontology?’ It motivates the
journey of the thesis through the four types of ontology. The ontologies are
compared on the basis of their capacity to construct a stable ontological schema
for functional work in order to contrast it to that of praxis. Each of the first three
ontologies examined runs into difficulty when constructing the ontological
schema of functional work. The difficulty is the same in each case; the relation
between the one, the multiple and order cannot be established in a consistent manner. On this basis I argue that there are impasses in the discourse of ontology which transcend any particular philosopher’s ontology but recur in each insofar as the same fundamental categories are always at stake; the one, the multiple and order. The two impasses which are revealed as central during the investigation of the ontological schemas of functional work are, first, the relation between the one and the multiple and, second, the existence of order.

Since these impasses prevent Platonic, Aristotelian and relativist ontologies from constructing a stable ontological schema for functional work, the second project of the thesis, the investigation of the ontological schemas of praxis is not undertaken in these ontologies. It is only when I come to the set theory ontology of Alain Badiou, in which these impasses do not occur, that ontological schemas for both functional work and praxis can be developed in a consistent manner.

Given the assertion that the ontological impasses transcend the work of particular thinkers, the reader might well question why Plato and Aristotle’s ontologies are used to present a contrast in types of ontology rather than modern work on ontology. The reason behind the choice of Plato and Aristotle is that in order to understand the persistence of these impasses in the ontological schemas of functional work, one has to appreciate the place of functional work in the actual development of the discourse of ontology. Both Plato and Aristotle accord a central place to what can be called a hylomorphic theory of artificial production in the development of their ontology. One of the central concerns of Plato’s early dialogues is to order the multiplicity of different arts. He does so by developing a model of the craftsman’s art of production. He also illustrates the very relation between the Ideas and phenomena in a famous passage of the Republic by contrasting the production of craftsmen with that of the imitators. Aristotle bases his entire development of ontology as a separate discourse within philosophy upon an analysis of the production of craftsmen. Part of Aristotle’s legacy for the tradition of ontology was that production became one of ontology’s privileged names for being.

One could object, even so, Plato and Aristotle do not mount the strongest arguments found in the tradition for the type of ontologies they develop. Yet the basic articulation of the one, the multiple and order remain the same in any variation of these types of ontology. Roughly speaking, in idealism or transcendental dualism the multiplicities of phenomena or matter are ordered and unified by the action of the one in the shape of Ideas. These Ideas reside in a separate domain to that of the multiplicities of phenomena or matter. In materialism or immanent dualism, each being is a unified multiplicity consisting
of matter and form, form being the unity. The one is immanent to the domain of
multiplicity. Unless something fundamental is changed at the level of such
articulations of the one, the multiple and order, the impassses remerge whatever
variation of idealism or materialism one is dealing with.

In the third chapter I turn to monist relativist ontology because it appears
to present a fundamental change in the articulation of these three terms. The
chapter draws on two sources — Michel Foucault’s discursive archaeology, and
Richard Rorty’s pragmatism. Modern relativism is used rather than, say,
Protagoras’ relativism because the dominant common ontology of our times is a
historical or cultural relativism. If one of the philosophical tasks of the times is to
remodel praxis then the least one can do is see whether the dominant philosophy
of the times is up to the task. Pragmatism is chosen in particular because it
presents an ontology in which functional work is again a privileged object, but at
a global level, rather than the local level of a craftsman’s work. In pragmatism,
the knowledge claims of competing theories are judged according to the efficacy
of those theories in the world, that is, according to how functional their work is,
hence the famous formula: ‘It’s true because it works.’

At this point one should note that the range of examples of functional
work employed in ontology is limited. In the thesis the types of functional work
mentioned include the production of craftsmen, the continual self-reproduction of
a city, the efficacy of a theory, and various service industries. Their number is not
high, but more importantly, they range from the local to global, including work
performed by entire theories as well as by individual people. In any case, the
construction of their ontological schemas operates at a sufficiently abstract level
to cover their empirical differences. The result of the investigation of these
relativist ontologies is that the change they effect between the three terms — the
one, the multiple and order — is one of placement rather than articulation.
Consequently, the impassses of the one-multiple relation and the existence of order
remerge.

Although none of the ontologies prove satisfactory, the first three chapters
do meet with some success: the matrix of functional work in all its variety is
reduced to an ontological schema for functional work, however unstable — in
each of the ontologies, functional work is an ordered unified inclusive multiple.
The limits of philosophy’s matrix of functional work turn out to be precisely the
limits of these ontology’s ability to assure the stability of this schema — in each
ontology, impassses emerge in the one-multiple relation and around the existence
of order. It is only once an ontology is found in which these impassses do not
occur that first, the schema of functional work becomes stable, and second
another type of work than functional work can be thought in ontology, namely praxis.

In the chapter four, I turn to just such an ontology; set theory ontology, developed by Alain Badiou. At the end of chapter three I work out these three apparently different types of ontology — Platonic, Aristotelian, relativist — have in common such that the same impasses arise in each of them. My exegesis of set theory ontology shows how it, precisely, does not share in these common characteristics due to its rearticulation of the three terms—the one, the multiple and order. In chapter five the ontological schema for functional work — a unified ordered inclusive multiple — is both confirmed and accounted for in a consistent manner. In chapter six an ontological schema for praxis is drawn from Badiou's own thought of praxis. This schema fulfills the requirements of the four tasks for the remodelling of praxis — it provides a model of praxis subtracted from the One in any form. The thesis concludes by multiplying the domains of praxis from politics to art, science and love.

The Impasses of History

A question of method has arisen during the course of writing this thesis. It is possible to object that the approach of the thesis is ahistorical because it assumes that the same object ‘functional work’ can be found in each of the ontologies, when the historical provenance of these ontologies is widely different. The response to this objection is complex.

There is a history to ontology. This thesis sketches its own version of such history by moving in chronological order from Plato to Badiou. Yet the history of ontology is not the external measure of dates and epochs, it is internal to ontology, and for four reasons.

First, and most obvious, any history of ontology can only be told from within a moment of that history, from a contemporary viewpoint — such that any objective reproduction of some past authenticity is impossible.

Second, the nature of that contemporary viewpoint is historicist. As Michel Foucault argues, it is only in the modern epoch that ‘History’ is understood as the ground of thought—in this way the historicist’s objection is historicized.¹ That is, historicism itself has an implicit ontology wherein the ground of existence is named ‘History’. In chapter four I argue that the modern avoidance of the impasses of ontology requires ontology to be without ground — and so the historicist’s objection can be dismissed as outdated.

Third, in practice, modern ontologies are developed through a dynamic
dialogue with the tradition wherein Plato is as forceful a contemporary
interlocutor as Heidegger, and both in translation.

Fourth, the existence of change in ontology is not a matter of dates
whether attached to the names of thinkers, schools of thought, or institutions in
which philosophy was taught. Nor is it governed by a transcendent history of
being as Heidegger thought. It is created by the emergence and resolution of
impasses in the discourse of ontology. Each epoch of ontology is marked by its
particular impasses and the creation of a passage through these impasses opens up
new epochs of ontology. For example, there is an impasse singular to Greek
thought which is created by saying that speaking of what does not exist gives it
minimal existence. Its non-existence as an impasse in modern thought evidences a
series of fundamental changes in the thought of the relation between language, the
negative and being. The impasses traced in this thesis centre around the one-
multiple relation and the existence of order. They remain the same, despite
superficial changes in the placement of their terms, from Plato through to modern
relativist ontologies. Their historicity — and by consequence part of the
historicity of ontology — is created by the change in the articulation of their terms
that is effected by the emergence of set theory as ontology. It is in the passage
through these impasses that history occurs as change internal to ontology. The
result of the plurality of ontological impasses and the non-contemporaneity of
their solutions is that the historicity of ontology cannot be reduced to one linear
narrative — consequently, like praxis, ontology is subtracted from the one of
history.
Plato and Functional Work
Introduction

The first project of the thesis is to develop an ontological schema for functional work. This project is initiated in this chapter by an examination of the nature of functional work in Plato's ontology. The first step is an investigation of what falls under the heading of function and work in Plato's thought. The second step is the identification of the structures of their existence. These structures compose the ontological schema of functional work. The third step is to isolate the problems that arise in Plato's account of these structures.

Part one of the chapter looks at Plato's treatment of the production of artisans as a type of functional work in some of his early dialogues. It defines two types of function present in this functional work; teleological function and function as fitness. It proceeds to the identification of three structures of the existence of functional work: order, inclusivity and unified multiplicity. Finally, it examines the elements of functional work, such as matter and the Ideas, which make up its unified ordered inclusive multiplicity.

Part two looks at how matter and the Ideas are made into a unified ordered inclusive multiplicity in the account of the mechanism of a craftsman's production given in the Republic. In this text Plato explains how the craftsman brings order and unity to multiplicity by imitating the Ideas. A problem is then isolated in Plato's theory of Ideas concerning the location of the Ideas in relation to phenomena.

In part three of the chapter, further examples of this problem in Plato's theory of Ideas are found in three areas of Plato's thought, each of which forms a condition of the existence of the craftsman's production: the existence of the sensible world; the relation between Ideas and phenomena; and the existence of order in the shape of the Ideas. The argument is then made that this problem concerning the location of the Ideas is a problem which concerns the relation between the one and the multiple, and furthermore that it is unsolvable within Plato's thought. Once the consistency of Plato's theory of Ideas is threatened, so is the existence of order in Plato's cosmos. This unsolvable problem is the first ontological impasse uncovered in this thesis. It severely affects the capacity of Plato's ontology to account for the structures which compose the ontological schema of functional work — the unification of multiplicity and the ordering of multiplicity — thus the first project of the thesis cannot be completed using the resources of Plato's ontology. For this reason chapter two of the thesis turns to a different type of ontology in the hope that it may prove sufficient.
I The craftsman and the city

1 The existence of order

...one man to one work, in order that each of them fulfilling his own function may not be many men, but one, and so the entire city may come to be not a multiplicity but a unity. Republic, 423d

In the introduction to the thesis I gave a working definition of functional work, designed to guide the thesis' inquiries: functional work is a directed transformation of a state of affairs carried out by an agent or agents in an ordered manner according to a knowledge in order to achieve a preconceived goal. In Plato's dialogues such work is found in the form of the labour of craftsmen: in the Gorgias, Socrates talks about a craftsman's work (503d-504e). The preconceived goal of functional work is also found in the very same dialogue when Socrates says that the purpose of an action is its 'good' (467c, 468d). Within Plato's work, functional work takes the form of the activity of craftsmen which serves some Good.

For Plato, the purpose of craftsman's work is to produce a 'well-ordered' product. This, in the terms I define in the introduction to the thesis, is its teleological function. In order to fulfil such a purpose, there must be operational function at the level of the process of the craftsman's work. Plato writes:

Look, for example if you will, at painters, builders, shipwrights, and all other craftsmen—any of them you choose—and see how each one disposes each element he contributes in a fixed order, and compels one to fit and harmonize with the other until he has combined the whole into something well-ordered and regulated. (503e-504a)

In the introduction to the thesis I defined operational function as the role that a work-process played in a whole. Here, the operational function of each element and task of the craftsman's production is determined by an order: a temporal order of tasks to be completed, and a spatial order of the location of each material element in the finished product. For example, the temporal order of tasks in house-building determines that the plumbing must be laid before the concrete slab is poured. The spatial order of elements in house-building determines, for example, that the damp-proofing course

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1 In Hamilton & Cairns, ed., Plato: The Collected Dialogues (Princeton: Princeton University Press, 1961). Backer pagination is used and references will be signaled in the body of the text.
be laid between the concrete slab and the wooden frame. These orders determine the role of each task and element in the overall production process: the operational function of a craftsman's productions is assured by the existence of order. Without the existence of such order, the teleological function of their work will not be fulfilled: a 'well-ordered' product will not be produced; indeed Socrates remarks; "harmony and order will make a building good, but disorder bad" (504a).

One may conclude that one of the elements of the ontological schema of functional work is order: functional work is always ordered. If Plato's ontology is to succeed in satisfying the requirements of the first project of the thesis, not only must it provide a schema for functional work, but it must also account for the existence of each element of this schema. We must therefore turn to the investigation of the place of order in Plato's ontology.

The aim of the Gorgias is to decide "what kind of life one should live" (500c). The argument is pursued through a comparison between the life of a rhetorician or politician and that of the philosopher. During the exposition Socrates examines the plurality of the arts in order to compare them to rhetoric and find the latter wanting. He arranges this plurality according to the product proper to each art (452a-453a). Both the Ion and the Cratylus also contain similar discussions wherein Socrates organizes the plurality of the arts.¹ In each of these dialogues Plato insists upon the specificity and integrity of each art. In the Ion he states that each art has its proper object of knowledge and thus type of knowledge: "the mark of differentiation [between arts] is that one art means the knowledge of one kind of thing, another art the knowledge of another" (537d). In the Cratylus, Socrates states that what differentiates the arts are the particular skills of their practitioners (388c-e). If this is taken as a refinement of what he said in the Ion, this means that an artisan's skill is a type of knowledge. One would say in French that it is a savoir-faire, or in English, know-how. A general thesis about the existence of order can be extracted from these statements: any order, such as the order of the arts, requires a series of distinctions. These distinctions order the elements-to-be-ordered by giving each its own identity.

These considerations also reveal the presence of a further determination of operational function in Plato's thought: it involves the fitness of something to its activity. An instrument is operationally functional — it can play a particular role in a whole — if it suits its employment. For example, only a hex-key (or allen-key) can be used to put together *Ikea* furniture due to the specificity of its hexagonal shape. Only the particular knowledge of bedmaking will enable a craftsman to produce a bed. Three further examples of function as 'fitness' or suitability can be found in Plato's dialogues: that of the body's organs, of instruments, and of men to types of

¹ Ion, 537c–542b. Cratylus, 387d–390c.
work. First, during an examination of the whole and the parts of virtue in the
Protagoras, Socrates mentions the specificity of the body’s organs according to their
function. He states: “In a face, the eye is not like the ear, nor has it the same
function. Nor do the other parts resemble one another in function any more than in
other respects” (330a). Each organ has its own distinct shape according to its distinct
function. Second, in the first book of the Republic, Plato compares such a relation
between an organ and its function with instruments and their work (352e-353b).
Socrates asserts that the function of an instrument is the performance of the
particular activity for which it has been designed. He says: “The work [or function]
of a thing [is that which it only or it better than anything else can perform” (353a).1
The third example of function as fitness is that of the natural adaptation of a man to
his work. In the Republic, at the very beginning of his construction of the ideal city,
Socrates recalls the fact that; “one man is naturally fitted for one task and another for
another” (370b). Later on, part of the construction of the city is described as the
assignment “to each and every one man one occupation, for which he was fit and
naturally adapted and at which he was to work all his days” (374b-c). Socrates
argues that this division of labour is necessary to the effective operation of the city as
a collectivity (370c).2 As proof he points out that a man who engages in all the
activities necessary to satisfy his basic needs has no need of other men, and thus
excludes himself from any city.

Again, in each of the examples of function as fitness, a series of differences
lies behind the assignation of order. In each case, an element is assigned a function
due to its particular nature. Its nature is particular due to its specific differences to
other possible organs, instruments or men. It is thus these differences between
elements which lie at the base of the existence of order.

If one looks at the existence of order in Plato’s examples, it is always an
ordering of a multiplicity: organs, instruments, and men. A craftsman’s production
process is also a multiplicity, a multiplicity of materials, instruments and tasks. In
the Republic Plato launches his most sustained investigation into the necessary
conditions for the existence of order in a multiplicity: that of the ideal city. During
that investigation he defines the principle at the base of order in a multiplicity: that
everything has its place. The name of this principle is justice. The multiplicity that is
ordered in a city is a multiplicity of humans and types of work. Socrates says:

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1 In Paul Shorey’s translation—in the Collected Dialogues, originally appearing in the Loeb
Classics series—Socrates says that this is a thing’s “work or function.” The ancient Greek word is
2 We should note that this division of labour is between professions and is not the same thing as the
modern division of labour as the “atomization” of one production process into many minute tasks.
What we laid down in the beginning as a universal requirement when we were founding our city, this I think, or some form of this, is justice. And what we did lay down, and often said, if you recall, was that each one man must perform one social service in the state for which his nature was best adapted. (433a)

Not much later he persuades Glaucon to agree that “justice is the name you would have to give to this principle”, that of; “everyone in [the state] doing his own task”(433d). Everything having its place thus means that each particular element — human — has its own particular place — type of work.

In the introduction to the thesis I stated that the ontological schema of a being is the particular arrangement of the one, multiple and order that schematizes its structure. The epigraph of this section states:

...one man to one work, in order that each of them fulfilling his own function may not be many men, but one, and so the entire city may come to be not a multiplicity but a unity. (423d)

The ontological schema of each element and each place is thus that of a unity: not only that, but the unity of elements and places, as a condition of the existence of order in a multiplicity, is also a condition of the overall unity of such a multiplicity. Plato’s ideal city is itself a functional whole composed of a multiplicity of functional production processes. Its unity suggests that the ontological schema of functional work is not just an ordered multiplicity but a unified ordered multiplicity. This possibility must await confirmation based on a closer study of functional work processes. However, what is evident at this stage is that each element of an ordered multiplicity is itself a unity.

Part of the ontological schema for functional work in Plato’s ontology is ordered multiplicity. For a multiplicity to be ordered, a series of distinctions is required. Once those distinctions are secured, an ordered multiplicity is made up of a series of distinct unities. Yet it is still not clear what lies at the origin of order for Plato.
2 The origin of order

Wise men, Callicles, say that the heavens and the earth, Gods and men are bound together by fellowship and friendship, and order and temperance and justice, and for this reason they call the sum of things the 'ordered' universe, my friend, not the world of disorder and riot. (G.507e-508a)

In the early dialogues, one element of Plato's response to this question can be found in Socrates' championing of the Anaxagoras doctrine concerning the origin of order. Plato characterizes it in the Phaedo:

[It] is mind that produces order and is the cause of everything. This explanation pleased me. Somehow it seemed right that mind should be the cause of everything, and I reflected that if this is so, mind in producing order sets everything in order and arranges each individual thing in the way that is 'best for it. Therefore if anyone wished to discover the reason why any given thing came or ceased or continued to be he must find out how it was best for that thing to be, or to act or be acted upon in any other way. (97c-d)

There are two important points to draw from this passage. The first is that the production of order not only requires a series of distinctions, but also requires an agent, a cause. It is termed mind in the Anaxagoras doctrine. The second point concerns the relation between teleology and ontology. Teleology is the doctrine that the existence of phenomena can be explained by their purpose, by the Good that they serve. It provides a response to the ontological question of 'why any given thing came or ceased or continued to be'. The agent that assigns order does so according to the best way a thing can be.1 The criteria that determine this 'best way' can only lie with something's fitness for its purpose or its good.

In the Gorgias Plato raises the question of the origin of function as fitness in the situation of the craftsman's work (506d). Socrates' answer to this question is that the fitness or 'goodness' of something comes through art's assignment of order.2 A bed fits its purpose due to the art of bed making. However this does not explain what

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1 In the Timaeus the demiurge designs the universe towards the good by designing everything in the best possible way (30a, 68e).
2 "But surely the goodness of anything, whether implement or body or soul or any living thing, does not best come to it by the merely haphazard, but through a certain rightness and order and through the art that is assigned to each of them...The goodness of anything is due to order and arrangement I should agree. Then it is the presence in each thing of the order appropriate to it that makes everything good? So it appears to me." (506d-e)
is responsible for the suitability or 'goodness' of the carpenter's art with respect to bed making.

Plato proposes another explanation of the provenance of the goodness of an artisan's product. In the Cratylus Socrates says that a judgement concerning whether an instrument is the best one for a job is best made by the instrument's user (390b). The user of the product decides as to the 'fitness' of the instrument. The user decides if the product performs correctly and thus whether it has been given its proper form in its production. This raises the question of how a 'proper form' can be given to a product within production. All we know so far is that art 'assigns' order to the product. Later in the dialogue Plato sketches the relation between forms and the craftsman's work. Socrates asserts that in making a shuttle a craftsman looks to a form, the "true or ideal shuttle", rather than to any old particular shuttle (389b). However, he then complicates things by adding: "and whatever is the shuttle best adapted to each kind of work, that ought to be the form which the maker produces in each case". He continues: "And the same holds for other instruments. When a man has discovered the instrument which is naturally adapted to each work, he must express this natural form" (389c). This suggests that the true or ideal form must be discovered, as if through trial and error in experience, before it can be used as a model.

At this moment it is opposite to introduce the elements of Plato's ontology, which secure the 'series of distinctions', required for the existence of order. In the early dialogues there are two orders of existence, that of the Ideas or forms, and that of phenomena. The Ideas are held to cause the identity of each particular phenomenon. They thus provide the series of distinctions necessary to the existence of order. Socrates argues for the existence of Ideas, such as absolute Beauty and Goodness, in the Phaedo. He claims: "whatever else is beautiful apart from absolute beauty is beautiful because it partakes of that absolute beauty and for no other reason" (100c). The Ideas enable Socrates to develop a theory of causality which both includes and improves Anaxagoras' doctrine. Socrates agrees that mind is the cause of order in the universe, but adds that it causes order by producing things in accordance with the Ideas which give those things their identity. Hence in order to produce a shuttle, a craftsman refers to the Idea of shuttle.

I noted above that there appears to be some tension in Socrates' account of how a craftsman generates order in so far as at one point he says the craftsman simply refers to the Idea 'shuttle', and at another point he suggests that the ideal form of a shuttle must be discovered through experience and is not simply in the craftsman's possession. However, whether the Idea 'shuttle' is an unchanging part of the craftsman's knowledge or must be unearthed through the particularity of practice, Socrates doctrine is that the 'goodness' of any thing comes to it through the
‘assignment’ of its appropriate order. Any natural fitness of a particular shaping of a piece of wood which is discovered to be best through trial and error, must itself be the product of a prior assignment of order.

However, this is not a problem in Plato’s work, because in the cosmology he develops, there is a divine craftsman — the demiurge — whose art is responsible for any goodness found in nature. The demiurge himself refers to the order of Ideas in creating the cosmos and all its distinct phenomena. So far we know that at the origin of order in Plato’s ontology there is an agent and an order of Ideas. However, the problem remains of how any creator, whether craftsman or demiurge, assigns order through his art. This problem is addressed in section four.

The analysis of the ontological schema of functional work has proceeded so far under the heading of operational function. In the introduction to the thesis I argue that there is no operational function without teleological function and I identified the latter in Plato’s ontology above as the good that a production serves. In order to determine the overall ontological schema of functional work, teleological function must be subjected to the same scrutiny as operational function has been.

3 The Origin of Teleological function

For Plato, the arts are not only functional by virtue of their fitness but also because such fitness serves a purpose. Socrates states that arts seek the advantage of their object (342c). His examples include: the art of medicine which is devised according to the end of serving the needs of the body; the art of the pilot which serves the advantage of the sailors; and the art of the ruler which serves the interests of his subjects.

In the Republic Plato develops a model of an ideal city. The goodness of this city supposedly resides in the existence of justice, which is assured by its design. Plato’s account of the genesis of such a city is in fact an account of the genesis of teleological function. He claims that the origin of any city is lack:

The origin of the city, then, said I, in my opinion, is to be found in the fact that we do not severally suffice for our own needs, but each of us lacks many things. (369b)

Such insufficiency motivates the emergence of teleological action because the needs must be satisfied. Plato argues that a gathering of humans enables them to serve each other’s needs in exchange for service received. The manner in which they serve each other’s needs is to engage in functional work; in the production of food, clothes and shelter.
Evidently if these reciprocal services are not performed well, at any stage of a city's growth, on Plato's model the city will fall apart. A coherent relationship between purposeful activities is necessary to the maintenance of the unity of a city. An interlocking network of function is the condition of the totality, integrity and unity of the *polis*. The unity of the city is not simple; it is composed of a multiplicity of people and services. The existence of a unified multiple is found at the basis of function as fitness above. In this section it turns out that the same relationship between the one and multiplicity structures teleological function.

Take the production of a bed. It is produced in order to give someone something to sleep on. The Good of the production is the completion of the bed. The Good is thus one. It is singular. The actual production involves many different tasks, processes and materials. It takes place over a period of time. It is clearly multiple. Obviously one can invert such a schema by showing how a production is also one, and that its Good can be analysed as multiple. However, the point is that in the teleological explanation of the craftsman's work, the Good is the One that unifies the multiple of production. If a production had multiple purposes it would turn out multiple and thus confused and indistinct.\(^1\) The craftsman does \(a, b \& c\) to \(d, e \& f\) in order to realize \(z\). The unified multiple of a production can be termed a functional unit.

The complete bed serves the client's need to sleep somewhere. The Good now becomes the client's well-being. A functional unit can be understood as a link in a chain of purposes. The wood is shaped and fitted in order to make a bed in order to meet the client's need. Thus a unit or link is functional both in itself and with regard to its place in another link or unit. Any purpose can be linked into a chain and relativized by establishing its subjection to some other purpose.\(^2\) For example, the smith takes some iron to his forge in order to make an awl for the weaver such that the weaver can use the awl in order to make clothes for the people of the city to wear. A chain of interlocking purposes can be finally arrested by leading it back to fundamental human needs—the final purpose being the insurance of the survival of humans.

There is one major point to be made about functional units and chains of purpose. Each subjection of a purpose to another implies the placement of a functional unit within another unit. For example, from belonging to the situation of

\(^1\) The necessity of a production having a primary purpose does not rule out the existence of secondary benefits or of the killing of two birds with one stone. However it is *not just any* chain of causality which forms a chain of purposes. The accidental is not teleological because it does not take place due to the government of a production by its end.

\(^2\) Hannah Arendt says: "the relationship between means and the end on which it relies is very much like a chain whose every end can serve again as a means in some other context." *The Human Condition*, 153-4.
its production, the finished bed is placed in the situation of a client's needs. The clearest example of this type of inclusion of units or situations is the inclusion of every type of functional work within the city—Plato describes the city in terms of a whole and its parts (462c-c). The whole of the city depends upon the continual functioning of its parts. Another element of the ontological schema of functional work has been isolated—there are structures of inclusion. Each functional work process is included within the situation of the Good it serves (teleological function) and each process includes within it a multitude of tasks, themselves functional processes, which play a role in the overall functional work process (operational function).

The origin of teleological function is thus human needs. The ontological schema of teleological function includes both the unification of the multiplicity of a work process by the one of its goal, and structures of inclusion. If these are added to the ontological schema for operational function, the result—the ontological schema for functional work—is a unified ordered inclusive multiple.

It is clear that unified ordered inclusive multiples exist in Plato's ontology, such as the production of craftsmen and the overall functioning of the ideal city. What is not yet clear is how exactly Plato accounts for the existence of such multiples. To find out, we will return to the problem of how any creator, whether craftsman or demiurge, assigns order through his art.

4 The craftsman's material

In order to understand how order is assigned in a functional production one must first identify the elements of such a production. Apart from the agent of production and the order of Ideas there is also the material out of which the product is made.

In the Gorgias Socrates states that the existence of action presupposes the existence of what receives the effects of such action. He asks; "When a man acts must there not always be something acted upon by the agent?"(476b). He then asserts as a 'general rule' for action that "the quality of the patient's experience corresponds to that of the agent's action"(476d). Without such a rule, the series of actions which make up a craftsman's work process would never succeed in producing a particular product: there would be no guarantee, for example, that sanding a piece of wood would make it smoother.

In the Republic Plato reveals the nature of that which is acted upon: Socrates talks of a political artist who looks to the 'model' of the 'eternal and unchanging order' where he finds the "patterns" of "justice, beauty, sobriety and the like"(500c.d, 501b). The artist then reproduces these in "the city and the characters of men" which provide the material of his work. Plato introduces two characteristics
of such material. First, it must be "a clean slate," devoid of character or difference (501a). Second, it must be 'plastic' such that the artist is able to 'mold and fashion' it (500d).

Plato determines the nature of material further in the cosmology he develops in the Timaeus. In his analysis of the work of the demiurge—the creator of the cosmos—Plato defines three classes of being which form the elements of the production of the universe. First, the "pattern intelligible and always the same"—the eternal Ideas—second, "the imitation of the pattern, generated and visible"—created phenomena—and third "the receptacle and...nurse [chora], of all creation"—matter (48e-49b). This brief list could itself be described as an ontology of functional work. But it is incomplete without an account of the operations which relate the different classes of being.

Both characterizations of matter noted above — being devoid of difference and being plastic — are taken up in the Timaeus under the heading of the chora. Timaeus states that this third type of being is "formless and free"—it is devoid of character. It is also able to receive any impression so it is plastic and passive. However, and this is the important addition, it retains no impression. In the Timaeus Plato introduces a new category of being which could be termed matter-in-itself. It takes forms and gives forth formed things yet it remains formless.

Just before the passage in which Plato describes the chora he discusses what type of language is appropriate to the description of things which continually change. He says that those things which are volatile and admit 'opposite qualities' cannot be designated by a rigid term such as 'this' or 'that' but can only be indicated by an 'indefinite expression' like 'such.' What falls into this category is "everything that has generation" (49e). He uses an example of a person fashioning all sorts of figures out of a lump of gold, each figure being destroyed and remodeled into the next. He says that if someone else asked what one of the figures was, the best answer to the question would be to say, 'That is gold.' The reason being that the figure in question may have already been destroyed and replaced by another. Plato then writes, "the same argument applies to the universal nature which receives all bodies" (50b). Because the chora is "devoid of any particular form" it is indistinct and so for Plato knowledge can only capture its nature by using 'indefinite expressions' (51a).

The matter of creation is not only indistinct but it is also multiple, as is everything of generation. Like the gold, it continually forms as it receives impressions and then deforms. Each different form and its stages of deformation are elements of the chora's multiplicity. As both indistinct and multiple it cannot become a stable self-identical object of knowledge. What can only be expressed in 'indefinite' terms cannot be known in its details, or according to its qualities: save the quality of continual change. Hence the use of negative terms to designate it such
as ‘indefinite’ and later ‘indiscernible’. For Plato the possibility of knowledge resides in the Idea’s participation in particular things, that is, in its unification of a multiple. A unified multiple has distinct identity and is thus knowable in its detail.

The ontological schema of functional work is a unified ordered inclusive multiple. The ontological schema of the chora is an indistinct multiple. An indistinct multiple is also the ontological schema of a dysfunctional production with multiple purposes, mentioned above. Moreover, it is the schema for the imitator in Socrates’ ideal city.

In Book 3 of the Republic, the imitative poets are excluded from the ideal city because they fail to conform to the division of labour. In Book 10 Plato defends this decision by arguing that instead of performing just one art — ‘one man to one work’ — the imitators appear to perform many arts by presenting the products of such arts in another form in their artworks. By doing so they upset the rule of one occupation to each man. Plato writes:

If a man...who was capable of assuming every kind of shape and imitating all things should arrive in our city...we should say to him that there is no man of that kind in our city, nor is it lawful for such a man to arise among us, and we should send him away to another city...
(398a)

A man who appears to perform many arts also appears to be many himself. The knowledge proper to his art is that of imitating many other arts, it does not have its own proper subject matter or product. For this reason, as guarantee of the artisan’s identity, it produces a multiple identity. This is why the imitator lacks a proper place within the division of labour. Socrates says, “there is no twofold or manifold man among us since every man does one thing,” confirming that it is what a man does which secures the univocity of his identity (397e). For Plato, if a man does nothing other than appear to do many things, then a unique identity cannot be assigned to him according to his place within the workings of the city. The identity of the imitator is not simply missing, but rather it is indiscernible. That is, the imitator could be any one of the many artisans whose work he imitates.

This status of being any of many has the same ontological schema as the chora, an indefinite multiple, because the imitator is never simply any one of many: in his art he is always imitating the work of not one amongst others, but many other craftsmen. In turn this also means that the description of such multiples as ‘indefinite,’ which may suggest that the multiple does have identity but such identity is simply out of focus, can be refined by the use of the term indiscernible. Such multiples cannot be discerned according to a property or identity: the imitator is not
a carpenter or a plumber or a farmer but all and more; the chora is not a statue, a
tree, a lake, but all and more.

Another indiscernible multiple can be found in the Gorgias, this time as the
ontological schema of dysfunction. Socrates dismisses one disposition of the
material of a craftsman’s work as impossible. He terms it the ‘merely haphazard’
(503e, 506d). What is ‘haphazard’ could be anything; there is a complete absence of
‘fitness’. There is no design which orders the haphazard; left to the mercy of chance,
it has no proper identity and thus it is an indiscernible multiple. In the same dialogue
Plato writes of a group of ordinary people who will not be persuaded of a truth of
philosophy (G.474a). Such people are the very source of δοξα—opinion—which
Socrates continually contrasts to ordered well-founded philosophical knowledge.
From the perspective of the philosopher these people and their opinions form an
indiscernible multiple. In the Republic this type of multiple is also found in the
“anarchic and motley” form of democratic government and in the “manifold” nature
of the democratic man.¹

One last example of an indiscernible multiple serves to further clarify its
nature. In the Parmenides, the figure of such a multiple is raised in the second last
hypothesis. It is described as the multiple of multiples without One (164b-165c).
This means that an indiscernible multiple is neither a unity, nor is it made up of
units.

Matter is an element of any functional work in Plato’s ontology. In itself, its
ontological schema is an indiscernible multiple. However, once matter becomes a
part of a production process, it is first given the unity of being a piece of wood or
metal, and then given further ordered unity by being formed into a component of the
finished product such as a bed.

Within a unified ordered inclusive multiple everything has its place. Within
an indiscernible multiple, nothing has any place: there are neither distinct places nor
distinct elements. For this reason, a unified ordered multiple cannot include an
indiscernible multiple as one of its elements for it would introduce disorder at a
micro level. This is why Plato excludes the imitators from the city. The city is a
functional whole which, as such, can only include functional units; themselves being
unified ordered inclusive multiples.

¹ In Book 6 of the Republic Socrates asserts that the degeneracy of the majority is inevitable
(489c). He contrasts the “madness of the multitude” which infects any “present politics” to the well
ordered multiple of the ideal city (496c). The democratic man, like the chora, continually changes
because he is subject to “the appetite of the day” such that he can be found “now winebibbing and
abandoning himself to the lascivious pleasing of the flute and again drinking only water and
dieting, and at one time exercising his body, and sometimes idling and neglecting all things, and at
another time seeming to occupy himself with philosophy” (561d).
However, the matter of how any creator, whether craftsman or demiurge, assigns order through his art remains unclear. What is missing is an account of how a craftsman relates the order of Ideas to either created things or to the chora.

5 The Idea and the Product

In Book 10 of the Republic Socrates justifies the exclusion of the imitators from the city by analysing the nature of a painter’s productions in contrast to those of a craftsman. He does not compare the actual work processes but rather the ontological status of respective products. Socrates starts his inquiry by his "customary procedure" of "positing a single idea or form in the case of the various multiplicities to which we give the same name" (596a). Socrates takes couches as an example of such a multiplicity. The craftsman "fixes his eyes on the idea or form" whilst making a couch which is one of many (596b). The painter on the other hand works with his eye on a mere material bed. This results in a different ontological status for each of the products of their work. Plato distinguishes between real being of the idea 'couch', and that of the particular couch which "resembles real being" but "is only a dim adumbration in comparison with reality"(597a-b). Finally, the type of being of the painter’s couch is that of a mere phantom, a simulacrum.

It is therefore the process of imitation that assigns order to the product and assures that a work process achieves its purpose. It establishes the relation between the order of the Ideas and the craftsman’s materials. Plato does not inquire into the particular relation between the Idea of the product and each part of the actual work process. He simply identifies the craftsman’s work as a process of imitation. If this process is successful the product will belong to the multiplicity which is unified by the idea 'Couch.' The test of such belonging is whether or not the product resembles the Idea.

The teleological function of a craftsman’s production is to produce a bed. The operational function of the production process, the order of tasks and of materials, is determined by this goal: certain materials are selected for their fitness, and certain processes are carried out before others. The multiplicity of the production process is thus unified by its goal; each task and piece of material belongs to the overall unity of the production of a couch. If it were the production of a horseshoe, different materials and tasks would be required. The goal of the production process

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The account of the provenance of the identity of the form being Nature drops out of this characterization of the role of the Ideas in a craftsman’s work. This omission can be attributed to the particular concerns of the discussion of production in the Republic but it does suit the general direction of Plato’s thought in this dialogue within which the ideas are determined as transcendent and separate — most notably in the parable of the Cave.
is known to the craftsman during the process as an Idea. The production process is thus unified by its goal due to the craftsman’s imitation of the Idea. It is therefore the unity of the Idea ‘couch’ which ultimately unifies the multiple of the production process. The fitness and function of a craftsman’s work is thus the result of a correct determination of the multiple by the one.¹

The ontological schema for functional work in Plato’s ontology has been determined — a unified ordered inclusive multiple — but what has not yet been determined is whether Plato’s ontology can account for the relations between the elements of this schema.

In Plato’s ontology the relation between the Ideas and phenomena, imitation, is the relation between the one and the multiple. This relationship is guaranteed by two further elements of Plato’s ontology: the work of the demiurge and the Good.

¹ Aristotle takes up this articulation of the one and the multiple with his terms of the universal and the particular. Plato himself refers to the couch that the craftsman makes as “particular” (597a,d).
II Grounds of Functional Work

1 The Work of the Demiurge

Functional work occurs within the world. Yet in order for the world to exist the first functional production had to occur, that of the demiurge's creation of the world. The work, which causes the existence of that particular unified multiple within which all other functional work occurs, transcends that unified multiple. The questions which follow concern whether it, in turn, has the ontological schema, like all other functional work — for it must be functional — of a unified ordered inclusive multiple.

In the *Timaeus*, Plato's creator is subject to desire and teleology: "God desired that all things should be good and nothing bad" (30a). The goal of his production is to make all things good. Earlier in the chapter I mentioned that for Plato the existence of phenomena could be explained by their purpose—by their Good. The demiurge's desire is thus the guarantee of the place of teleological explanation in ontology.¹

The demiurge creates the temporal order and so he must exist, as he works, outside time in eternity (37d-e). However, if one thing is central to teleological production it is time. The process takes time to realize its goal. The demiurge is therefore both inside and outside the temporal order. This is a classic aporia of accounts of creation. Aristotle argues the temporal order cannot be created because the act of creation implies time: the temporal order, as created, would come into being at a certain point in time; "Nor can time come into being or cease to be; for there could not be a before and after if time did not exist."² This aporia is sometimes solved by identifying the being of the creator with either its own continual action (Aquinas) or with the continued existence of its creation (Spinoza).³ The creative action is then rendered immanent to the created world such that it doesn't just happen 'in the beginning' but happens all the time in a kind of continual beginning. In such an account the product of creation becomes the same as the act, the perpetual

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¹ Timaeus says: "Everyone will see that [the creator] must have looked to the eternal [when making the world] for the world is the fairest of creations and he is the best of causes" (29a). Within a teleological ontology the identity of each phenomenon is determined by its telos, its good. In the ontology of functional work, what is proper to any element, its 'fitness,' is what is best according to the element's relation to what it serves and to the functional whole.


³ See Spinoza for example, where God is identified with the whole of creation (B. Spinoza, *The Ethics*, trans. Carley [Penguin Books, 1996], bk. I, P15, P18, 10, 16).

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work of creating. Plato however, does not resolve this aporia. As a result it is doubtful whether the demiurge’s production can indeed be described as a multiple of succeeding tasks: creating the soul, then the corporeal universe, then the heavens (36d-37d). A production taking place in eternity would either take place instantaneously, or each part of it would always be taking place. In either case, the demiurge’s production as outside time cannot be described as a multiple in the same way as other functional production.

Like the craftsman, the demiurge fashions the world while looking to the Ideas as a guide (29a). The existence of the Ideas also poses a problem for Plato. In the Republic Plato states that God created the Ideas (597b). In the Timaeus, on the other hand, the Ideas are referred to as eternal; the demiurge does not create the intelligible order. This is in accordance with Plato’s doctrine of the Ideas being eternal because they remain the same in contrast to sensible things which change and so belong to the domain of generation and decay (27d-28a). In this case Ideas lie at the beginning of all things, including the demiurge’s work. However, there are grounds for suspicion that this is not so since Plato mentions a “father and maker of all this universe.” Yet Plato prevents further inquiry here by having Timaeus excuse himself from accounting for such a figure, saying that he is “past all finding out” (28c). If the Ideas were created then their creator would exist before the Idea of such a creator existed. However, in Plato’s theory of ideas, the identity of any entity depends upon the existence of its Idea. Hence, the creator of the Ideas is left in the curious position of being without an identity, such as ‘the creator of ideas’, before the ideas are created. Given such difficulty, the order of Ideas must therefore be eternal. As eternal, and as the source of order, they assure that the demiurge’s production is ordered whether it is multiple or not.

The fundamental question of classical ontology which underlies the aporia in accounts of creation is that of the location of the One (the act of creation) which unites the multiple (the cosmos). Ontology’s classical answers to this question are that the one is immanent to that multiple (Spinoza) or that it transcends that multiple (Plato). Each of these solutions raises its own problems concerning the relationship between the one and the multiple. It is precisely such a problem that is shown to affect the order of Ideas in section three below. First though, the position of the Good in Plato’s ontology must be investigated since it is held to guarantee the relation between the Ideas and phenomena.

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1 See also Jean-Luc Nancy in The Muses. (Stanford: Stanford University Press, 1996) presents an avatar of this solution when he argues, in the wake of Heidegger, that the being of beings is only given in each singular finite being, it is not a single ground of all beings such as Hegel’s absolute, or Plato’s demiurge but rather, each thing’s exposure to the world in its perpetual coming to sense. See also Nancy, The Birth of Presence (Stanford: Stanford University Press, 1993).
2 The Good beyond being

In Plato’s ontology there can be no knowledge without the existence of Ideas and their relation to phenomena. The Ideas give identity to phenomena rendering phenomena knowable. Indeed in the early dialogues Socrates argued from the existence of knowledge to the existence of Ideas. In the Republic Plato adds a term to this foundation for knowledge in his parable of the Sun: the Good. He writes:

As the good is in the intelligible region to reason and the objects of reason, so is [the sun] in the visible world to vision and the objects of vision...This reality, then, that gives their truth to the objects of knowledge and the power of knowing to the knower, you must say is the idea of good, and you must conceive it as being the cause of knowledge, and of truth insofar as known. Yet, fair as they both are, knowledge and truth...to think that either of them is the good is not right. (508b-c, 508e-509a)

The existence of knowledge requires a relationship between the Ideas and phenomena. If the Good is the cause of knowledge, one can infer that it must secure that relationship.

There is a certain amount of knowledge required for the craftsman’s work—it forms what is called his ‘art’. It lies behind the ‘fitness’ of each task a craftsman performs during the production process. If there is no knowledge without the Good, then there is also no craftsman’s know-how nor function as fitness without the Good. The Good also grounds teleological function since Plato writes: “the greatest thing to learn is the idea of the good by reference to which just things and all the rest become useful and beneficial” (505a). The Good is the reason behind, and the goal of, every human action (505e). It is purpose ‘itself.’

The Good is in a curious position in Plato’s ontology because it is both an Idea and something which guarantees the relationship between Ideas and phenomena. Plato reflects the oddity of its position by stating that the Good is at the ‘limit of the intelligible.’ He also states that there is an idea of the good yet “we have no adequate knowledge of it” (505a).1 Plato says; “the good itself is not essence but still transcends essence” (509b). In other translations this is rendered as ‘the good is beyond being.’

1 If the Good is both an idea and unknowable, then this could be read as just one instance of a general rule; that of the ideas being unknowable ‘in themselves.’ This emerges here and there in Plato’s theory of Ideas. For example, in the Meno Socrates concludes that virtue itself cannot be known (99b, 100a). Parmenides exploits and criticizes such a rule in the Parmenides (133c-134e). However in this passage of the Republic the status of the Good as unknowable is directly contrasted to the knowable intelligible realm.
I said above that the relation between the Ideas and phenomena is one of imitation and it is brought about, within the cosmos, by the demiurge’s production of all phenomena as copies of Ideas. The general term Plato uses for the relation which then obtains between Ideas and phenomena is resemblance; a phenomenon resembles its Idea. The demiurge’s production is itself guided by an Idea, the Idea of the Good since the demiurge “desired that all things should be good” (30a). Thus in order to guarantee the relation between the Ideas and phenomena Plato ultimately has recourse to another element of his ontology, an element which, unlike anything else in his ontology, is both in and beyond the order of Ideas. In itself this is not a problem for Plato, but at a general level it provides evidence of the lengths philosophers have to go to — positing exceptional entities beyond not just perception but also knowledge — in order to secure the relationship between the one and the multiple. However, it has not yet been shown that this relationship actually forms a problem for either Plato or ontology in general. First, its manifestation in Plato’s ontology must be analysed.

3 The Consistency of Order

In Plato’s ontology there can be no functional work without the existence of the order of Ideas. A craftsman assures that his work fulfills its function by regarding the Idea of his product. Not only that, but due to the prior work of the demiurge, there would be no order amidst his knowledge and his materials without the existence of the order of Ideas. But for the order of Ideas to exist they must be consistent. That is, for each multiplicity of particular things, each of which is X, there must be just one unique Idea of X-ness. For instance, for all brave acts there is one Idea ‘Bravery’, or for all beds there is one Idea ‘Bed’. This part of Plato’s theory of Ideas is termed in the scholarship the One over Many principle.1 Plato developed the theory of Ideas in order to explain how knowledge of particular phenomena is possible when the sensible world is continually changing. The theory of Ideas posits an eternal order of unchanging Ideas that causes particular phenomena to have certain characters or a certain identity. A particular act is brave by virtue of it participating in the Idea ‘Bravery’. Knowledge of particulars is then possible because it is knowledge of something which is single and eternal, ‘Bravery,’ within the multiplicity of changing sensible phenomena, such as actions. The single Idea Bravery makes a multiplicity of acts into a unified multiplicity of ‘brave acts’ by giving them identity: in other words, they are brave acts by virtue of participating in the single Idea ‘Bravery.’

In the account of functional work in the Republic and the Timaeus the relationship between these single ideas and the multiplicity of phenomena is termed by Plato one of resemblance: a particular bed resembles the Idea 'Bed.' In the other dialogues of what is termed Plato's 'middle period', such as the Phaedo, the relationship between the Ideas and phenomena is termed participation, or 'having a share of' (Ph.106b-c).\(^1\) In the Parmenides, Plato casts serious doubt upon the very existence of an eternal order of Ideas by having the character Parmenides mount a series of arguments which show that neither participation nor resemblance give a satisfactory account of the relation between the Ideas and phenomena. The result of these arguments is that there is not one unique Idea which unites a multiplicity of phenomena, but an 'indefinite multitude' of Ideas. The arguments do not meet with an explicit refutation in either the Parmenides or any of Plato's subsequent or contemporary dialogues such as the Philebus, the Sophist, or the Laws.

Parmenides gives five arguments against Socrates' presentation of the theory of Ideas. Two of them are of concern here, the one aimed at participation, termed by Aristotle and in Plato scholarship, the 'Third Man Argument', and the one aimed at resemblance. Before entering into an exegesis of these arguments it is worth noting that there is considerable controversy over Plato's intentions in having these arguments both occur and go unanswered in one of his dialogues. Some scholars suggest that Plato did not take Parmenides' arguments seriously and that in fact Parmenides' demonstration of a superior philosophical method in the second half of the dialogue is a joke.\(^2\) In support of this position they argue that one cannot conclude that Plato held a particular view simply because he put it in the mouth of one of his characters. The fact that Plato did not respond to Parmenides' arguments in his later dialogues is cited as evidence that he did not take them seriously. Lastly the charge is made that Plato couldn't have taken these arguments seriously because they are so badly made, indeed Peck labels them the arguments of a sophist.

However the first two points ignore the content of Parmenides arguments. No judgement of their import is complete without an examination of what they actually say. It is for this reason that other scholars have analysed the arguments in detail, seeking to determine whether or not they are in fact badly made. These scholars also point out that the arguments may have consequences for Plato's theory of Ideas irrespective of whether the arguments are addressed by Plato in later dialogues.\(^3\) The

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\(^1\) Robert Turnbull offers the latter translation of the Greek term methexis. See R. Turnbull, The Parmenides and Plato's Late Philosophy (Toronto: The University of Toronto Press, 1998).


\(^3\) See for example the work of Gregory Vlastos, Wilfrid Sellars, Colin Strang and S. Marc Cohen.
focus for our inquiry is first whether such consequences exist, and second whether Plato’s theory of Ideas survives them.

Parmenides opens the Third Man argument by presenting a sketch of the theory of Ideas to Socrates and asking whether it is a fair portrayal of what Socrates holds:

I imagine your ground for believing in a single form in each case is this. When it seems to you that a number of things are large, there seems, I suppose, to be a certain single character which is the same when you look at them all; hence you think that largeness is a single thing.

Socrates assents to this portrayal. Parmenides then argues:

But now take largeness itself and the other things which are large. Suppose you look at all these in the same way in your mind’s eye, will not yet another unity make its appearance—a largeness by virtue of which they all appear large?

Socrates cautiously agrees. Parmenides then concludes:

If so, a second form of largeness will present itself, over and above largeness itself and the things that share in it, and again, covering all these, yet another, which will make all of them large. So each of your forms will no longer be one but an indefinite number. (131c - 132b)

Gregory Vlastos points out that nothing forces Socrates to assent to the validity of Parmenides argument as it is presented. For this reason Vlastos argues there must be further premises to the argument which Socrates implicitly accepts. First, he must accept the premise of ‘self-predication’ (SP): the Idea corresponding to a given character itself has that character. Otherwise, Socrates wouldn’t have to accept that largeness itself is included in a multiplicity of large things which ‘all appear large’. That Socrates would have accepted the self-predication of Ideas as an implicit premise is apparent from dialogues in which Socrates states the Idea Beautiful is beautiful insofar as it is ‘absolute beauty’, and Justice itself is just. A number of scholars have also pointed out that Plato has to grant self-predication for forms such as Unity, Being, and Difference since the forms must have unity, exist, and be different from each other.

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2 Ibid., 351
3 See the Phaedo, 74d and the Protagoras, 330c.
Vlastos argues that the SP premise alone is not sufficient to form the argument since the Idea 'largeness' may well itself be large by participating in itself rather than in a second Idea of Largeness. This leads him to introduce a second implicit premise termed the 'Non-identity premise' (NI). It states: "If anything has a given character by participating in an Idea, it is not identical with that Idea." Thus if a series of large things and the Idea Largeness all have the character of largeness then it can only be by virtue of their participating in a second Idea of Largeness. Again, that Socrates would implicitly accept such a premise is evidenced by numerous passages in the dialogues where Plato stresses the difference between things which participate in Ideas and the Ideas themselves. Plato also held that the Ideas were separate from particular phenomena, as Parmenides stresses in his presentation of the theory of Ideas: "Have you yourself [Socrates] drawn this distinction you speak of and separated apart on the one side forms themselves and on the other the things that share in them?" (130b).

If these two implicit premises, SP and NI, are added to the initial proposition, termed the One-over-Many principle, — that a number of things are large by virtue of participating in a single Idea 'Largeness' — then Socrates’ assent to Parmenides’ argument is understandable. The aim of Parmenides’ argument is to refute the One-over-Many principle: he succeeds by showing that there is not just one unique idea of Largeness but an indefinite multitude. However, Vlastos along with a number of other scholars noticed that the premises of the argument are inconsistent. In Vlastos’ formulation, given the One over Many principle: “anything having a given character must participate in a unique Form corresponding to that character”; and given the SP premise, “this Form itself has that character,” then one can hardly grant as a further premise NI, “nothing having that character by participating in a Form can be identical with that Form.” The problem then becomes that logically, a set of inconsistent premises justifies any conclusion, not just Parmenides’ conclusion.

337). Vlastos also argues that Plato’s presentation in the Republic of the Ideas as first having a higher degree of reality than the particulars and second being models of which the particulars are copies, on both counts implies that the Ideas participate in themselves. The Idea White is more white than white things; if white things are copies of White, then the Idea White must be white. See G.Vlastos, “The Third man Argument in the Parmenides” in Studies in Plato’s Metaphysics, 248–9.


2 As Sayre notes, Plato stresses that the Ideas, unlike particulars are: wholly themselves; more real than particulars; autonomous in that they don’t depend on particulars for their being whilst particulars do depend on Ideas for their being; and eternal and unchanging. See K.Sayre, Plato’s Late Ontology (Princeton: Princeton University Press, 1983), 5–7.

3 Vlastos, “Plato’s ‘Third man’ Argument: Text and Logic,” 353. See also Vlastos’ earlier essay where he finds a direct contradiction between SP and NI in so far as if SP is ‘F-ness is F’ and if NI is ‘if x is F, x cannot be identical with F-ness’ then one can substitute F-ness for the variable x in the NI premise and get the contradiction ‘If F-ness is F, F-ness cannot be identical with F-ness’ (“The Third man Argument in the Parmenides,” 238).

4 See S. Marc Cohen on this point “The Logic of the Third Man,” 450–451.
Various attempts have been made to adjust both the two implicit premises and the formulation of the One-over-Many principle such that they are consistent. However, whether such adjustments are still in conformity with Plato's text, whether Plato himself was aware of the inconsistency in Parmenides' argument, and whether the argument is a reduction and as such designed to reveal faulty premises, is beside the point. What the argument reveals, and here there is accord amongst the scholars, is that the theory of Ideas is seriously flawed because Plato admits self-participation and non-identity without thoroughly defining their areas of application. For example, self-participation could be restricted to 'framework' Forms which characterize the Forms themselves: Unity, Being, Changelessness, Difference, Identity, etc. Non-identity could be held to only apply to particulars, excepting Forms so that if a Form had its own character, it could do so by participating in itself. However Plato did not make these adjustments in any of the following dialogues. Some scholars have suggested the reason behind this lack is that such adjustments would have adversely affected other tenets of the theory of Ideas. For example, Vlastos argues that the 'Degrees of Reality' thesis advanced in the Republic implies self-participation in so far as the Idea Table is more of a table than a particular table.¹

Parmenides mounts a further argument against the One over Many principle, this time exploiting the symmetry of the relation of resemblance. It has no need of implicit premises. In both the Republic and the Timaeus Plato explains how a particular participates in an Idea by stating that it resembles the Idea. Parmenides argues that if this is so, not only will a particular bed resemble the Idea 'Bed', but that Idea will also resemble the particular bed. If this is so, Parmenides continues, then that in which the idea resembles the copy is what they both participate in, it is what unites them. It is the real Idea 'Bed'. A second Idea 'Bed' is thus generated. If in turn the relation between it and the two 'beds' it just united — the initial Idea 'Bed' and the particular bed — is one of resemblance, then a third Idea 'Bed' will be generated and so on (133a). Each Idea which is held to unify a multiplicity and cause the multiplicities' identity is itself revealed to belong to a further multiplicity whose identity is caused by a further uniting Idea and so on. The ones, the Ideas, which unify the multiplicity of particulars, cannot be securely located. Again, the One over Many principle is ruined: there is no unique Idea 'Bed' which unites the multiplicity of particular beds.

Again, although modifications in Plato's theory of Ideas occur notably in the Sophist and in the Philebus, there is no explicit response to this argument in the dialogues.² These arguments reveal that Plato was not able to assure the consistency

² Sayre, 12.
of the order of Ideas. The problems that he met revolve around the relationship between the one and the multiple. If there is an indefinite or infinite multiple of each Idea rather than one unique Idea then the Ideas cannot unify a multiplicity of particular phenomena, nor can they guarantee knowledge.

Due to these problems, Plato can no longer account for the existence of order in the cosmos. In later chapters the relation between the one and the multiple and the question of the existence of order are revealed to be distinct, but often related, problems which cause intractable problems for other ontologies.
Conclusion

In this chapter functional work is found in two forms in Plato’s ontology: the production of craftsmen and the demiurge’s creation of the universe. The necessary and sufficient conditions of existence of such functional work according to Plato are the same in each case save those which involve the existence of the demiurge. They are five in number.

The first condition is that the work processes, the material and the craftsman’s art must have operational function in the form of their ‘fitness’ for the job. The condition of existence of fitness is the existence of order as a series of distinct identities. In Plato’s ontology it is found in the order of Ideas. The second condition is that there must be teleological function: there must be a goal of the production. For there to be a goal, there must be an idea of the Good. The third condition of the existence of functional work is that the fundamental elements of such work exist — an agent, matter and time. In Plato’s ontology, matter forms the third type of being — after the Ideas and the phenomena — and the demiurge creates both time and all animals including those which are human agents. The fourth condition is that there be a relation between the order of Ideas and phenomena such that the agent of production can shape his matter according to the Idea of his goal.

The goal of this chapter though was not to identify the conditions of existence of functional work. It was to identify the ontological schema of functional work: the basic structure of functional work. Each of these four conditions of existence has its own ontological schema; matter is an indiscernible multiple; the order of Ideas is a series of distinct ones or unities; the agent is a unity; the Good is a unity. Once the conditions are brought together in an actual functional work process the overall structure can be schematized as a unified ordered inclusive multiple.

The problems raised by Parmenides’ arguments have grave consequences for Plato’s account of functional work. Without a consistent order of Ideas, there is no account of order in the sensible world: that order which assures the distinct identity of each art according to its object, such as health for the art of medicine and shelter for the art of building. More immediately, without a consistent order of Ideas, Plato has no account of how work is functional. The inconsistency in Plato’s theory of Ideas thus affects the capacity of his ontology to account for the existence of functional work.

Plato’s work on the production of craftsmen reveals the ontological schema of functional work to be a unified ordered inclusive multiple. However, Plato’s ontology cannot consistently account for the relationships which constitute this schema: that between the one and the multiple, and that between order and the
multiple. Evidently, if our project is to meet with success, another type of ontology is required. There are two tasks to be carried out in relation to another type of ontology. First, whether or not the same schema for functional work occurs in different ontologies must be determined. Once this is done, the relationships which constitute such a schema can be tested. In the following chapter, both of these tasks are carried out with reference to Aristotle’s ontology.
II

Aristotle and Functional Work
Introduction

Aristotle's ontology has classically been presented in opposition to Plato's. In the place of Plato's speculation concerning a domain of absolute and eternal Ideas, one has Aristotle's attention to the make-up of concrete individual things. In Plato the source of the unity of particular beings transcends them and is found in the domain of Ideas whilst in Aristotle, the source of a particular being's unity is immanent to it, found in its form. In this chapter we shall see whether this difference between Plato and Aristotle's ontologies carries over into their fate once faced with the project of constructing an ontological schema for functional work. Plato's ontology failed, what chance Aristotle?

Functional work is found in Aristotle's *Metaphysics* in the form of the production of craftsmen, just as in Plato. Aristotle's analysis of the elements of such production is essential to the development of his ontology. It is in the *Metaphysics* that Aristotle inaugurates ontology — the science of being qua being — as a particular discipline within philosophy. He terms it 'first philosophy'. The fundamental question for this new science is 'what is being?' (1028b4). At the beginning of book VII Aristotle claims that this is the same question as 'what is substance?'; that is, he argues that all the different ways of speaking of being, such as the predication of qualities, always speak of being with reference to a single self-identical independent entity — substance. His prescription for first philosophy is that it should search for the primary causes of being (1028a3). The answer to the question 'what is substance?' must therefore name a cause of substance. The production of artisans provides Aristotle with an ideal arena for an investigation of the causes of substance since it presents a type of change in which a new substantive emerges, the product. Furthermore, since Aristotle holds to the doctrine that

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2 "what being is is just the question, what is substance?" (VII.1, 1028b4) Two reductions are necessary for such an identification. First of all, Aristotle says that being is said in four ways (VI.2,1026a34); accidental (VI.2-3), potential or actual (IX.1-9), categorial (VII-VIII), and according to truth or falsity (V.4 & IX.10). The first reduction is that of being to categorial being. Aristotle performs the second reduction by arguing for the primacy of substantial being over other forms of categorial being via the *pros hen* doctrine which postulates the primacy of the one (IV.2 & VII.1).
“nothing can come out of that which is not,” there must be something behind the emergence of such a substance (III, 4, 999b8). In book I Aristotle states that his examination of causes of being — of why a substance is such — is an examination of how a generation takes place (1, 8,988b). In this case the generation is an artisan’s production of a bed or a couch. At this stage we can infer that for Aristotle the function of an artisan’s work is to produce a new substance. For this reason the investigation of the causes of substance is at the same time an inquiry into how functional work takes place.

Four different types of cause are found in Aristotle’s investigation: formal, material, efficient, and final. Only the efficient cause corresponds to our modern sense of cause as an event which brings about another event. This chapter develops an exegesis of Aristotle’s analyses of these causes. During the course of the exegesis the concerns of the first project of the thesis are addressed: the nature of functional work and its ontological schema. As the ontological schema is revealed, the capacity of Aristotle’s ontology to account for its relationships is also revealed.

I Principles and causes of being

For how is there to be order unless there is something eternal and independent and permanent? (XI, 2,1060a25)

The moving cause of a house is the art or builder, the final cause is the function it fulfils, the matter is the earth and stones and the form is the definitive formula. (III, 1,996b5)

In Théorie du sujet Alain Badiou claims that being has always been thought according to the basic categories of cause and consistency. Aristotle’s first philosophy appears to be a perfect case of an ontology organized around the thought of being as cause. In the first book of the Metaphysics Aristotle signals that the subject of the treatise is a science of primary causes or principles (I, 3,982a). In the second book he states that principles “are the causes of being of other things” (II, 1,993b). Those ‘other things’ are substances (II, 1,994a). In the middle books of the

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1 “It is impossible that there be a production of anything if nothing preexist.” (VII,7,1032b30 McMahon) Also, “All things however that are produced are produced by means of something, and from something, and become something.”(VII,7,1032a11)

Metaphysics, Aristotle deciphers the causes of substance by working out how the productions of artisans are functional; that is, how new substances are generated.

Yet consistency also emerges as important to Aristotle’s project, and in two respects, the consistency of the cosmos and the consistency of the discourse on that cosmos. First, Aristotle’s cosmos is an ordered one. To secure such order, a cause does not act once at the beginning of a production or movement, but continually commands the latter.¹ Aristotle does not make an explicit distinction, as we would in modern philosophy, between a cause as an event or agent of a movement, and the law according to which that movement proceeds. That a movement proceeds in a regular manner is taken by Aristotle as evidence of the continued action of its cause. Speaking of the prime mover as efficient cause of the cosmos, Aristotle says; “For if the first principle persists, the All will also persist, since the All is continuous with the first principle” (P, VIII, 6,259b25). Such coverage is completed by the principles both being identified as beginnings; “Principles...are themselves the beginnings of everything”, and as ends; “Principles are a kind of termination” (P, I, 5,188a29 & M, V, 17). The operation of the principles as causes of being must both be continual and consistent. Otherwise, as the epigraph states, there would be no order, and the beings determined by the causes would be unruly and indeterminate.

Second, the knowledge of such causes must itself be ordered and consistent. Aristotle says:

It is necessary therefore, to examine also how one should speak of everything not certainly, at any rate, more than how each thing subsists or is disposed. (VII, 4,1030a)

In the science of being qua being one cannot speak in any manner whatsoever, one cannot speak in a disordered manner. The discourse on being must be as consistent as being itself.

As causes of being, principles themselves have being. When Aristotle investigates the causes of artificial production, he is searching for items which have a real force in the world.² In each of the following sections I look at the type of being each cause has, its location, and its unity. A number of problems turn up in Aristotle’s investigation of the causes of substance. These problems affect the

¹ “Arche is not a simple beginning that is left behind by what follows, on the contrary, it never ceases to begin, that is, to govern that whose ever bursting forth inception it is.” Pierre Aubenque, Le Problème de L’Etre chez Aristote (Paris, 1966), 193. See also R.Schurmann, Heidegger on Being and Acting: From Principles to Anarchy (Bloomington: Indiana University Press, 1990), 97–98.

² Aristotle refers to craftsmen’s production as artificial in contrast to natural productions, and the productions of chance (VII,7,1032a11).
capacity of his ontology to account for functional production. The consequences of the problems are addressed in the conclusion.

1 The Formal Cause

Aristotle says the formal cause is responsible for what a substance is. Therefore the formal cause of a craftsman’s production determines what type of product is made. In book VII, Aristotle says that everything which is produced “comes to by the agency of something, and from something, and becomes something” (VII, 7,1032a12 my italics). Of these three areas, the formal cause plays its role in a product ‘becoming something’. However, that something is not the form itself: Aristotle considers and then argues against the thesis that what results from a production is the form or essence of substance. Here, as elsewhere, the spectre of an infinite regress motivates Aristotle’s arguments: if a form is generated then it would have to have been generated in the same way; by and from something—“form in the soul” and matter (1032b24). That form in the soul would in turn have to have been generated and so “the processes of making will regress to infinity” (1033b5). For Aristotle no one step of a causal order can exist if it doesn’t have a secure beginning (II, 2,994a17). For this reason Aristotle holds that in a production, it is not the form itself which is produced but rather the form in something else (1033a32). The production takes place by bringing “the form into this particular matter” (1033b9). Therefore, in a production, something becomes a product from form and matter by the agency of what is identified as ‘the form in the soul.’

In accordance there are two terms connected to form in the translations of the Metaphysics. The first is essence. Essence is defined in book VII as form and actuality: essence names the existence of the form in a particular substance; the form united with a particular matter (IX, 6,1048a30). The second term is formula or definition, both used to translate logos: “the form is the definitory formula” (III, 2,996b8). ¹ This is how the form occurs ‘in the soul’. Formal causes exist both as the essence of concrete substances and as corresponding definitions in language.

Functional work is defined in Aristotle’s ontology as the process of bringing a form into a particular matter. Using a concept from the previous chapter, the teleological function of an artisan’s work is to successfully produce a new concrete

substance. The condition of this success is the passage of the form from its position as formula 'in the soul' to the position of essence in the product.

This passage can be understood as a passage from the universal to the particular. The form is identified with the universal in a number of passages. Aristotle says "the form is the definitory formula" and in another place "the formula is of the universal" (III, 2,996b8 & VII, 10,1035b34). The form is therefore of the order of the universal. Yet as essence the form is joined to the particular matter of a concrete substance. Explaining the relation between the universality of form and the particularity of matter whilst maintaining the unity and identity of substance causes Aristotle many difficulties. These difficulties are examined in the section 'the impossible relationship'.

Not only does the universality of the form meet with the particular in the product but also with the actual work undertaken. That work is of the order of the particular or individual is evidenced in the very first section of The Metaphysics:

Experience is knowledge of individuals, art of universals, and actions and productions are all concerned with the individual; for the physician does not cure a man except in an incidental way, but Callias or Socrates or some other called by some such individual name, who happens to be a man. (I, 1,981a15 my italics)

Callias and Socrates are particular men, examples of the universal 'Man'. The physician's art concerns 'universals' such as sickness, health, blood and fever yet its application effects a particular cure on a particular individual. For functional work to take place, the universal must thus encounter the particular in both the product and the application of the art.

At the beginning of his inquiry into the nature of substance Aristotle lays down the condition that whatever is held to be substance must have unity, identity and independence. A substance is independent in so far as its existence must not depend upon the existence of any other entity. An artisan's production thus fulfils its function if its product has unity and identity. Indeed Aristotle writes:

If we saw the parts of a shoe put together anyhow we should not call them one all the same...we do this only if they are put together so as to be a shoe and have thereby some one form. (V, 6,1016b13)

The disparate multiplicity of parts — springs, screws, lengths of wood — which exists during a production process must be combined in a certain manner to produce a single bed. This is where operational function emerges in Aristotle's ontology: the product will be a unity if the production process is orderly; the parts of a bed cannot be 'put together anyhow' but in a particular manner so as to fulfil the teleological function, the production of a shoe. This recalls Plato's comment in the Gorgias
concerning the necessity of an orderly arrangement of materials in the craftsman's work. What determines operational function is the formal cause of the production: "the form [is that] by reason of which some matter is a definite thing" (VII, 17, 1041b8). Without the formal cause anything whatsoever or nothing at all would be made in a production. The formal causes of production thus play a similar role in Aristotle's ontology as the order of Ideas in Plato's: guarantor of the existence of order.

Indeed according to Aristotle, unless the production was orderly and the product had both unity and identity, the craftsman would not even be able to know what had been produced. Aristotle writes:

For all things that we know, we know insofar as they have some unity and identity, and insofar as some attribute belongs to them universally. (III, 4, 999a23)

Knowledge of what has been produced is essential to a functional production: otherwise a craftsman would not know whether they had done a good job or not. If the craftsman can look at the finished product and know, via its 'universal attributes', that it is a particular bed, then the production has been successful. But what is this universal attribute? It is the form of the substance. Cited above, Aristotle says the form is of the universal. He also says: "It is according to form that we know all things" (IV, 5, 1010a). A particular product is known to be a bed in so far as its form, which is universal, belongs to it. The product is thus one amongst a multiplicity of individual instances of the universal form 'Bed'. This form itself is one. As in Plato, when functional work exists, a one unites a multiplicity of ones. The relation between the particular and the universal, like the relation in Plato between the Ideas and phenomena, is a relation between one and multiplicity.

The elements of the ontological schema of functional work in Aristotle's ontology are already emerging: there is a multiplicity of elements in a production process which is united via order into a single substance; that substance is knowable as single by virtue of its form, that is by virtue of it belonging to a unified multiplicity of instantiations of the form. What our inquiry has discovered underlying functional work in Aristotle's ontology is a unified ordered multiplicity.

The form is not only responsible for the unity of a product, but also for its identity. As for Plato, for Aristotle forms are unchanging: "in form [a thing] is the
same, for the form is indivisible” (VII, 8,1034a7). The unchanging form of a table ensures that each bringing of the form ‘into a particular matter’ causes the same type of table to be made. Functional production is a repetition of the same. Those things that may differ include the matter used, the time and place of production and the particular worker involved but it is the same type of bed which is produced each time. Unlike Plato, however, this property of forms does not imply that they exist in a separate domain to that of concrete substances. They do not possess a higher degree of being as do their equivalent in Plato’s ontology, the Ideas. Aristotle’s forms are embodied in substances. Yet, one can object that the forms also exist as formulae in the knowledge necessary to production, the artisan’s art. Two passages, the first from the Physics, clarify the difference between embodied form and formulae in knowledge:

The forms with which the natural philosopher is concerned are such as may be distinguished from but are embodied in materials.

(Ph. II, 2,194b10)

The formula or form... being a this, can be separately formulated.

(M. VIII, 1,1042a24)

What Aristotle means by ‘being a this’ is that the form has its own unity and identity such that it can be singled out. It can be distinguished from the matter of a substance, yet this does not imply that it has a separate individual existence. For Aristotle, only substance as the complex of matter and form is capable of individual separate existence (VIII, 1,1042a29). However, knowledge has this special capacity of distinguishing the form of a substance as though it were separate from matter. Aristotle says knowledge “supposes separate what is not separate” (XIII, 3,1078b22). If a substance’s form can be distinguished from its matter and if this form is responsible for the substance’s identity, then two questions arise: the first is whether the matter of a substance contributes to its identity; and the second is whether matter contributes to the unity of a substance if form is a ‘one’, and is responsible for a substance’s unity. These questions lead to the matter of whether Aristotle’s ontology can account for the relationships between the one and the multiple, existence and order.

2 Ontological Priority
There is a debate in Aristotelian scholarship over what is ontologically prior for Aristotle.\textsuperscript{1} Something is ontologically ‘prior’ if it exists independently of other entities; something is not ontologically prior if its existence depends upon the existence of other entities (VII. 1,1028a35). One of the requirements of Aristotle’s inquiry into substance is that the answer to the question ‘what is substance’ must concern something which has ontological priority. In the \textit{Metaphysics} Aristotle wavers between two answers to the question ‘what is substance’: concrete individuals or forms.\textsuperscript{2} The debate thus concerns which of them has ontological priority.\textsuperscript{3}

In book VII, Aristotle states that the best response to the question ‘what is substance?’ is essence.\textsuperscript{4} He defines essence as both form and actuality. Thus if one asked the question, ‘what is this particular substance?’, the response would name a form; it’s a bed. This definition of substance avoids many of the problems associated with defining substance as a concrete individual comprising matter and form. Yet the consequence is that forms must have ontological priority. But Aristotle also says that forms, unlike Plato’s Ideas, only exist as embodied. Therefore their existence depends upon the existence of matter and they cannot be ontologically prior.

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\textsuperscript{1} See, for example, Mary-Louise Gill in \textit{Aristotle on Substance: The Paradox of Unity} (Princeton: Princeton University Press, 1989).

\textsuperscript{2} The identification of substance with its formal cause is reflected by a confusing doubling of terminology where the term ‘substance’ is used to refer both to the form and to the particular product caused by this form—the ‘concrete’ or ‘composite’ substance (VII.11,1037a29). At one point Aristotle states; “substance is of two kinds, the concrete thing and the formula” (VII.15,1039b20). ‘What’ a substance is, is a particular form. In order to identify this with the being of substance, one must move from an emphasis laid on the interrogative pronoun, across to one laid on the copula whilst maintaining the same answer to the question. If this is done, it is not only the ‘what’ but the very being of substance which is form. That a ‘concrete substance’ cannot be entirely identified with its form is attested by the existence of its accidents and its matter. In the \textit{Categories} Aristotle states that primary substance is the concrete individual (5,2a13).

\textsuperscript{3} Lacan characterizes Aristotle’s dilemma as one of a trade off between essentiality and singularity; “Where is the principle, yes, it’s the genre but if it’s the genre he becomes enraged because; is it the general genre or the more specific genre? It’s obvious that the more general genre is more essential, but at the same time it is the most specific which determines what is unique in each.” Seminar XIX, \textit{{...On Fire}}, 15 Dec. 1971, 21 (Unpublished). Martin Heidegger cites a passage from Aristotle’s \textit{Categories} to solve this dilemma. In this passage the individual man or horse is taken as an example of a primary substance and the forms ‘man’ and ‘horse’ as examples of secondary substance (5,2a11). See M. Heidegger, “Metaphysics as History of Being,” \textit{The End of Philosophy} (London: Souvenir Press, 1975), 6-7.

\textsuperscript{4} Four manners in which substance is spoken of are mentioned: as the essence, the universal, the genus and the substratum (VII.3,1028b33). An investigation is devoted to each but in the end Aristotle says: “the substance is the indwelling form, from which along with the matter the so-called concrete substance is derived (VII,11,1037a29) and ‘the essence belongs to the form and the actualization’ (VII.3,1043b3 Tredennick). Edward Halper notes; “It is generally recognized that Aristotle regards essence as the most successful candidate and that in the course Z-H he identifies it with form and with actuality” (\textit{One and Many in Aristotle’s Metaphysics: The Central Books} (Columbus: Ohio State University Press, 1989), 89).
That substance is also the concrete individual for Aristotle is attested by both the _pros hen_ doctrine and his doctrine on the birth of knowledge. The _pros hen_ doctrine allows Aristotle to reduce the question ‘what is being?’ to the question ‘what is substance?’ What he argues is that each way of speaking of being, whether it be in terms of potentiality or actuality, or in terms of the categories such as quantity or quality, always refers to a single thing which is actual or has a certain size and quality: “There are many ways in which a thing may be said to be but all are related to one central point, one definite kind of thing” (IV, 2,1003a33, VII, 1,1028a25-31). That single thing is substance. Aristotle identifies it as the subject of predication: that of which everything else is predicated. If a form, as stated above, is ‘of the universal’ and something is knowable through its universal attributes, then form is something which _in language_ is predicated of a substance, and _in actuality_ belongs to a substance as its attributes. Thus the phrase ‘Socrates is a man’ predicates the universal ‘manhood’ of Socrates, Socrates being an individual substance.

Aristotle’s empiricist account of the birth of theoretical knowledge also suggests that it is concrete individuals which are primary in his ontology. For Aristotle, the knowledge of universals is due to a process of induction: the soul’s encounter with particular objects. In the _Physics_ he writes:

That which is potentially possessed of knowledge becomes possessed of knowledge not by being moved itself but by reason of the presence of something else; for when it meets with the particular object, it knows in a manner the universal through the particular.

(Ph. VII, 3,247b3)

In the _Metaphysics_ he writes:

Science and art come to men through experience...art arises when from many notions gained by experience one universal judgement about a class of objects is produced. (M, I, 1,981a1)

Experience, the ultimate source of knowledge, is a succession of encounters with particular individual substances rather than with particular forms.

However, if individual substances are ontologically prior then Aristotle is caught in the position of having the most primary items in his ontology lie outside

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1 _pros hen_ can be translated as ‘towards the one’.
2 I mention above Alain Badiou’s claim that throughout the Western tradition being has been thought according to two fundamental categories, those of cause and consistency. Cause dominates Aristotle’s thought of being not only in his ontology being developed through an investigation of the causes of being, but in his epistemology in so far as ontology, as a type of theoretical knowledge, would not exist if not for one’s repeated encounters with particular substances in experience; if not for the process of induction. Being, as individual substance, is thus placed in the position of cause of the existence of the discourse on being.
the grasp of the theoretical knowledge which makes up that ontology: for Aristotle, individual substances are undefinable and unknowable in their individuality. The ultimate cause of the emergence of theoretical knowledge lies outside that theoretical knowledge: "There is neither definition nor demonstration of sensible individual substances" (VII, 15,1039b28 & VI, 2,1026b3). Since individual substances are composite, being made up of matter as well as form, and since accidental characteristics reside in matter Aristotle says the unity of concrete individuals is that of being 'said according to the accidental.' What this means is that the identity and unity of an individual bed is not so much due to its form which it shares with many other beds, but due to the accidental characteristics of the wood and material which makes it up such as knotholes, colour, and texture. Since Aristotle holds that accidents are infinite, the unity and identity of individual substances lies outside ontology.

It is this consequence which has led some to argue that what has ontological priority for Aristotle — the primary items which have unity and are in being — must be particular forms such as 'four-poster mahogany bed.' However the arguments above as to why it must be concrete individuals which have ontological priority stand. Furthermore, Aristotle inquires into the nature of substance by examining the production of artisans and an artisan produces an individual bed not a particular form.

The problem in Aristotle's ontology concerning ontological priority is ultimately the same problem which turned up in Plato's ontology with the theory of Ideas: the problem of the existence of order. In Aristotle's ontology it occurs in the form of a question over whether existence or order is prior. If order is prior to existence, particular forms are ontologically prior: the benefit is that being is definable; there is theoretical knowledge of being. If existence is prior to order, concrete individuals are ontologically prior, yet there is no theoretical knowledge of being per se: not only that, but there are problems in accounting for the unity of concrete individuals.

The consequence for our project is that Aristotle’s ontology already appears to have difficulty providing a full account of functional work since the products of such work, concrete individuals, lie outside the discourse of ontology. They cannot form part of an ontological schema because, as Aristotle says, their accidents are infinite and the unity of such an infinity lies outside what can be schematized by means of the theoretical knowledge of ontology. But our trial of Aristotle’s ontology is not yet complete.

3 The Material Cause
The material cause of production is the particular matter in which the form of a product is embodied. For example, the material cause of the concrete substance named house is all the brick, cement and wood from which it is made.\footnote{Matter is "that from which a product is generated that is present in [the product] as the bronze of a statue and the silver of a bowl" (P,II.3,194b23). See also (M,1033a26).} There are two ways in which Aristotle characterizes matter.

The first is as substrate or subject—both words are used to translate hypokeimenon. A substrate is what underlies change whether that be non-substantial change — of quality, quantity or place — or substantial change — generation and destruction (Ph, I, 7,190a13-21 & M, VIII, I,1042a33). What underlies change has no positive character itself — a substrate is that to which character belongs:

By matter I mean that which in itself is neither a particular thing nor of a certain quantity nor assigned to any other of the categories by which being is determined. For there is something of which each of these is predicated. \((\text{VII, 3, 1029a20})\)

That to which the differentia or quality belong is the substratum, which we call matter. \((\text{V, 28,1024b8})\)

The subject is that which is not predicated of anything else.\footnote{See "I call...the bronze or stone or gold the subject" (P,1.7,190b15). David Ross argues that Aristotle confuses the ontological substance-attribute relation with logical subject-predicate relation. See W.D Ross, Plato's Theory of Ideas (Oxford: Clarendon Press, 1953). 166n2. However if this is possible it suggests more than confusion on Aristotle's part but rather the inexistence of a strict division between logic and ontology within Attic thinking. Mary Louise Gill says that Aristotle's theory of predication was concerned with the relation between entities not words. See Gill, Aristotle on Substance: The Paradox of Unity, 24.} Since the substrate is what remains when all qualities are subtracted it is strictly unknowable because all knowledge involves the recognition of qualities: \footnote{See also: "matter is unknowable in itself" (VII,10,1036a8) and; "there is no formula of [a concrete substance] with its matter, for this is indefinite" (VII,11,1037a27)}

Each thing must be referred to by naming its form, and as having form, but never by naming its material aspect as such. \((\text{VII, 10,1035a7})\)

In the Physics Aristotle allows that matter can be known but only by analogy:

The underlying nature can be known by analogy. For as the bronze is to the statue, the wood to the bcd, or the matter and the formless before receiving form to anything which has form, so is the underlying nature to substance, i.e. to the 'this' or existent.

\((\text{Ph, I, 7,191a9})\)

This passage suggests that matter as substrate is formless. This corresponds to its status of having no qualities (VII, 3,1029a20, 28). Matter subtracted from form has
the same structure as that of matter-in-itself in Plato’s ontology. In the absence of distinction it cannot even be ‘negatively characterized.’ Like the chora, it is indistinct. In Book VII, Aristotle compares the condition of matter separate from form to that of “a heap before it is fused by heat and some one thing is made out of the bits” (VII, 16,1040b8). It is not one but, like a heap of bits, it is multiple. It is not even separate and individual (VII, 3,1029a20, 27).1

The ontological schema of matter-in-itself is further revealed when Aristotle states that “its being is different from each of the predicates” (VII, 3,1029a23). What this means is that even if there is an absence of distinction in matter, it does not follow that it is ‘nothing’. Rather, matter is different from each of the predicates such as ‘white’, ‘round’ and ‘hard’. Each time a predicate is applied to matter, it turns out to be different to that predicate. This happens for every predicate. Given a predicate, matter is anything other than that predicate. At a global level one could say that it is not nothing but anything whatsoever. The schema of such a multiple is developed in relation to praxis in the final chapter under the heading of a ‘generic multiple’.

The second manner in which matter is characterized in Aristotle’s ontology is as potentiality:

All things that come to be either by nature or by art have matter: for each of them is capable both of being and of not being, and this capacity is the matter in each.

(VII, 7,1032a20)

Potentiality is the capacity of something to either be or not be something else. The realization of such a capacity is termed actuality. There are two qualities of matter as potentiality. The first is its passivity. In the same manner as in Plato’s ontology, different forms can be embodied in the same matter.2 It has the potentiality of taking on different forms (IX, 7,1049a4, 12). There is nothing in matter per se which can prevent a form from being realised in it. Matter is subordinate to form in Aristotle’s account of functional production. The second quality is the relativity of matter to form.3 In an actual production matter is never purely indeterminate. It does not exist per se but always in relation to a form. Aristotle’s examples are always of those particular kinds of matter; bronze, stone, wood, clay or, even shaped matter — bricks:

Those who define a house as stones, bricks, and timber are speaking of the potential house, for these are the matter.

(VIII, 2,1043a14)

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1 Aristotle states explicitly that matter is not actually a ‘this’ but potentially a ‘this.’ That is, it is only actually a ‘this’ in its relation to form i.e. particular matter (VIII,1,1042a27).
2 See Chapter I, Part I, Section 4.
3 See “matter is a relative term: to each form there corresponds a special matter” (P.II,2,194b9).
Such matter is identified as the matter of a particular production. Such matter has a limited potentiality; different statues may be made out of stone but not strings for a harp. Matter as potentiality is not devoid of distinction like matter-in-itself. For example, stone is hard. For this reason it does not have the absolute passivity of matter as substrate.

Both concepts of matter, matter-in-itself and matter relative to a form, occur in Aristotle’s ontology. The two concepts can be reconciled if one says that any instance of matter can be considered in both manners: matter-in-itself does not exist in the cosmos separate to form, but any substance’s matter can be considered separately from its form. However, the production of artifacts such as beds and houses suggests that matter-in-itself is not just a concept but has some presence in Aristotle’s cosmos: if some matter which has a form — a rough square piece of wood — is shaped by an artisan into another form — the smooth round leg of a bed — then during the process the same matter has two different forms. For matter to have two forms it must be matter as substrate: that which underlies the attributes of form. It is for this reason that the relationship between matter as substrate and form within an individual substance is an issue in Aristotle’s ontology.

4 The impossible relationship

Aristotle’s analysis of the causes at work in an artisan’s work results in what may be termed a hylomorphic theory of production. The function of an artisan’s work is to produce a union of a form — morphe — with matter — hyle:

For as the bronze sphere comes to be, but not the sphere, nor the bronze, and so too in the case of the bronze itself, if it comes to be, it is its concrete unity that comes to be (for the matter and the form must always have existed before).

(VII, 9.1034b10)

However, the union of form and matter in the product, whilst being the theory’s foundation, is also its fundamental problem: the composite nature of the product undermines any attempt to account for either its identity or its unity; and these two characteristics are fundamental to Aristotle’s understanding of substance.

The problem Aristotle has in accounting for a product’s identity is the problem of distinguishing it from other products. As already noted, an artisan brings

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1 See also “For the product will always have to be divisible, and one part must be this and another that. I mean the one must be matter and the other form” (VII.8.1033b11).
a form into a particular matter (1033b9). This is, as it were, Aristotle’s ‘short formula’ for functional work. At one point he says:

Different, no doubt, is the thing on account of the matter thereof, for matter in each thing is different, but in form it is the same for the form is indivisible.

(VII, 8,1034a7).

When Aristotle says the form of a product remains the same he means that in each particular bed the form ‘Bed’ does not change. Judged in respect to their form particular beds are indistinct. Otherwise they would not be identifiable as beds. For this reason, a product’s form cannot serve to identify it as an individual: there is no access from the level of form to the level of concrete individual. Even if a form was rendered so specific that its definition contained pages of attributes, its nature is to be separate from its embodiments and thus repeatable. The form is the same in different embodiments yet the individuality of substance lies at the level of these different embodiments.

The short formula suggests that it is a product’s matter which makes it particular. The passage cited above says: “Different, no doubt, is the thing on account of the matter thereof.” However, if matter is indefinite and unknowable in itself, it is not clear what, at the level of matter, could account for this difference or particularity of substance.\(^1\) The base of the problem is that in Aristotle’s ontology difference can only be known at the level of form: that is, the particular can only be discerned and known through the universal. As mentioned above, the form is of the universal.\(^2\)

One solution, which has the merit of appealing to commonsense, is to argue that a product’s accidents are what serve to individualize it. However, Aristotle says that a substance’s accidents are infinite and therefore outside ontology’s reach. This is the thesis mentioned above which lies behind Aristotle’s doctrine that concrete substances are unknowable as individuals.\(^3\) The consequence is that within his ontology Aristotle cannot provide an account of an individual product’s identity.

The second major problem Aristotle has with concrete substances is that of accounting for their unity, for what makes them ‘one’. They are often termed

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\(^1\) Even with matter as relative to form, its determinations always belong to its form.

\(^2\) With modern mass production turning out thousands of identical products, an identification number or code is attached to each product in order to identify it. This code is purely external and has no necessary attachment to the individual product.

\(^3\) Some passages suggest that the material of a particular product resides in the domain of opinion (VII.15,1040a1). Elsewhere, Aristotle says that only perception encounters the ‘this’, but that there is no knowledge of the singular qua singular. Obviously the identity of products is only a problem for a philosopher elaborating an ontology, not for a working artisan.
'composite substances' because they are a composite of form and matter. There are
two basic approaches to the question of the unity of form and matter.

The first is to argue that such unity is simple. There is no further analysis of
it and it has no external cause. This is the position Aristotle appears to take in one
passage:

People look for a unifying formula, and a difference between potency
and complete reality. But, as has been said, the proximate matter and
the form are one and the same thing, the one potentially, the other
actually. Therefore to ask the cause of their being one is like asking
the cause of unity in general: for each thing is a unity, and the
potential and the actual are somehow one. Therefore there is no other
cause here unless there is something which caused the movement from
potency into actuality.

(VIII, 6,1045b17)

In this passage he falls back on the pros hen doctrine first announced in book four
(IV,2,1003a28). That is, being and unity are one and the same — the unity of
substances is basic and has no need of demonstration. The qualification in the last
sentence merely refers to the necessity of an efficient cause for the production of
substance.

In other passages Aristotle treats the question of what causes the unity of a
composite substance as a serious question (VII, 17 & VIII, 2-3).

Into these things of which substance is composed we must institute an
investigation. If, therefore the one be matter, but the other form, and a
third that which is composed of these, and if substance be both matter
and form. (VII, 10,1034b34 McMahon)

This “investigation” constitutes the second approach to the unity of composite
substances. There is a considerable library of scholarly work devoted to this
investigation of Aristotle’s.1 Given its size and variety it is impractical within the
scope of this thesis to enter too deeply into the debates. For the purposes of this
thesis it will suffice to note the fundamental problems met by Aristotle’s
investigation.

On Aristotle’s account, form structures matter, the form of a substance is the
structure of its matter.2 If one asks what the relationship is between the form and the

1 See amongst recent work on the unity and identity of composite substance: Gill, Aristotle on
Substance: The Paradox of Unity, 1989; Sclater, Charles, Gill, ed., Unity, Identity, and

2 Obviously, within the bounds of an exegesis of Aristotle’s ontology, this does not refer to
subatomic structure of the matter of modern physics.
matter of a composite substance, then the answer can only provide a sort of structure. For example, in the *Physics* Aristotle says:

For the matter and the infinite are contained inside what contains them, while it is the form which contains. (P. III, 6,207a35)

Containment is a spatial structure. But spatial structure belongs to the level of form. Otherwise the form itself would be subject to spatial relations taking place at the level of physical matter — a substance’s form would be somewhere in the substance. The question would then arise of the location of attributes that form lends to substance such as its texture, colour and consistency. Such attributes would appear to exist throughout the substance, yet if the substance’s form was located within the substance then there would conceivably be parts of the substance which were at a distance from the location of its form — would these parts of the substance be unformed and thus have no texture or colour? Clearly form cannot have spatial location. The general point holds for all types of structure: they belong to the level of form. For example, form and matter cannot be described as different parts of one whole since parts require a structuring principle in order to constitute a whole and, again, this is the role of form. Any description of the relation between form and matter will therefore be merely a synonym for ‘structuring’ insofar as form structures matter.

On another approach, the form of a substance is a unity (Ph. I, 7,190b27 & M. VIII, 6,1045b3). Indeed, form is the unity of matter since without form matter is just an indistinct heap (VII, 16,1040b8). Yet as I clarified above, a substance’s form does not capture its individuality. Thus there are aspects of a substance — its infinite accidents — which lie outside its form-based unity. Thus a composite substance is not a unity.

What underlies these problems is that in Aristotle’s ontology matter is indefinite and form is definite. To account for the unity of form and matter in a concrete individual Aristotle — in my terms — would thus have to define the relationship between an indistinct and infinite multiple, that is, matter with its accidents, and unity, form. For Aristotle, what has unity is limited whilst what is infinite is unlimited. To account for the relation between form and matter he would therefore have to explain how the unlimited can be limited: this is a formidable task.

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1 Of course, my argument presumes that the spatial term ‘containment’ accurately translates the Greek but the argument holds for any term which is used to name the structure of the relationship between form and matter.

2 See “If we consider we find that the syllable is not produced by the letters and juxtaposition, nor is the house bricks and juxtaposition. And this is right; for the juxtaposition or mixing is not produced by those things of which it is the juxtaposition or mixing.” (VIII,3,1043b5) This passage asserts that the form of a substance is a structure which is separate to a thing’s matter. It is separate insofar as it is not made up out of anything else pertaining to the individual substance.
given the resources of his ontology. However, with the resources of modern set theory, just such a relationship is defined in chapter four.

The problem of the unity of composite substances is thus the problem of the being of the one and of how it unifies a multiplicity. Just as we found with Plato’s ontology, the relationship between the one and the multiple is a problem. This problem affects the capacity of Aristotle’s ontology to account for functional work. The sign of the success of functional work is the existence of a unified self-identical individual substance yet Aristotle cannot account for either the unity or the identity of such a substance.

5 The Efficient Cause

In Aristotle’s as in Plato’s ontology there is an agent in functional work: it is termed the efficient cause of production. Artificial productions are differentiated from natural productions by virtue of their efficient cause. Of artificial productions Aristotle says:

Not one of them has the source of its own production within itself; rather is this source in an agent external (as in the case of a house or of any other product of manual labour).

(Ph. II. 1.192b29)

In contrast, the agent of natural productions such as the growth of a plant from a seed is internal to the natural substance. The efficient cause, also termed the agent or moving cause, is the source of change in a production. It causes the form’s passage from knowledge into being.

Aristotle’s doctrine on the efficient cause is that it must always be an actual individual. This is developed in opposition to what he holds as the Platonic doctrine: that forms as universals are causes of production (XII, 5.1071a20). For Aristotle, the mode of being of universals such as ‘house’ is potentiality in so far as they do not exist in reality but rather in the soul. Such universals have the potentiality, the capacity to be made into something which exists in reality such as a particular house.

The doctrine runs: “from the potential the actual is always produced by an actual thing...there is always a first mover and the mover already exists actually” (IX, 8.1049b24). That is, the efficient cause of a production is some individual thing which preexists the production. For Aristotle, the existence of a first mover is

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1 See also (M.IX,7.1049a12).
2 It is the primary cause of change (P.194b30).
3 Referring to Plato, Aristotle says: “though the forms exist, still things do not come into being, unless there is something to move them” (XIII.5.1080a4).
necessary otherwise an infinite regression of movers would occur. He says:
“nor...can the efficient cause...form an endless series” (II, 2,994a4).

In several passages Aristotle identifies the agent of production as the artisan’s
art.1 However, even if the art, at the level of formulœ and reasoning, is said to be a
“principle of change in another thing” it can only be a potentiality, specifically, the
potentiality for acting (IX, 2,1046b3). Art alone cannot start a production: the agent
of a production is responsible for ‘actualising’ the art. That is, the agent causes
something which exists potentially — the formulœ of the product — to become an
actuality — the form in the particular matter. It is for this reason that the efficient
cause must be something actual itself (VIII, 6,1045a30).2

The efficient cause is thus the artisan. The artisan actualizes the formulœ of
their art by using the art during their work. Evidence for this solution can be adduced
from Book VII where the name of the agent is ‘the soul’. Aristotle says: “from art
proceed the things of which the form is in the soul” and gives the example of a
physician’s train of thought in the process of the application of his art to a diseased
body (1032b1, 6-10).3 In Book IX, he generalizes this operation by saying that the
soul is responsible for applying the rational formula of an art to an object insofar as
it possesses a principle of movement (IX, 2,1046b20).

If the agent of artificial production is external to the situation of production
then situations of functional work have a structure of inclusion: the situation of
production is included within the situation of the agent. All of the houses a house-
builder produces within a finite period are productions — i.e. situations — which are
included within the overall situation of his building practice. Just as in Plato, one
element of the ontological schema of functional work is a structure of inclusion. But
before the latter’s existence can be confirmed our examination of Aristotle must be
completed by a study of his concept of final cause.

6 The Final Cause

The final cause is a/
something for whose
good the action is done

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1 See: “Health, disease, body; the moving cause is the medical art. Form, disorder of a certain kind,
bricks; the moving cause is the building art” (M,XII,4,1070b28); and “Art is a principle of
movement in something other than the thing moved” (XII,3,1070a7); and “For in the case of
productive science the principle of production is in the producer not in the product, and is either an
art or some other capacity” (XI,7,1064a11). See also: VI,1,1023b21 and VIII,4,1044a31.
2 The formula of a product is only actual when it is being used. Aristotle says; “The moving causes
exist as things preceding the effects, but causes in the sense of formulœ are simultaneous with
their effects.” (XII,3,1070a21)
3 “Of productions and movements one part is called thinking and the other making; that which
proceeds from the starting point and the form is thinking and that which proceeds from the final
step of the thinking is making” (VII,7,1032b15).
In the previous chapter I named the Good or purpose of an artisan’s work its ‘teleological function’. Aristotle terms the teleological function of a production its ‘final cause’. The final cause is treated in two manners: first as the end of a production — the actual existence of a complete product — and second as the purpose or ‘good’ that the existence of this product serves. In both cases, the final cause acts as a cause of production in so far as it is ‘that for the sake of which’ the activity happens (IX, 8,1050a8).

The end of a process of production is its completion.¹ The criterion of completion is the existence of a product — the form embodied in a particular matter. The finished product is a unified and whole concrete individual. The product’s existence also marks the complete production process as a whole. For Aristotle, the whole is that which lacks nothing proper to itself; nothing can be found of it outside itself (Ph, III, 6,207a9).² This underlines again how necessary it is for Aristotle to provide some explanation of how unity in the shape of the form of a product relates to the infinite in the shape of a product’s matter. For matter is infinite by virtue of its accidents and Aristotle defines the infinite in complete contrast to his definition of the whole: “The infinite turns out to be the contrary of what it is said to be. It is not what has nothing outside it that is infinite, but what always has something outside it” (Ph, III, 6,207a2). Yet matter, as infinite, is an element of both the production process and its product, whilst the latter, in contrast, are complete unified wholes. As I argue above, for Aristotle this problem emerges in the question of the relation between a substance’s matter and form: it is a problem which is not solved in Aristotle’s ontology.

Aristotle also terms the final cause as the end of production a type of limit (V, 17,1022a8). In the Physics, in contrast to contiguity, he defines limitation as independent: “what is limited is not limited in relation to anything” (Ph, III, 8,208a14). Thus both the process and the product are limited by themselves rather than by some external imposition or by convention: as for example, a river is limited

¹ In the lexicon of concepts in Book V of the Metaphysics, the complete is defined in one sense in terms of the end, “things are complete by virtue of having attained their end” (1021b24), but also as that from which nothing proper to itself is lacking and as that which cannot be exceeded in excellence.

² See: “What has nothing outside it is complete and whole. For thus we define the whole—that from which nothing iswanting like a whole man or box. What is true of each particular is true of the whole as such—the whole is that of which nothing is outside... ‘Whole’ and ‘complete’ are either quite identical or closely akin. Nothing is complete (teleion) which has no end (telos) and the end is a limit.” (P.III.6,207a9)
by a dam. Both the complete product and the complete process thus have independent existence by virtue of the final cause.

The second manner in which Aristotle theorizes the final cause is as a type of Good. As in Plato’s thought, what is functional is identified with what is best; “For not every stage that is last claims to be an end but only that which is best” (Ph, II, 2,194a32). For Aristotel, the good of the productions of art is a low type of good, the utilitarian or useful, which he compares unfavourably to the good of the speculative sciences (I, 1,981b20 & I, 2,982b21). The final cause of the production of a house is thus that a house functions as “a covering for animals and chattels” (VIII, 2,1043a16), its purpose as a covering being the “protecting and preserving of certain goods” (Ph, II, 9,200a10).

The two types of final cause, end and good, can be articulated as follows: the goal of house-building is the production of a complete house. This goal exists because the existence of a house is a good for someone such as one of the builder’s clients.

As the end of production the final cause can be identified with the formal cause:

What anything is is its form which is at the same time its completion or the end to which it functions.

(Ph II, 7,198b3)

The form is an end, and only that which attains an end is complete.

(M, V, 24,1023a33)

Since the formal cause is one, so is the final cause.

The final cause continually acts during production. It directs the artisan’s work during the production process as the good which such work serves. To do this the final cause must have some agency:

The final cause...is the good and this is found in the field of action and movement; and it is the first mover—for that is the nature of the end.

(M, XI, 1,1059a26)

The final cause acts from the very beginning of production. However, the form does not exist as actual until the production process is complete. For this reason the final cause can only govern during the process in the shape of a rational formula (IX, 2,1046b20). Indeed in the Physics Aristotle says that the end of a production is in the logos (P, II, 9,200a10).

The continual government of the artisan’s work processes by the final cause is the Aristotelian version of what I termed in the previous chapter ‘operational function.’ To recapitulate, for work to be functional it must serve some end and realize a goal: in my terms this is the teleological function of the work. In order to
realize a goal, the work process must be ordered: the correct order of tasks must be followed and the correct materials used; in my terms this is the operational function of work.

Operational function is necessary for the accomplishment of teleological function. Aristotle illustrates the relation between the two in Book XII of the *Metaphysics* where he poses the question of how the good operates in the universe. He says that it works in two manners: as the order of the parts and as something separate. He uses a military example. In an army:

The good is found in both the order and in the leader, and more in the latter; for he does not depend on the order but it depends on him. And all things are ordered together somehow...all are ordered together to one end.

(XII, 10,1075a13)

The order in this passage is equivalent to operational function in a production process. The leader is equivalent to teleological function, and for three reasons. First, like the final cause the leader is singular. Second, he is separate from the order. This separation is marked by his independence which forms the third reason: he does not depend upon the existence of order yet it does depend upon his existence. In Aristotle's terms the leader of an army is ontologically prior to its order.1 These three characteristics match those of the final cause in its relation to operational function. First, as singular the final cause unites the order of production and materials—these then form a unified multiple. Aristotle says:

In any operation of human art, where there is an end to be achieved, the earlier and successive stages of the operation are performed for the purpose of realizing that end.

(Ph, II, 8,199a8)

Each stage of a production is rendered subordinate to its end.2 Each stage of a production belongs to that production insofar as it is performed according to the production's end. Second, the final cause as the formula of a house is separate to any production, as a universal, it is independent of any particular order within a production. The third characteristic is independence, and this is where the analogy breaks down. The particular order of a production process does depend upon the final cause in the shape of 'what is to be made'; that is, in the shape of the formula; the builder thinks 'a house is to be made.' However, in the case of the final cause as

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1 What has ontological priority has independent existence (VII,1,1028a35).
2 In Book VIII of the *Metaphysics*, Aristotle says of a house, "bricks and timbers in such and such a position" are arranged so as to function as "a covering for animals and chattels" (1043a8,17). Thus, both the order of processes and the order of materials are determined by the end of a production.
an individual product, the existence of a complete individual substance very much depends upon the operational function of the work process.

The final cause also confirms the existence of a structure of inclusion in functional work: the final cause of a production as the good is separate to any particular production insofar as the good of ‘protecting and preserving certain goods’ can be achieved in several other manners than that of producing a house. As for the final cause as the end of production, an individual house is external to the situation of its production insofar as it exists for a long time after its construction. However the production process is linked to its final cause insofar as it is both motivated by the good, and responsible for the existence of the individual house. Both the efficient and the final cause of a production thus form part of an encompassing situation which includes the situation of the production process.

The other aspects of the ontological schema for functional work found in Plato’s work are also confirmed in Aristotle’s ontology: in book twelve of the Metaphysics Aristotle says that the existence of order requires the unification of a multiplicity by a one. He finds other philosophers’ accounts of the principles reigning over the universe faulty, objecting: “they give us many principles; but the world must not be governed badly.” He follows by citing Homer: “The rule of the many is not good, let there be one ruler”(XII, 10,1076a3).1 In the situation of production a final cause must be one to work. If not, a production would be directed in as many different ways as there are different ‘ends’ and confusion would reign. A functional production is thus a multiplicity of materials and tasks which is both ordered and unified by its final cause. Furthermore it is both included within an encompassing situation and it includes each task of the production process within itself.

Conclusion

In Aristotle’s hylomorphic theory of production the same ontological schema of functional work is found as that found in Plato’s ontology: a unified ordered inclusive multiple. However, problems occur in Aristotle’s ontology which affect his theory of production. The goal of this thesis is not to resolve such problems within an ontology but to draw out their underlying structures. In Aristotle’s case the problems affected his account of the unity and identity of composite substances: the very entities which are supposed to be the result of functional work. The underlying structures of these problems have been revealed to be the same as those in the

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1 The line comes from The Iliad, II, 204. See also The Politics, trans. T.A.Sinclair revised T.A.Saunders. (Penguin Books, 1981) where Aristotle says, “For every instrument will be made best if it serves not many purposes but one” (I,2,1252a34).
problems found in Plato’s ontology: the relation between the one and the multiple and the question of the existence of order.

There is a tension in the *Metaphysics* between two answers to the question ‘what is substance?’—one answer is form or essence; the other is the concrete individual. One approach the scholars have adopted to decide the issue is that of determining which type of substance has ontological priority—indeed, existence—since Aristotle holds the latter to be an essential characteristic of substance. I argue that at base the tension between the two answers is a tension between existence and order, for if forms are held to be substance then, due to the definability of form, Aristotle has an ordered cosmos, but if concrete individuals are held to be substance then, due to the undefinability of individuals, order must in some sense be extracted from existence for the latter is prior. I argue that the evidence weighs in the favor of concrete individuals since otherwise both Aristotle’s account of the inductive birth of knowledge and his analysis of artificial production are left floundering.

There are grave consequences, however, of substances being concrete individuals. Individual substances are termed composite because they are made up of both matter and form. From the very beginning of his inquiry Aristotle states that substances have both unity and identity. For Aristotle, the form of a substance is responsible for its identity yet since the same form can be found in many different individual substances, a substance’s form cannot be responsible for what makes it a particular individual: that can only lie in its matter. However, since the accidents of matter are infinite, the individuality of particular substances lies outside the grasp of ontology. The products of functional work are supposed to be a union of matter and form, yet when Aristotle investigates the relation between the indefinite multiplicity of matter and the distinct unity of form he fails to account for their unity.

The consequence of these problems for our project is that yet another type of ontology is required before we can even begin to consider the ontological schema of praxis. Before turning in naïve hope to the next ontology in the historical sequence of philosophy after Aristotle, it might do to examine what Aristotle and Plato’s ontologies had in common underneath their apparent difference.

At the base of both there is a simple existential thesis: ‘there is an order of Ideas’ for Plato; and ‘there is a multitude of substances’ for Aristotle. One could say that both accept that either existence or order is prior since Plato places order prior to existence; all existences are determined by the eternal order of Ideas, and Aristotelian places existence as prior to order; the individuality of concrete substances lies outside ontology’s order of definitions. They also both posit different types of being: unities (forms, Ideas) and indefinite multiples (matter, the *chora*). Lastly, they both
identify unity and being such that what is is always one being; as Leibnitz later said: “what is not a being is not a being.”

If the problems which occur in both Aristotle and Plato’s ontologies concern existence, order, the one and the multiple, and if some of the notable similarities between these two ontologies concern the very same things, then when one is searching for another ontology for this project, it is sensible to avoid choosing one which shares these common features. It is for this very reason that I turn to modern relativist ontologies to advance the project. Whether such ontologies do take a fundamentally different position on these matters of the one and the multiple, existence and order, remains to be seen. Whether such a difference does the job, that also remains to be seen.

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III

Functional Work in Relativist Ontologies
Introduction

In both Plato and Aristotle’s ontologies the ontological schema of functional work is a unified ordered inclusive multiple. The first project of the thesis — to find an ontological schema for functional work — would appear complete: functional work is schematized to a degree that allows one to work out how praxis might be different at the level of structure. However, both Plato and Aristotle’s ontologies meet impasses in their attempts to account for the existence of order and the one-multiple relationship. Although they reveal the schema of functional work, they cannot account for the relationship between its elements: they cannot construct such a schema.

The first project of the thesis — finding the ontological schema for functional work — is thus incomplete. It is for this reason that I now turn to a different type of ontology in the hope that not only will it provide an ontological schema for functional work, but that it will also avoid impasse in accounting for the relationships central to such a schema. That type of ontology is relativist ontology.

There is considerable philosophical controversy over what constitutes a relativist ontology. For my purposes I have identified two theses which are basic to most modern relativist ontologies. The first is that all existence is relative to and dependent upon an order. That order may be a language-game, a conceptual scheme, a human’s sense organs or a discourse: little matter, the fundamental assertion remains the same; what exists is not independent, unlike Aristotle’s substance.¹ The second basic thesis is that there is a non-unified multiplicity of such orders. This multiplicity is non-unified because in modern relativist ontologies there is no one order — such as the mind of God — to which all the other orders belong.

These two theses underpin the relativist ontologies found in the two authors I examine in this chapter: Michel Foucault, and Richard Rorty. In The Archaeology of Knowledge and The Order of Things Foucault elaborates an ontology which may be termed a discursive constructivism.² The existence which is relative to an order is that of known objects. The multiple orders to which such existence is relative are discursive formations such as the sciences of biology, philology and political

² M. Foucault, The Archaeology of Knowledge (New York: Pantheon Books, 1972) and The Order of Things (New York: Vintage Books, 1970). All further references to these texts will be marked in the body of the text by ‘AK’ and ‘OT’ followed by a page number.
economy. For Richard Rorty, the existence which is relative to an order is that of all things and the multiple orders to which such existence is relative are theories which are used in practical contexts. In this chapter I use the term ‘situation’ to refer to the disparate orders admitted by Foucault and Rorty.

Part one of this chapter observes that unlike Plato and Aristotle’s ontologies, functional work has no specific importance as an entity in relativist ontologies; its existence is simply relative to particular theories or discourses. It then counters by arguing that functional work is important to some relativist ontologies insofar as situations themselves can be said to do functional work such as pragmatism’s useful theories. It concludes that on both counts the ontological schema of functional work in relativist ontologies is the same as the overall schema for the situations they recognize, whether theories or discursive formations.

Once the schema for functional work is settled upon, part two of the chapter investigates whether relativist ontologies succeed in avoiding the one-multiple impasse and the existence of order impasse. I argue that these ontologies in fact fall foul of both impasses. The one-multiple impasse arises in the form of the implicit existence of a transcendental metasituation which includes and unifies the supposedly non-unified multiplicity of situations. The existence of order impasse also arises as a result of the existence of this metasituation: without the metasituation, it would appear that order is prior to existence; with the metasituation, it would appear that an existence is prior.

The chapter concludes by affirming once more that the schema for functional work remains the same despite the difference in ontologies; and that once again, those ontologies have failed to account for the essential relationships of the schema, those between the one and the multiple, existence and order. The chapter ends by identifying what is common to the ontologies studied so far in the thesis and using the result to generate a number of requirements for an ontology which would successfully avoid these impasses.

It should be noted that my purpose in this chapter is not to argue for relativist ontology but merely to characterize it, for it is the consequences of taking a relativist position which interest me, with specific reference to the ontological schema of functional work.
I Functional work in relativist ontologies

1 The relativity of functional work

In the chapters on Plato and Aristotle I started by demanding what functional work was in their ontologies. I identified it — which was not difficult given its importance to the development of their ontologies — and I then determined its ontological schema. Relativist ontologies present an obstacle to such an approach. Functional work does not have a fixed identity across any relativist ontology and this for one reason: in relativist ontologies all identity is relative to a situation (theory, discourse) and there is a multiplicity of such situations. Consequently, according to a relativist ontology, functional work like anything else may be a number of different things.

In Foucault’s discursive constructivism, functional work is not an activity which has an identity independent of discourses: it is an object of knowledge like any other, and that knowledge is constructed within a discursive formation. When Foucault speaks of mental illness as an object of knowledge he says:

Mental illness was constituted by all that was said in all the statements that named it, divided it up, described it, explained it, traced its developments, indicated its various correlations, judged it, and possibly gave it speech by articulating, in its name, discourses that were to be taken as its own.

(AK, 32)

For example, within the discourse of political economy, functional work is an activity central to the production of wealth. In the discourses of modern thermodynamics, Newtonian physics and chemistry, work is the expenditure of energy. In management discourse work is a cost measurable in terms of productivity. In each case, the identity and properties of functional work depend upon the discourse within which it is constructed as an object of knowledge.

In Richard Rorty’s pragmatism, the identity of functional work, as of any activity or thing, depends upon a theory, a description, or a use to which it is put:

A pragmatist must also insist, (with Goodman, Nietzsche, Putnam & Heidegger), that there is no such thing as the way the thing is in itself, under no description, apart from any use to which human beings might want to put it...Thinghood, identity, is itself description relative.¹

Thus for Rorty also, there is no one type of functional work to speak of, only a variety of types of functional work, all relative to particular descriptions or uses.\footnote{Nelson Goodman provides another characterisation of relativist ontology by arguing: “If I ask about the world, you can offer to tell me about how it is under one or more frames of reference; but if I insist that you tell me how it is apart from all frames, what can you say? We are confined to ways of describing whatever is described. Our universe, so to speak, consists of these ways rather than of a world or worlds.” (Ways of Worldmaking, Indianapolis: Hackett, 1978, 3.)}

If, in a relativist ontology, each type of functional work is different then it would appear that my project of determining the ontological schema for functional work has hit a problem. If the identity of each type of functional work depends upon a particular situation, then the identity of its ontological schema surely also depends upon that particular situation. There is a multiplicity of such situations in any relativist ontology, hence no one ontological schema for functional work.

However, the argument of the previous two chapters is that an ontological schema for functional work schematizes the structure of many different types of functional work. I argue that functional work by definition must have both operational and teleological function, and that whatever the specific conditions of existence of such function, its structure can only be schematized as a unified ordered inclusive multiple. That there are different types of functional work is thus not an intrinsic obstacle to there being one ontological schema for all of them.

Yet if one examines the structure of entities in relativist ontologies, it is also relative to situations. If all existence is relative to an order, then it is not possible for an entity to have a structure whose identity is independent of any order. For this reason, one may conclude that what structure an entity is said to have is dependent upon the situation in which its existence is recognized. An ontological schema reflects the structure of entities. It is theoretically possible that within the range of situations admitted by a relativist ontology, there is one in which functional work is an entity whose structure is quite different to that found in other situations which recognize a type of functional work. Given that the type of situations found in relativist ontologies include languages and conceptual schemes, it is not possible to argue that the very concept of functional work presumes the existence of operational and teleological function and has only one type of structure.

The first project of the thesis thus meets with a fundamental obstacle in relativist ontologies. If the existence of functional work is relative to particular situations, there appears no way of determining one ontological schema for functional work. However functional work is not confined in relativist ontologies to being merely another situation-dependent entity: it can also be found in a privileged position in pragmatist ontology.

2 The functional work of theories
In pragmatism, theories do not transcend the world but are a part of the very world they theorize. As a part of the world, theories have causal effect like everything else—they cause differences in the world. In the pragmatist theory of signification, the existence of a difference in meaning can be deduced from the existence of a difference in practice. Charles Peirce states, "There is no distinction in meaning so fine as to consist in anything but a possible difference in practice."1 William James extends this thesis:

There can be no difference anywhere that doesn't make a difference elsewhere — no difference in abstract truth that doesn't express itself in a difference in concrete fact and in conduct consequent on that fact.

Such a doctrine has implications for how one does theory. James writes:

The pragmatic method in such cases [is the world 'one or many?', 'fated or free?'] is to try and interpret each notion by tracing its respective practical consequences. What difference would it practically make to anyone if this notion rather than that notion were true?

If theories cause difference in the world in the guise of 'practical consequences', then they may be judged both according to the quality and quantity of such consequences. James continues:

You must bring out of each word its practical cash-value, set it at work within the stream of your experience. It appears less as a solution, then, than as a program for more work, and more particularly as an indication of the ways in which existing realities must be changed.

Theories then become instruments not answers to enigmas in which we can rest.2

Quine, in a pragmatist mood, writes:

The myth of physical objects is epistemologically superior to most in that it has proved more efficacious than other myths as a device for working a manageable structure into the flux of experience.3

Humberto Maturana and Francisco Varela, systems theorists, write:

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1 James refers to Peirce's essay "How to Make Our Ideas Clear" in W. James, Pragmatism (Prometheus Books, 1991), 25.
2 Ibid., 25, 23, 26.
3 W.V.O. Quine, From a Logical Point of View, 2d ed. (New York: Harper & Row, 1963), 44.
It is presently obvious that scientific statements made about the universe acquire their validity through their operative effectiveness in their application in the domain where they pretend validity.

(AC, 115)  

These views lie behind the oft-quoted pragmatist maxim 'it's true because it works.' What is true is what proves to be useful to us in practice. The truest theory is the one of highest instrumental value. In pragmatism, truth becomes a species of the good, insofar as the good is what is most useful.

In pragmatism, theories are not merely efficacious; they perform functional work. They are functional insofar as they are judged according to their practical value and one is selected over the others for its superior practical value. In Quine's terms the teleological function of theories is to 'work a manageable structure into the flux of experience.'

3 The ontological schema of functional theories

If we take the ontological schema for functional work developed in the previous chapters, each of its elements may be found structuring the performance of pragmatism's theories. The schema is a unified ordered inclusive multiple. A theory is a multiple of propositions. The work that it does once put to use has a multiplicity of effects. Those multiplicities are unified by the criteria of usefulness employed in the judgement of the theory's performance. A theory is functional if, once put to work, it causes certain effects which are deemed to be useful. The usefulness of a theory is thus the one which unifies the multiplicity of it and its use. However, a theory is not just a multiple of propositions but also an ordered multiple. Some of its propositions are primary and some are derived. There is a logical architecture to a theory which orders its propositions. The effects of a theory's use are also ordered in terms of their magnitude and desirability. Finally, there is a structure of inclusion in the situation of a theory's use insofar as the theory itself is included within the domain of use or practice in which it is put to work. The theory itself is inclusive insofar as it includes each of its propositions. Each of these propositions may be put to work singly and judged according to their usefulness, thus providing units of

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2 Rorty himself at one point takes a pragmatist view of the pragmatist theory of truth. "The pragmatist...proceeds to argue that there is no pragmatic difference, no difference that makes a difference, between 'it works because its true' and 'it's true because it works'." However he does not recognize that defining truth by reference to efficacy is just as metaphysical a position to take as that of truth as adequation between propositions and reality. R.Rorty, *Objectivism, Relativism and Truth: Philosophical Papers Volume 1* (Cambridge: Cambridge University Press, 1991), xxix.
functional work which are included within the overall functional work of the theory to which they belong.

When functional work is specifically mentioned in relativist ontologies its ontological schema is clearly discernable as that disengaged from Aristotle and Plato’s studies of functional work in chapters one and two. However before we can turn to the second project of the thesis, the investigation of praxis, we must determine whether these relativist ontologies are free of the impasses which beset Plato and Aristotle’s ontologies. If they are not, if these impasses affect the elements of the schema for functional work, then the first project of the thesis, constructing a stable ontological schema for functional work within an ontology, will remain incomplete and we will have to search further, in yet another type of ontology.

II Ontological Impasses in Relativist Ontologies

In the introduction to this chapter I argue that there are two basic theses which are common to relativist ontologies: existence is relative to a situation, there is a non-unified multiplicity of situations. On this basis one can argue that contra Aristotle and Leibnitz, the multiple is ontologically prior to the one in relativist ontologies. For Aristotle, the unity of substance was ontologically prior to its attributes and accidents: without such unity, there is no being; without the multiplicity of attributes, there is being but it is undifferentiated. In relativist ontologies there is no being without the multiple in the form of a multiplicity of situations. Unity is secondary: what is one being is always dependent upon a particular situation.

Yet it is also on the basis of the two basic theses that this arrangement of the one and the multiple can be overturned. The traditional critique of relativist ontology makes a simple point: it points out that if existence is always dependent upon a situation, then the existence of a multiplicity of situations must also be dependent upon a situation. This point is made by drawing attention to the situation in which the two theses are enunciated. For example in Plato’s *Theaetetus*, Protagoras’ doctrine ‘man is the measure of all things’ is shown to cause a multiplication of ‘truths’ insofar as truth is always relative to a perceiver (situation). Socrates then argues that Protagoras’ doctrine must also be one of these truths insofar as it is pronounced by a man. The result is incoherency since the doctrine becomes subject to its own conditions (171a). In book IV of the *Metaphysics* Aristotle examines the relativist doctrine that “nothing either has come to be or will be without some one’s first thinking so” (IV, 6,1011b6). He then draws attention to the being of the subject which is responsible for such thinking (1011b10).
The situation in which the doctrine of relativism — the two theses — is pronounced is that upon which the existence of a multiplicity of situations is dependent. I term it the metasituation insofar as it is the one situation which includes all the others. If such a metasituation is present in a relativist ontology, then the first basic thesis is contradicted: there is a unified rather than a non-unified multiplicity of situations. The ontology’s consistency is ruined and the one-multiple relation is inverted insofar as the one is shown to be ontologically prior in the form of the all-inclusive metasituation. Without that one, there would be no multiplicity of situations. The one-multiple relation thus also proves an impasse for relativist ontologies: they cannot consistently embrace one arrangement of the one multiple relationship without also implicitly embracing the other arrangement. Rather than occurring at a local level as it does in Aristotle’s ontology, affecting each substance, it occurs at a global level, affecting the entire arrangement of situations and existence.

My concern, in this part of the chapter, is to test whether this impasse, presented here in general terms, occurs in a specific form within Foucault’s discursive constructivism and pragmatism.

1 Foucault and the existence of discursive formations

For the Foucault of *The Order of Things* and *The Archaeology of Knowledge*, a situation is a discursive formation. Discursive formations determine the existence of objects of knowledge. For example, as cited above, Foucault writes of mental illness:

> Mental illness was constituted by all that was said in all the statements that named it, divided it up, described it, explained it, traced its developments, indicated its various correlations, judged it, and possibly gave it speech by articulating, in its name, discourses that were to be taken as its own.

(AK, 32)

He continues by pointing out that there was a different object ‘madness’ for medical and legal discourses. He concludes by saying; “each of those discourses constituted its own object” (AK, 32).

In the second chapter of *The Archaeology of Knowledge* Foucault’s task is to decide what unity an archivist operates with in order to determine what discursive formation a particular statement belongs to. His goal is to find out what distinguishes one discourse from another, what gives them their unity and identity. He asks;

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1 For the purposes of this chapter I have concentrated on Foucault the discursive constructivist of *The Order of Things* and *The Archaeology of Knowledge*. His methodology changed throughout his career: in fact he once characterised himself as a chameleon.
“What, in fact, are medicine, grammar or political economy?” (AK, 31). To approach the problem another way; in Foucault’s ontology the existence of objects of knowledge depends upon discursive formations: “The rules of formation are conditions of existence...in a given discursive division” (AK, 38). Yet it is not clear upon what the existence of these discursive formations depends.

Foucault found that what distinguishes discursive formations can neither be their objects, their concepts, their themes nor the types of statement they employ. He decided that it must be a specific mix of these four elements which is particular to one discursive formation—a ‘system of dispersion’. From the existence of a series of regularities in the relations between these elements, Foucault deduces not just a ‘system of dispersion’ but also the existence of a set of ‘rules of formation’ which govern such regularities; “The rules of formation are conditions of existence...in a given discursive division” (AK, 38). A series of regularities thus form the archivist’s criteria for the existence of a discursive formation. 2

These rules of formation are not the same as Kant’s transcendental a priori conditions of possibility of experience. They do not hold for all objects of experience but are specific to each discourse. As a result they are not immutable: different rules of formation exist in different historical periods. Moreover, Foucault, unlike Kant, does not appear to admit the existence of a thing-in-itself separate to the ways in which it is known or experienced. The rules of formation are not merely conditions of possibility for the objects of experience — how those objects are known — but for the very existence of objects of knowledge — that those objects exist. This is why Foucault’s is a relativist ontology: existence is dependent upon discursive formations.

There are two levels in Foucault’s ontology: the first is that of the rules of formation which make up a discursive formation; the second is that of actual discursive practice. The question then arises of the relation between the two. If Foucault is not to install a metasituation which includes all the rules of formation, then those rules of formation must be immanent to the discursive practices they govern. 3 Indeed Foucault asserts:

Instead of outlining a horizon that rises from the depths of history and maintains itself through history, the ‘preconceptual’ thus described is,

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1 In an interview with Esprit magazine Foucault said, “Le problème que je me suis posé, c’est celui de l’individualisation des discours.” “Réponse à une question.” Esprit, 5 (Mai 1968), 851.
2 “Whenever one can describe, between a number of statements, such a system of dispersion, whenever, between objects, types of statement, concepts, or thematic choices, one can define a regularity...we will say, for the sake of convenience, that we are dealing with a discursive formation.” (AK,38)
3 “The discursive formation is the general enunciative system that governs a group of verbal performances.” (AK.116 my italics)
on the contrary, at the most 'superficial' level (at the 'level of discourse), the group of rules that in fact operate within it.

(AK, 62 my italics)

These systems of formation must not be taken as blocks of immobility, as static forms that are imposed on discourse from the outside, and that define once and for all its characteristics and possibilities...These systems - I repeat - reside in discourse itself.

(AK, 73-4)

A discursive formation and the discursive practice it governs, thus form not two but one situation. The horizon Foucault refers to in the first passage would constitute a metasituation which, by containing the rules of formation, would govern all the other situations. Foucault continually guards against the positing of such a metasituation whether it is named the teleology of reason, a horizon of ideality, or the knowing subject. In line with this policy he rejects the identification of his rules of formation with 'conditions of possibility', one of Kant's formulations of the transcendental:

The discursive formation is characterized not by principles of construction but by a dispersion of fact, since for statements it is not a condition of possibility but a law of coexistence.

(AK, 116)

Yet at another point he also says, "The rules of formation are conditions of existence...in a given discursive division" (AK, 38). There is no difference between 'conditions of existence' and 'conditions of possibility.' In fact Foucault actually says in The Order of Things, "what makes it possible to articulate the history of thought within itself is its internal conditions of possibility" (OT, 275).

This contradiction is evidence of a tension in Foucault's thought between an attempt to identify a set of conditions which reside at another level than that of the statements whose existence they govern, and an attempt to ascribe conditioned regularity to a set of statements without positing a separate level. This tension also is signalled by the name he gives for the position of the rules of formation; that of a 'historical a priori' (AK, 127). If the rules of formation are historical, then they do

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1 Foucault recapitulates the caution placed at the end of each of the four chapters on the formation of objects, enunciative modalities, concepts, and strategies at the end of the fourth chapter thus: "And just as one must not relate the formation of objects either to words or to things, nor that of statements either to the pure form of knowledge or to the psychological subject, nor that of concepts either to the structure of ideality or to the succession of ideas, one must not relate the formation of theoretical choices either to a fundamental project or to the secondary play of opinions." (AK,70) Each of the prohibited terms names a metasituation. At the end of the second chapter Foucault anticipates, and this is his hubris, that the result of his method may well be that the whole 'historico-transcendental thematic' may disappear (AK,39). Nemesis has it that this is precisely the thematic that Foucault's work ends up reinforcing.

not reside at a separate level to discursive practice and are thus as subject to change as the practice itself. However, if the rules of formation are *a priori*, and if they are conditions of existence then it would appear that they do reside at a separate level. If the rules of formation are the conditions of existence of a discursive practice, then nothing at the level of that discursive practice can affect the rules of formation without instantly cancelling out the existence of the discursive practice as it stands.

Yet Foucault’s solution to this problem is that these rules of formation are *both* historical and *a priori*: One can argue that if such rules are not necessary conditions of existence of statements but merely sufficient conditions of existence then they may be replaced by other sufficient conditions, and the discursive practice will continue, albeit in a changed form. Foucault explains how these rules are historical, that is, subject to change, by describing how, via their emergence in actual discursive practice, the rules of formation of objects or concepts may affect the rules of formation of strategies and vice versa:

Theoretical choices exclude or imply, in the statements in which they are made, the formation of certain concepts, that is, certain forms of coexistence between statements.

(AK, 73)

Thus something which happens at the level of statements can change the rules for the formation of concepts. But although Foucault may be able to avoid positing a metasituation which includes all the rules of formation at a level above each different discourse, he runs into difficulty when the question arises of the very existence of these rules of formation if they are an object of knowledge like any other.

In Hubert Dreyfus and Paul Rabinow’s book on Foucault they bring him to task for the inconsistencies which result from his relativism in a chapter entitled ‘The methodological failure of archeology’.* They argue that Foucault’s problem is that he cannot relate the functioning of discourses to objective or subjective laws because both are themselves, as objects of knowledge, products of discourses.4

The unity and existence of the objects of knowledge termed ‘discursive formations’ must, according to Foucault’s ontology, depend upon the archivist’s act of interpretation — or, to be more precise, upon the discursive formation which

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1 Foucault says, “the system of formation is not a stranger to time.” (AK, 74)
2 Foucault also writes, “The *a priori* of positivities is not only the system of a temporal dispersion: it is itself a transformable group.” (AK, 127)
4 Ibid., 82. In fact Dreyfus and Rabinow argue that as a result of these problems one must admit a split between Foucault the metaphenomenalist who can afford to put into quotation marks the objective truth of his own discourse and Foucault the historian who cannot afford such a gesture (87).
governs the archivist’s statements, since all objects of knowledge are constituted by a discursive formation. The discursive formation governing the archivist’s discourse is thus a metasituation which includes the existence of all the other discursive formations. Thus Foucault’s ontology provides a perfect example of the general problem of metasituations outlined above, and so it meets the impasse of the one and the multiple. Perhaps pragmatism will fare better.

2 Pragmatism and the means-ends continuum

Pragmatism claims that theories are instruments, and that they may be tested for their usefulness. They must therefore be used somewhere. Quine, in the following passage, names this somewhere ‘the flux of experience’:

The myth of physical objects is epistemologically superior to most in that it has proved more efficacious than other myths as a device for working a manageable structure into the flux of experience.

Rorty names it the ‘means-ends continuum’:

Language is a set of tools rather than a set of representations — tools which, because of what Dewey called the means-ends continuum, change their uses and the products of their use.

Both Rorty and Quine write as if this domain in which languages, theories and myths are used were an exception to the rule of thinghood being description-relative—as if the existence of this domain was absolute. It thus occupies the position of a metasituation — the situation within which all other theories and their universes both exist and have ‘practical consequences’.

However this is not the only metasituation which pragmatism yields: one of the major objections to pragmatism follows the lines of Plato’s argument against Gorgias’ relativism. It questions the site of enunciation: Is the concept of use a useful tool? Does it ever change its use? Isn’t it part of another theory about the world? Pragmatism does not test its own concepts for their usefulness. Hilary

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2 Quine. From a Logical Point of View, 44.
3 Rorty. Essays on Heidegger and Others. 3.
4 Hannah Arendt argues that the answer to these questions must be in the negative: “Obviously there is no answer to the question which Leising once put to the utilitarian philosophers of his time: ‘And what is the use of use?’ The perplexity of utilitarianism is that it gets caught in the unending chain of means and ends without ever arriving at some principle which could justify the category of means and end, that is, of utility itself” (H. Arendt, The Human Condition [Chicago: The University of Chicago Press, 1958], 154).
Putnam makes an objection along these lines to the instrumentalism of Thomas Kuhn's relativist history of science:

Kuhn argues that science 'progresses' only instrumentally: we get better and better able to transport people from one place to another, and so on. But this too is incoherent. Unless such locations as 'transport people from one place to another' retain some degree of fixity of reference, how can we understand the notion of instrumental success in any stable way? 

I quote Maturana and Varela above on the instrumental validity of scientific statements. They continue:

Yet any observation, even that one which permits us to recognize the operational validity of a scientific statement, implies an epistemology, a body of conceptual explicit or implicit notions that determines the perspective of the observations and, hence, what can and what cannot be explained by a given body of theoretical concepts.

Mark Okrent argues that Rorty does not follow pragmatism's own dictates on the identity of all things, including language, being relative to their use:

And doesn't [the pragmatic conception of language] amount to an attempt to detail a view in regard to the essence of language, an essence which on Rorty's grounds language is not supposed to possess?...What kind of claims are the pragmatic assertions in regard to language, and how do they help to justify the rejection of the constellation of notions connected with Plato's fantasy? And how can they do so without in that very act reconstituting that fantasy.

'Plato's fantasy' is Rorty's term for what he holds as philosophy's traditional project of theorising the order of the universe. Underlying all of these objections to pragmatism is pragmatism's fatal flaw: in order to argue that theories do not represent the world but take part in it as instruments, pragmatism must leave one theory out of the equation, its own. Pragmatism elaborates a theory of the relation between discourse and being just like any of the 'metaphysical' philosophical positions it claims to displace.

A pragmatist could counter by saying that one can easily subject pragmatism to its own criteria. Rorty says that any philosophical theory is useful if it continues the democratic dialogue of philosophy. All the same, each time that one determines the function or use of something, one thing must remain whose usefulness is not at

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2 Maturana and Varela, Autopoiesis and Cognition, 115.
stake; the concepts or theory used in the initial determination of that something’s use. In fact, Rorty himself refers to the existence of what he terms a ‘final vocabulary’:

Final vocabularies are not tools, for we cannot specify the purpose of a final vocabulary without futilely twisting around inside the circle of that very vocabulary.¹

Such a vocabulary is that of the theory of pragmatism. It is in an exceptional position because its use cannot be specified. If an ontology is set up in which function is the last word, there will always be a ground of such function that is itself without function, useless. In order to test theories in practice some theoretical assumptions must remain given and untested, there must be some independent variable. For this reason, theoretical discourse can never completely submerge itself in practice. Theory is only immanent to the world if one theory remains transcendent. That theory is pragmatism itself, and it is the metasituation which includes the existence of all the contesting theories. Pragmatism thus hides two metasituations: that of its own theory, and that of the theory-independent domain of use. Neither of the relativist ontologies examined so far have avoided the one-multiple impasse.

3 Foucault and change in discursive formations

Some relativist ontologies, such as Foucault’s, recognize the occurrence of structural change in situations. If what exists is relative to a situation, then any change of the overall structure of a situation must be due to some variation in a higher situation within which the former is encompassed. If, however, no such higher situation is recognized and structural change occurs in a number of different situations then a relativist ontology has a problem accounting for the existence of such change.

In Foucault’s discursive constructivism, he terms the phenomenon which causes one discursive formation to be replaced by another an epistemological break or rupture. Since Foucault does not explicitly recognize the existence of a metasituation which encompasses these discursive formations he has some difficulty dealing with the ontological status of such ruptures.

Foucault argues that an epistemological break occurred between what he terms the classical age and the modern age. In The Order of Things this change is described in quite dramatic terms:

The last years of the eighteenth century are broken by a discontinuity similar to that which destroyed Renaissance thought at the beginning.

of the seventeenth...knowledge takes up residence in a new space - a discontinuity as enigmatic in its principle, in its original rupture, as that which separates the Paracelsian circles from the Cartesian order...What event, what law do they obey, these mutations that suddenly decide that things are no longer perceived, described, expressed, characterized, classified and known in the same way?... For an archaeology of knowledge, this profound breach in the expanse of continuities, though it must be analysed and minutely so, cannot be 'explained' or even summed up in a single word. It is a radical event that is distributed across the entire visible surface of knowledge, and whose signs, shocks and effects it is possible to follow step by step.

(OT, 217)

The difference between the two epochs of thought is established by a 'radical event' which affects knowledge in general at a particular time, the end of the eighteenth century. Foucault compares it to the event that separated classical from renaissance thought.

The similarity of these two events raises the question of their origin or cause. If they originate from somewhere other than discursive formations themselves, Foucault must admit something like a ground of history. Such a ground would be the source of the order which is found in the succession of historical epochs; Renaissance, Classical and Modern.

There are a number of moments in Foucault's texts which suggest that Heidegger's epochal history of being lies behind Foucault's history of epistemes. In the text "Metaphysics as History of Being" Heidegger claims that there is a succession of epochs of being.¹ What is specific to each epoch is its interpretation of being. Both things and truth have a different mode of being in each epoch.² Foucault formulates the epistemological break in these terms; "The mode of being of things, and of the order that divided them up before presenting them to the understanding was profoundly altered" (OT, xxii). Foucault also says that it is the mark of the modern period that history becomes the mode of being of things (OT, 219). I argue above that Foucault's ontology runs into difficulty whilst accounting for the cause of the unity of the various discursive formations. I suggest that despite Foucault's protestsations to the contrary, his work implies the existence of a metasituation which

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² For Heidegger: "In the beginning of its history, Being opens itself out as emerging (physis) and as unconcealment (ailetheia)" (ibid., 4). Then, Aristote interpreted being in the form of ousia (substance), and furthermore that of energeia (5). Then the Roman epoch began in which being is interpreted as actualitas, ancestor of our 'reality' and 'existence' (12). Heidegger's history continues with Being interpreted as object in the modern epoch and in the current epoch of technology being is interpreted as 'standing reserve', as a resource ever ready to hand. See Heidegger, "The Question Concerning Technology," The Question Concerning Technology and other essays (New York: Harper and Row, 1977).
governs the unity of the discursive formations. As the origin of the order of epochs, history is also a prime candidate for the position of a metasituation in Foucault's ontology.

However Foucault cannot countenance the existence of such a ground so he has to come up with some other explanation for the existence of epistemological ruptures. The confusion in which the existence of such events throws Foucault’s project is evidenced by the diversity of approaches to the problem he employs. It is as though one is witness to display of kettic logic. The first point Foucault makes is that the question of what causes such events is an impossible question:

Only thought reapprehending itself at the root of its own history could provide a foundation entirely free of doubt, for what the solitary truth of this event was in itself.

(OT, 218)

This caricature of the projects of metaphysics — Descartes' cogito, Plato’s thought of thought — implies that the very form of the response is illusory. However if one examines the statement it does not rule out the existence of a unique cause for such events. Rather, it describes the operation of thought necessary to accede to such a cause as impossible. Moreover, if this is a reference to the thesis of the archivist's blindspot concerning his own archive, surely this does not prevent the archivist from thinking about the truth of the event which separates epochs not his own?

The second excuse Foucault provides invokes impotency rather than impossibility. In the Foreword to the English Edition of The Order of Things he recognizes 'the problem of causality' and claims the answer lies in the as yet undiscovered 'theory of scientific change and epistemological causality' (OT, xiii). Thus it is possible to ask this question but the means are not yet available for a response.

The third excuse also takes place on the register of impotency. Despite his declaration of the existence of events which affect the whole order of knowledge, Foucault states that archaeology can only study change at the microscopic level. That is, it “it will recount how the configurations proper to each positivity were modified” whilst multiplying the types of change involved and the levels at which they can take place (OT, 219.xii & AK, 172). The consequence is that each epistemological break is broken down into myriad chains of causality the study of which would involve inordinate amounts of time. This response does involve a claim about existence and the type of cause involved with such an event—that the cause of the substitution of one discursive formation for another resides at their level, that is, at the level of discursive practice. The cause of the wholesale change of discursive formations is
immanent to those formations. Thus, there are multiple causes of such an event.¹ When Foucault is writing in line with this claim he refers to the event which separates classical from modern thought as a series of corresponding transformations which affected the discourses of Natural History, General Grammar and the analysis of wealth. Note the use of the plural form.

In The Archaeology of Knowledge, Foucault expands the argument used in the third excuse. He tackles the problem of the substitution of one discursive formation for another in a chapter entitled “Change and Transformations.” His strategy seems a little confused. The basic assumption appears to be that if the unity of the event is disputed via its analysis into a series of transformations, then the question of its unique cause can no longer be asked.

He first states that there are four levels at which a transformation can take place in discourse. The first is that of individual statements. The second is that of objects, types of enunciation, concepts and strategic choices. The third level is that of the derivation of new rules of formation from old ones within the same system of formation and finally the fourth level “at which the substitution of one discursive formation for another takes place” (AK, 171). He then claims that this level does not have complete control over all the others. A change at this level does not necessarily “lead to similar, simultaneous ruptures” at the other levels. For this reason Foucault can state:

To say one discursive formation is substituted for another is not to say that a whole world of absolutely new objects, enunciations, concepts and theoretical choices emerges fully armed and organized in a text that will place that world once and for all.

(AK, 173)

This implies that a change could take place at the fourth level without immediately resulting in a change at the other levels and vice-versa. However this clashes with Foucault’s doctrine on the identity of a discourse. In the first section of The Archaeology of Knowledge Foucault says that the existence of a discourse can be deduced from a set of statements if they share the same regularities at the level of their system of formation. This is a circular criterion — one can judge that a discursive formation exists if what makes up a discursive formation — a system of formation—is already known to exist. The effect of this circularity in the context of change is that there can be no change at the fourth level without immediately

¹ Foucault sketches this type of gradual change within a discourse, one which does not involve complete transformation, in the following way: “The system of formation...is the system of rules that has to be put into operation if a change in other discourses (in other practices, in institutions, in social relations, and in economic processes) is to be transcribed within a given discourse, thus constituting a new object, giving rise to a new strategy, giving place to new enunciations or new concepts.” (AK, 74)
inducing a new set of statements. There are no statements without their regularities and these regularities constitute both the third and fourth level of discourse. Thus the latter can only change if the level of statements changes. The result of Foucault’s need for an immanent cause of unity is a flattening and fusion of his hierarchy of levels. This in turn prevents non-simultaneous change at different levels. This problem is not dealt with in the text but one may suspect it lies behind such confused assertions as the following:

We must not forget that a rule of formation is neither the determination of an object, nor the characterization of a type of enunciation, nor the form or content of a concept, but the principle of their multiplicity or dispersion.

(AK, 173)

Faced with such a claim it would be apposite to state, drawing on Alain Badiou’s work, that a principle which individuates a multiplicity must count each of its elements as part of an overall unity according to some criteria of individuation. If a multiplicity is individuated by a rule or system then each of its elements is governed by that rule or system. Therefore if one element changes then it must belong to another multiplicity, that is, to another discursive formation. For this reason, in Foucault’s ontology, gradual immanent change as a series of microscopic transformations cannot provide a satisfactory explanation for the existence of epistemological breaks.¹

Furthermore, although Foucault decomposes the substitution of one discursive formation by another into a complex ‘system of transformations’, his formulations of the substitution of the modern discourses for the classical discourses imply that it is one and the same change which occurs. For example he states:

Archaeology...will show that the general order of knowledge is no longer that of identities and differences, that of non-quantitative orders, that of a universal characterization, of a general taxinomia, of a non-measurable mathesis, but an area made up of organic structures, that is, of internal relations between elements whose totality performs a function.

(AK, 218)

If the entire order of knowledge is affected in the same manner then the strategy of explaining the changes by reference to a multiplicity of changes at the level of statements and relations between the discourses and non-discursive practices becomes less and less credible. If, as Foucault would have us believe, dispersed multiplicities of micro-changes occurred without any rule of their gathering save

¹ One suspects that Foucault needs an ontology in which the basic entities are movements. For the structure of such an ontology see Badiou’s work on category theory.
accumulation then he could hardly summarize the change between two epochs as that between the Classical Order and the modern figure of History (OT, 218-9). In the preface to *The Order of Things* he states:

On the archaeological level, we see that the system of positivities was transformed in a wholesale fashion at the end of the eighteenth and the beginning of the nineteenth century. Not that reason made any progress, it was simply that the mode of being of things, and of the order that divided them up before presenting them to the understanding, was profoundly altered...a profound historicity penetrates into the heart of things.

(OT, xxii-iii)

Even though each substitution of one discourse for another can be analysed into a multiplicity of local changes, they remain part of one and the same macro-change, that which affects the 'mode of being of things' in the same way in each discourse.

Foucault’s claim that the order of epochs and the epistemological breaks which separate them reside at the level of the discourses themselves is both suspect and shaky. Just as the archivist’s discursive formation becomes a metasituation in Foucault’s ontology, so does history as the order of epochs.

For Foucault, the placement of a metasituation as cause of the changes between situations would conform to what he terms the “theological aesthetic model of creation (with its transcendence, with all its originalities and inventions)” (AK, 171).¹ Foucault does not elaborate upon this model but it is clear that what is to be avoided is not just a model of change but also a model of production, that is, of the production of change. To extrapolate from his remarks, such a model would posit a transcendental origin for a phenomenon which governs its birth and its development. This is precisely the model of production that is found in both Plato and Aristotle’s ontologies as their account of functional work. In Aristotle’s *Metaphysics*, his analysis of the causes of an artisan’s work explains how a change occurs in the form of the existence of a new substance.

There is one way in which Foucault could account for the wholesale change of a discursive formation whilst avoiding this ‘theological’ model of creation, that is without positing a metasituation as origin of the epistemological ruptures. It involves placing an event at the origin of the transformations. There are two requirements for the ontological status of such an event. The first is that it must take place as an irruption within the situation it changes. The second is that it must have no cause such as an external transcendental situation. The event, like dysfunction, cannot be

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¹ Hilary Putnam makes a similar point when he argues that change in cultural norms (situations) demonstrates that reason (the metasituation) is independent of cultural norms since it is instrumental in such change. See H. Putnam, “Why Reason Can’t be Naturalized,” *Realism and Reason: Philosophical Papers Volume 3* (Cambridge: Cambridge University Press, 1983), 240.
taken as the sign of an independent situation. The ontology which renders such a category of the event coherent is that of Alain Badiou, discussed in the following chapters.

4 Metasituations and the existence of order

Due to the emergence of metasituations, both Foucault and Rorty’s ontologies meet with the existence of order impasse as well as the one-multiple impasse. Its formulation at a global level is quite simple: without the emergence of a metasituation, order is prior to existence in relativist ontologies by virtue of the first basic thesis; all existence is dependent upon an order. However, if the multiplicity of orders admitted by a relativist ontology is in fact encompassed within one larger order, then the existence of that all-encompassing order is prior to the multiplicity of orders: hence existence is prior to order due to the existence of metasituations. The existence of history is prior to, and independent of, the multiplicity of particular discursive formations in Foucault’s work. The existence of the means-ends continuum is prior to and independent of the multiplicity of particular theories in Rorty’s pragmatism. Relativist ontologies end up embracing both alternatives concerning the priority of existence or order and so they, like Plato and Aristotle’s ontologies, meet an impasse in the existence of order.

Conclusion

The ontological schema of functional work generated from our examination of Plato and Aristotle’s ontologies — a unified ordered inclusive multiple — finds confirmation in Richard Rorty’s pragmatist ontology in which theories do functional work. In order to fully account for the existence of functional work a relativist ontology would have to successfully account for the existence of unified ordered inclusive multiples. However, relativist ontologies meet impasses in their accounts of the one-multiple relationship and the existence of order. Therefore they are not able to successfully account for the existence of unified ordered inclusive multiples.

In all the ontologies examined so far the ontological schema for functional work is confirmed but its theorization cannot be completed. A new type of ontology is required; one which is not merely apparently different to the others such as Aristotle’s was supposed to be in relation to Plato’s, or relativist ontologies in relation to Platonic and Aristotelian ontologies. An ontology is required whose difference to the previous three is sufficient for it to successfully negotiate the one-
multiple relationship and the existence of order. One way of determining how an ontology could be sufficiently different is to work out what the three ontologies studied so far have in common.

Martin Heidegger's work is particularly useful for such a task since he elaborates a position upon the similarity of all ontologies since Plato. He argues that from Plato onward, ontology, the discourse on being, mistook its task as that of determining the identity of being by working out what type of entities existed. The two classical questions of ontology are: 'what is there?' and 'why is there something rather than nothing?' For Heidegger, an ontological inquiry headed by the question 'what is there?' searches for the identity of beings. However, the original task of ontology is to investigate the being of beings, not their identity. For Heidegger, ontology's focus is not upon beings but upon their being. He terms the difference between being and beings the ontological difference. He claims that the first step which follows the recognition of the ontological difference is to avoid 'telling a story':

That is to say, in not defining beings as beings by tracing them back in their origin to some other beings, as if Being had the character of some possible entity.¹

Ontologies tell such a story when they attempt to answer the second classical question of ontology: 'why is there something rather than nothing?'

If we regard the three types of ontology studied so far, they each develop an inquiry into the identity of beings and they each tell a story about the genesis of beings. Plato argues that the identity of beings is determined by Ideas which are most in being. He also develops an account of the genesis of the cosmos. Aristotle determines that what there is is substance, and undertakes his ontological inquiry into 'what is substance'. He develops his answers by inquiring into the genesis of each substance. Aristotle also develops an account of the genesis of the cosmos. Relativist ontologies claim that 'what there is' is dependent upon a multiplicity of situations. Moreover, they provide an implicit answer to the question 'why is there something rather than nothing?' insofar as they admit the existence of a metasituation which is found in the position of the origin of the multiplicity of situations. For this reason relativist ontologies actually include a non-relativist answer to the question 'what is there?' — 'history' in Foucault's case, or 'the means-ends continuum' in Rorty's case.

If, upon a Heideggerean analysis of the general characteristics of ontology, the three types of ontology do turn out to have something in common — namely


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they pursue answers to the questions ‘what is there?’ and ‘why is there something rather than nothing?’ — then it is conceivable that in order to find an ontology sufficiently different to avoid the impasses, we must choose an ontology which does not develop answers to these questions. Alain Badiou’s work, examined in the following chapter, provides just such an ontology.
IV

Badiou's
Set theory Ontology
Introduction

The first project of this thesis is to construct the ontological schema of functional work. The project progresses through three types of ontology: Platonic, Aristotelian and relativist. The result, common to each ontology, is that there are three basic characteristics of the ontological schema of functional work: unified multiplicity; an order to that multiplicity; and a structure of inclusion. However, in each ontology impasses arise in the account of the relation between the one and the multiple and in the account of the existence of order.

As has already been shown for each of these ontologies, the schema of functional work is a unified multiplicity. In Plato's ontology, the idea of a bed unifies and directs the multiplicity of the craftsman's production process. However, the relation between the one and multiple causes inconsistencies in Plato's theory of ideas. In Aristotel's ontology, the multiple of a production is unified by its goal, the existence of a new artificial substance. Yet there are irresolvable problems in Aristotle's account of the unity of such a substance. Relativist ontologies give ontological priority to the multiple over the one by recognizing a non-unified multiplicity of situations rather than a single cosmos. Each of these situations is a unified ordered multiplicity, including those in which functional work is found and those which do functional work. However relativist ontologies also make an implicit commitment to the existence of a single metasituation which unifies the multiplicity of situations. They cannot account for the relation between this one metasituation and the multiple of situations without ruining their own consistency.

For each of these ontologies, whatever form functional work takes, its schema involves a structure of inclusion — the schema is an inclusive multiplicity. In Plato's thought, the craftsman's production is included within the city as a part playing a role in a functioning whole. In Aristotle's ontology, the end of a production is external to the production process, the end residing in the domain of the user's needs, yet a relation of inclusion between the domain of production and that of human needs ensures that the right product is produced. In the relativist ontologies of chapter three those situations which perform functional work are included within a metasituation which provides the criteria for judging the function of that work.

For each of these ontologies there is no functional work without the prior existence of order. The ontological schema of functional work is thus an ordered multiplicity. In Plato's ontology, the existence of order in the multiplicity of arts is due to the order of Ideas. In Aristotle's ontology, the end of production orders its process. However Plato meets problems in assuring the consistency of the order of
Ideas and in Aristotle’s ontology there is a tension between existence and order in terms of their ontological priority. In chapter three I argue that due to the existence of metasituations, relativist ontologies are also unable to resolve the relation between existence and order.

Upon the conclusion of the study of these three types of ontology I argue that in order to successfully construct the ontological schema of functional work, a new type of ontology is necessary. In the current chapter I examine Alain Badiou’s set theory ontology to see whether it is up to the task.

Badiou’s set theory ontology is neither well known nor simple. For this reason, before I address functional work, it is necessary to lay out this ontology in detail. For an adherent of Badiou’s set theory ontology, the task of constructing an ontological schema for functional work presents no obstacle since set theory ontology claims to provide the ontological schemas for all types of situations. The aim of this chapter is to assess this claim by developing a critical appraisal of Badiou’s project, as it is outlined in *L'être et l'événement*.  

In part one of the chapter I explain what ontology does in Badiou’s perspective: Badiou holds, following Heidegger, that ontology is the discourse on the being of beings rather than a discourse on what type of things exist in the world. In my view, Badiou’s doctrine on the being of beings reworks Heidegger’s ontological difference in a manner that responds to one of Heidegger’s methodological problems. This problem involves the relationship between the one and the multiple. In the course of explaining its resolution in Badiou’s work, I am led from the matter of what beings are — beings, that is, *situations*, are unified multiplicities — to the matter of set theory ontology’s avoidance of the one-multiple impasse.

In part two of the chapter I present my account of why set theory is suited to the tasks of the discourse on the being of beings. I argue briefly from the persistence of impasses in ontology for the peculiar virtue of formal languages with regard to the presentation of being. I then turn to Badiou’s own arguments for set theory as ontology. Once these are explained I turn to a brief characterization of what it is which set theory says exists — an infinity of sets — by portraying the role of set theory’s axioms in unfolding its universe. I then argue that set theory ontology does not meet with problems accounting for the existence of order: I present an account of set theory’s demonstration of the existence of order amongst sets in the scrics of ordinal sets. The length and complexity of this account is justified by the importance

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1 A. Badiou, *L'être et l'événement* (Paris: Le Seuil, 1988). All subsequent references to this text will be indicated in the body of the chapter with a page number. Such references will in the most part refer the reader to demonstrations of set theory theorems whose complexity and length render their reproduction impractical in this presentation.
of ordinal sets to the argument of chapter five. Part two concludes with a brief
discussion of the relevance to Badiou’s project of epistemological and ontological
debates in the philosophy of mathematics.

In the third part of the chapter I present the parts of Badiou’s argument that
establish how set theory presents the being of beings. This leads me to the
conclusion that sets provide the ontological schema of situations. In part four of the
chapter I note that the parts of Badiou’s argument which allow such a conclusion do
not actually belong to set theory itself. This raises the question of their relation to set
theory, and the relation between set theory proper and Badiou’s doctrines on
situations and their being. A number of other problems that occur during the
progress of the argument are also raised. The chapter concludes with a
characterisation of the method that is used in chapter five to identify the ontological
schema of functional work.

I Ontology is the discourse on the being of beings

1 The ontological difference

Badiou’s starting point is Heidegger’s statement that ontology is the discourse on the
being of beings. For Heidegger the history of metaphysical ontology, from Plato
onwards, is one of a forgetting of the Being of beings in favour of an exclusive
concentration on the question of what beings are.¹ To restore ontology to its original
vocation, Heidegger argues that it is necessary to reorientate it according to what he
terms the ontological difference, the difference between Being (in the verbal sense)
and beings (in a nominative sense); in his terms, the difference between the
ontological level and the ontic level. He cautions that unlike metaphysical ontologies
which reserve the name Being for some single separate transcendent entity which
acts as the ground of existence of all the other entities — such as Aristotle’s prime
mover, or Plato’s Good — ‘Being’ refers to the particular Being (the act of existing
through time) of each and any particular being (entity, substance, movement, etc.).²

In Being and Time Heidegger states that his aim is to ‘lay Being bare’, but
that in order to do so it is necessary to ‘bring forward the beings themselves’.³ At
this point a methodological difficulty arises in Heidegger’s enterprise, and, in my
eyes, it is at precisely this point that Badiou’s intervention is decisive. Badiou

¹ M. Heidegger, “Sketches for a History of Being as Metaphysics,” The End of Philosophy
29, 61.
³ Ibid., 61.
himself does not make reference to this specific problem in Heidegger in his arguments for set theory ontology however the problem does reveal the manner in which set theory ontology makes a difference in the history of ontology by resolving certain problems.

Heidegger’s problem is that if access to Being can only be had through beings, and if the ontic level of beings is the level of ‘what there is’, of the identity of beings, then every attempt to think the Being of beings is going to remain mired at the ontic level: naming Being ‘Being’, or as “originating and emerging and presencing”, as Heidegger does, identifies Being and turns it into a type of being; that is, it is inevitably presented as self-identical in its very difference to the ontic level of beings.\(^1\) Hence Heidegger’s temporary adoption of the strategy of writing Being as crossed out: “The drawing of these crossed lines at first only wards off, especially the almost ineradicable habit of conceiving ‘Being’ as something standing by itself.”\(^2\) For Heidegger the habit may be broken if the ontological difference is kept in mind, however the persistence of the habit itself is ineradicable. One could postulate that at base, such a habit is none other than the habit of taking nouns as words that refer to objects.

In his reading of Heidegger’s history of metaphysics, Badiou seizes upon the point where Heidegger says: “The one as unifying unity becomes authoritative for subsequent determination of Being.”\(^3\) Badiou argues that the ontic level of particular beings is the level of this ‘unifying unity’: each being is unified by its particular identity. He then departs from Heidegger, arguing that Being is not merely forgotten by metaphysics behind this level of beings, nor does it ‘withdraw’ from beings, but is actually structurally foreclosed from presentation as such.\(^4\) By inference, Badiou’s judgement of Heidegger’s methodological problem would be that it is the nature of presentation itself which causes ‘Being’ to be unified each time that it is presented as different to beings. In Badiou’s ontology, any presentation ‘counts-for-one’ what it presents; that is, it unifies what it presents. For this reason, for Badiou as for Derrida, Heidegger’s claim that there can be proper unique words for being is misguided.\(^5\)

One can argue that if the Being of beings is not one, and yet its fate is to be unified however it is presented, then with regard to presentation, one must say that Being is multiple. This is the point that Badiou reaches, though via another route. It

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\(^1\) In other terms: “As soon as presencing is named it is represented as some present being.” M. Heidegger, “The Anaximander Fragment”, *Early Greek Thinking* (San Francisco: Harper & Row, 1975), 50.
\(^3\) “Sketches for a History of Being as Metaphysics,” 55.
\(^4\) On the withdrawal of Being from beings see “The Anaximander Fragment,” 26.
\(^5\) See “In order to name the essential nature of Being language would have to find a single word, the unique word”, Ibid., 52. See also J. Derrida, “Difference,” *Margins of Philosophy* (Chicago: University of Chicago Press, 1982), 27.
is now appropriate to introduce what may be termed Badiou’s doctrine on the one and the multiple.

2 The one and the multiple

Aristotle’s basic existential thesis is: there are substances. The basic existential thesis of set theory ontology is: there are multiple multiplicities. Both ontological commitments appear to embrace plurality yet there is a fundamental difference between them: for Aristotle all substances occur within the one cosmos, the cosmos naming the totality of what there is. In set theory ontology there is no all-inclusive totality. One of the basic theses of set theory ontology is that the one is not: that is; there is no fundamental unity to Being whether that unity be in the form of a cosmic unity of all beings, or the unity of each being. This thesis directly opposes the thesis found throughout the history of ontology: best expressed by Leibniz, it states ‘what is not a being is not a being’: everything which is, is a unity or is one. This is how set theory ontology fundamentally differs from the three types of ontology studied in the other chapters: for them there is a fundamental equivalence between the one and Being.

For Badiou Being is multiple, yet there is a level — similar to Heidegger’s ontic level — wherein Being appears to be unified: the level of ‘situations’ or ‘presentations’, the two terms being synonymous. These are the multiplicities which set theory ontology recognizes as existing. These situations do not have a fundamental unity but are multiplicities that are unified by an operation. This means that something may belong to more than one situation: the situations do not have mutually exclusive identities; they do not ‘carve reality at the joints.’ A situation may be a series of texts, a work of art, an art gallery on a Saturday afternoon, a football game, a fight, a distribution system, a forest or a mine. Elements of those situations may belong to one alone or a number of those situations. For Badiou, each of these situations is a unified multiplicity: evidently, otherwise one would not be able to identify them as ‘a’ football game, ‘a’ work of art, or ‘a’ forest. The question then arises of the relation between the level of Being as multiple and these unified multiplicities termed situations: how are these multiplicities unified?

The one-multiple impasse has been shown to occur frequently in ontology: it arises in each of the three types of ontology examined in the thesis so far. Each of these ontologies, in turn, presents a variant of ontology’s traditional options with regard to relation between the one and the multiple. Either the one which unities the multiple is transcendent to the multiple — Plato’s ideas, relativism’s orders (languages, theories, discourses) —, or it is immanent to the multiple — Aristotle’s
substances. Set theory ontology develops a doctrine on the unification of multiplicity wherein the operation of unification is neither transcendental nor immanent.

Since in set theory ontology the one is not, there is no original unity to these situations. Their unity is merely an effect; an effect of an operation termed the 'count-for-one'. This operation both counts the multiplicity of the situation as one, making it a situation, and it counts each of the situation's elements as an element of that situation.

The first question that arises when one is presented with such a claim is that of what performs such an operation; transcendental schematism, the subject, language? What underlies such a question is a concept of operation wherein there is a tripartite distinction between the agent of the operation (the subject), the operation itself (the action), and what is operated upon (the object). For example I (subject) count (the operation) all the apples in this bowl (the object). However, to implicitly admit subjects and objects into an excess of an ontology which claims to only recognize 'situations' would be to confuse the issue. Subject and object are the terms of ontologies informed by Kant not Cantor. If one persists with such a question, Badiou's response is that the situation or presentation is the same thing as the operation of its count-for-one, and so the count-for-one is not something separate to the situation.¹ Nor, he adds, is it a specific part of a situation. What we then have is an operation whose effect is the unity of situations, which has no separate agent, and which is indistinguishable from the situations themselves. The question then becomes; how is this possible in the terms of set theory ontology?

3 The unity of sets

Set theory is a theory of multiplicity. A set is a multiplicity of elements. The elements of a set are not individual units; that would reintroduce the being of the one at an atomistic level. Each element is itself a multiplicity of elements, which in turn are themselves multiplicities. This is why one can say set theory is a theory of the pure multiple: its multiplicities are multiplicities of multiplicities rather than multiples of units or things. The elements of a set have no distinguishing quality save that of belonging to it. This is why they are referred to simply as variables — α, β, γ — both when they are elements and when they are themselves considered as sets. The relation of belonging is the basic relation of set theory: it is written α ∈ β; α belongs to β, or, α is an element of the set β. There is another relation in set theory, termed inclusion, which is based entirely on belonging. Sets have subsets

¹ Melbourne Badiou Reading Group Interview with Alain Badiou, 8/8/99.
which are included in them. A subset is a grouping of some of a set’s elements. Each of a subset’s elements must belong to the initial set.
Take for example the set $\delta$ which consists of the elements $\alpha$, $\beta$, $\gamma$. It can be written $\{\alpha, \beta, \gamma\}$. It has various subsets like $\{\alpha, \beta\}$ and $\{\beta, \gamma\}$. The latter subset, $\{\beta, \gamma\}$, might be called the subset $\chi$. Its inclusion in $\delta$ is written $\chi \subseteq \delta$.

A set is a unified multiplicity: its elements are not indefinite and dispersed; one is able to speak of a set. Badiou reads $\alpha = \beta$ as saying that multiple $\alpha$ is counted-for-one as an element of the set $\beta$, or, the set $\beta$ is the count-for-one of all those elements $\alpha$. There is no agent which unifies a set, yet the set is a multiplicity which can be spoken of and operated with as a unity. A set is nothing other than its elements—this is the consequence of what is called the extensionalist definition of sets, or rather, of the axiom of extensionality. This axiom states that if all elements $\gamma$, which belong to a set $\alpha$, also belong to a set $\beta$ and the inverse, then $\alpha$ and $\beta$ are the same set. What this means is that the set, as a count-for-one of multiples, resides nowhere else than in or as those multiples.

For example there is a certain type of set termed an ordinal set. It has a structure such that all of its elements are also subsets of it: this structure makes it into a transitive set. In turn, each of its elements, considered in its own right, is also a transitive set. One can look at in two ways: first, whenever a bunch of transitive sets are gathered together one has an ordinal set; second, whenever one takes an ordinal set and look at what makes it up, one finds transitive sets. Either way, an ordinal set is nothing other than a count-for-one, an operation unifying a multiplicity of transitive sets.

The difference in between a set having a fundamental unity and a set being unified by an operation is that the elements of a set can also become the elements of any number of other types of set. For example, there is an operation in set theory which allows one to create a new set from the elements of an initial set: one gathers all the subsets of the initial set together and these form the elements of a set termed the powerset. At base, it is the same multiples which go into the powerset's composition, but an entirely different unifying operation is effected and so an entirely different set results.
A set is nothing other than its elements: this implies that a set’s count-for-one is in some manner immanent to its elements. However one of the nine axioms of ZFC set theory, the axiom of replacement, states that if all of the elements of a set are replaced one by one with other elements, the result will be another set (78). Consequently, the unity of a set is not determined at the level of its elements— the unity remains even if all of them are replaced. It is separate and indifferent to them and so it can be said to be transcendent. This is because elements of a set are not singular individuals making their own particular contribution to the overall unity of a whole but merely types of multiples—such as transitive multiples.

For set theory, the operation which unifies a set is neither transcendent nor immanent. Or, one could argue that a set’s count-for-one is immanent and not transcendent insofar as its identity and unity of a set completely resides in its elements—the axiom of extension—yet its count-for-one is also transcendent and not immanent insofar as all its elements can be replaced yet it will remain a unified multiplicity. In any case, the result is that a set is its own operation of counting-for-one, thus providing an example of Badiou’s doctrine on the unity of multiplicities—situations are unified by a non-transcendent operation without an agent. This is part of the passage that set theory ontology attempts to create around the ontological impasse of the one-multiple relationship.

4 Passage or dead-end? - The absence of a metasituation

At this point it is worth noting that when a passage is created around an ontological impasse, whether partial or full, it often does not take place as a direct resolution of the problems and terms involved in the impasse. The impasse is avoided precisely by a refusal to engage in its terms: passages are created by the reorganization of the terms of the debate. For example, Badiou’s first move with the impasse of the one-multiple relationship is to reject the existence of the one as primary. Consequently, these passages cannot be immediately judged in the terms of the ontologies in which the impasses occur. Yet criticism can be made, and on two bases: first, the new approach to ontology may turn out to be not so new and different after all—hence my brief failed attempt to reduce set theory’s positioning of the unity of a set to either another type of immanentism or a type of transcendentalism. Second, set theory ontology may break its own promises and fail on its own terms. In this chapter criticisms of Badiou’s set theory ontology are made from both bases and answered. For the moment judgement is reserved.

1 ZFC set theory is the dominant model of set theory used by mathematicians and by Badiou in constructing his ontology. Zermelo initiated its axiomatization and Fraenkel completed Zermelo’s project, adding the Axiom of Choice.
If indeed set theory ontology does create a passage around the one multiple impasse then it should be able to avoid the specific manifestation of this impasse in relativist ontologies; the emergence of an all-inclusive metasituation. If, on the other hand, it turns out that set theory ontology is beset by this problem then its passage around the one multiple impasse will have proved a dead end.

To see how set theory ontology fares one must first return to the impasse in relativist ontologies: in chapter three I argue that one of the fundamental objections to relativist ontology can be made on the basis of its two basic theses: that existence depends on order, and that there is a non-unified multiplicity of different orders. The objection runs: upon what order does the existence of a multiplicity of different orders depend? If the response is the order of the situation of the relativist ontology itself, the objection continues by asking upon what order the existence of the situation of relativist ontology depends. Either an infinite regress ensues at this point or the relativist ontology implicitly or explicitly posits the existence of a metasituation upon whose existence and order all other situations depend, yet whose own existence is not dependent upon any order. In this case, the regress is halted but the basic theses of relativist ontology are contradicted; hence the impasse. For example: as I argue in chapter three, Foucault is forced to conclude that the existence of a multiplicity of objects of knowledge termed ‘discursive formations’ depends upon the discursive formation in which the archivist’s work occurs.

If we now turn to set theory ontology and try to find this self-reflexive torsion we meet a simple obstacle: set theory ontology does recognize a multiplicity of ‘situations’ but it does not share relativist ontology’s other basic thesis; that all existence depends upon an order. The reason why is that set theory is not an explanatory ontology: it does not explain the causes or identify the conditions of the existence of entities. For this reason, the question of the causes of its own existence is not an issue. Set theory ontology, unlike Platonic, Aristotelian and relativist ontologies, does not identify the totality of what there is and then, by consequence, have to explain how it is a part of that totality.\(^1\)

However, amongst Badiou’s propædeutic remarks to *L’être et l’événement* there is the statement: ‘there is a multiplicity of situations, and set theory ontology is one of these situations’. Clearly this is not a statement made in the language of set theory ontology itself. As such, it appears to be ungrounded and so invites the formulation of the impasse which was successfully avoided above: one can ask from what situation the statement is made and how such a situation would determine what does and does not exist. But this, again, is an illegitimate question since there is no

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1 One should note that set theory, like the other ontologies, is capable of self-reflexivity since it constructs ‘models’ of its own universe in which it proves that its axioms are consistent.
accompanying statement in Badiou's metaontology which claims that situations determine what exist. The statement merely restates in non-formal language set theory ontology's basic ontological commitment: that there is a non-unified multiplicity of multiplicities.

Set theory ontology thus avoids the one multiple impasse as it occurs in relativist ontologies, yet there are a number of complications which have been opened up by this line of inquiry. The statement cited above is actually made at a level of discourse that Badiou identifies as 'metaontology'. It is the discourse in which most of the argument of L'être et l'événement is made. The exact status of the relationship between metaontology and ontology proper — the formal language of set theory — is a matter which deserves attention. It is not entirely clear in Badiou's work. It is examined below.

5 Ontology is the discourse on the being of beings

Heidegger distinguishes between the ontological level of Being and the ontic level of beings. Badiou recognizes three levels. First there is the level of beings which he terms situations or presentations. From the perspective of ontology these situations are unified multiples. Second, there is the Being of those situations, which Badiou argues is their inconsistent multiplicity. Third, there is Being qua Being which is neither one nor multiple. For Badiou, the third level is structurally foreclosed from all presentation whilst the second level is structurally foreclosed from the particular presentation whose being it is. It is Badiou's distinction between these second and third levels that allows his entire project to go ahead. Badiou does not understand the second level as the pure verbal sense of being, but rather as what can be said of the being of a situation once all predicates concerning its identity and external relations are stripped away. What remains, for Badiou, is a situation's structure and it may be spoken of without reference to the situation's identity because there is a type of presentation which presents situations—multiplicities—in such a manner that their identity is not at stake: and this special presentation is set theory.
II Set theory is ontology

The first obvious question is: why set theory? why is set theory, rather than another discourse or type of language, suited to the task of writing the being of beings?

1 Formalisation and the real

Mathematisation is our ideal because it alone attains the real. Lacan, *Encore* 1

When he created the discourse of ontology as a distinct realm of inquiry within philosophy, Aristotle defined one of its primary tasks thus:

It is necessary therefore, to examine also how one should speak of everything not certainly, at any rate, more than how each thing subsists or is disposed. (VII,4,1030a)

My argument, supporting Badiou, is that the correct language for speaking of being is the formal language of set theory, but that its suitability is not attested so much by how it speaks of everything but rather by what it cannot speak of.

One of the major arguments of this thesis is that certain impasses in the discourse of ontology remain the same throughout the history of different types of ontology. The conclusion that is drawn at the end of chapter three is that a new approach to ontology is required in order to avoid these impasses. The argument of this chapter is that set theory ontology presents such a new approach.

The persistence of these impasses testifies to *something* which is independent of each ontologies’ attempt to present existence. In Jacques Lacan’s terms, an impasse is something real, something that cannot be symbolized (presented) without causing inconsistency or contradiction in the rules of symbolization (presentation). That *something*, which is independent of each ontology, thus concerns the relation between being and presentation. For example, the persistence of the one-multiple impasse in ontologies as different as those of Plato, Aristotle and modern relativism shows that being cannot be presented as one. 2

2 Of course, this thesis rests upon an inductive argument, and would require proof of the existence of the impasse in a far larger range of ontologies than those studied in this thesis to be regarded as plausible. However such work lies outside the scope of this thesis, and the persistence of the impasses in ontologies as different as those studied within the thesis is an indication at least, of their indifference to the type of ontology in which they occur.

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The peculiar virtue of set theory is that it raises the impasses that it does not resolve from the level of impotency to the level of impossibility. That is, if one takes another ontological impasse, the relation between the discrete and the continuum, which is first revealed in Aristotle's work on time, one can always suspect that the lack of a solution is due to inadequate conceptual resources. However, if the impasse is formulated in set theoretical terms — the discrete becomes the first infinite set, and the continuum the cardinality of the latter's powerset — the necessity embodied by the demonstrations of the insolvability of this relation testifies that there are no concepts which could serve to resolve the impasse.1 The formalization of the terms that constitute an impasse and the use of logical demonstration to exhaust possible solutions reveal the impasses to necessarily be points of impossibility within a symbolic field (a presentation).

The impasses in set theory also concern the relation between being and presentation since they dictate what kind of sets can be presented as existing. Set theory is the correct language for ontology, because it alone, of all types of language, formal and natural, is most constrained by the occurrence of impasses within its field. Indeed the very axiomatization of set theory was designed to prevent these impasses, such as Russell's paradox, from subverting its field entirely. In set theory, what exists — sets — is only what can be said to exist according to the strict rules of logical consistency. In conclusion, set theory is the right language for ontology because it is most guided, in the matter of being and its presentation, by impasses.

The objection may arise that there are other formal languages apart from that of ZFC set theory which render impasses in presentation into necessity. To respond would require a comparative analysis of set theory, various formal languages and the basic symbols they share but there is no space for such an investigation here. In its place I will present Badiou's own argument for why set theory alone, of all formal languages, is the discourse on being.

2 Set theory is a theory of pure multiplicity

As I noted above, for Badiou, being in relation to presentation, or rather that being of the beings which may be presented, can only be regarded as multiple, as non-unified multiplicity. The basic requirement of ontology is therefore that it presents non-unified multiplicity. This requirement is complex since it resolves into a number of further conditions. First, in order to present multiplicity without unity, ontology's

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1 In order to demonstrate this point two separate tasks must be carried out for each ontological impasse: first it must be shown that given the set of concepts at a particular ontology's disposal, the problem is unsolvable; and second, that the problem's formalization in set theory does capture its nature.
multiples cannot be multiples of something: they cannot be composed of either individual things or units of any kind. Consequently they must be composed of multiples that in turn must also be composed of multiples and so on. Second, ontology cannot present its multiples as belonging to a universe, to one all-inclusive total multiple for that would be to reintroduce the one at a global level. Consequently ontology’s multiples must be boundless. Third, ontology cannot employ a single concept of what a multiplicity is for that would unify such multiplicities and by doing so, unify being: Heidegger’s methodological problem would reemerge.

Set theory is the formal theory of pure or non-unified multiplicity. It meets each of the three conditions outlined above. First, a set is a multiple of multiples: there is no difference between elements and sets, since every element of a set is a set itself. Second, there is no set of sets which includes all the different types of set found in set theory. In fact it is quite incorrect to speak of ‘all the sets in set theory’ since according to set theory, strictly speaking, there is no such totality: it would require a set which is a member of itself; forbidden by the axiom of foundation. In set theory there is an infinity of infinite types of infinite sets. Third, there is neither a definition nor a concept of a set in set theory. In the latter’s place one finds a fundamental relation, belonging, a series of variables and logical operators, and nine axioms stating how they may be used together. Sets emerge from operations that follow these rules. One may object that set theory is a situation like any other and so must have its unity. If there is no concept of what is and is not a set, there is no way of assuring that unity. However the unity of set theory is assured by the logical consistency of its field. The axioms ensure that all operations in set theory result in further sets and not in something which does not belong to set theory itself.

Now that the argument has been made as to why set theory is ontology, some examination of how sets are presented and manipulated is necessary.

3 The axioms

Of the nine axioms in ZFC set theory, six are of concern here: one concerns identity and difference, the axiom of extension; four concern the construction of a new set on the basis of an already existing set, the axioms of separation, union, replacement and of the powerset; and finally one concerns directly the existence of sets, the axiom of the null-set.

1 Of course, there may be further requirements of a satisfactory ontology that would emerge in a longer study of Badiou’s ontology, but these are the fundamental requirements of developed by Badiou in his reworking of the discourse on being. One must also note that logically speaking it is possible for another language than ZFC set theory to meet these three requirements but, practically speaking, ZFC set theory is the dominant mathematical language to which all other mathematical constructions are reducible as pure multiplicities.
The axiom of extension states that one set is the same as another set if every element $\gamma$ of a set $\alpha$ is also an element of a set $\beta$ and the inverse is true then $\alpha$ and $\beta$ are indistinguishable and therefore identical. Formally:

$$\forall \gamma \left[ (\gamma \in \alpha) \leftrightarrow (\gamma \in \beta) \right] \rightarrow (\alpha = \beta).$$

Consequently, in theory ontology, the regime of identity and difference is founded upon extension, not quality. Every difference is localised in a point: for two sets to be different, at least one element of one must not belong to the other.

The axiom of separation states ‘if there exists a set $\alpha$, then there exists a subset $\beta$ of $\alpha$, all of whose elements $\gamma$ satisfy the formula $F$.’ It enables a set defined by a formula to be separated from an initial set. Formally:

$$\forall \alpha \exists \beta \left[ \forall \gamma \left[ (\gamma \in \alpha) \land F(\gamma) \rightarrow (\gamma \in \beta) \right] \right].$$

Its ontological significance is explained in more detail below in reference to the platonism versus constructivism debate.

The axiom of the powerset states that all of the subsets of an initial set themselves form another set termed the powerset. Take for example the set $\{\alpha, \beta, \chi\}$. Its three elements can be grouped into the following subsets:

$\{\alpha\}, \{\beta\}, \{\chi\}, \{\alpha, \beta\}, \{\alpha, \chi\}, \{\beta, \chi\}, \{\alpha, \beta, \chi\}$, to which must be added both what is termed the ‘maximal’ subset $\{\alpha, \beta, \chi\}$, and, by virtue of a rule explained later, the null set $\emptyset$. The powerset of $\{\alpha, \beta, \chi\}$ is thus:

$\{\{\emptyset\}, \{\alpha\}, \{\beta\}, \{\chi\}, \{\alpha, \beta\}, \{\alpha, \chi\}, \{\beta, \chi\}, \{\alpha, \beta, \chi\}, \{\emptyset\}\}$. The axiom of union looks like the following formally:

$$\forall \alpha \exists \beta \left[ (\delta \in \beta) \rightarrow (\exists \gamma \left[ (\gamma \in \alpha) \land (\delta \in \gamma) \right] \right].$$

It can be informally paraphrased as stating that all of the elements, $\delta$, of the elements, $\gamma$, of an initial set, $\alpha$, themselves form a set $\beta$ termed the union-set. The set $\beta$ is thus the union-set of the set $\alpha$, conventionally written $\cup \alpha$. For Badiou the consequences of this axiom are profound: since any decomposition of a multiple will result in more multiples, and any recomposition of such multiples is also a multiple, this axiom ensures that there are no individuals or units in the presentation of set theory; there is a homogeneity of being-in-presentation since all is multiple (77).

The axiom schema of replacement states that given a set, if each of its elements is replaced by another element, you will then still have a set. Badiou’s reading is that the count-for-one of a set is indifferent to what composes the set, to what it is a multiple of. All that is required for a set’s count-for-one to function is that what it counts are multiples. Again, Badiou cites this as evidence that set theory presents pure multiplicity, subtracted from any considerations of the particular identity of elements of a multiple.

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1 The difference between an axiom schema and an axiom is that for each instantiation of an axiom schema it must be written differently though its form remains the same whereas with an axiom a single written form is sufficient for any instantiation or use made of it.
The axiom of the void is the first existential axiom of set theory. It forms set theory’s first ontological commitment. All the axioms listed so far presume the existence of at least one set but they do not themselves establish the existence of sets. The axiom of the void is what decides upon such existence. It states that there exists a null-set, an empty set to which no elements belong. This null-set is the initial point of existence from which all the other sets of set theory are built up using the constructive axioms. Formally: \( (\exists \beta) [\sim (\exists \alpha) (\alpha \in \beta)] \), \( \beta = \emptyset \).\(^1\) For Badiou, set theory’s vocation for presenting the pure multiple is confirmed again by this axiom. Set theory cannot choose any particular multiple as its initial point of being since multiples are themselves composed of, and thus presume the existence of, other multiples. If set theory was able to choose one particular multiple as its initial point of existence, it would have reintroduced the being of the one, this particular multiple being the one from which all other sets proceed. But set theory, as Badiou notes, presents nothing particular as its initial point of existence by making the latter a multiple of nothing (80). Within set theory the null-set is unique because it breaks with the extensionalist definition of sets: that a set is its elements. This is why Badiou terms the null-set set theory’s “subtractive suture to being”. It is subtractive because it is subtracted from the condition of all the other sets: having elements. The null-set is a ‘suture to being’ because it is the initial point of existence from which all the other sets are unfolded by means of the constructive axioms.

Unlike other ontologies, set theory does not assert the existence of an entire cosmos or of several different regimes of being (possible and actual, or material and ideal). It merely asserts the existence of an empty set, and, in its second existential thesis, an infinite set. All of the sets of set theory are ‘weaved’ from compositions of the void set. For example, from \( \emptyset \), by the operations prescribed by the axiom of the powerset, one can demonstrate the existence of, its powerset \( \{ \emptyset \} \), and then by repeating the operation, further sets such as \( \{ \emptyset , \{ \emptyset \} \} \) and \( \{ \emptyset , \{ \emptyset \} , \{ \emptyset , \{ \emptyset \} \} \} \) can be constructed.

4 Sets and the existence of order

In each ontology studied in the previous chapters, the ontological schema of functional work turned out to be an ordered unified inclusive multiple. Yet all of these ontologies find themselves in an impasse when they try to account for the existence of order. For this reason they cannot successfully construct the ontological schema of functional work.

\(^1\) - is the sign for negation.
There are two major variations of the impasse: the first occurs in those ontologies for which order is supposedly prior to existence; the order of the cosmos or reality in fact has to be produced or caused by a being—an existence—in an exceptional transcendental position. For example in Plato’s ontology, the Good turns out to be prior to the order of Ideas, and the work of the demiurge to be prior to the ordering of phenomena in the cosmos by the Ideas. Hence there is an existence that is actually prior to the order that is prior to existence: one could schematize Plato’s ontology thus; the Good $\rightarrow$ Ideas $\rightarrow$ phenomena. The second variation occurs in those ontologies for which existence is supposedly prior to order: existence itself is placed in an exceptional position. On one reading of Aristotle, individual concrete substances have absolute ontological priority yet are exceptional in his ontology insofar as they are inaccessible in their concrete individuality to knowledge. Problems also arise in Aristotle’s account of the generation of order out of existence, such as the problem with the unity of substances in the generation of order in substances. The result of these problems is that for this latter type of ontology, the generation of order out of existence always presupposes the prior existence of order. Both of these variations of the order-existence impasse occur in relativist onto logics. The first variation occurs at the level of their two basic theses: order is prior to existence insofar as existence is always relative to a particular order (a discourse or theory), yet this presupposes the prior existence of a metasituation which is responsible for the existence of the multiplicity of particular orders, whether it be, for example, History or the means-ends continuum. The second variation occurs at the level of particular orders or situations that recognize ‘outsides’ such as the archivist’s material in Foucault’s discursive constructivism. Existence is presumed to be prior to order because order must be generated within such existence by the situation: archivists create order in history by creating discontinuities. However, this creation of order can be shown to presume the prior existence of order within the existence-to-be-ordered.

These two variations of the impasse form ontology’s merry-go-round of order and existence. The key factor in the formation of the impasse is the question of priority. In bringing this impasse to Badiou’s set theory ontology I am introducing the latter to something foreign to it, something that it does not recognize. Yet if it is as new a type of ontology as Badiou claims it is, it should be able to resolve an impasse which has beset many types of ontology throughout the history of philosophy. This test is as crucial as that of its encounter with the one-multiple impasse.

Set theory’s approach to relation between existence and order is completely different to that of the other ontologies because it does not seek to explain the existence of order in any one situation such as ‘the cosmos’ or ‘the production of a
house'. Rather, set theory shows how order exists amongst its pure multiples such that there are ‘ordered multiples’. In the other ontologies the existence of order requires the interaction of two types of being: one indefinite and multiple, like matter or the means-ends continuum; the other definite and singular, like Ideas, formal causes, discursive formations and conceptual schemes. The existence of order amongst sets requires no more than one type of being, the pure multiple, and it is demonstrated using nothing other than the same theorems and axioms which are used to posit the existence of sets.

The aim of the following exegesis is to explain how a certain series of sets termed ordinals serves as a ‘scale of measure’ for all of set theory’s sets, thus ordering them by size. Most of the technical detail of the demonstrations involved is surplus to our requirements, the aim of the presentation best being served by a brief account of how the demonstration proceeds.

A set is an ordinal if and only if it is both transitive — all of its elements are also subsets of it — and all of its elements are also transitive. The first step set theory takes in demonstrating the existence of order is to inquire whether there are any ordinal sets. It takes as its subject the set \(\{\emptyset, \{\emptyset\}\}\) which is constructed by applying the axiom of the powerset twice to the null-set.\(^1\) The elements of this set are \(\emptyset\) and \(\{\emptyset\}\). The element \(\emptyset\) is also a subset of \(\{\emptyset, \{\emptyset\}\}\) by virtue of the theorem which shows that \(\emptyset\) is a subset of every set (100.2). The element \(\{\emptyset\}\) is also a subset of \(\{\emptyset, \{\emptyset\}\}\) because its sole element, \(\emptyset\), is, in turn, an element of the set \(\{\emptyset, \{\emptyset\}\}\). Thus the set \(\{\emptyset, \{\emptyset\}\}\) is transitive because each of its elements is also a subset of it. But this is not sufficient for it to be an ordinal since each of these elements must also be shown to be transitive. The set \(\{\emptyset\}\) is transitive because its element \(\emptyset\) is also its subset by virtue of the aforementioned theorem. The set \(\emptyset\) is transitive because, in order to not have this property, it would have to have an element that was not also a subset, yet it has no elements so there is nothing to object to it being transitive. The set \(\{\emptyset, \{\emptyset\}\}\) is transitive and its elements are transitive; therefore, at least one ordinal set exists.

The next stage is to demonstrate the existence of the series of ordinals. There are three basic steps to this process. The first step is the employment of a theorem which says that every element of an ordinal is itself an ordinal (152). Consequently, if \(\{\emptyset, \{\emptyset\}\}\) exists and is an ordinal set, then both \(\emptyset\) and \(\{\emptyset\}\) are also ordinal sets. The second step is to show that if an ordinal \(\alpha\) is an element of an ordinal \(\beta\) and that ordinal \(\beta\) is an element of a third ordinal \(\gamma\) then the first ordinal \(\alpha\) is also an element of the third ordinal \(\gamma\): \(\{\alpha \in \beta\}\&\{\beta \in \gamma\} \rightarrow (\alpha \in \gamma)\). What we then have is a minimal series of ordinals — \(\alpha \in \beta \in \gamma\) — where any element in the series can also be placed.

\(^1\) See L’être et l’événement, 102-3, 151.
as belonging to the last element in the series, such as $\alpha \in \gamma$. This series has an order to it, an order of belonging. Size is then defined amongst sets by saying that the ordinal $\alpha$ is 'smaller than' the ordinal $\beta$ — and by virtue of transitivity, smaller than $\gamma$ also — if it both belongs to and is included in $\beta \in \gamma$. The result is an ordered series of ordinals, $\alpha \in \beta \in \gamma$, which is an order of size.

The third step in showing the existence of the series of ordinals is the demonstration of the universal connection of ordinals. This demonstration shows that every ordinal is connected to every other ordinal by the relation of belonging (156-7). Since the foundational point of existence for set theory is the void-set, and it has been shown to be an ordinal, and since all ordinals are connected by belonging, any ordinal set can be presented as a chain of belongings commencing with the void-set: For example, the ordinal $\gamma$ can be written:

$$\emptyset \in \{\emptyset\} \in \{\emptyset, \{\emptyset\} \in \ldots \in \ldots \in \alpha \in \beta \in \gamma.$$  

Each element in this chain is also an element of $\gamma$ at the level of $\beta$.

$^1$ For instance, one can write $\{\emptyset\} \in \gamma$. The set $\gamma$ therefore gathers together all the elements in the chain. This is where the connection to our everyday understanding of ordinals—4th, 5th, 6th—can be made since the next largest ordinal after $\gamma, \gamma + 1$, is simply the same chain with one more element. We can also now make the connection between the ordinals and ranks of size, the cardinals: 4, 5, 6. There are $\gamma$ members, or $\gamma$ is the $\gamma$th member, in this chain of 'being belonging to' not including $\emptyset$, to which nothing belongs — and so one can say there are $\gamma$ elements in the ordinal $\gamma$. One can now glimpse how the order of ordinals provides a scale of measure which can be used to order all the other types of set according to their cardinality or number of elements.

Since ordinals are universally connected, each ordinal can also be understood as an interruption of a single chain of ordinals which commences with the null-set. The obvious question arises of the length of this chain: is it infinite? If it is not infinite then set theory will only be able to demonstrate the existence of order amongst finite sets, and its infinite variety of infinite sets will be left unordered.

In order to establish the existence of any infinite sets, the axiom of infinity is required, the second of set theory’s existential axioms. This axiom requires the concept of a successor ordinal. Successor ordinals are another way of understanding the series of ordinals presented above: if you take any ordinal $\alpha$, its successor, $S(\alpha)$.

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$^1$ To demonstrate this point take the chain of ordinals $\gamma \in \delta \in \beta \in \alpha$. Start at the first level of belonging, $\beta \in \alpha$. Because $\alpha$ is transitive, $\beta \subset \alpha$. The definition of a subset is that its elements are already elements of the initial set. Therefore if $\delta \in \beta$, one can also say $\delta \in \alpha$. Now, since $\beta$ is an ordinal, it is transitive, therefore $\delta \subset \beta$. Given the definition of a subset, if $\gamma \in \delta$, one also has $\gamma \in \beta$. Yet, $\beta \subset \alpha$, and so, given the definition of a subset (its elements are already elements of the initial set), $\gamma \in \alpha$. This procedure can be repeated to show that at every ‘level’ of the chain of decomposition of elements of elements of elements etc., the set one has is also an element of the initial set at the ‘first level’ of belonging (My explanation).
is the union set of itself and its singleton: \( \alpha \cup \{ \alpha \} \). It is possible to demonstrate that there is no ordinal which is larger than \( \alpha \) yet smaller than \( \alpha \cup \{ \alpha \} \) (172). The chain of ordinals can thus be presented:

\[ \emptyset \in S(\emptyset) \in S(S(\emptyset)) \in S(S[S(\emptyset)]) \in \ldots \]

If this chain is interrupted at any point, the ordinal obtained is finite. A limit ordinal is defined as an ordinal which is not a successor ordinal:

\[ \text{lim} (\alpha) \iff \sim (\exists \beta) [\alpha = S(\beta)] \]

The structure of limit ordinals implies that for any \( \gamma \in \text{lim} (\alpha) \), there will always be another larger set \( \beta \) such that \( \gamma \in \beta \in \text{lim} (\alpha) \). This means that between \( \gamma \) and \( \text{lim} (\alpha) \), an infinity of ordinals insert themselves (173). The axiom of infinity simply states that a limit ordinal exists. Yet so far, it is not known what this limit ordinal's relation to the finite ordinals is, nor if there is more than one type of infinite set.

At this point the concept of \( \in \)-minimality is required: if ordinals possess a certain property there is always a unique ordinal which is the smallest ordinal to possess that property, that is, none of the ordinals which belong to it possess the property (155). Therefore if there is an ordinal which has the property of being a limit ordinal, then there is also the smallest limit ordinal. It is termed the first aleph, \( \omega_0 \), and it marks the border between finite and infinite sets. At this point, it has been established that the series of ordinals — the length of the chain of ordinals — is infinite, yet what is not clear is whether it extends past the first aleph; whether there is more than one infinite set and if so, if these infinite sets, like the finite sets, can be ordered by size.

The existence of order emerges as an issue in Badiou's exposition of set theory ontology in the form of the question, "Is being intrinsically quantifiable?" (293). An affirmative response is provided by the order established amongst the multiples of set theory by the ordinal, since it is an order of quantity: one ordinal is larger than another if the latter belongs to it. However this order of size only extends as far as the limit of finite sets, the first aleph. A complete response to the question 'Is being intrinsically quantifiable?' requires a determination of whether or not infinite sets arc quantifiable. This requires first an explanation of how infinite sets can be measured and second a criterion which can determine whether an infinite set is smaller or larger than another infinite set.

Georg Cantor, the mathematician who invented set theory, satisfied both requirements. He satisfied the first with his concept of one-to-one correspondance: any set, finite or infinite, can be measured to havethe same size as another set if each of its elements can be matched to one and only one element of the other set and vice

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1 The singleton of a multiple is the set whose unique element is that multiple, hence the singleton of \( \beta \) is \( \{ \beta \} \) (556).
versa (296). He satisfied the second with his theorem that a set's powerset is always larger than itself (302). This theorem establishes first that there is more than one infinite set, and second that 'size does matter' amongst infinite sets since an infinite set's powerset is larger than itself. The function of one-to-one correspondence is crucial: it allows our infinite series of ordinals to actually function as a scale of measure since any multiple whatsoever may be shown to correspond element by element to one of the ordinals in the series. This shows that all multiples have an intrinsic size. The name of that size is a set's cardinality: cardinal numbers name orders of size. The cardinals are particular types of ordinals. They are defined by use of the principle of minimality: "amongst all the ordinals between which one-to-one correspondence exists, there is one, unique, which belongs to all the others, or which is $\varepsilon$-minimal for the property 'has such an intrinsic size'" (298). Each cardinal, as Badiou remarks, thus marks a 'frontier' of size, and so it can serve to name or represent a whole class of multiples of the same size. That class of multiples may include sets which aren't ordinal sets, because they have a different structure. Once a multiple is shown to be in one-to-one correspondence with one of the series of ordinals, the respective cardinal names its size.

The first aleph is the first infinite cardinal. Using Cantor's theorem, further infinite cardinal sets may be generated from it. This enables the creation of comparative size amongst infinite sets. By the theorem, the first aleph's powerset, $\mathcal{P}(\omega_0)$, exists and is larger than it. By the principle of minimality, there also exists the smallest set which has this property of being 'larger than the first aleph'. This set is the successor of the first aleph, it is marked $\omega_1$. Now that the operation of successor has been defined for infinite cardinals it may be repeated such that one has the series of infinite cardinals: $\omega_1$, $\omega_2$, $\omega_3$, $\omega_4$, $\omega_5$, ... This series, as its finite indexes mark, can only be arrested by a limit ordinal in the place of the index: $\omega_\omega(0)$ (304). Once the operation of limit ordinals can also be used and repeated one has infinite cardinal sets such as $\omega_{\omega(0)}$, $\omega_{\omega(0)_0}$, and so on, each naming an order of size.

The conclusion to this summary of set theory's demonstrations is that Badiou's own question can be answered in the affirmative: being, at the level of the pure multiple, is intrinsically quantifiable and so it is ordered by size. There are no sets in set theory ontology which cannot be referred to the order of size. Thus set theory ontology establishes the existence of order without meeting an impasse.

Two points must be made here. First, unlike the ontologies of the first three chapters, the order which exists is one of quantity rather than quality. It does not mark differences in kind or identities such as Plato's Ideas or Aristotle's formal causes do. Second, although set theory orders its universe completely, it is not a total order since there is no unity to the series of cardinals. Such unity would be provided by the largest, all encompassing Cardinal of cardinal sets. Yet there is no such set
because a cardinal set which encompasses all cardinal sets would have to belong to itself and the axiom of foundation forbids such sets.

This is all very well, but what is not yet clear is how such a demonstration of the existence of order avoids the order-existence impasse. The test of set theory ontology is not yet complete.

In the other ontologies the order-existence impasse revolves around the question of priority: is existence prior to order or vice-versa? Attempting to find some purchase for this question in set theory is difficult. One could ask whether there are sets which exist in an unordered state before the series of ordinals is constructed. If this were so, then one would be justified in concluding that existence is prior to order in set theory ontology. There are two perspectives from which such a question may be answered. The first is from within set theory ontology itself, the second from outside set theory. From within set theory, the question appears misguided since there is no separate dimension or measure of time in the universe of set theory. The existence of the structures, relations, series and types of sets in the universe of set theory is simultaneous, the universe of set theory is simultaneous. Its structures are unrelated to and indifferent to any external passage of time. However, from a perspective which is outside the formal discourse of set theory looking at the history of set theory, the question of whether order existed amongst sets before it was demonstrated to exist does appear to make some sense. If one says the demonstration of the series of ordinals reveals an already extant but previously unknown order amidst sets then one would appear to be committed to type of platonism. If, on the other hand, one says that the existence of order amongst sets is a direct consequence of the demonstration or proof then one would be committed to a constructivist position. The conflict between platonism and constructivism is examined in the following section. What is important here is the consequences for the relation between existence and order. On a platonist position, neither existence nor order are prior in the universe of set theory since sets have a certain nature independent of whether it has been revealed to mathematicians by demonstration or not. On a constructivist position, since the existence of sets is demonstrated prior to the demonstration of the existence of order, existence would be prior to order in the set theory universe. However, this priority of existence does not present a problem to set theory, as it does for Aristotle. The demonstration of the existence of a series of ordinals meets with no obstacles. For this reason, whether one adopts either a platonist or a constructivist position, the order-existence relation does not present any problem for set theory ontology.

5 A choice: platonism or constructivism?
Alain Badiou argues that set theory is ontology. I have argued that the one-multiple and the order-existence impasses which have been shown to affect the other ontologies studied in this thesis do not arise in set theory ontology. However, an examination of Badiou’s claim is not complete without addressing a debate which has long raged in the area termed ‘the philosophy of mathematics.’ This debate, though now mainly focused on epistemological questions and questions concerning the truth of mathematical propositions, has traditionally revolved around the ontological status of what are termed ‘mathematical objects’. There are two main positions in this debate: platonism and constructivism. Platonism is generally presented as asserting that a mathematical proposition is either true or false by virtue whether the mathematical structure it refers to exists or not; the truth-value of the proposition is independent of whether it has yet been proved by a mathematician. When a mathematical theorem is proved it is held to reveal or discover something about the nature of an independent mathematical reality. It can be understood as a type of realism. Constructivism on the other hand, can be characterised as stating that the truth of mathematical propositions depends upon our conventions and definitions. When a mathematical theorem is proved it is held to construct or produce another part of the mathematical universe. Mathematical structures are thus constructed rather than revealed by mathematics. It can be understood as a type of relativism. In the philosophy of mathematics these two positions are presented as inescapable: as twin horns of a dilemma which no philosopher can avoid once they step into mathematics. Indeed at one point of his article on Platonism, Michael Dummett asks “what is the path between this Scylla and Charybdis?”

The purpose of this section is not to definitively chart Badiou’s path through Scylla and Charybdis, for an examination of whether Badiou is as fine a sailor as Ulysses would take an entire thesis. Rather, I have the more modest hope of pointing out a number of navigational markers for a possible future passage. To this end I shall first identify whether Badiou is a constructivist or a platonist and then explain his reasons for taking up such a position. Second, I shall examine what kind of

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1 The position of logicism — that all mathematics can be derived from pure logic and so concerns relations amongst concepts alone — held by Frege and Russell, is generally held as refuted nowadays and so is left aside in this exposition. See P. Benacerraf & H. Putnam, “Introduction,” Philosophy of Mathematics: Selected Readings, 2d ed. (Cambridge: Cambridge University Press, 1983), 12–13. The positions of formalism and intuitionism concern what is allowed to count as proof in mathematics and do not engage directly with the question of the ontological status of mathematical beings or structures.


3 Intuitionism and formalism do not present any other alternatives since both are associated with the constructivist pole of this debate over mathematical truth.

4 M. Dummett, Truth and Other Enigmas (London: Duckworth, 1978), 211.
platonism it is that Badiou adopts. This will lead me to the criticisms one may be able to level from Badiou’s position of the way in which the debate between platonism and constructivism is set up. Finally I shall outline some aspects of the debate which Badiou has not yet responded to and consider whether he needs to to shore up his position.

Badiou is quite clearly a platonist but not by virtue of any statements he makes about the truth of mathematical propositions, nor by virtue of a commitment to the independent existence of mathematical structures. He is a platonist, at least in *L’être et l’événement*, by default: by virtue of his implicit criticism of the constructivist position. Two of his arguments, though they do not explicitly address the position of constructivism, reveal that it is an untenable position for Badiou. The first argument concerns the size of the universe of set theory, the second argument, Russell’s paradox and the axiom of separation.

Within set theory itself, there are different positions on the size of the set theory universe; that is, on what types of sets are recognised as existing. The ZFC set theory which Badiou adopts recognizes a large universe of sets: it admits generic sets (see chapter six), and not only infinite sets, but a whole variety of extremely large infinite sets. On the other hand, it is possible to restrict the universe of set theory by admitting only those sets whose elements are definable by a certain procedure. In this universe, termed the constructible universe by Gödel, its inventor, there is a hierarchy of constructible levels of sets, which commences with the null-set. Each level is made up of a restricted version of the powerset of the set residing at the previous level: the only subsets which are allowed into this slim powerset are those definable by a property. What this does is ensure that those multiples which are admitted into existence are always strictly correlated to a formula expressed in a well made language. The reason that this corresponds to the constructivist position in the philosophy of mathematics is that if one holds that all sets are *constructed* by mathematical propositions then one must be able to specify both how sets are constructed and which sets are constructed. That is, a constructivist could not admit into existence a set which had not at one point or another, via an explicit definition or as a known consequence of a proof, been constructed by a formula. Otherwise the constructivist would be admitting that sets exist independently of proofs and definitions which is the platonist position. Badiou does not adopt Gödel’s restriction of the universe of set theory for the simple reason that viewed from outside, it results in an extremely narrow range of sets (347). This does not mean that the existence of non-constructible sets in the wider richer non-constructible universe is a matter of faith: rather a matter of axiomatic decisions and definitions which are consistent with the original nine axioms yet which do not construct a set from the definable subsets of a previously constructed set.
There is a link to the second of Badiou’s arguments against constructivism in the philosophy of mathematics and it is that both arguments concern the relationship between language and existence. In the constructible universe, only those sets which can be defined by a formula in a well made language are admitted as existing.

The second argument concerns the relations between language and existence implied by the definition of sets: for Frege, a set is defined as the extension of a concept. For any well formed formula in a first order logic, a set of elements exists each of which satisfies the property expressed in the formula (51). Although Frege is widely recognised as a platonist this is very close to being a neat formal expression of what I term in chapter three the first basic thesis of relativist ontologies: what exists is dependent upon or relative to an order. In Frege’s definition of sets, the existence of elements of sets is relative to the order of the formulas of first order logic. Admittedly, Frege’s definition does not state that the existence of a set depends upon the prior existence of a formula. But what it has in common with the relativist thesis is that, as Badiou puts it; “nothing of the multiple can occur in excess of a well made language” (51). That is, on Frege’s definition, there can be no sets for which there is no formula: every existing set corresponds to a formula. Or, whenever one has a well formed formula, one can directly deduce the existence of a multiple corresponding to that formula. Frege’s definition of sets takes up a distinct ontological position for Badiou: it proposes an articulation of existence, the multiple and language whereby the existence of a multiple is directly correlate to a formula of language (57). For Badiou, an alternative articulation of existence, the multiple and language is present in ZFC set theory, and it is the result of Bertrand Russell’s discovery of a paradox which ruined Frege’s definition of sets.

In 1902, Russell discovered a well formed formula to which no existent set could correspond without introducing contradiction into set theory. The formula is ‘the set of all sets which are not members of themselves’. The contradiction ensues when one asks whether the set of elements which satisfies this formula belongs to itself or not. If it does belong to itself then by definition of its elements it doesn’t, and if it doesn’t belong to itself then it does. This contradiction ruins the consistency of the formal language in which the formula is made. The consequence of the paradox is that it is not true that for every well formed formula a corresponding multiple exists. In ontological terms, contra one part of relativism, existence does not directly correspond to an ordered language.

1 A first order logic consists of a series of signs: existential and universal quantifiers, variables, properties and logical connectors; disjunction, conjunction, implication, negation and equivalence. Properties are never found in the position of variables, that is, first order logic does not express properties of properties: that is the province of second order logic.

In order to avoid Russell’s paradox, the axiom of separation (also known as the axiom of subsets or of comprehension) was developed. It proposes another relationship between the existence of multiples and well formed formulas (57). Frege’s definition of that relationship runs as follows:

\[ (\exists \beta) \ (\forall \alpha) \ (F(\alpha) \rightarrow (\alpha \in \beta)) \]

It reads, ‘there exists a set \( \beta \) such that every term \( \alpha \) which satisfies the formula \( F \) is an element of that set.’ The axiom of separation on the other hand looks like this:

\[ (\forall \alpha) \ (\exists \beta) \ (\forall \gamma) \ [(\gamma \in \alpha) \& \ F(\gamma) \rightarrow (\gamma \in \beta)] \]

It reads; ‘if there exists a set \( \alpha \), then there exists a subset \( \beta \) of \( \alpha \), all of whose elements \( \gamma \) satisfy the formula \( F \).’ The essential difference between Frege’s definition and the axiom of separation is that the former directly proposes an existence whilst the latter is conditional upon there already being a set in existence; \( \alpha \). The axiom of separation says that if there is a set already in existence, then one can separate out one of its subsets, \( \beta \), whose elements validate the formula \( F \). Say for example that the formula \( F \) is the property ‘rotten’ and one wants to make the judgement ‘some apples are rotten.’ Via the axiom of separation, from the supposed existence of the set of all apples, one could separate out the subset of rotten apples.

The general result in ontological terms is that language does not simply determine existence, but causes rather ‘a split or division in existence’ (58). Badiou concludes that being, as multiple, is in excess of the powers of language. That is, the extent of that which exists is larger than the extent of that whose existence can be defined by language. The axiom of separation states that an undefined existence must always be assumed in any definition of a type of multiple. In short, the very conditions of the inscription of existence in language require that existence be in excess of what the inscriptions define as existing. Yet despite this excess of being over the defining powers of language, Badiou’s general position on the being of situations is that the identity of beings is provided by language.

These two arguments or positions that Badiou takes militate against him being aligned with a constructivist position in the philosophy of mathematics since both take issue with the existence of sets being restricted to those which can be directly defined or constructed by a formula. In L’être et l’événement Badiou is thus a platonist by default. This is confirmed in an essay published a decade after the appearance of L’être et l’événement, ‘Platonisme et mathématiques’ in which Badiou explicitly identifies his position as a platonism.\(^1\) However, it is not the platonism of the philosophy of mathematics debates. Badiou does not hold that sets exist in some realm independent of mathematical propositions as some form of abstract object.

The reason behind this is that in some areas of set theory, the existence of a set, or the cardinality of a set depends upon a decision. For example, Easton's theorem states that any hypothesis as to the cardinality of the powerset of an infinite set is consistent with the nine axioms: there is no one cardinality of the powerset of an infinite set waiting to be discovered; it has been proved that that cardinality is any cardinality larger than that of the initial set that one decides it to be (327-8). In the article "Platonisme et mathématiques" Badiou returns to both Plato and to Gödel to form a platonism best characterized as Parmenidean: the same is, thinking and being. ¹ To be more precise, for set theory, those sets which cannot be thought of in a manner which maintains logical consistency with the rest of axiomatized set theory, do not exist. Inversely, what can be thought consistently does exist.

My understanding of this position is that at any one moment in the history of the development of ZFC set theory, the universe of that set theory is equivalent to the axiomatic decisions which have been taken, including the nine basic axioms and those concerning the existence of very large cardinals, and equivalent to what is consistently formulable at the time. Although one can explain the architecture of the set theory universe as a process of unfolding an infinite cumulative hierarchy, the entire complexity of that universe springs into existence with the formulation of the set of axioms and the theorems. Although this would appear to err on the side of constructivism, the nature of the existences which are decided upon in set theory ensures, via the paradoxes, that they are not constructed by fiat: not just any types of set can be constructed; this means that the relation between the language of set theory and sets cannot be conceptualized by the classical metaphysical couple independence/dependence.² From this position one can extrapolate that the existence of sets is not separate and transcendent but bound to set theory's writing of their existence. Since there is no separation between set theory's formulas and the sets, sets are nowhere other than in their manipulations in and by the writing of set theory. Thus Badiou's response to a question such as whether sets existed before their existence was proven in set theory would have to be in the negative. On a purely

¹ Or "It is the same thing that can be thought and that can be" and, "for you will not find thought apart from that which is, in respect of which thought is uttered." Parmenides, Fragments 3 & 8, translated in F.M.Cornford, Plato and Parmenides (London: Kegan Paul, Trench, Trübner & Co., 1939), 34.

² This line of argument requires much development. Unfortunately the scope of this thesis prevents pursuit of such a line.
speculative note, I would visualize such an understanding of the relation set
theory and sets as the two sides of a Moebius strip which turn out to be one.

Given that Badiou returns to Plato to forge another understanding of a
platonist position in mathematics than that offered in the philosophy of
mathematics, one can ask what light his own project sheds upon this apparently
inevitable dilemma between platonism and constructivism. Such a question
demands much prudent work, though a few salient points may be risked here.
First, in the debate the ontological status of mathematical beings (objects,
structures) is considered in terms which historically were initiated in Aristotle’s
ontology: sets exist separate to and independent of knowledge or they exist bound
to and dependent upon knowledge. Aristotle organized his entire inquiry into what
is being around the question of the independence or dependence of substances
upon other beings. Thus the implicit historical allegiances of the debate may well
bear some examination.

Second, an approach often taken in the debate is that the specific theory of
truth, meaning and reference (or ontology) used for mathematics should be
compatible with and included within a general theory of truth, meaning and
reference (or ontology).\(^1\) Badiou’s approach is quite the contrary: mathematics
provides the general ontology and all other ontological positions must be judged in
its terms. If this is so, then for Badiou, one cannot import the subject-object
distinction into debates about the ontology of mathematics since such a distinction
belongs to Cartesian or Kantian ontology. However this is exactly what happens in
the traditional debate. For example, W.D. Hart, in the very introduction to the
collection The Philosophy of Mathematics, boldly states ‘truth requires reference to
objects’, as though it were a truism, thereby cementing the debate about
mathematical truth into an ontological commitment to mathematical ‘objects.’\(^2\)
Again, the implicit ontological commitments of the debate and their provenance
require some examination.

Third, grounding the first two points, it is widely acknowledged that for a
large part of the analytic tradition, epistemology is first philosophy. However, from a
the perspective of a tradition broadly stemming from Heidegger (including Derrida
and Philippe Lacoue-Labarthe) ontology is first philosophy and every epistemology
presumes an ontology. Thus when Paul Benacerraf introduces the inevitability of the
dilemma via the question of how a subject can come to knowledge of an abstract
object again the question appears to be begged as to what mathematics says about
existence.

\(^1\) See Benacerraf, “Mathematical truth,” 15.
The fourth point concerns the reference of mathematical formulas. If the debate between constructivism and platonism is not framed in terms of the ontological status of mathematical structures, then it is framed in terms of the reference of formulas and its relation to their truth value. Badiou’s position on the reference of mathematical formulas is quite direct: he says they have no referent (11). This brings me to the other side of the affair: the light that the platonism-constructivism may shed upon Badiou’s project. It is clear that on a number of points Badiou’s position requires development: for example, here, if a formula defining a set has no referent then what does one term the set it defines? To use Saussure’s distinction, does it simply reside at the implicit level of signified, brought to the level of the signifier in further formulas linked to the first? It is also not entirely clear how Badiou distinguishes the poles of thought and being, anchoring his Parmenidean platonism, from those of knowledge and existence, anchoring the constructible universe: though one may suspect that the criteria for such a distinction lie in the nature of the definitions of the sets concerned. Of course, it is not only Badiou’s position which requires development faced with the concerns of the philosophy of mathematics, but also my own. An examination of whether or not the platonism/constructivism debate is inevitable on its own terms would require a far-ranging study of different formulations of this debate, a pursuit beyond these lines.

To conclude this part of the chapter on why set theory is ontology, one should note that it fulfills the requirements outlined at the end of chapter three for a new type of ontology. It does not tell a story of the cause of the consistency of beings, as metaphysical ontologies do according to Heidegger. Neither does it place itself in the position of causing the consistency of beings, as various relativist ontologies implicitly do, once their own theory is revealed as a metasituation.

### III Set theory presents the being of beings

The claims that I argue for in this chapter are that set theory ontology provides ontological schemas for all situations, and that it does so without meeting an impasse. Some of the complexity of set theory has been revealed, and I have argued that it avoids the one-multiple and order-existence impasses. What remains is to explain how it provides ontological schemas for situations.

At the level of metaontology, the axiom of infinity is extremely important for Badiou. Set theory posits or recognizes an infinity of infinite sets. As set theory ontology it thus posits an infinity of being, or infinity of infinite situations (163).

The question then becomes what is the bridge between set theory’s infinity of sets and any particular situation. One can identify two doctrines in L’être et
l'événement which claim to bridge this gap: the doctrine on inconsistent multiplicity and the doctrine on the void.

1 Doctrine on inconsistent multiplicity

The doctrine on inconsistent multiplicity is a doctrine about situations. As I said above, a situation or presentation is a multiplicity unified by an operation which counts it for one. Badiou terms such a unified multiplicity a consistent multiplicity (33). Each element (multiple) of a consistent multiple is determined as an element which belongs to this multiple by the count-for-one. The identity of a situation thus lies at the level of its consistent multiplicity. If the unity of a situation and of its elements is the result of an operation, then the question arises of what there is ‘before’ the operation takes place, or rather what there would be without the operation. Badiou’s answer is simple, an inconsistent multiplicity, a multiplicity without one—what I term in the Plato chapter an indefinite or dysfunctional multiple. Badiou argues that if the one is not and the multiple is, then the being of a situation is its inconsistent multiplicity.

In other words, if one subtracts all of a situation’s attributes, its identity and its unity, then all one has left is that it is; which is not nothing, yet it is not clear how it may be spoken of if all attributes have been subtracted. One horn of Heidegger’s dilemma is that in presenting the being of beings one unavoidably unifies what is not unified. Badiou’s response to these two problems is that there is a way of talking about a situation once all its attributes have been subtracted and moreover, it avoids unification: the situation must be regarded as an inconsistent multiplicity, and the language in which it may be spoken of is that of set theory.

To put it in terms of presentation, set theory ontology does not claim to present being qua-being as such; that is impossible. Nor is Badiou claiming, along with Pythagoras, that there is a mathematical structure to all beings (14). His doctrine is a doctrine on the nature of presentation and on the nature of the presentation of set theory in particular. His claim is that what set theory presents is the coming-to-presentation of being, and that it does so by presenting pure presentation—presentation subtracted from what it is a presentation of. Since presentations are distinguished from one another as consistent multiplicities, what is common to all of them is the inconsistent multiple.

This is what allows Badiou to reconcile his Heideggerian position that ontology is the discourse on the being of beings and his position that set theory with its infinity of multiples, is ontology. The being of beings (situations, presentations) is inconsistent multiplicity. Set theory is the theory of inconsistent multiples. It lets the inconsistent multiple appear per se in the form of sets. There is no reference to
any particular situation's attributes or identity in set theory. A set is the ontological schema of a situation, it is the situation considered as a pure multiple. Thus set theory is the discourse which speaks of the being of beings.

Of course, set theory itself is a situation. Badiou explicitly raises the problem of ontology arrogating for itself the position of a metasituation — the Achilles’ heel of relativist ontologies — and states that set theory is one presentation amongst others. If this is so then it also is subject to a count-for-one which unifies its field. There is a danger though, that such a count-for-one, as in other situations, would also unify the elements of the situation of set theory and so its inconsistent multiples would be unified — Heidegger’s dilemma would reemerge. The count-for-one of a situation establishes its identity by establishing what does and does not belong to it. In the case of set theory this would amount to a definition of what a set is; what set theory speaks of would be unified under a single concept. However, one of the peculiarities of axiomatized set theory is that there is no concept or definition of sets: all there is is a fundamental relation, belonging, which is defined operationally through the manipulations of the other axioms (38). Historically, this is a result of the paradoxes which each attempt to define sets has met with: for example, Frege’s ‘a set is the extension of a formula’ as explained above.

The situation of set theory still has consistency, it is just that it is not produced by subsumption of its elements under a single concept, but rather is a logical consistency. The standard definition of logical consistency is, “A theory K is consistent if no well formed formula B and its negation —B are both provable in K.”¹ The consistency of set theory ontology is therefore the same as that marked out by Aristotle for his ontology, it obeys the principle of non-contradiction. The nine axioms of Zermelo-Fraenkel set theory (with the Axiom of Choice) ensure that it is not undone by contradictions such as that unleashed by Russell’s paradox. The result of the absence of a concept of sets is that the situation of set theory does not unify its multiplicities: this enables it to present presentation.

The most obvious objection to Badiou’s claim that set theory is ontology is that it is a Pythagorean doctrine because it amounts to claiming that all situations, all presentations (discourses, knowledges, practices, processes, technologies etc) can be mathematised and reduced to sets. If so, it requires some justification of the measure to be used in such mathematisation. However, as I said above, set theory as ontology does not deal with situations on the ontic level of their particularity, and so anything particular about a situation which would appear to object to its mathematisation is of no relevance to ontology: at the level of its being any situation is an inconsistent multiplicity. However, this position raises a question as to how one might establish

that a certain type of set is the ontological schema of a particular situation: this
question is broached in section four.

2 Doctrine on the void of situations

The second doctrine which Badiou uses to bridge the gap between set theory's
infinity of sets and particular non-ontological situations is the doctrine on the void.
Like the doctrine of inconsistent multiplicity it is also a doctrine about the nature of
situations.

Badiou argues that in every situation, there is a being of the 'nothing'. He
starts by stating that whatever is recognised as 'something' in a situation, is counted-
for-one in that situation and vice-versa. By implication, what is nothing in a situation
is uncounted. However, it is not as though there is simply nothing in a situation
which is uncounted — both the operation of the count-for-one and the inconsistent
multiple before the count are uncounted. Moreover, they are both necessary to the
existence of a situation or presentation. As necessary but unrepresentable, they
constitute what Badiou terms the 'void' of a situation.

Badiou then states that the void is the 'subtractive suture to being' of a
situation (68). It is the 'suture' of being to presentation because, being qua being is
foreclosed from presentation, yet the void is constituted from the very points in
which and by which being is foreclosed from presentation. The void is subtractive
because all the qualities of the situation, including its identity, are subtracted from it.

It so happens that the ontological commitment of set theory is to the
existence of just one set. This set is subtracted from the conditions of every other set
in set theory: that of having elements; it is the null-set, a multiple of nothing.\(^1\)
Ontology thus weaves its multitude of sets out of 'nothing' or the 'void', out of what,
in any other situation, is the subtractive suture to being of that situation. In
other words, we already know that ontology connects to other situations through
being the theory of inconsistent multiples. In each and every non-ontological
situation, its inconsistent multiplicity is 'nothing'. The only possible presentation of
'nothing' or a 'void' in set theory is the null-set. Set theory thus also connects to
situations in that it constructs its inconsistent multiples out of 'nothing', out of the
suture to being of every situation. Set theory's primary existential commitment is to

\(^1\) In French: "l'ensemble-vide" (the empty set). In Badiou's text this harmonises at a terminological
level with the French for 'the void of a situation': le vide de la situation.
a set, the null-set, which presents the being of situations in the form of the ‘nothing’ of those situations.\footnote{The doctrine on inconsistent multiplicity appears to be prior, in the order of argument, to the doctrine on the void of situations because to accept that set theory’s null-set presents the nothing of situations, one must already have accepted that sets present the being of situations.}

What is curious in Badiou’s exposition of his doctrine on the void is that he also includes a demonstration from set theory which shows that the null-set is a subset of every set. This demonstration is supposed to back up his claim that there is a void in every situation, despite the void not being an element of that situation. It comes in two versions.

The first involves the logical principle \textit{ex falso sequitur quodlibet}: on the basis of the affirmation of a false statement, its implication of any statement is true. Using classical logic’s truth table of implication one has: if $A$ is false and yet $A$ is affirmed then any statement $B$ which it implies is true, that is $\neg A \rightarrow (A \rightarrow B)$.$^2$

Badiou takes as the false statement $A$ ‘there is an element $\gamma$ which belongs to the null-set $\emptyset$.’ As the conditional $(A \rightarrow B)$, he takes $A$ to imply the statement $B$; ‘this element $\gamma$ also belongs to any set $\delta$’. Formally: $(\forall \gamma)(\forall \delta)[(\gamma \in \emptyset) \rightarrow (\gamma \in \delta)]$ But, $(\forall \gamma)(\gamma \in \emptyset) \rightarrow (\gamma \in \delta)$ is the definition for the inclusion of $\emptyset$ in $\delta$ since all of its elements are said to belong to $\delta$. The statement $B$ can therefore be reduced to that of $(\forall \delta)[\emptyset \in \delta]$; the null-set is a subset of all sets. The second way of demonstrating the universal inclusion of the null-set is based upon its indifference. What prevents any set from being a subset of all other sets is that some of its elements do not belong to these other sets. By the axiom of extension, some of its elements render it different from possible subsets of other sets. The null-set has no elements which single it out or differentiate it such that it cannot belong to any other particular set. This is why it is ‘indifferent’. It contains nothing which would object to its universal inclusion. The inclusion of the null-set, the multiple of nothing, in all sets is held as ‘proof of the errance of the void in all presentation’ (100). The void is held to err in presentations or situations because it has no fixed place in them, fixed places being reserved for recognised elements of situations.

Both the doctrine on inconsistent multiplicity and the doctrine on the void serve to link particular non-ontological situations to the situation of ontology: ontology is the discourse on the being of beings; the being of beings is inconsistent multiplicity; in any being (situation, presentation) its inconsistent multiplicity is nothing; set theory weaves its inconsistent multiplicities out of what is ‘nothing’ in the domain of set theory, the null-set.

However, these doctrines do not belong to the situation of ontology; they are made at the level of metaontology. Earlier I said that metaontology is the discourse.

\footnote{See Mendelson, \textit{Introduction to Mathematical Logic}, 12.}
in which Badiou relates set theory to traditional ontological problems and categories. The fact that two of the most essential doctrines in Badiou's enterprise are made in a discourse other than that of ontology raises questions about the status of that discourse. Set theory ontology is grounded by its nine axioms. What grounds metaontology? What are its principles and rules of reasoning? The use of the demonstration from set theory to support the thesis that there is a void in every situation suggests that the relationship between metaontology and ontology is in fact one of translation. If this were so, there would be an equivalent axiom or theorem in set theory for any metaontological doctrine. In this case one would have to identify the axiom of separation, with its assertion of the necessary existence of an undefined multiplicity before any defined multiplicity, as the equivalent of the doctrine on inconsistent multiplicity. This problem is addressed in part four.

3 Set theory ontology does not say 'what there is'

Since for Badiou ontology is the discourse on the being of beings, it has nothing to say about beings themselves. This is one reason why he terms it a subtractive ontology: it speaks of beings without reference to their attributes and their identity; it is as if the beings ontology speaks of, have had all their qualities subtracted from them. As a result, unlike Plato and Aristotle's ontologies, there is neither cosmos, nor phenomena, neither cause nor substance. Set theory ontology does not propose a description of 'the furniture of the world', nor does it concern itself with 'carving reality at the joints'. Its similarity with relativist ontologies is that it says that 'what there is' depends upon each situation. However unlike relativist ontologies it does not make a claim as to what sort of situations exist. Its own ontological claim simply amounts to saying there is a multiplicity of multiplicities. Set theory ontology is indifferent to the existence and non-existence of particular situations: Badiou writes: "we exert ourselves to think multiple-presentation on this side of time (which is founded by intervention), and space (which is a singular construction, relative to certain types of presentation)" (293). What set theory ontology does, in lieu of presenting 'what there is', is present the ontological schemas of any ontological claim, that is it presents the structure of what any situation says exists.

Yet although set theory does not say what there is, it does present a number of different kinds of sets: ordinals, cardinals, finite and infinite etc. But this does not mean that it is claiming that the world is made up of situations whose structure can be schematized by these types of sets: it is indifferent to set theory ontology whether situations exist or not whose structures correspond to certain types of sets. These sets are shown to exist through particular manipulations of the axioms, not by reference to an all-inclusive situation such as 'the world'.

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IV Queries and Problems

1 The adequation of ontological schemas

Set theory ontology presents a variety of different types of sets. A set is supposed to provide the ontological schema of a situation. The following methodological problem then arises: how do you judge that one type is the ontological schema of particular situation A and another type of set is the ontological schema of situation B? Badiou's statement of method runs as follows:

Set theory, considered as thought adequate to the pure multiple, or to the presentation of presentation, formalises any situation whatsoever in that it reflects their being as such, that is the multiple of multiplicities which make up all presentation. If one wants to find in this framework the formalism of a situation, it is best to consider a set such that its characteristics, which in the last resort are all pronounceable under the sole logical sign of belonging, are comparable to those of the structured presentation — of the situation — that one has under consideration. (149)

Badiou's answer to our problem is thus that a set presents the structure of a situation. This raises two questions. First, how does one diagnose the structure of a situation? Second, how is this compatible with set theory ontology presenting the inconsistent multiplicity of a situation?

In response to the first question, the resources which set theory ontology provides for the analysis of the structure of situations are quite sufficient: one can determine the particular mix of singular, normal and excescent multiplicities (defined in chapter six); one can determine whether the situation is ordered; and one can analyse the situation according to the relation of belonging or inclusion. If one suspects that the structure of a situation is best presented as an ordinal set, one can check by assessing whether the characteristics of ordinal sets — order, homogeneity, the principle of minimality, interconnection — do in fact occur in the structure. This is the method I use in the following chapter to diagnose the structure of functional work.

In response to the second question, the peculiar virtue of set theory is that it enables one to speak of the structure of a multiplicity without unifying or identifying that multiplicity. With regard to situations, this does not mean that their inconsistent multiplicity is structured before the count-for-one, but rather that the structure of a situation may be discerned independently of reference to what is structured. In fact this is the method that I have used throughout the thesis in determining the
ontological schema of functional work as a unified ordered inclusive multiple, irrespective of what kind of functional work was involved.

The recurring question in this exposition of set theory ontology has been: what is the bridge between set theory’s infinity of sets and particular non-ontological situations? The answer has been that the general connection is made by the doctrines on inconsistent multiplicity and the void, and the particular connection (between a type of set and a particular situation) is made by an analysis of the structure of a situation.

One must recognize however, in aiming this question at Badiou’s work, that the distinction between the situation of ontology and particular ‘non-ontological’ situations has no hold in ontology itself since it does not recognise particularity. For this reason, ontology itself, in Badiou’s project, cannot provide a distinct theory or set of rules for relating sets to the structure of situations. This is why something in addition to ontology, like the discourse of metaontology, is unavoidable for Badiou’s project.¹

It is not possible to deduce that the ontological schema of a situation is provided by a certain type of set because deduction is only possible within the situation of a theory: matching the characteristics of a type of set to the structure of a situation requires one to bridge the gap between two situations—that of set theory and that of a structural description of the situation. This is another reason for the existence of the discourse of metaontology since it provides such a bridge, but it is not a formalized theory.

2 The status of metaontology

Earlier I suggested that the relation between metaontology and ontology was that the former is a translation of the latter. If this is so, then the question arises of whether there is more than one such possible translation. Here one may bring to bear Quine’s arguments in “Ontological Relativity”: there must be some background theory which determines how the terms of set theory are translated into the terms of philosophy. Badiou makes no mention of such a theory or of any rules guiding his translation. In his terms, the problem is that of the gap between representation and presentation: representation groups the elements of presentation into various sub-multiples; it is Badiou’s translation of the powerset of a set. In set theory, when a set is infinite one can know its magnitude yet there is no way of knowing what the magnitude of its powerset is. In metaontological terms, there is no measure of the difference between

¹ This is also why a complete assessment of the coherency of Badiou’s project must await the publication of volume II of L’être et l’événement, whose working title is apparently La logique de l’apparaître, and whose arguments will address the question of the structure of situations.
representation and what it re-presents. Thus, at an ontological level, there is no ultimate measure of the adequation of one translation of set theory against that of another translation. The merits of one over another would depend upon the rules, conventions, the play of forces, and the strengths of persuasion of the particular situation within which the possible translations compete. If this were so, then any argument about the merits of Badiou’s philosophical translation of set theory would have to be fueled by alternative translations. The argument would have to focus on each element of the translation such as ‘set theory is a theory of inconsistent multiplicity’.

Yet there are elements of Badiou’s metaontology which object to it being given the status of a simple translation of set theory. For example, Badiou states several times ‘all situations are infinite’, yet set theory clearly does not state that all sets are infinite. One has the whole series of finite ordinals from the null-set up to the first aleph as evidence. In his terms, the statement ‘all situations are infinite’ is an ex cresc ent multiple; that is, within the situation of this problem it resides at the level of representation, or subsets, yet not at the level of representation, or elements.¹

This suggests that the relationship between metaontology and ontology is not simply one of translation but rather akin to that between a metalanguage and a language: metaontology translates all of ontology, but the inverse is not true. There are parts of metaontology which have no equivalent in ontology. Indeed the only statement Badiou makes with regard to this problem is: ‘One must admit here the stratification of discourses’ (20). Thus metaontology, in some sense, would include ontology. Consequently, the axioms of set theory could in no way be held to assure the validity of metaontology. Rather, metaontology must be held to be the result of a number of philosophical decisions, each of which must be argued for in its own context.

3 Is set theory a transcendental discourse?

Despite Badiou’s assertion that set theory is one situation amongst others, and subject to the same rules of structure, the objection has been leveled that he is making set theory into a transcendental or universal discourse. Transcendental because the structures it describes are held to exist in all situations; that is, because all situations are held to be translatable into the language of set theory. Yet the curious feature of the language of any situation is that it may be used to translate the language and structure of any other situation. This capability is not peculiar to the formal language of set theory. There is no untranslatability between situations. What

¹ See chapter five, part two for a definition of ex cresc ent multiples.
is peculiar to the language of set theory and its translations is that it makes no
reference to the identity of what is being translated and this is precisely its virtue qua
ontology.

Nor, to address the other term of the doublet transcendental - empirical, does
set theory ontology apply its sets to empirical situations. For Badiou, empirical
situations are simply one type of situation amongst others, and all situations have
structures which can be schematized by sets. The sets are not ‘applied’ because all
situations are held a priori to have structure.

4 The role of language

Via his reading of the axiom of separation, it is clear that Badiou holds that the
identity and unity of a situation are determined in some manner by language. What
is not clear is whether the language which has such a determining role is particular to
the situation or particular to a certain set of situations. For example, the latter option
would appear to be the case with texts (situations) which are written in English (the
set of those situations). The following passage refines Badiou’s position with an
admixture of Wittgenstein: “The heterogeneity of language games is at the base of
the diversity of situations. Being is unfolded in multiple ways because its unfolding
is only presented in the multiple of languages” (321-2). This would suggest that
what determines the identity and unity of a situation is not so much a language as a
language game and the number of language games exactly matches the number of
situations.

However, Badiou also says that situations within the situation we recognise
as ‘the real world’ are mixed. In a recent interview he said: “A concrete situation is
an interplay of different situations in the ontological sense of the term.”1 The
question then arises of whether the determinant of the unity of the ‘concrete
situation’ is the same as the determinant of the unity of situations which are
‘different’ at the level of ontology, and then also of which determinant corresponds
to language-games. It would appear that language games only occur within ‘the real
world’ and not within ontology. The unity of sets, on the other hand, would be a
matter of their inscription in the language of set theory.

The general problem, which is one of metaontology rather than ontology, is
that if one is to speak of situations in ‘the real world’, and if situations can be
composed of a mix of other situations, then one is going to have to provide a

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1 Interview with the Melbourne Badiou Reading Group, 8/9/99. Alain Badiou interviewed by A.
principle of individuation. Saying that language games individuate situations is an inadequate response since language games themselves are situations.

Moreover, the passage cited from *L'être et l'événement* above is a little confused: it asserts that the language games cause the diversity of situations. This is not in keeping with the subtractive nature of set theory ontology. What would be more in keeping with subtractive ontology would have been the statement that Being is unfolded in multiple ways period — this has no causal relation to language games, and thus language is not placed in a transcendental position. Moreover, set theory ontology is not an explanatory discourse: it does not address questions of cause.

Badiou addressed the problems with this passage in a recent interview. He said that the differences between situations at an ontological level do not emerge at the level of the knowledges of a situation and are not due to the language game operating within that situation. One could elaborate that within 'the real world' the differences between situations are known through different language games, yet it is only within ontology that their structural differences, which are not merely a matter of language games, emerge. Yet this would require a distinction between language games and the formal language of set theory which is a matter outside the scope of this thesis.

The reading of Badiou's set theory ontology developed here has exposed a number of problems. The pursuit of these problems is another matter. However, as far as the argument of this thesis goes, they show that although one can argue set theory ontology avoids the impasses of the one-multiple relation and the existence of order, this does not mean that it avoids all ontological impasses. Nevertheless those which are relevant to the construction of ontological schemas for functional work have been avoided.

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1 Ibid.
V

Functional work in Set theory Ontology
Introduction

The questions that the first project of the thesis brought to each ontology were:
- what are function and work such that there is functional work?
- what is the ontological schema of functional work?
- what problems does the construction of this schema raise for ontology?
We shall now see what happens to these questions once they are brought to set
theory ontology.

To address the last question first, the problems which arose in the other
ontologies were of the order of two ontological impasses: in the previous chapter I
argue that set theory ontology does not meet with such impasses in its account of the
one-multiple relationship and the existence of order.

With regard to the second question, in each ontology the ontological schema
of functional work is revealed to be a unified ordered inclusive multiple. In this
chapter I argue that it is the same such schema in set theory ontology. An ontological
schema in set theory ontology is simply a set: in the present chapter it is revealed
how the schema of functional work is the type of set termed an ordinal; ordinal sets
are the sets in set theory which have each of these characteristics of inclusivity, order
and unified multiplicity.

As for the first question concerning what comes under the heading of
functional work in an ontology, set theory ontology operates at a level subtracted
from considerations of particular identities: it only recognizes types of multiple, and
so it will only recognize function and work in the form of certain types of multiple
— the ontological schemas of function and work. As a result the schema bears little
relation, in appearance, to particular situations of functional work. To address this
disparity, the last three sections of the chapter show how the schema underlies a
number of general concepts of both function and work.

The chapter commences by extending the exegesis of set theory ontology
undertaken in the previous chapter. The extension concerns the way set theory
ontology differentiates types of situation: this is necessary to determine the type of
situation, and thus the type of set, which underlies functional work. The chapter then
examines whether the presence of dysfunction prevents situations of functional work
from being the type of situation I argue they are. An exposition of the major
structural characteristics of functional work is undertaken in reference to each of the
aspects of the ontological schema for functional work. It is then shown how general
concepts of function and work may be reduced to this ontological schema of ordinal
sets. The chapter ends with a contrast between the arguments advanced here and the
place of functional work in the ontologies of Hegel and Marx.
I The situation and its state

1 The set and its powerset

Set theory ontology recognizes different types of unified multiples. The differentiation is made on the basis of the distinction between a set and its powerset. The axiom of the powerset says that there is a set of all the subsets of an initial set, termed the powerset. Formally: \( (\forall \alpha) \ (\forall \gamma \in p(\alpha)) \leftrightarrow (\gamma \subset \alpha) \). This can be paraphrased as stating that each subset \( \gamma \) of the set \( \alpha \) belongs to the powerset \( p(\alpha) \) and is included in the initial set \( \alpha \).

There are two fundamental points to be drawn from this axiom. The first is that inclusion, although based on belonging, is a different type of relationship between multiples. The difference between these relationships can be phrased using metaontological terms: any set or element is a 'multiple-presentation', a presentation which is multiple. In metaontology, the relation of belonging is that an element is a multiple-presentation which is presented by another multiple-presentation. For example, take a sentence of Cormac McCarthy’s novel *Blood Meridian*: it is a multiple which belongs to — is presented by — the multiple called *Blood Meridian*. With the relation of inclusion, a subset is a multiple-presentation, all of whose elements are already presented by another presentation. The inverse, for the most part, will not hold between the other presentation and the subset. Take for example the theme of the day of judgement in *Blood Meridian*. This theme is a multiple-presentation which is included in the novel: all of its elements — various scenes which enact judgement, various references characters make to judgement — are presented by *Blood Meridian*; the difference being that they are not grouped together in its original presentation as they are in this sub-multiple ‘the theme of the day of judgement.’ However, not all of the elements of *Blood Meridian* are presented by the multiple of the theme of the day of judgement: this is why it is a sub-multiple or subset.

The second point is that the powerset is a new set. It is not identical to the initial set. In fact, the powerset is has more elements than the initial set. For example, the sub-multiple ‘the theme of the day of judgement’ is itself an element which belongs to the set of all possible representations of the novel, such as reviews. Analysed in these terms, reviews of this novel could employ many more possible combinations of elements of the novel than there are actual elements of the novel. In set theory ontology there is a general ‘excess of inclusion over belonging’.¹ This is

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¹ A swift demonstration may be had by studying the number of possible combinations of the set of four letters, a, b, c and d. The answer that there are \( 2^n \) to the power of \( n \) elements of the powerset.
why a subset is not a part of a set: the sum of a set's parts would definitely add up to more than its whole and so element, subset and set do not correspond to the traditional ontological categories of part and whole.

In metaontological terms, Badiou terms the powerset the 'state' of a situation. Or, if he refers to a situation as a presentation, then the powerset is termed the level of representation. One can combine the terms by stating that the state of a situation represents the multiplicities already presented by the situation (110).

2 The doctrine on the stability of situations

The distinction between the situation and its state allows Badiou to construct another metaontological doctrine, concerning the 'stability' of situations. The stability of a situation is the capacity of its structure and unity to persist over time. At this level, an unstable situation is not one which is actually changing, but rather one which is potentially subject to unpredictable change.

A situation's unity is established through the operation of its count-for-one. This operation creates a minimal structure for the situation by determining what belongs to it and what doesn't. However, for Badiou such a situation is unstable. It is unstable because the 'void' of the situation subsists in some way within it — according to the doctrine on the void, there is a being of the void in a situation — yet this void is not structured or given a place by the situation's count-for-one and so it is not a term of the situation. This appears to be a suspiciously a priori set of assertions, as Badiou notes at one point (110). However, the doctrine may be presented as an argument from what happens to situations. I am not claiming that it is an inductive argument, but rather that it attempts to account for an a posteriori matter from within the framework of the other doctrines of set theory ontology.

The a posteriori matter which I refer to is simply that situations are subject to wholesale structural change: sometimes the unity of situations completely dissolves. The kind of change I mean is that which Foucault refers to as an epistemological break: the very identity of what undergoes change is changed. For Badiou what happens in such dissolution is that what he terms the 'void' of the situation is presented: from the doctrine on the void, the void of a situation is both its inconsistent multiplicity and the operation of the count-for-one itself. If one regards the dissolution of a situation, two things are presented: first the situation as an inconsistent multiplicity, as a jumble of heterogeneous elements; second, the previous unity of the situation appears to be artificial and not natural, that is it no

where \( n \) is the number of elements in the initial set. There are 15 obvious combinations, to which must be added the null-set due to its universal inclusion in all sets.
longer appears to be a necessary part of the being of the situation. These two phenomena correspond to the two parts of what Badiou terms the void of a situation.

On this doctrine, a clear example of the void of a situation coming to presentation is afforded by the disaster of the former ‘Yugoslavia’. Upon the dissolution of the socialist state ‘Yugoslavia’ the identity and unity of the country disappeared leaving a void. The presumed identity and unity of the country ‘Yugoslavia’ was revealed to be merely the result of the activities of the former socialist state: it did not hold at the mere level of presentation (the people, villages and towns of the area). What was left was an inconsistent multiplicity composed of many different ethnic groups and territories with no common principle to unify them.

For Badiou, if the void of a situation comes to presentation when the situation dissolves, then there is always the possibility of it doing so. He terms this the ‘peril of the void’. He argues that the void is the potential site of instability within a situation because it is the only unstructured part of the situation. However, this ‘peril’ is reduced by there being a second-count-for-one, provided by the state of a situation: it counts all the sub-multiples of a situation into one set. One of these sub-multiples is the void of the situation: this is the metasemantological equivalent of the ontological theorem of the universal inclusion of the void-set. The void of the situation as its inconsistent multiplicity is counted by the state as the null-set. The void of the situation as the operation of the count-for-one itself is counted in the shape of its effect, as the ‘maximal’ subset, to which belongs every element of the initial situation. The state of the situation is thus said to provide a ‘metastructure’ which further stabilizes the situation by determining exactly which groups of multiples belong to it.¹

According to Badiou’s doctrine, every situation thus has its state whose resources contribute to its stability. It is on the basis of this distinction between the level of the situation and that of the state that Badiou distinguishes three different types of situations; natural, historical and neutral situations.

II Natural and Historical Situations

¹ The major problem with this argument — whose goal is simply to assert the existence of a second count-for-one, a ‘metastructure’ termed the state for every situation — is that it appears to be a teleological argument in the mode of arguments from evolution. Situations are unstable with just the single count-for-one yet the nature of situations compensates for such instability by having a second count-for-one. One also meets with difficulty when reconciling this doctrine on instability with the later doctrine on the instability of historical situations due to the existence of singular multiples termed event-sites. What also requires some investigation, concerning both doctrines on instability, is the nature of Badiou’s reference to a modal quality of a situation — potential stability — in an ontology which doesn’t recognize different modalities of being.
Badiou distinguishes three types of situation: natural, historical and neutral. What makes them different is the types of multiple which compose them. There are three types of multiple: normal multiples which are both presented by the situation and represented by its state, they are counted-for-one twice; excrescent multiples which are only represented by the state; and singular multiples which only occur at the level of presentation, and which escape the effect of the second count-for-one.

Natural situations are defined as having no singular multiples—all of its multiples are either normal or excrescent, and each normal element in turn has normal elements (146). Neutral situations are defined by having a mix of singular, normal and excrescent multiples. The definition of historical situations requires the definition of a sub-type of singular multiple termed ‘event-sites’. In set theory terms, a singular multiple is an element of a set, but not one of its subsets. Since each of a set’s subsets is made entirely of elements which already belong to the initial set, the definition of a singular multiple is that first it is an element of an initial set, and second some of its elements, in turn, do not belong to the initial set (194). It is these foreign elements which are responsible for the singularity of a singular multiple. An event-site is, as it were, an extreme variety of a singular multiple: none of an event-site’s elements also belong to the initial set. Historical situations are defined as always having at least one event-site.

Take, for an example of a natural situation, the ecosystem of a pond. The multiples which it presents include individual fish, tadpoles, reeds, and stones. Each of these elements is also represented at the level of the state of the situation, which Badiou also qualifies as the level of the knowledges of a situation—they are known elements of the situation. Each element of an ecosystem is also one of the ecosystem’s subsets because, each of their elements in turn also belong to the ecosystem; for example each fish’s eating and breeding habits belong to the ecosystem as well as each fish. These elements are thus normal multiples. There are also a number of multiples which are represented at the level of the state of the ecosystem, yet which are not present as such in the situation. For example, the ‘distribution pattern of frogspawn during the month of November’ is a conglomerate which is not present as such in the situation of the pond: its elements are present, but not as gathered into such a conglomerate. It is therefore an excrescent multiple. If one examines such a situation, it contains no singular terms: nothing is presented which is not also represented. The test of whether a situation is natural or not is whether there is any element of the situation whose content is not also part of the situation — in ecology, every element of a system, at whatever level of size or

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1 Due to the excess of inclusion over belonging — the superior size of a set’s powerset compared to itself — every situation has excrescent multiples.
effect, is interconnected. The situation of the ecosystem of a pond is thus a natural situation.

Take, as an example of a historical situation, a set of answers to the nationalist concern of what it is to be Australian. Some of the multiples presented in this situation would be individual bronzed lifesavers, Anzac soldiers, larrikins, bushrangers, whinging poms, wowsers, convicts, great explorers, squatters, and gold rushes. One would also find the Man from Snowy River, Don Bradman, and the Eureka Stockade belonging to such a collection. In the twenty-first century, this situation’s elements also comprise individual stories about the Italian-Australians, the Irish-Australians, the Chinese-Australians, the Greek-Australians, and the Turks etc. etc. At the level of the state of the situation one has submultiples such as hedonism, mateship, equality, the sentiments “fair go!” and “she’ll be right mate!” anti-British sentiment. colonialism, post-colonialism, Protestantism, Catholicism and multiculturalism.

From both socioeconomic and cultural perspectives most immigrant groups are both presented and re-presented. Their contribution to ‘what it is to be Australian’ is both known and knowable. For this reason I would argue that none of the presented ‘immigrant’ multiples are singular multiples. On the other hand, forever resistant to Anglo-Saxon dreams of assimilation, the multiple ‘aboriginals’ is a singularity. Within the situation of ‘what it is to be Australian’, the content of the multiple ‘aboriginals’ remains unknown. Of course, within the situation of cultural and sociological assessments of Australia, ‘aboriginals’ are re-presented at the level of the state. But they do not form a part of any standard answer to the question ‘What is it to be Australian?’ I would argue that because this ‘immigrant nation’ was founded upon the dispossession of indigenous peoples, any investigation of the content of the multiple ‘aboriginals’ with reference to what it is to be Australian, would actually cause the unity of the situation to dissolve. The enormity of the difference between the aboriginal people’s historical relation to the sovereign nation ‘Australia,’ and that of all the other recent immigrant groups, means that the content of the multiple ‘aboriginals’, within this situation of Australian nationalism, can only remain unknown. It is thus a historical situation.

Badiou uses this division between types of situation to add to his doctrine on the stability of situations. He claims that the chief characteristic of natural situations is their stability and that this is due to their maximal internal cohesion between representation and presentation. Historical situations are not as cohesive as natural situations because singular multiples contain elements which do not belong to their situation. Since stability for Badiou signifies identity over time, the presence of these foreign elements presents a potential threat to that identity. Badiou’s placement of knowledge at the level of the state of situations plays a large role in his doctrine on
stability. A normal element is represented and thus knowable. This does not mean that it is actually known by an agent in the situation, but that it is in principle knowable. A singular multiple is not represented and as such it is in principle unknown at the level of the state. To clarify this status of singular multiples being ‘potential’ threats to a situation’s unity, if, within a situation, an investigation is carried out of the content of these singular multiples, the investigators would experience the dissolution of the unity of the situation in the course of the investigation. This is the theme of Conrad’s *Heart of Darkness*: Africa is an element of the European representation of the world, yet during investigation of the dark continent, the very identity of European civilization is troubled since the ‘heart of darkness’ turns out to be its own.

If one draws the consequences of Badiou’s doctrine on instability for the question of Australian nationalism, one can state that no multiplication of stories concerning ‘what it is to be Australian’ from Italian-Australian, Chinese-Australian, or Greek-Australian perspectives will ever disturb the unity of the situation. These stories merely add new variants, new sub-multiples, of Australian nationalism. At the level of the state of the situation, all of these ‘perspectives’ are already included—indeed ‘multiculturalism’ is a term which has been predominantly used at the representative level of both government discourse and the media during the last twenty years. The void of this situation — the incommensurable gap between the materiality of the signifier *Australian* (the operator of the count-for-one), and the materiality of people’s lives (the inconsistent multiple of the situation) — only emerges when stories are told about indigenous people’s experience of this territory called Australia.

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The reader may object that this tripartite division of natural, historical and neutral situations runs into the traditional ontological problem of defining terms which ‘carve reality at the joints’—criteria are required to establish whether something is an element of one situation or another—the problem of individuation. If such criteria are established then a second problem emerges, the problem of change: how can the ontology account for the wholesale change of situations whilst maintaining their identity? These two problems do not occur in Badiou’s ontology, and for two reasons. First there is no one metasituation such as ‘reality’ or ‘the cosmos’ which has to be divided up correctly. Second, something can always belong to more than one situation and as such its identity is relative to several situations—public urinals belong to the diverse situations of council property, male toilets in a five-kilometre radius, and modernist art.
This has consequences at the level of the types of multiples: a normal multiple remains normal in whatever situation it is presented in—it preserves its stability. On the other hand, a multiple which is a singularity or an event-site in one situation may well be a normal multiple in another situation—it can lose its capacity to cause instability. At a global level, anticipating the developments of the final chapter, this is the ontological marking of the institutionalization of praxis; a historical situation may become natural. Conversely, a natural situation can never become historical (196).

The set theory schemas which underlie the division between natural and historical situations are the following. A singular multiple is a multiple α which belongs to a set β — the historical situation — but some of whose elements γ do not belong to this initial set: (∃γ) [(α ∈ β) & (γ ∈ α) → ¬ (γ ∈ β)]. A normal multiple is ‘transitive’ — all of its elements are also subsets of it: (α ∈ β) → (α ⊂ β) (150). In metontological terms, a natural situation is a normal multiple composed of normal multiples. In ontological terms it is a transitive set whose elements are also transitive, otherwise known as an ordinal. Ordinal sets thus form the ontological schemas of natural situations.

Now that Badiou’s division of situations has been set out, it is possible to determine which category the situations of functional work fall into.

III The situations of functional work

The task of this chapter is that of showing how one can determine the ontological schema of a particular situation. Since ontology treats situations only as multiplicities, subtracted from their identity and properties, one must start with the characteristics of certain ontological schemas and then proceed to match them to the structural characteristics of particular situations rather than in the inverse direction. My goal in using such a procedure is to show that the ontological schema for

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1 One could object that these references to the stability of elements requires a reference to time indeed, stability is defined as the maintenance of identity over time, yet in the previous chapter I say that there is no time in set theory ontology. A number of qualifications must be made here. First I say that time is not a separate transcendental situation in set theory ontology; a situation as a multiple-presentation may well be a period of time; thus time occurs in set theory as some situations amongst others. However this does not solve the problem. The second qualification is that the definition of stability as identity over time occurs in the discourse of metaontology, not in that of set theory. Set theory’s task is to provide an ontological schema for a multiple at a certain point in time whose structure is such that it is unstable. Stability itself is not a concept of set theory, but the structure of stability can be schematized by a set. Some sinuous analysis indeed is required to discern the intrication and dependency of set theory and metaontology at this point, especially when epistemological questions arise over how one knows what the set-theoretical schema for instability is, if the definition of instability is metaontological, and set theory makes no reference to stability.
functional work is provided by the ordinal sets because situations of functional work are natural situations.

The first hurdle for my argument concerns the existence of dysfunction within situations of functional work: upon analysis of an actual situation of functional work, it appears that its structure includes singular multiples. The situations of functional work would thus be neutral rather than natural and their ontological schema not an ordinal set.
1 Time, dysfunction and neutral situations

Take, for example, the situation of the construction of a bathroom. At first sight it appears to be entirely composed of normal and excrement multiples and so a natural situation. The multiples which it presents include tools, materials, processes, and plans. Each of these elements is also represented at the level of the state of the situation since they are known elements of the situation. They are thus normal multiples. There are also a number of multiples which are represented at the level of the state, yet which are not present in the situation. For example, the ‘preparation stage’ is a conglomerate which is not present as such in the situation of the unfinished bathroom. The elements which are present in the situation are things such as formwork, exposed plumbing, plans, bags of cement and a builder. ‘The preparation stage’ is therefore a subset which is an excrement multiple — so far so good, no singular multiples. However if one regards elements of the situation such as the weather, the plumber’s schedule, the electrician’s schedule, the availability of tilers, the town council’s approval process and the client’s whims then one has a whole multitude of singular multiples: the content of each is partially unknown.

It is these singular multiples which form the potential source of dysfunction within an otherwise functional situation — due to their unpredictability within the dimension of time. It would thus appear, in the absence of event-sites, that the situations of functional work are neutral situations.

However, the content of these multiples still belongs to the situation: whatever particular weather occurs or gaps in the builder’s schedule appear, they are still clearly elements of the situation of the construction of the bathroom. The reasoning above is based on a misunderstanding of the definition of singular multiples: a singular multiple has elements which do not belong to the initial situation, whether they are known or not. All the elements of the construction of a bathroom are in principle knowable: the knowledges of the situation are capable of recognizing them as elements of the situation. Hence the situations of functional work are natural situations.

Say that one of these elements does cause dysfunction: what kind of multiple underlies dysfunction? Dysfunction, whether mechanical, social and organic, has two basic schemas; unknown subsets and singular multiples. In the first form of dysfunction there is an unplanned or unprogrammed connection made between elements which belong to the situation—the growth of cancer cells, the corruption of macro commands by computer viruses, students uniting with the workers in a city-state. In this case, all that comes to light is a previously unknown but quite knowable part or sub-multiple of the situation, one that is already counted for-one by the state.
of the situation. In this case, despite the presence of dysfunction, the situation of functional work is still a natural situation.

The second form of dysfunction is the 'foreign agent' whose ontological schema is a singular multiple. If something emerges in a situation of functional work as a foreign agent and it remains foreign—that is, it is not adapted to, expelled, or domesticated—then the situation risks not just dysfunction but breakdown. When a situation of functional work breaks down it is no longer functional, and its schema is no longer that of a natural situation but a neutral situation.

In practice most situations of functional work operate with a certain amount of dysfunction: it is known, its relation to functional elements of the situation are known, and its elements belong to the situation. Dysfunction therefore does not have the schema of a singular multiple: the situations of functional work are natural.

2 Ordinals and functional work

There are six major characteristics of ordinals which match the general characteristics of situations of functional work: homogeneity, minimal elements or atoms, universal interdependence, uniqueness and the absence of a totality.

The homogeneity of ordinals resides in all of their elements being ordinals. If one decomposes each level of elements of an ordinal into its elements and so on, they are all transitive; that is, every element is also a subset. In metaontological terms, every multiple which is presented by a natural situation is also represented by its state. What this means is that when one decomposes a natural situation's elements, which are themselves multiples, all of their elements in turn also turn out to be elements of the initial situation. Since the level of the state is the level of the knowledges of a situation, all of a natural situation's elements are known or knowable. It is homogeneous because none of its elements contain elements which are in principle unknowable because they do not belong to the initial situation; that would signal radical difference. If one turns to situations of functional work, they evidence such a structural homogeneity. Take for example a city which is a functional whole. Each of its elements—factories, shops, roads—can be broken down into constituent elements—production lines, workers, displays, shop assistants, buses and traffic lights. These elements can all be grouped into parts of the situation of the city such as 'the clothing industry' or 'the public transport system' because they are all known or knowable—they can be categorized by the knowledges of the city. The analytic of decomposition meets no unknowable elements of elements of a functional city—such elements would be not merely dysfunctional, since dysfunction is knowable and so can be compensated for or
eliminated, but α-functional. The structural homogeneity of situations of functional work is schematized by the structure of the ordinals.

The second characteristic of ordinals is minimality. As explained in the previous chapter, this means that if an ordinal possesses a property ψ, then there also exists the smallest element which possesses this property. The consequence for the knowledge of natural situations is that for whatever property discerned in a natural situation, there will always be an ultimate element which possesses such a property. This prevents the analytic of decomposition from proceeding to infinity. Badiou states that thought is thus 'orientated towards a natural atomism’ (155). In situations of functional work atomistic analysis is essential to their design and maintenance—one must know the minimal elements which possess general properties such as 'converts x quantity of energy' or 'can be repeated for a finite period of time.' All situations of functional work can be broken down into their ultimate building blocks.

The third characteristic of ordinals is their universal connection. Set theory demonstrates that every ordinal is part of an infinite chain of belongings in which every other ordinal figures. In metaontological terms, natural situations are not independent. There are two ways to approach the non-independence and intrication of situations of functional work; the first via inclusion, the second via their effects. Situations of functional work are both inclusive of other situations of functional work and can be included by them as matter of principle. A situation of functional work can always be assigned a role within an encompassing situation of functional work. In fact a single situation of functional work upon analysis turns out to be two, one including the other since teleological function, whether role or goal, always belongs to an encompassing situation. For example, in Plato’s ontology the goal of the production of a bed, a new bed, also exists in the wider situation of the users of beds. Clearly not all concrete effective situations of functional work are literally included in one another — a flower shop in Prahran appears to have no relation to a bookshop in Carlton — but nothing in them objects to their inclusion into larger situations of functional work such as 'all retail activity in Victoria', or 'the state economy'. Correspondingly, at the level of their ontological schemas, situations of functional work are intricated through these structures of inclusion.

Situations of functional work are also intricated with other situations through their effects. From an ecological point of view there is a universal interrelatedness of artificial production and natural production. Ecological analysis can demonstrate the relations between the most minimal unit of industrial production, the fauna and flora of a nearby river and the biosphere itself. Indeed, one of the maxims of ecological design practice—all function creates dysfunction—reveals the intrication of situations of functional work with other situations of which inhabitants or observers of the first were probably unaware. The car industry creates dysfunction in the
situation of children's health in cities through the production of pollution from car
exhausts. Since ecological analysis judges ecosystems by criteria of function and
dysfunction, they can be considered as situations of functional work where work is
reduced to its determination as energy exchange. Thus situations of functional
work—industrial, technological—are intricated with other situations of functional
work—ecosystems—through their effects.

The fourth characteristic of ordinals is their uniqueness. It is the foundation
of quantity, number and measure in set theory. One of the major characteristics of
every situation of functional work is that its processes, materials and effects are all
quantifiable: at every level of elements of a situation of functional work, each
element has a unique quantity.

The fifth characteristic of ordinals is that there is no Ordinal of ordinals, no
final term in the chain of belongings. In metaontological terms, there is no all-
inclusive totality of natural situations. If one regards situations of functional work,
despite their inclusion in larger situations, there is no all-inclusive totality to which
they all belong. Functional work does not play a role in one universal cosmological
order. Nothing, for example, grounds functional work in some human instinct for
survival as part of some overall evolutionary schema. This is attested by the impact
of our 'functional' technology and industry on the planet, it may well prove its utter
uselessness for evolutionary purposes by causing the planet to become unlivable for
human beings in the future.

The sixth characteristic of ordinals is that they both possess an internal order
and belong to a larger external order as shown in chapter five. All situations of
functional work possess some type of order: the very term 'operational function'
refers to the order of processes and materials which are employed to fulfill
teleological function. All situations of functional work can also play a part in a larger
order of functional work, such as the operations of a city within a national economy.

Each of the structural characteristics of ordinal sets can be found in the
structure of situations of functional work. This set of structural characteristics cannot
be found in any other type of sets in set theory. No further structural characteristics
of situations of functional work have come to light in either Badiou's ontology, or in
any of the other ontologies. In set theory ontology, it is thus the ordinals which
provide the ontological schema of functional work. This schema, just as in the other
ontologies, is an ordered unified inclusive multiple.

Unlike the other ontologies, however, it is difficult to imagine the relation
between an ordinal set and everyday situations of functional work. Set theory
ontology does not provide the mediating material found in the other ontologies by
way of their actual descriptions of functional work. To remedy this difficulty, the
following sections show that general concepts of function and work have a
mathematical, and thus set-theoretical, structure.

IV The analysis of function

The investigations of the first three chapters generated a number of general
characteristics of function.

Plato and Aristotle's ontologies furnish the distinction between operational
and teleological function. The operational function of $\alpha$ is the role it plays in the
functional situation $\beta$: the function of motor oil is to reduce friction and wear
between the parts of an engine. The teleological function of process $\delta$ is to have the
effect $\gamma$: the function of the production of a bed is to produce a new bed. Both $\alpha$ and
$\delta$ are functional if, due to their particular properties, they successfully perform their
allotted tasks. In both cases the function comes down to a relation established
between two beings or variables. What makes this relationship possible is the
possession of a property: $\alpha$ has a property which allows it to play a role in $\beta$
successfully, and $\delta$ has properties which enable it to fulfill $\gamma$. Both teleological and
operational function can thus be analysed into properties, relations and variables.

Take for example the statement: 'the function of agricultural work in a
country is to provide food for the populace.' Two levels of function can be expressed
here. In one, a two-place relation, agriculture, $\delta$, has the relation $R$ to the nation $\gamma$,
where $R$ stands for the provision of food for the populace. When one analyses the
latter, a three place relation, $P$, emerges: agriculture, $\delta$, provides food, $\chi$, for the
populace, $\eta$. This could look something like this: $\land R(\forall \chi)(\forall \eta) [P(\alpha, \chi, \eta)]$. The
relation of provision itself could be further analysed into variables, relations and
properties.

Set theory ontology recognizes properties, relations and variables in turn as
types of multiples. Set theory's variables — noted $\alpha$, $\beta$, $\gamma$ here — are always
multiples because they are sets. In set theory's formalised language a property is a
formula with a free variable. A formula is a series of signs such as those used in the
set theory notation used in this chapter. A free variable is a variable which is not
quantified, that is, it is not referred to in statements like 'for all $x$' or 'there exists a
$y$'. For example the property of 'being a subset' can be expressed by the following
formula $F(\gamma)$ in which $\gamma$, standing for the subset, is the free variable:

$(\forall \alpha)(\forall \beta) [(\beta \in \alpha) \rightarrow (\beta \in \gamma)]$

There is no essential difference between properties and multiples which possess
properties. Here the property 'being a subset' is written as being equivalent to the set
of all multiples $\beta$, thus it is a multiple itself. Its unity is clearly defined in the
formula. Properties expressed in the first order language of set theory are built on
two relations alone, belonging and equality, and do not represent the infinite variety
of properties in particular situations. However, they do provide the basic structure
for the possession of any property by any particular multiple.

A relation is another form of multiple.\(^1\) If one says that there is a relation \(R\)
between \(x\) and \(y\), there are two constitutive elements of such a statement (483). The
first is that there is a pair of multiples, \(\{x,y\}\) whilst the second is that there is an
order to the pair such that \(\{y,x\}\) may not be true since \(y\) may not entertain the same
relation \(R\) with \(x\). The relation itself is then defined as the set \(R\) of all such ‘ordered
pairs’ — \(\langle x,y \rangle \in R\) (484). Both \(R\) and \(\langle x,y \rangle\) are multiples. In order to show that an
ordered pair is both a multiple and ordered, what is needed is a way of determining
the pair such that \(\langle x,y \rangle\) is not equivalent to \(\langle y,x \rangle\). This is accomplished by defining
the ordered pair \(\langle x,y \rangle\) as equivalent to the set \(\{\{x\},\{x,y\}\}\). No new elements are
introduced, rather, usage is made of constructions on the basis of the already existing
multiples \(x\) and \(y\), yet it is clearly different to \(\langle y,x \rangle\), that is to \(\{\{y\},\{x,y\}\}\). Thus, in
an ordered pair, both the terms and their places are prescribed such that if one has
\(\langle x,y \rangle = \langle \alpha,\beta \rangle\) this implies that \(x = \alpha\) and \(y = \beta\).

A mathematical function, in turn, is a type of relation and thus a multiple.
Take \(F(x) = y\), a function with one free variable (where \(y\) stands for \(2x\) or \(x-1\)). One
can say \(F\) relates \(x\) to \(y\) such that there is a multiple (a set) \(F\) of all ordered pairs
\(\langle x,y \rangle\). What is particular to functions is that one \(y\), and one alone, is related to \(x\) by
means of \(F\) (485). This can be written: \((\langle x,y \rangle \in F \& \langle x,z \rangle \in F) \rightarrow (y = z)\).
However complicated it may be, a mathematical function is a set of rules which
determine what operations must be applied to \(x\) in order to generate \(y\) and \(y\) alone. In
the example used above, the provision of food is a relation rather than a function
because trade, another variable, can also provide food to the populace. Because a
mathematical function reduces to a set of ordered pairs in set theory, it is nothing
other than another type of multiple.

Aristotle identified the independence of function from functional work—the
form of a bed is independent and separable from any particular production of a bed.
This quality is reflected in the mathematization of function: whatever quantity the
variables \(x, y \& z\) assume, the form of the relation is maintained. If \(F\) is the multiple
(set) to which a series of ordered pairs \(\langle x,z \rangle\) belong, then by the axiom of
replacement, each of these pairs could be replaced by others and the structure of the
set would be maintained.

\(^1\) The technical part of this exposition draws on Badiou's exposition in Appendix 2 of *L'être et l'événement*, 483-486.
If operational and teleological function can be broken down into properties, relations and variables which in turn can be reduced to types of multiple, then the structure of every type of function found in situations of functional work can be rendered in set theory terms.

V Work and its mathematization as spent energy

One of the most general and yet most concrete concepts of work is that work is the expenditure of energy. In everyday discourse, the term ‘work’ is often used to refer to activities which are neither salaried labour nor even domestic labour. When this occurs it is because ‘work’ is interchangeable with the unpleasurable expenditure of energy. Leaving aside questions of whether work is pleasurable or not, since this does not affect the definition of functional work, let us investigate this concept of the expenditure of energy.

It first emerged in the unification of the physical sciences in the nineteenth century through the expansion of the concept of energy.¹ Since then it has had an extensive discursive career in the human sciences, literature and the media.² This generalization of its usage is why one can talk of the situation of work as the expenditure of energy and not be referring solely to the conceptions of energetics. But in order to determine the ontological schema of this situation one has to understand the sense of the concept in the specific situation of energetics.

In the physics introduced by energetics energy replaces matter or the atom as the fundamental constituent of reality.³ However, energy is not a new ultimate substance, but rather the expression of a mathematical function which unites all the various physical series of measurement: electrical charge, motion, chemical attraction and heat. It establishes numerical relations between these ordered series enabling the transition from one series to another, such that, as Ernst Cassirer puts it,

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¹ See E. Cassirer, Substance and Function (New York: Dover Publishing Co., 1953), 194. Cassirer refers to Rankine, "Outline of the Science of Energetics," Proceedings of the Philosophical Society of Glasgow, Vol. III, (London & Glasgow, 1855), 381. Hermann von Helmholtz formulated the first law of thermodynamics, that of the conservation of energy in 1847 and announced its universal applicability to phenomena of light, electricity, magnetism, heat etc. Rudolf Clausius, drawing on the work of Lord Kelvin, reformulated Sadi Carnot’s insights into heat transfer in steam engines in the 1820’s into the second law of thermodynamics, that of entropy in 1850. The period 1850 – 1900 saw the proof occur for the extension of these two fundamental laws into all the fields announced by Helmholtz.


³ Cassirer, 188.
a quantum of motion is equivalent to a quantum of heat or electricity etc. In set-theoretical terms, a one-to-one correspondence is established between the elements—the units of measure—of each series. A common series is then constructed, by means of a function, to facilitate translations between series. The units of this series are called units of work, drawing upon the mechanical term for energy.

Energy is thus defined as the capacity to do work, where work is understood as determinate change. However this is not a capacity which resides in some manner within things, such as matter’s potentiality to assume form in Aristotle’s ontology. Energy itself is the expression of unified measure or of a unified system of numerical relations. The expenditure of energy is thus also a measurable multiplicity. The sets which form the ontological schema of measurable multiplicities of anything — which are themselves measurable multiplicities — are the ordinals; those which I argue form the ontological schema of functional work.

It is in the science of thermodynamics that the concept of energy received most of its development. The first law of thermodynamics is that in any physical reaction or change within a closed system, the total quantity of energy involved remains constant. The second law of thermodynamics states that in any closed system order will tend to disorder, and the organization of its constituents will decay into a state of equilibrium. The name of this process of increasing disorder is entropy. A closed system is one that does not exchange energy with its surroundings.

Take a situation of functional work as one in which the expenditure of energy occurs. If its organization or structure can be defined as a closed system, that is, not exchanging energy with its environment, then it is subject to the second law of thermodynamics. What is significant is that it is very difficult to come up with an example of functional work which is a closed system. If one considers the situation of the construction of a dream bathroom, energy is continually imported in the form of matter — building materials — and the builder’s exertion of kinetic energy — dependent on turn on the builder’s digestive importation of energy. Consequently, one is lead to the simple insight that situations of functional work can be described, in the language of thermodynamics, as open systems — the consequence at the level of ontological schemas is that a situation of functional work always belongs to another situation. Open systems are still subject to entropy, but their continual creation of order means that there is no overall gradual slide into disorder. However,

\[1\] Ibid., 191.
the tendency to disorder and disorganization does manifest itself. This is why there is a continual creation of order in functional work rather than one moment of design and execution which lasts for eternity. Time manifests itself for functional organization in the form of encroaching disorder, disorder which must be compensated for. Even a computer loses energy in the form of excess heat which is compensated for by cooling fans.

The concept of entropy — a continuous process of loss — could be used against my argument as proving in some manner that the situations of functional work do not have one ontological schema since they are always changing. One could further object that the status of such change — a flowering of disorder in a hitherto organized system — itself defies any matematization and thus has no ontological schema. However, conforming to its scientific birth, entropy as the rate of decay of order, is measurable by a series of mathematical equations. Moreover, certain types of change can be accommodated within a situation without its overall structure changing. Of course, once that overall structure is affected by change, its ontological schema is different. Since situations of functional work are open systems, and entropy thus can never run its complete course, their overall structure is never affected by entropy. The ontological schema of a situation of functional work remains that of the ordinals.

VI Work in Marx and Hegel

At first sight, Marx's use of the labour theory of value provides another example of the general concept of work as the expenditure of energy. However Marx's thought of work generates not one but two ontological schemas, the second of which is of Hegelian origin. It provides a sharp contrast between set theory ontology and Hegelian ontology on the matter of work.

In his analysis of the mechanism of exchange under capitalism, Marx argues that the exchange value of a commodity is a direct expression of the quantity of human labour power expended during its production. As the exchange value of a commodity is abstracted from all of the latter's useful and sensuous qualitative, so the labour power required for its creation is considered in the abstract. For the purposes of his argument Marx reduces the various levels of productivity and skill involved in labour, and thus the various intensities of labour power, to 'average homogeneous labour-power'. Since the exchange value of commodities is directly measurable in

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2 Ibid., 46, 51.
the form of money, the labour-power responsible for its existence is also directly quantifiable in the form of time. Work itself has a twofold nature:

One the one hand, all labour is, speaking physiologically, an expenditure of human labour power, and in its character of identical abstract human labour, it creates and forms the value of commodities. On the other hand, all labour is the expenditure of human labour-power in a special form and with a definite aim, and in this, its character of concrete useful labour, it produces use-values.¹

Work is thus respectively defined under the ontological categories of quantity and quality.² Under the category of quantity, work is defined as the expenditure of labour power. Marx details what is actually spent:

However varied the useful kinds of labour, it is a physiological fact, that they are functions of the human organism, and that each such function, whatever may be its nature or form, is essentially the expenditure of human muscle, nerve, brain, etc.³

He notes that work also consumes tools, machinery and natural materials during the production process. All of this expenditure is calculable. Since labour-power is quantifiable, work as its expenditure is also quantifiable. This is directly reflected by the existence of wages. The ontological schema of work in Marx would thus be the same as that of the expenditure of energy in energetics: an ordinal set.

Under the category of quality, Marx conceives work as a particular process: in his terms work is a use-value, since what a particular work process produces is useful to someone. Under the category of quality, he analyzes the general components of the actual work processes of spinning, weaving and forging etcetera:

At the end of every labour-process we get a result that already existed in the imagination of the labourer at its commencement. He not only effects a change of form in the material on which he works, but he also realizes a purpose of his own that gives the law to his modus operandi, and to which he must subordinate his will.⁴

Complete with final, formal, efficient and material causes and ending with the subordination of operational to teleological function, this passage provides a swift

¹ Ibid., 53. Engels himself notes in a footnote to this passage that the English language has two words which correspond to the two sides of labour: the particular labour which creates use-values — work — and the abstract labour power — labour.
² Speaking later on of these two views of labour, but in inverted order, Marx says: “Here we contemplate the labour as producing a particular article, we view it under its qualitative aspect alone, with regard to ends and its aim. But viewed as a value creating process, the same labour-process presents itself under its quantitative aspect alone.” Capital, 190.
³ Ibid., 76. See also 167.
⁴ Ibid., Chapter 7, 174.
recapitulation of Aristotle’s ontology of production. The ontological schema of the latter is an ordered unified multiple, so must it be for Marx’s recapitulation.

However, these two concepts of work do not exhaust Marx’s thinking concerning work. He distinguishes between labour-power and labour itself. Labour-power is defined as the capacity for labour, much as energy is defined as the capacity to do work. As such it has a measurable value. Marx argues that if one examines the value of labour, the response must draw, as all determination of value does, on the labour-time necessary to reproduce the labourer such that he can continue to work.\(^1\) However, what is thereby valued is labour power, the worker’s capacity to continue to work, not the actual labour itself. As the actual creator of value, labour has no value. Marx writes: “Labour is the substance and the immanent measure of value, but has itself no value.”\(^2\) Consequently, it is not quantifiable. This is why Michel Foucault aligns Marx’s thought with one of the fundamental forms of thought of the modern age wherein:

what is indicated, on the horizon of all actual representations as the foundation of their unity, is found to be...those realities that are removed from reality to the degree to which they are the foundation of what is given to us and reaches us: the force of labour, the energy of life, the power of speech. It is on the basis of these forms...that the value of things...attains our representations...Labour, life and language appear as so many transcendentalss which make possible the objective knowledge of living beings, of the laws of production and of the forms of language. In their being, they are outside knowledge, but by that very fact they are conditions of knowledge.\(^3\)

In Foucault’s reading of Marx, labour is in the position of a transcendental cause of value.\(^4\) If this is so, then the ontological schema of work is that of a one which unifies yet is absent from a multiple: the multiple of commodity values.

The presence of this ontological schema of work in Marx’s thought is confirmed by his global characterization of work as the eternal exchange between man and nature:

So far therefore as labour is a creator of use-value, is useful labour, it is a necessary condition, independent of all forms of society, for the existence of the human race; it is an eternal nature-imposed necessity, without which there can be no material exchanges between man and Nature and therefore no life.\(^5\)

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1 See *Capital*, Part II, Chapter 6.
2 Ibid., 503.
3 Foucault, *The Order of Things*, 244.
4 According to the argument of chapter there is nothing to distinguish such a set-up from Foucault’s own, since the metasituation of relativist ontology are in precisely the position of a transcendental cause.
5 *Capital*, Chapter 1, section 2, 50. See also Chapter 7, 173.
Work is thus positioned as the a-historical origin of human society: a transcendental, absent cause.

The presence of this ontological schema of work in Marx’s thought can only be understood by returning to Hegel and the place of work in his ontology since it crystallizes both Marx’s materialist inversion of Hegel, and the failure of such an inversion to exit from the Hegelian system. Marx inverts the Hegelian system insofar as it is not the Idea whose transformations govern the development of historical forms but material exchange. Yet Marx’s ontology remains Hegelian in so far as there is a single dialectical historical progression in which these material exchanges play a role; that which commences with primitive exchange, passes through feudalism to capitalism, and ends in communism.

In Hegel’s ontology the ‘work of the negative’ is the origin of the historical becoming of the Absolute. In the Preface to the Phenomenology of Spirit, Hegel sets forth the dialectical identity of the Absolute as both Substance and Subject via the work of the negative:

Further the living substance is being which is in truth Subject, or, what is the same, is in truth actual only insofar as it is the movement of positing itself, or is the mediation of its self-othering with itself. This Substance is, as Subject, pure, simple negativity, and is for this very reason the bifurcation of the simple; it is the doubling which sets up opposition, and then the negation of this indifferent adversity and of its antithesis [the immediate simplicity].

The name of the Absolute as subject, as this process of self-mediation through negativity, is ‘the labour of the negative.’ Each of the many presentations or forms of spirit which belong to the Absolute are created through the work of the negative, however the work of the negative itself is not presented, nor presentable as a historical form without it being ‘converted into being.’ Work as material exchange is thus in exactly the same position in Marx’s ontology as the labour of the negative is in the ontology of Hegel. The ontological schema of this position is that of a One which is absent from the multiple — the historical forms — that it unifies.

This schema of work is different to the unified ordered inclusive multiple. In Marx, insofar as it serves as a model for all material exchange—of nature as well as between man and nature—work unifies the multiple of what exists. In Hegel the work of the negative dialectically unifies the totality of what exists. In ontologies

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2 Ibid., §19, 10 & §32, 19.
3 Ibid., §32, 19.
which recognize the being of the one, the name of the unifying one is the name of being. Hence in relativist ontologies the name of being is the name of the metasituation which unifies all the other situations — Nature, Evolution or History. In each case what is named is identified as the Being of beings in a metaphysical sense: it is placed in the position of the absent excluded cause of all other beings. Work in Marx and Hegel is thus revealed as one of philosophy’s privileged names for being.

What made this identification of names possible in traditional ontology, wherein the name of being is not only the name of the overall unity of beings but of the very movement of unification of those beings, is a slippage in the place of the concept of production in ontology. For Aristotle, being is substance and substances have unity. To understand substance Aristotle develops an analysis of its production wherein the production of substance is understood as a movement of unification. Yet in these ontologies, being is understood not as the result of unification, but as that movement of unification itself: hence in the history of ontology, production has been one of the major names of being, and so ‘work’ is simply one of its variants.

In Hegel’s ontology the work of the negative brings about the immanent self-generation of unity, it is a production which lies behind the many historical forms or presentations of Spirit. For Badiou, there is no one production that lies behind all presentations since any production is itself simply another presentation. There is no one which unifies all multiplicity: what gives each presentation unity is a particular operation which is indifferent to the inconsistent multiplicity it unifies. Set theory ontology does not recognize ‘work’ or ‘production’ as privileged situations because it does not recognize any particular situations: it is indifferent to their identity.

Conclusion

The ontological schema of functional work — ordinals — can be distilled from number of different types of situations of functional work, from the analysis of function, to thermodynamics, to labour under capitalism.

One should note that set theory ontology does not construct the ontological schema of functional work, it constructs ontological schemas of situations of functional work—ordered unified inclusive multiples, or, ordinal sets. The plural is the intra-ontological mark of the multiplicity of actual situations of functional work.

What remains of the theses’ work is its second project: to find an ontological schema for praxis which distinguishes it from functional work in line with the requirements listed in the introduction to the thesis and chapter four. At this point
one can only anticipate that its schema will be a different type of set than the ordinals.
Praxis in Set theory ontology
Introduction

The second project of this thesis is to differentiate between functional work and praxis by means of their ontological schemas. Its goal is to find a different model of praxis in the wake of Marxism which fails, on my argument, to differentiate praxis from functional work. In the introduction to the thesis I argued that such a task could be accomplished by subtracting praxis from the one: whether in the form of the one of authority (the party), the one of totality (the Marxist’s dialectic of history), or the one of knowledge (the Marxist theory of praxis’ operational and teleological function).

Praxis occupies as central a position in Badiou’s ontology as production does in Aristotle’s ontology. This makes the identification of its schema somewhat easier than in the case of functional work since the schema comes ready made. The name for praxis in Badiou’s thought is a generic procedure of fidelity. It is the process of transformation which takes place in historical situations after radical and disruptive events. It is a process of fidelity because the transformation of the situation is carried out by subjects who decide upon the significance of the event and then dedicate themselves to working out its consequences. The examples Badiou provides of such fidelity to events include the militant activity of the Jacobins in the French Revolution and the work of various modernist movements in art after Picasso and Braque’s invention of cubism.

Praxis occupies such a central position in L’être et l’événement, because there is one central question which underlies and motivates the book’s arguments: how does the new come about in being? The new, in this context, does not just refer to new arrangements of already known existences, but to new existences which require new knowledge.\(^1\) Hence its equivalence with radical change: change within a situation is radical when the structure of the situation is replaced by a new structure. This is the kind of change which Foucault refers to in the field of discourses as an epistemological break. Badiou’s previous book, Théorie du sujet, was concerned with the same question, attempting to account for the possibility of radical structural change by marrying a historical dialectic to a structuralism built on Lacan’s work. In L’être et l’événement, Badiou abandons the historical dialectic and adds one element alone to his ontology of structured multiplicity: the event. In chapter three I argue that in his account of the emergence of new discursive formations Foucault implicitly posits the existence of a transcendental metasituation termed ‘history.’

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\(^1\) It is a question for Badiou because in his philosophical orientation, best contrasted to Deleuze or Bergson, there is no difference of kind in between structured multiplicity and movement: all empirical change whether it be in situations of economy, technology, or the weather, is already knowable and brings no new existence into being.
Given the strictures of his ontology, Badiou cannot explain radical change by sourcing events in such a metasituation. His solution is to create a category of ‘that-which-is-not-being-qua-being’ into which solely the event falls: the event is outside ontology’s field because it is not.

This solution is elegant because it both preserves the coherency of ontology — the discourse about the being of what is — and suits the structure of the radical changes which he uses as examples. For the events to which Badiou refers are not simple identifiable entities: one cannot isolate a single unique cause of the structural change which affects the situations in which these events occur. In Badiou’s ontology, what exists is unified multiplicities which are presented in other unified multiplicities (situations). A disruptive event, on the other hand, as it occurs in a situation, is a set of disparate and bizarre circumstances which are only unified into ‘an event’ by the name of the event. Take some of the events which occurred in Russia in 1917: the worker’s and soldier’s April protests against the Provisional Government’s continued pursuit of the Tsarist war aims; the creation of worker’s soviets in large factories such as the Patilov works in the south-west of Petrograd to supervise the management; and the peasants formation of land councils to manage the distribution of land, rent, and livestock in provinces such as Penza.1 Within the situation of Russian politics in 1917, these disparate events are only unified, only part of the same general historical movement, by reference to ‘the revolution’. In a similar fashion, neither the emergence of modernism in painting, nor of modern physics after Newton, are simple punctual events in a historical series: the name of such events is a name which unifies a set of disparate occurrences into a general change which occurs over a period rather than at one punctual moment — the latter being our usual understanding of an event. Events which disrupt the structure of situations do occur, but they are neither single beings, nor single movements for those situations: since events are not unified multiplicities in the same manner as situations, they fall outside the field of ontology. Yet since such events occur, ontology must take into account their effects: hence Badiou’s work on generic sets as the schema of new emergent situations.

This chapter assesses whether this solution to the ontological problem of structural change meets those requirements for a new model of praxis which are laid out in the introduction to the thesis. The chapter commences with an exegesis of where and how praxes commence, finding examples of each structural element of

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Badiou’s account. The following section examines how his model of praxis claims to avoid the risk of institutionalization: in my terms, the risk of being indistinguishable from functional work. The chapter then fleshes out this claim by presenting the ontological schema of generic procedures of fidelity: an infinite indiscernible set termed the generic set. This set is one of set theory’s more complex constructions, yet the details of its structure are essential to the argument of the thesis: the passage through set theory itself is unavoidable. An account of the demonstration of its existence is presented which mentions each important stage. The chapter then passes to the details of the actual process of praxis and suggests a number of refinements of Badiou’s model. The chapter ends by addressing Slavoj Zizek’s objections to Badiou’s account of praxis, in which Zizek argues that it is indistinguishable from ideology. This presents a problem to my argument because the ontological schema of ideology — a unified multiple — is indistinguishable from that of functional work. I argue that Zizek fails to take into account many crucial elements of Badiou’s model but that he nevertheless succeeds in portraying what I term the ideological perversion of praxis.

1 The origin of praxes

Toute action transformatrice radicale s’origine en un point, qui est, à l’intérieur d’une situation, un site événementiel. ¹

1 Event-sites

As established in the previous chapter, the situations of functional work are natural situations characterized by stability, homogeneity and interdependence. According to Badiou, the situations in which praxes occur are ‘historical’ situations, defined by at least one of their elements being an event-site. An event-site is a singular multiple, none of whose elements belong to the historical situation to which it belongs. The example Badiou uses is that of a family of illegal immigrants who are known, amongst their neighbours, to live at a certain address, yet the number and age of the family’s members is completely unknown (195). From the perspective of the state of a historical situation, the content of an event-site is both unknown and unknowable. This is not to say that within another situation the elements of such a multiple could

¹ A. Badiou, L’être et l’événement (Paris: Le Seuil, 1988). 197. All subsequent references to this text will be indicated in the body of the chapter with a page number.
not be known; the singularity of singular multiples is relative to their situation. To take the previous chapter’s example of the multiple ‘aboriginals’, it is an event-site in the situation of Australian nationalism. Yet the multiples which belong to it in turn are well known in the situation of indigenous political activism and the situation of indigenous culture in this country. The structure of an event-site is thus relative to its situation.

Within a historical situation an event-site is a point of opacity. Within an event-site, the unity and identity of the situation to which it belongs is null and void. According to Badiou’s doctrine, event-sites — and thus historical situations — are found in each of four general areas: science, art, politics and love. To test this point of doctrine, let us examine the possible form of such event-sites in each of these areas.

Badiou says that event-sites in scientific situations take the form of theoretical impasses. One may object that the elements which make up an impasse are well known by scientists, but the event-site is not made up of each of these elements taken alone but resides in their conjunction: an impasse. The content of an impasse is evidently completely unknown as long as no way is found to resolve it. The phenomena termed ‘anomalies’ by Thomas Kuhn in his account of science — experimental results which do not accord with predictions drawn from established theories — are event-sites in Badiou’s terminology. Like Badiou with event-sites, Kuhn places anomalies as crucial points in radical scientific change.¹

The examples Badiou gives of event-sites in political situations are always of sectors of the populace whose political views and potential contribution to political life are both unknown by the state and do not accord with the structure of the political situation. These examples reveal that the doctrine on event-sites is a replacement for the Marxist’s ‘proletariat’ in the Marxist theory of radical structural change. Badiou cites the French peasantry in the late eighteenth century, and one could add the Russian working class around the turn of the twentieth century, or even, now, in the situation of Australian parliamentary politics, the multiple ‘aboriginals.’ However, it is not clear that the content of these multiples remains completely unknown to the state. Governments have always been aware of the activity and views of political activists who militate amongst such sectors of the populace. Yet this is to confuse structure with knowledge: an event-site is defined by its elements not belonging to the situation, and it is only by consequence that it is unknown by the state. A political event-site is not activist’s subversive views and activity, but rather what a certain sector of the populace would decide to do in

politics if they had the opportunity; that is, the event-site is what composition the political situation would take on if that sector of the populace was fully politically integrated.

Such a formulation suggests something which is most apparent with event-sites in artistic situations: the identity of an event-site is often only revealed retroactively by the occurrence of an event; it is the French peasantry’s revolt which reveals how they did not participate in the structural stability of the ancien regime. The two examples Badiou gives of events occurring in artistic situations — Schoenberg’s invention of serial music and Picasso’s invention of non-figurative art — do not have obvious event-sites save retroactively in reference to these events. Schoenberg’s invention of twelve-tone scales reveals that classical tonality, or rather the twelve tones from which the classical modes of eight tones are constructed, was an event-site. The lines which compose the figures by which post-renaissance painting constructed perspectival representation are revealed, by Picasso’s inventions, to be event-sites holding capacities of presentation unrelated to perspective. This does not present a problem for Badiou’s doctrine, but rather a confirmation, since he holds that event-sites are unknown at the level of representation of the situations to which they belong.¹

Badiou claims that the event in interpersonal situations is the encounter of two humans who fall in love. This does not mean the initial meeting of eyes across a crowded room — Badiou is not advancing that all love is love at first sight — Again, it is not clear exactly what the event-site is in such situations. In my view there are several contenders all of which may be gathered under the heading of a subject’s way of relating to other subjects: the subject’s identifications, their neurotic deadlocks and their relation to sexuality.

Although the study of the different forms of event-sites is a research topic in itself, we may arrive at the provisional conclusion that this part of Badiou’s doctrine bears comparison with what we know of various structural changes in situations: one can identify event-sites in each of the four areas of art, politics, science and love.

There are two major consequences of this part of Badiou’s doctrine with regard to remodeling praxis. First, if the historicity of historical situations is determined locally by their event-sites, there is no single all-inclusive historical situation — just as there is no single overall natural situation. Instead, there is a non-unified multiplicity of particular historical situations. This accomplishes one of the major tasks set out in the introduction to the thesis: it subtracts praxis from the one

¹ This does however, raise the question of who can possibly know whether an event-site exists in a situation, irrespective of whether an event has occurred or not. Badiou’s answer, detailed below, is that only those who have been faithful to a previous event occurring in the situation — or perhaps in other situations — are aware of the significance of anomalous and largely uninvestigated points of a situation.
of history, from an all-inclusive totality such as the Marxist’s dialectic of history. To extrapolate, in Badiou’s conception, the international political post-war situation is not historical because it takes place between the year 1945 and the year 1999 nor because it has a prescribed place in the global history of capitalism, but rather because of the emergence of indigenous populations as event-sites in former colonial nations, which has led to movements for independence and the new unpredictable situations of post colonialism.

The second consequence of Badiou’s doctrine is that praxes occur in the domains of science, art and love as well as that of politics. In the modern conceptions of praxis instantiated by Marxism and Hannah Arendt, praxis is confined to politics alone.

There are three further consequences of this multiplication of the domains of praxis. First, a further guard is provided against praxis being subsumed by the one in the shape of a privileged theory of its moments, actors and actions. Although the goal of the thesis is to find one ontological schema for the variety of praxes, such a schema, as is proper to our adoption of set theory ontology, will determine nothing at the level of the particular beings involved in praxes. Second, this multiplication also has the consequence, at the level of actors in a particular praxis, of rendering it impossible for that praxis to be continued by the exclusion of other praxes in an actor’s life. That is, Badiou recognizes that a human being figures as a multiple in a mixture of historical situations, and involvement in a praxis in one of those does not preclude involvement in another — for example, acting in a political praxis does not essentially require the subject’s abandonment of either love or of artistic work. This works against the demands for total commitment made by Marxist and other political parties in the name of a political praxis. Third, the irreducible multiplicity of historical situations and event-sites within these domains means that there can never be one pure scientific praxis, nor can there be one universal political praxis, nor — contra the romanticism of the avant-gardes — can there ever be one universal artistic praxis, nor can there be only one way to love.

2 Events

The existence of an event-site in a situation is only a necessary condition for the initiation of a praxis, it is not a sufficient condition. Another necessary condition is that an event occur at the event-site, and this is a matter of chance. An event is something which initially happens at or concerns an event-site, something which does not belong to the situation, and something whose consequences destroy the unity of the situation and transform its structure. Badiou’s main example of a political event is the French revolution. Evidently, one could add the Russian
revolution and the civil rights movement in the United States in the 1960's amongst other examples. Examples of scientific events include Newton's foundation of modern physics and Einstein's theory of relativity. In art, as mentioned above, Badiou mentions the invention of non-figurative art in the work of Picasso and Braque and Schoenberg's invention of serialism.¹ For examples of events in interpersonal situations, one can only turn to a myriad of couples who, at one point, fell in love.

The primary objection to this part of Badiou's doctrine is that it does not clarify whether all radical change in political, scientific, artistic and interpersonal situations is the result of the occurrence of an event at an event-site. One could demand whether gradual yet profound changes in political situations like the emergence of capitalism or the colonization of Africa, Asia and the Americas have corresponding events and event-sites. Whether they do or not requires further study which is outside the scope of this thesis. However, set theory ontology does have the resources to schematize other types of change than that associated with events. For example, in some changes certain subsets may be privileged rather than others at the level of the state of a situation without affecting the unity of this situation, in other types of change a situation may turn out to be included within a larger situation. Moreover, in an ontology for which what exists is unified multiplicities, any gradual change which has its own unity is a situation in its own right. In Badiou's doctrine, there are criteria for distinguishing such change from event-based change, and they are the existence of event-sites and the disruption of the unity of the situation.

However the problem then becomes one of identifying what single thing it is which happens at an event-site and disrupts the unity of a situation. As I explained in the introduction it is precisely this problem of identifying the event as a single cause of structural change which leads Badiou to place it in the category of 'what is not'. Both from the perspective of the situations in which it occurs, and ontology, the event does not exist. However, it has effects. This is why Badiou terms the event ontology's point of impossibility (212). Within concrete situations in which an event occurs, both the existence of the event and the existence of a single yet profound change sweeping through the situation, is always in doubt. In a similar manner, from a historical perspective on these situations, one can always argue convincingly that there was neither an event nor a single global change. Yet for those people who work to transform the situation in line with what they believe to be happening — such as modernist composers after Schoenberg, and the constructivists after the Russian revolution — there is always reference to the change which is taking place.

¹ There is a question mark over the status of Cezanne's work on Badiou's account since Cezanne's work is held by many art-historians to have been an essential precursor of Picasso's innovations.
there is always a name for this change. Contra Foucault, Badiou argues that a macro-change such as an epistemological break in scientific subjectivity can only come about as the accumulation of a myriad of changes at the micro level carried out by subjects committed to the existence of a macro-change. Of course, given both the complexity of any concrete historical situation and the unknowable direction of a praxis, this does not mean that the macro-change sweeping through the situation will necessarily be the same as those subjects believe it to be at one point of that change.

In line with these reflections on the status of events within changing situations, Badiou proposes an ontological schema for the event in which one of its own elements — one of the key elements of the event as structural change — is its own name. Formally the schema runs as follows: $X \in S \& e_x = \{e \in X, e_x\}$; where $X$ stands for the event-site, $S$ for the historical situation, and $e_x$ for the event itself (200).\footnote{The equality sign serves to mark identity here.} The event is a multiple composed of itself, $e_x$, and of elements belonging to the event-site, $e \in X$. Since the event, on Badiou’s account belongs to the category of ‘that-which-is-not-being-qua-being,’ its schema is a set which does not exist for ontology. The structure of this set — one which belongs to itself — is prohibited by the axiom of foundation upon pain of Russell’s paradox.

The schema for the event can be best explained by reference to an example, this time one of my own. If the multiple ‘aboriginals’ is an event-site in the situation of Australian politics then the event which occurred at that event-site is Mabo. Mabo, from being the surname of one indigent islander has become the name of an event which affects the entire structure of the colonialist foundation of this country called ‘Australia.’ Within this event, the name ‘Mabo’ functions as key term in the continuing struggle for the implementation of land rights. The elements of this event which belong to the event-site ‘aboriginals’ include their prior possession of the land.

The consequence of this structure of the event is that within a situation its status is undecidable: it cannot be decided, on the basis of the identity of a situation, whether it belongs or not to that situation. The reason for this is as follows: none of the event’s elements which belong to the event-site are terms of the initial situation, nor is its other element, itself, a term of the situation. An event is thus not counted by the count-for-one of the situation (201). One major possibility for the fate of an event is thus that it is dismissed by actors within the situation as not belonging to the situation: many in the situation of Australian politics would argue that the High Court’s decision to revoke terra nullius does not belong to this situation.

3 Interventions
The existence of an event-site and the occurrence of an event are necessary but not sufficient reasons for a praxis to commence. The last condition, which in concert makes them all jointly sufficient, is that someone within the situation decides that the event does belong to the situation after all. This is what is termed an intervention: someone names the event and claims that although it is unrecognisable in the terms of the situation it does belong to the situation. This does not mean that within a political or scientific situation, everyone immediately agrees and recognizes the event as a legitimate element of the situation. Rather, the nomination itself is at first a risky and unstable affair, as history has shown of the reception of innovation.

The effect of the naming, according to Badiou's doctrine, is a break in the unity of the situation. Once the name of the event is chosen, it circulates in the situation. From the perspective of the state the event and its event-site form a new subset \( \{ X_e \} \) (230). For the state this multiple is not unified since for it the connection between the event-site and the name of the event remains opaque and undeterminable. For this reason this multiple threatens to cause the state's count-for-one to break down. Take the High Court's role in Australian politics: from the perspective of the Australian government there is no ordered, conceptually valid and predictable link between it and this name which it has thrown up — 'Mabo.'

This break in the unity of the situation is only exacerbated as the praxis continues, ultimately leading to a division of the entire situation along the lines of those elements that are compatible with the consequences of the event, those which are not, and those which are indifferent.

Since an intervention is an act which cannot be based upon any laws or knowledge within a situation, one might ask under what conditions it is possible. Badiou's response is that the possibility of an intervention is formed by the consequences of a prior intervention concerning another event in the situation (232). Only those who have been affected by a fidelity to another event have the capacity to recognize a new event. Thus, the erection of the tent embassy outside Parliament house in Canberra is the first intervention around the name 'land rights' which forms the broad possibility for the recognition of Mabo as a transformational event in Australian politics.

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1 If one takes the multiple 'aboriginals' as the event-site of Mabo, certain people operating at the level of the state of the situation of Australian politics evidence how incoherent the multiple \( \{ \text{aboriginals, 'Mabo'} \} \) proves for them by their wild and paranoid suppositions of the most sinister of connections between the two elements of this multiple, namely a nationwide conspiracy to take over white-owned land and subvert property law. This sort of conspiracy theory, rife in a certain epoch, conveniently overlooks what the Mabo decision revealed: that the very base of property law in Australia is illegal.
4 Fidelity

The intervention is the first moment of a praxis. The second moment is the invention of what Badiou terms the ‘operator of fidelity’. The operator of fidelity is what is used to determine the effect of the occurrence of the event upon the various multiples of the situation: that is, to decide whether they are connected, unconnected or indifferent to its occurrence. Fidelity is the general term Badiou uses to refer to all the different procedures which employ such an operator to carry out the transformation of the situation (257).

Badiou claims that the forms which this operator of fidelity takes in different situations are very diverse, and furthermore, that more than one operator of fidelity may be invented for the same event (259). This should not dissuade us from attempting to identify the broad forms of such an operator in each of the four areas. In scientific situations it is evidently the experimental method and deductive reasoning which are used to advance the consequences of a radical discovery or innovation.¹ In the artistic situation of modernist visual art, particular works are judged as modernist according to whether they push the non-figurative paradigm further by questioning other artistic conventions and institutions: such as whether the art object need be unique and original (Duchamp); whether any colour or figure is required (Malevich); whether there need be an art object at all (conceptual art); and whether art needs to occur within galleries (earth works). In political situations, the operator of fidelity would appear to have to be a judgement as to either the efficacy of particular actions in transforming the situation, or a set of values such as ‘liberty, equality, fraternity.’ Finally, it is difficult to identify a particular form of the operator of fidelity in an amorous fidelity, however a simple version would be a bivalent logic of loving/unloving applied to actions concerning family, friends, children, career, domestic arrangements, etcetera.

A fidelity to an event — that is, a praxis — is made up of set of procedures which transform the situation. Each procedure consists of a number of what Badiou terms ‘inquiries.’ Each inquiry consists of a finite number of judgements of various multiples of the situation as to whether they are connected, unconnected or indifferent to the event. The fidelity as a whole consists of an infinite number of such inquiries.

At this point we may hazard a preliminary contrast to functional work: The particular identity of a functional work process, whether service or production.

¹ This point requires some qualification following investigation of Koyré and Kuhn’s work amongst others in the history and philosophy of science, but what I am concerned with is the actual development of the consequences of the formulation of a new law or discovery, rather than questions, say, of concept-formation.
depends first and foremost upon its telos. The particular identity of a fidelity depends on three factors: the named event, its situation and the operator of fidelity (259). Variability in the latter means that there can be several fidelities initiated by the same event in the same situation. For example, there is a plurality of modernist avant-garde artistic practices initiated by the event of rupture with figurative representation covered by the name Braque-Picasso. This raises significant doubts as to there being a necessary connection between an event and the form of the operator of fidelity. For this reason an event cannot act like Aristotle’s final cause, directing the process from its beginning to its end. From the perspective of the fidelity the event is that-which-is-to-be-known. It only directs the process insofar as its as yet unknown consequences must be investigated.

5 Praxis subtracted from history

Badiou’s model of praxis as a fidelity to an event meets a number of my requirements for the remodeling of praxis. As I argue above, the doctrine on event-sites subtracts praxis from the one of an all-inclusive history. The doctrine on events, which happen by chance, also subtracts praxis from any determinism: praxes do not unfold according to some necessity. The doctrine on interventions reveals how the initial moment of praxis is not law-bound nor based upon the knowledge of the situation, but is rather a risk, and thus may not happen at all despite the occurrence of an event. In contrast, the Marxists deduced the necessary emergence of the revolutionary proletariat from the existence of the working class and its part in the historical class struggle. Badiou’s model also subtracts praxis from the one of a theory: despite the existence of a single model, there is no identification of the actors, the particular processes, or the goal of such praxes, nor is there an identification of what operators of fidelity are used. This is in complete contrast to Lenin’s model of revolutionary praxis in which its privileged actors — the vanguard of professional revolutionaries — and its elements — for example, the use and subversion of the trade union movement — are identified.

Yet the risk Badiou then runs would appear to be that such praxis is anarchistic or individualistic: if it occurs due to a concatenation of chance, if there is no knowledge or theory of its direction and progress which its actors may appeal to and if there is no necessity underlying its progress then surely such a process will always fall apart? Moreover, there is the risk that whether an action is held to contribute to the progress of the praxis or not would be completely arbitrary. These problems are both variants of one central problem: what is the consistency of a generic fidelity? what holds a generic praxis together? At this point the difficulty Badiou’s enterprise faces is evident: he is trying to steer between the Scylla of rigid
law and the Charybdis of indifferent chaos; he is trying to model an *a-functional* practice which does not proceed according to an established order of operations, but which contributes to the creation of a new order, whether of scientific laws, of political organization, of artistic values or of a person’s life.

Badiou’s response to this problem of consistency is that what holds a generic fidelity together is that it always proceeds by judgements made on the basis of an operator of fidelity to an event. The risk that even such minimal cohesion runs of being institutionalized is addressed in the following section.

II The risk of institutionalization

What is the risk of institutionalization? Marxist praxis spawned the party line and the bureaucratic socialist state. Experimental artistic praxes which commence by spurning conventions and method become hidebound and predictable, their underlying method discernible, their techniques appropriated by advertising. In the introduction to the thesis I argue that the seeds of institutionalization lie within the Marxist model of praxis in the form of a theory which, by naming its privileged actors, its direction and its place within a schema of historical necessity, builds a place for authority and pre-established order within the praxis.¹ The task of this section is to examine whether, despite its early success, Badiou’s model of praxis also harbours the seeds of institutionalization.

In my terms, the institutionalization of praxis is its transformation into functional work: the ontological schema of an institution is always, like the schema of functional work, a unified ordered inclusive multiple. Finding the seeds of institutionalization is thus equivalent to finding elements of operational or teleological function within Badiou’s model.

1 The problem of fidelity and knowledge

This problem emerges in Badiou’s work in the form of an apparent resemblance between the operations of fidelity and operations of the state of a situation with reference to *knowledge*. Badiou solves the problem by distinguishing the relation between a fidelity and knowledge from the state’s relation to knowledge. In my view, the value of such an approach is that it makes apparent that for a praxis to be institutionalized what is primarily required is not just a point of authority but

¹ I term these elements ‘seeds’ because I do not want to suggest that the institutionalization of a praxis is solely the effect of the model of praxis which actors in that praxis are aware of. Obviously there are other factors at work: economical, social, libidinal etc.
knowledge: knowledge of each necessary agent, element and process of the praxis. In any type of functional work, everything in principle, is known in advance — its role, purpose, materials, processes and agents — and if something isn’t known at the start, such as the quantity required of a certain material, its role and general identity are always known.

To explain this problem that Badiou sets up, some points about the place of knowledge in set theory ontology must be made. Badiou states that in each situation there is a language of the situation (362). On the basis of this language, knowledges are established which are specific to each situation. Badiou claims that there are two operations constitutive of knowledge. The first is discernment. A multiple is discerned by its possession of a property which is expressed in a phrase or phrases of the language of the situation. Discernment produces judgements and bears upon the level of presentation, of the multiples which belong to the situation: ‘α is white’ discerns the multiple α by the property ‘white.’ The second basic operation of knowledge is classification. It groups multiples together on the basis of them having a property in common. It links judgements and operates on the level of representation, that is of multiples which are included in the situation — ‘α, β, and γ are white balls’ signifies that α, β, and γ belong to a subset named ‘white balls.’ Each of these terms has already been discerned as being both ‘white’ and a ‘ball.’ Badiou terms the knowledges which result from these operations the ‘encyclopaedia’ of the situation. The encyclopaedia resides at the level of the state of a situation. A multiple of a situation may find itself grouped with other multiples under an ‘encyclopaedic determination’ because it shares a property with them.

For Badiou the problem is that a fidelity, in both its operation and its results, resembles the established knowledge of a situation. A fidelity discerns and classifies multiples of the situation just like the established knowledge of the situation. Such knowledge resides at the level of the state of the situation and so for Badiou the risk is that a fidelity becomes a type of ‘counter-state’ (258, 364). At the level of the results of a fidelity, each inquiry is a finite set of multiples grouped according to the properties of being connected, non-connected, or indifferent to the event. Yet all finite subsets of a situation are classifiable by knowledge, even if only in classes such as ‘this multiple and that multiple and that multiple...’ Consequently, the result of an inquiry is fully comprehensible from the perspective of the knowledge of a situation.

The obvious response to this problematic similarity is to point out that in practice, the inquiries of a fidelity have nothing to do with the tried and tested procedures of knowledge. That is, although, after the fact, an inquiry’s result may be classifiable by the state, how the inquiry produced that result remains entirely unknowable for the state. Yet this won’t do since what is required is an ontological
distinction between praxis and functional work, and if the process of praxis is in principle as knowable as a process of functional work, then there is a problem.

2 The infinite and indiscernible multiple

An ontological distinction between a fidelity and the known multiples of the state means a distinction between their types of multiple-being. Badiou argues that two conditions must be met for such a distinction to be possible. First, a fidelity, as a multiple must be infinite. Second, a fidelity, as a whole, must be indiscernible: this means that it cannot be classified or discerned according to its possession of any known property. This does not mean that a fidelity is an undifferentiated mass, but rather that for every property which may be used to classify it, the fidelity has elements which both do and do not possess the property. The fidelity is thus indifferent to every property; no property can serve to differentiate it from any other multiple.

An example of being indiscernible according to one property is afforded by the fidelity ‘reconciliation’ which is attached to the event named ‘Mabo.’ The generic procedure of reconciliation is made up of inquiries such as political statements, court decisions, the formation of alliances and new organizations. An inquiry is indiscernible for the knowledge of the situation in which the inquiry occurs, if it ‘avoids’ all properties by including terms which both possess the properties and terms which do not (369). If one takes, within the situation of Australian politics, the well-known distribution of the political spectrum it has always been assumed that aboriginal politics occupied a position on the left closely allied to both socialist and green politics. It is safe to say that fueled by the colonialist fantasy of the aboriginal peoples’ ‘natural’ and immediate relation to the land—an integral part of an ecological balance—part of the knowledge of the situation of mainstream Australian politics was the presumption ‘An aboriginal politics is a green politics.’¹ In abstract terms ‘green politics’ is an encyclopedic determinant or property. Imagine the surprise when tribal groups who had won back title to their land on the basis of the Mabo legislation went straight to the negotiating table with the mining companies! Imagine the indignation of the rich middle class property owners on the leafy North Shore of Sydney when the aboriginal people who won back title over parts of Kuring-gai Chase National Park made deals with property developers! In the inquiry constituted of strategic deals made by tribal groupings with white economic interests after Mabo, these particular deals ensure

that the inquiry avoids the property ‘green politics,’ yet for all that the inquiry does not coincide with the property ‘non-green politics’ or ‘economic rationalism’ either. If aboriginal politics could be identified as simply prioritising the economic development of their communities then aboriginal interests would not have regulated tourist access into both Kakadu and Uluru national parks: they would have increased it. Part of the fidelity called ‘reconciliation’ is an inquiry which can be termed ‘indigenous land-use of reclaimed lands.’ As Tim Rowse says of such an inquiry, “The culture [of aboriginal land-use] being reported is reducible to neither some anthropological model of tradition nor to economists’ notions of economic rationality.”¹ These inquiries — whether that of land-use, or that of economic deals with mining interests — avoid or are indifferent to encyclopaedic determinants of the situation of Australian politics such as green politics or economic rationalism.

The definition of fidelity is not yet complete. Having several of its inquiries indifferent to several properties of the established knowledges of a situation is a sufficient guarantee that an infinite process of fidelity will not be re-absorbed by the latter. If aboriginal politics were irreducible to only a few concepts in mainstream Australian politics, then a little adjustment and repeated qualifications would ensure its further colonization by white knowledge. What is required, in abstract terms, is that for every encyclopaedic determination, at least one of a fidelity’s inquiries must be indifferent to it. Only in this way will the entire multiple being of a fidelity prove indiscernible for the entirety of the established knowledges of a situation.

3 The truth of a situation

Badiou’s own philosophical work can be understood as a set of inquiries which form part of a fidelity to Jacques Lacan’s thought. One of the elements in Lacan’s work which Badiou picks up is a doctrinal point: in Lacan’s terms, truth makes a hole in knowledge. Badiou situates this point within his ontology by stating that a fidelity to an event, as a whole, is an infinite indiscernible multiple and that this multiple, termed generic, is the truth of the situation in which the event occurs. Consequently, just as analytic praxis produces knowledge in the place of truth for Lacan, so too new knowledge is developed in the place of truth in Badiou’s model of praxis.²

An assessment of Badiou’s doctrine on truth is outside the scope of this thesis, and it would make little difference to whether praxis is different to functional work. However, this point may be briefly explained. A generic multiple is not the truth of a situation because it re-presents the singular essence of the situation — on

¹ Ibid., 116.
the contrary — it is the truth of a situation because it lays bare the multiple being of that situation. One can understand this concept of truth as a reworking of Heidegger’s doctrine in which metaphysics is inaugurated by the forgetting of being behind the qualitative determinations of essence. For Badiou, the being of a situation is its inconsistent or pure multiple which is foreclosed from presentation by both the situation’s count-for-one and its properties (qualities). The generic set undoes this foreclosure because it is subtracted from every property present in a situation whilst possessing all of them and their negations. As such, no quality unifies it: it is a ‘pure’ multiple. From the point of view of the state of a situation, all a generic set’s elements have in common is that they belong to the situation, that is, that they exist. A fidelity is in the position of the truth of a situation because from the point of view of knowledge all a fidelity is, is bare existence, yet it also, as generic, possesses elements from every part of the situation.

4 Praxis subtracted from the one of knowledge

If a generic procedure of fidelity is both infinite and indiscernible, then it is impossible for any actor within such a procedure to claim knowledge of its direction and end. Although the results of a fidelity may be summed up at any moment as a finite multiplicity of multiples connected to the event, they will always form a finite fragment of an infinite process and so the assessment it provides of the fidelity will be nothing more than a “gross approximation of its capacity” (260). As a result, in this conception of praxis everything is to-be-known, as in not-yet-known, including who is an actor and what it is to be an actor in the praxis, thus dissolving the Marxist link between knowledge and authority, manifested in the Party line.

This meets the requirement of subtracting praxis from the one of a theory or doctrine. The requirement succeeds in differentiating praxis from functional work because in the latter there is always knowledge of the direction, end, materials and processes involved. Even if particular details are not known, they may be calculated given certain information. This practical knowledge is even what constitutes what I have termed ‘operational function.’

Generic fidelities work in the unknown insofar as the overall direction of the transformations they are bringing about is indiscernible. Generic fidelities generate new infinite situations. For the established knowledges of the situation, a fidelity does bring something new into being insofar as something is being constituted out of all of the inquiries, yet it is unknowable according to recognised properties of beings in the situation.

In practice, if knowledge or a theory of a fidelity’s direction is proclaimed, and a privileged relation to the meaning of the event is assumed by virtue of such
knowledge, at that particular point the praxis ceases to continue: its consistency is interrupted. This is not to say that at another point of the same fidelity — thinking particularly of artistic and political praxes — subjects are not maintaining the infinite and indiscernible nature of the fidelity by refusing to make hasty conclusions about the meaning of the event and its effects.

The challenge for set theory ontology is thus to construct a set — an ontological schema — which is both infinite and indiscernible. Such a set would also provide an ontological schema for the non-unified haphazard multiples found in Plato’s ontology, the chief of which is the *chora* itself — protean, nameless, anything whatsoever. For Plato, these multiples embody the very absence of function. If set theory can show that such a set exists, then the second project of the thesis will be achieved and praxis will be distinguished from functional work by its ontological schema.
III The ontological schema of praxis

For Badiou, ontology does not recognize the event as having any being, but it does recognize the processes of transformation which follow events as having being. The type of set which schematizes the being of these transformations is termed a generic set. Corresponding to the presentation of ordinal sets in chapter four, which in chapter five are argued to be the ontological schema of functional work, in this chapter I present a summary of set theory's demonstration of the existence of generic sets. It is complex, despite being a summary of Badiou's account which is already a summary of what occurs in set theory, yet the details of the demonstration are important because they show how it is possible to both conceptualize a multiple which is infinite and indiscernible and show that such a multiple exists.

1 The ground model of set theory

A multiple is indiscernible relative to what can be discerned in a situation by means of a language. The starting point of the demonstration is the choice of a situation: a fixed multiple called a 'ground model' of set theory. The language of this situation is that of set theory. A ground model is a set, $S$, which models set theory insofar as the axioms prove to be true within its confines. In general, a model of a formal theory fixes what type of variables will be used in fleshing out that theory. The ground model has three major characteristics (396). First, the axioms of extension, union, subsets, the void-set, infinity, choice, foundation, and a finite number of the axiom schemas of replacement and separation are verifiable in it. Second, the ground model is transitive. Third the ground model is infinite but denumerable. One can then distinguish between what exists for ontology in general, and what exists for an inhabitant of $S$. Some operations are absolute for $S$ and some are relative. For example, the axiom of powerset is relative because it is true in $S$ insofar as it recognizes all the subsets of its elements which belong to it, but an inhabitant of the situation of ontology can distinguish subsets of $S$ which do not belong to $S$. The cardinality of an element of $S$ is also relative to whether one is an inhabitant of $S$ or of the situation of ontology.

2 The definition of conditions

The second major step is to define a subset of $S$, called the set of correct conditions — $\emptyset$. The indiscernible set, $\emptyset$, will be a subset of $\emptyset$. The conditions will provide both $\emptyset$'s material and information on $\emptyset$. For the purposes of the exercise, the
conditions will be finite series of 1’s & 0’s — in set theory \( \emptyset \) & \( \emptyset \)'s — such as
\(<0,1,0,0> \). The conditions have a number of characteristics. The first is order, such that
given the particular places of their elements one can say the condition \(<0,1,0,0> \)
reproduces the condition \(<0,1,0> \) as a segment of itself, and by virtue of its extra 0 in
its last place, it gives more ‘information’ than \(<0,1,0> \). As such, \(<0,1,0,0> \) is said to
dominate \(<0,1,0> \). The second characteristic is compatibility. The condition \(<0,1,0> \)
is compatible with \(<0,1> \) but not with \(<0,1,1> \). Two conditions will be compatible if
they are both dominated by the same third condition — \(<0,1,0> \) & \(<0,1> \) are both
dominated by \(<0,1,0,1> \). The third characteristic is choice such that one can ‘choose’
a condition which dominates a given condition out of a range of possible dominating
conditions, in this case limited to two — \(<0,1> \) can be dominated by either \(<0,1,0> \)
or \(<0,1,1> \), both ‘extensions’ of \(<0,1> \) which are incompatible between themselves
(400).

3 The set of correct conditions

The set of correct conditions, \( \mathbb{C} \), consists of such conditions—noted \( \pi_1, \pi_2, \)—which
have an order of inclusion on them such that \( \pi_1 \subset \pi_2 \subset \pi_3 \). For example: \(<0,1,0> \subset
\(<0,1,0,0> \subset \(<0,1,0,1> \). The construction of an indiscernible but correct subset of \( \mathbb{C} \)
is the goal of the demonstration. There are two ‘rules of correction’ for the construction
of any correct subset of conditions — say \( \delta \). The first, \( R_1 \), is that if a condition
belongs to a subset, so do all the conditions it dominates: \( [\pi_1 \in \delta \land \pi_2 \subset \pi_1] \rightarrow \pi_2 \in \delta \). The second rule, \( R_2 \), is that given two conditions of \( \delta \), there will be a third
condition which dominates both of them and belongs to \( \delta \):
\([ (\pi_1 \in \delta) \land (\pi_2 \subset \delta) ] \rightarrow (\exists \pi_3) \ [ (\pi_3 \in \delta) \land (\pi_1 \subset \pi_3) \land (\pi_2 \subset \pi_3)] \]
One should note that the concept of correct subset is intelligible to an inhabitant of \( S \),
formulated as it is in the language of the situation — a restricted version of set
theory Language. However, although \( \mathbb{C} \) is an element of \( S \) and so due to the
transitivity of \( S \) — \( \mathbb{C} \) is also a subset of \( S \) — \( \mathbb{C} \)'s elements are also elements of \( S \);
this does not guarantee that \( \mathbb{C} \)'s subsets in turn are elements of \( S \). This caution will
prove important later on, when it comes to the question of the location of \( \mathbb{C} \), a subset
of \( \mathbb{C} \).

4 Discernibility and Domination

Conforming to Badiou’s general definition of the operations of knowledge; a correct
subset is discernible for an inhabitant of \( S \) “if there exists an explicit property of the
language of the situation which names it completely” (403). Say that \( \delta \) is a correct
subset of \( \mathbb{C} \) discerned by the property \( \lambda \). Each of its conditions is dominated by two
incompatible conditions. Because δ must be coherent, one of these conditions does not belong to δ and so does not possess the property λ. In fact, every element of δ is dominated by a condition which does not possess the property λ. For example, the property 'only contain 1's' discerns the correct subset δ, whose elements are thus conditions like <1>, <1,1> & <1,1,1>. Each of these elements of the subset is dominated by conditions which belong to the 'exterior' of δ, such as <1,1,0> and <1,1,1,0>. These latter conditions do not have the property 'only contain 1's.'

A domination is a set of conditions such that every condition exterior to it is dominated by at least one of its elements. Caution must be taken since this definition operates in the inverse direction to the definition of δ and its exterior. The property λ discerns δ, and so the set discerned by ¬λ is δ's domination, since every element of δ is dominated by one of its domination's elements. The negation of a property can always be formulated positively. Using the previous example, ¬λ can be phrased as the property 'have at least one 0' which discerns the domination of δ. The intersection of any such δ with its domination is void. In another formulation, the subtraction of δ's domination from ⊕ yields δ alone.

5 The indiscernible generic set

This is Paul Cohen's coup de theatre: an indiscernible subset is defined as one which intersects every domination, that is, it has at least one element in common with every domination (406). This means that for whatever property you define, it contains at least one element which negates that property. Or, because the negation of a property can also be formulated as a positive property, for every property, the generic set contains at least one element that validates it. This set is consistent because it is a correct subset of conditions; two incompatible conditions cannot belong to it.

Once the concept of a generic set is constructed, the problem for set theory is to demonstrate that such a set exists. In set theory's terms this means demonstrating that a generic set belongs to a multiple. Due to the relativity of the powerset of the ground-model, not all subsets of S belong to S. In fact, ⊕ as indiscernible does not belong to S and so does not exist in S. This creates an impasse; we have an empty concept of a generic set. The impasse is dissolved by operating from a point of view exterior to S, that of an inhabitant of the situation of set theory at large. Badiou terms this the point of view of the ontologist. This distinction between the viewpoints of an ontologist and that of an inhabitant of S is akin to the distinction between someone involved in a generic procedure of fidelity in a historical situation, such as Newton thinking after Galileo in the situation of modern physics, and someone looking back
on the development of the situation of Newtonian physics such as a historian or a philosopher.
6 The generic extension of the ground model

The ground-model S possesses many properties which are apparent to an ontologist but not to an inhabitant of S—relative properties—one of which is its cardinality. The first step of the demonstration is the construction of an ontologist’s concept of the generic subset using cardinality, whereby the set $\emptyset$ exists for ontology as a subset of S. The problem then is to find what situation it belongs to as an element. The solution found is to construct a new situation by simply adding $\emptyset$ to S. The result of this sum is termed the generic extension of S, noted S($\emptyset$). However for $\emptyset$ to exist for an inhabitant of S, S($\emptyset$) must be constructed using the resources of S, that is the resources of its language. To this end a series of ‘names’ are constructed in S whose hypothetical reference is in S($\emptyset$). The generic extension of S is created by naming it from within S.

7 Naming the generic extension

A name is defined as “a multiple whose elements are pairs of names and conditions” (413). The definition appears to be circular since names are defined in terms of themselves. The circularity is undone by stratification, whereby a name is defined in terms of a name of lower rank than itself each name has an ordinal rank. The elementary names have the first rank of 0. They are composed of the minimal condition $\emptyset$ and some condition $\pi$; $\langle\emptyset, \pi\rangle$. Following the pattern of definition by mathematical induction, we suppose that the names of rank $\beta$ have been defined, where $\beta$ is an ordinal smaller than $\alpha$, and then proceed to define names of rank $\alpha$: ‘$\mu$ is of nominal rank $\alpha’ \leftrightarrow [(\gamma \in \mu) \Rightarrow (\gamma = \langle \mu_1, \pi_1 \rangle, \& \mu_1$ has the nominal rank of $\beta$ which is the next rank down from $\alpha$]. So, for example, names of rank 1 consist of pairs of names of rank 0—already defined—and conditions; $\langle\emptyset, \pi_1\rangle, \pi_2\rangle$. Through induction the definition is no longer circular because the name used in the definition has always been previously defined such that if one chases these definitions all the way down the ordinal ranks one would finally end up at rank 0 which has been explicitly defined (414). The cardinal extent of these ranked names means that whatever cardinality a condition of $\emptyset$, or another element of S has, it will be nameable.

8 The referential value of the names

These names are made up of elements and operations which both exist in S and are intelligible for an inhabitant of S (415). The next step of the demonstration is to define the referential value, $R_\emptyset(\mu)$, of the names: a known name of S is defined as
the “set of referential values of the names which enter into its composition and which are paired to a condition which belongs to \( \varnothing \)” (416). If \( \langle \mu_1, \pi \rangle \) is an element of the name \( \mu \), and if \( \pi \) belongs to \( \varnothing \), then the referential value of \( \mu_1 \) is an element of the referential value of \( \mu \) — of \( R_{\varnothing}(\mu) \). This appears to be another circular definition. Once again it is secured by stratification and mathematical induction. First, the referential value of the names of rank 0, \( R_{\varnothing}(\mu) \), is defined. If there exists, as an element of \( \mu \), the pair \( \langle \varnothing, \pi \rangle \) where \( \pi \) belongs to \( \varnothing \), then \( R_{\varnothing}(\mu) = \{ \varnothing \} \). If such a pair does not exist the referential value of \( \mu \) is void. The names of rank \( n + 1 \) are then defined along the same lines upon the supposition of the prior definition of the names of rank \( n \). The final step in the demonstration is the construction of the new situation, the generic extension of \( S \), by the gathering of all the referential values of the names. To be an element of the generic extension of \( S \) is then to be the referential value of a name in \( S \) itself.

This solution to the problem of constructing the existence of an indiscernible set is tested in three ways. First, it is demonstrated that \( S(\varnothing) \) is truly an extension of \( S \) because all \( S \)'s elements also belong to it. This is accomplished by devising a type of name of \( \alpha \) in \( S \) whose referential value in \( S(\varnothing) \) is \( \alpha \) itself. Second, a name for the generic set itself is devised whose referential value is itself such that it is shown that \( \varnothing \) belongs to and thus exists in \( S(\varnothing) \). Third, it is shown that the generic set remains indiscernible in \( S(\varnothing) \) because there is no way of constructing a formula which would discern it. It is impractical to reproduce the details of the demonstrations here. However, their result is the verification of the procedure of constructing a new set — a new situation — by means of resources immanent to a multiple — the ground model \( S \) — through the addition of that multiple's generic subset to itself.

9 The generic set is the ontological schema for praxis

Ontology recognizes the existence of generic sets. Generic sets provide the ontological schema for praxess because they are both infinite and indiscernible. The multiple-being of a generic procedure is such that although its operations may resemble those of knowledge at a local level, at a global level it is unclassifiable by the knowledges of a situation. It thus passes the test of harbouring the seeds of institutionalization.

If, as I suggest in chapter four, metaontology translates ontology, then there are two points which may be swiftly drawn from this demonstration of the existence of generic sets. First, Badion develops the distinction between an inhabitant of the ground-model set and an inhabitant of ontology, by pointing out that for the former,
the referential value of the names is still hypothetical, and thus they can only believe in this new situation, whereas for the ontologist the referential value is real (413). This feature schematizes the difference in subjective attitudes between an actor involved in the very development of a new situation through a generic procedure, such as Picasso and modern art, and the historian or philosopher, such as Clement Greenberg, who looks back upon the established existence of such a new situation like the fabled Owl of Minerva. The second point concerns the status of $S(\oplus)$, the generic extension of the ground model. Since $S(\oplus)$ is an extension of the situation $S$, this implies that the transformation wrought by a praxis does not entirely replace the situation in which it occurs but merely introduces a new element in that situation. However, a situation’s unity and identity is determined by what elements belong to it. Making a situation accommodate a new element, especially one which is infinite and indiscernible, changes the identity and unity of that situation completely. The physics developed after the event of Einstein’s discovery of relativity did not completely replace Newtonian physics, yet it changed the nature of the science, whilst remaining an element of ‘physics’ along with Newtonian physics.

At this point of the exposition the goal of the second project of the thesis has been achieved. Praxis is differentiated from functional work by its ontological schema which, in set theory ontology, is a generic set rather than an ordinal. Yet it is not clear what actually happens in a praxis after an intervention. Nor is it clear how, as I asked above, a fidelity maintains its consistency if it is subtracted from history, knowledge and the authority conferred by knowledge.

These gaps in the account can only be redressed by turning from a global and ontological perspective, to a local and metaontological perspective on generic praxis. In particular, Badiou’s account of the role of the subject and the actual work that it undertakes furnish the details required. It is this work of the subject, termed forcing, which makes the existence of the new situation, $S(\oplus)$, not purely hypothetical but also real for an inhabitant of the historical situation $S$.

**IV Forcing and the subject**

The general philosophical problem with which Badiou engages in his metaontological doctrine on praxis is the role of the subject in structural change. Foucault gets mired in this problem with his theory of epistemological breaks between discursive formations because he argues that subjects are nothing but the effects of discourses. It then remains unclear what happens to a discursively constructed subject who lives during one of those periods of massive discursive
change; whether they split into two beings, or whether they simply ‘change’ in kind with the discourses.

Badiou’s position is that there is no subject save the subject of structural change; that is, the subject of praxis. This immediately requires a distinction between a subject and a human being, the latter providing some sort of support for the former. Badiou does not provide a full account of the difference between a conscious rational human being acting in various situations and a subject of a praxis. However, such an account is not necessary to his project since his definition of the subject is functional rather than substantive: he does not list the particular capacities and qualities of a subject and then differentiate them from those of a human being. Rather, he uses a functional definition of the subject: a subject is a finite set of certain types of operations. Although Badiou thus avoids many major problems concerning the nature of subjectivity, a functional definition brings its own problems, in particular the problem of individuation: where does one subject of a praxis begin and another end?

In lieu of addressing all of the problems with Badiou’s doctrine of the subject and its Sartrean roots I will suggest a number of refinements to his doctrine which serve to reinforce the distinction between praxis and functional work.

1 Definition

Badiou’s definition: “I term subject any local configuration of a generic procedure from which a truth is supported” (429). Since the occurrence of events and fidelities is rare and contingent, so is the existence of a subject in Badiou’s account. A ‘local configuration’ consists of what is actually taking place at a certain stage of a fidelity. What takes place at any stage of a fidelity are three basic types of operation: partial descriptions of the situation-to-come by the means of hypotheses made in a new idiom, disqualifications of the position of certain multiples in the previous situation, and the saving of such multiples from destruction. What takes place in particular at a certain stage of a fidelity depends on which multiples of the situation are being encountered at that particular stage of the procedure’s trajectory. A subject is the action of these three operations upon particular multiples.

Badiou states that the trajectory of fidelities is not determined by the event but is hazardous: the being of the subject is thus a matter of chance (432). For example, Xenakis is a subject consisting of a series of works in the fidelity of atonal music. It was his encounters with the works of Boulez, Messiaen and le Corbusier which motivated his particular transformations of serialism rather than some necessity intrinsic to his identity: such as his ‘genius’, or his education, or some aptitude he may have had to take risks. Nor were these transformations motivated by
some necessity intrinsic to the event of the invention of serialism. Fidelity to
serialism was and can be maintained by widely different transformations of its
methods as evidenced by the difference between Pierre Boulez and Milton Babbitt’s
attempts to apply its rules to rhythmic variation.¹

The broad consequence of this type of definition of the subject of praxis, is
that unlike Lenin, with his vanguard of professional revolutionaries, Badiou does not
prescribe the identity of the actors caught up in a praxis.

However, it is not clear that the trajectory of a praxis is always completely
due to chance. Surely the multiples which are to be investigated in a scientific praxis
are determined by experimental procedures and theoretical hypotheses and
deductions. This may well be so, but which particular experiment and which
particular hypothesis a scientist chooses amongst all those possible to advance a
fidelity is not determined. Obviously one can analyse the causal determinants of each
particular inquiry of a fidelity, and so pretend to an elimination of chance, but the
point that Badiou is making refers to the overall trajectory of a fidelity. A fidelity’s
trajectory is a matter of chance: the chance of the particular subjects who become
involved, of their particular decisions, of the circumstances of their work. A
fidelity’s overall direction is not determined by the event which initiated it. This
absence of direct determination renders it possible for several different fidelities to
the same event to occur in the same situation: witness the difference between John
Cage’s work and Xenakis’ work both of which are developed in fidelity to
Schoenberg’s invention of serialism.

The absence of a single determining direction for the trajectory of a fidelity is
one of the metaontological translations of the ontological schema of praxis, the
indiscernible multiple. This absence of a global predetermined direction again
demonstrates how praxis, in Badiou’s model, is subtracted from the one of theory or
knowledge. This does not mean that at the local level praxes have no direction, quite
the contrary as the account of forcing shows below.

2 Subjectivisation

If a human can get caught up in a procedure of fidelity and so become a subject, then
there must be a moment of subjectivisation. For Badiou this is not a moment of
conversion to a pre-existing doctrine. It is rather a moment of both revelation and
invention. It is a moment of revelation insofar as the occurrence of the event reveals
that the fundamental order and structure of a situation are not eternally fixed but
could be otherwise. For example, the event of Mabo reveals that the political

institutions of white Australia do not always maintain the dispossession of the indigenous people. An event disrupts the unity of an established situation, and in doing so reveals that the situation's identity and unity are contingent rather than grounded in necessity. In Badiou's model, the intervention which names the event is this moment of revelation.

The moment of subjectivisation is a moment of invention insofar as an event is shown to have consequences for a situation by the invention of an operator of fidelity. The operator is what is used to determine whether or not multiples of the situation are connected to the event. A subject does not necessarily invent the operator (this is only necessary in praxes of love) but must come to their own understanding of how to use the operator — this is how a subject realizes the force of the event; that the event has global consequences, from which may ensue the complete transformation of the situation in which it occurs. For example, the form of fidelity common to many modernist artistic praxes is that of pushing an innovation further: Olivier Messiaen's subjectivation by the event of serial music is evidenced by his going further than Schoenberg by applying the serial method to other parameters of sound than pitch.¹

What is not clear in Badiou's account, and it is a point which should be stressed, is that this moment of subjectivation must happen as a creative act for each human who becomes involved in the praxis. If this is not so, if subjectivisation occurs as the revelation of a truth discovered and promulgated by another subject, then what is happening is no longer, by definition, a generic fidelity. The authoritarian model of conversion presumes that knowledge of the entire fidelity — of the truth — can be possessed by one subject, the converter. Yet no such knowledge is available within a generic fidelity. Of course, as noted above, an actor may claim to have such knowledge and attempt to convert someone on its basis, but such an action annuls the generic nature of the praxis.

A generic fidelity is thus a process of discovery for each of its subjects. Badiou says the subject of a praxis is "the advent of the two of the intervention and the operator of fidelity" (431). Thus a subject of praxis is constituted by both recognising the event as belonging to the situation and recognising how to promulgate the consequences of the event within that situation. These two moments must be read as occurring for each subject of the praxis throughout the entire duration of the praxis rather than once and for all at the beginning.

3 The subject-idiom

¹ Ibid., 49.
A subject of praxis is defined by what it does. One of the major things it does is generate names in order to speak about the situation-to-come. New names are necessary because the generic truth of a situation is indiscernible for the language of the situation. These new names have no referent in the language of the established situation: from the viewpoint of the state they are judged nonsensical. For the subjects of a praxis the reference of the names is wagered upon the continuing emergence of the new situation. For example, it is not at all clear what 'reconciliation' refers to in the current situation of Australian politics, yet it is used by subjects of the fidelity to Mabo to refer to a situation-to-come in which white and black Australians will be reconciled to their common history. These new names make up what Badiou terms a 'subject-idiom' (438). They are the metaontological equivalent of those names used in ontology to construct the generic extension of a situation.

Some qualifications are necessary at this point: like the name of the event, these names are not necessarily new words but may be recognised words which are being used in completely different ways. For example, Xenakis introduced terms from mathematics and architecture into the language of music such as mass, surface and statistical mean. For the established knowledge of a situation, these words may indeed have some reference, or they may be recognised as belonging to other situations such as statistics rather than music. Yet, the way in which they are being used by subjects of the praxis in the situation is what is new. At the level of the state there may be awareness of the circulation of these words, but no understanding of how they are being used.

4 Forcing

So far, all we have are subjects who believe in a general transformation of a situation, who know how to investigate the relationship between each element of the situation and an event, and who use words in new ways to describe this situation-to-come. The problem is that the reference-value of these names remains purely hypothetical. Given that neither the event nor the intervention determine the direction of the transformation of the situation it is not clear how the fidelity can be effective. This is the question of whether a practice can have efficacy in the absence of a governing telos or order. Without an answer, Badiou's subject of praxis cannot actively contribute to the transformation of the situation. It is left in a position of expectant belief. Indeed without an answer to this question, praxis would be primarily distinguished from functional work by being ineffective.

If one regards some of the praxes which Badiou identifies as examples of fidelities, it is clear that early subjects of these praxes made accurate
pronouncements about a situation-to-come, whilst being separated from the existence of that situation by innumerable inquiries. Badiou uses the example of Galileo formulating the principle of inertia before Newton's time, a principle which still held in the situation of Newtonian physics. Such pronouncements enable the subjects of a praxis to gradually build up their knowledge of the new situation, they enable the subjects to work out the nature of the transformation in which they're embroiled. What is thus required of Badiou's account of praxis is an ontological schematization of such pronouncements — an account of how it is possible to make accurate statements about a situation-to-come from the perspective of a mere finite fragment of the infinite process which brings about this new situation.

Badiou provides such an account with a concept taken from Paul Cohen's work, forcing. Badiou states:

If a statement of the subject-idiom is such that it will have been accurate for a situation in which a truth has arrived, it is because there exists a term of the situation which at the same time belongs to that truth (belongs to the generic subset which is that truth), and which maintains with the names at stake in the statement, a particular relation. (439)

For a statement to be accurate, not only must a particular term of the situation turn out to be positively connected to the event but also its relation to the names used in the statement must be specifiable using the established knowledges of the situation. This term is said to 'force' the statement's accuracy in the situation to come (441).

Take for example the statement, T, made by some subjects of the fidelity of reconciliation: 'A formal apology to the indigenous peoples of Australia by the Federal government on behalf of the Australian people is the first major step towards reconciliation.' One element-multiple of the situation of Australian politics is a position which says economic development is more important than symbolic gestures: it does not force statement T, because if it turns out to be a part of the situation which is connected to the event — part of the fidelity of reconciliation — then T will be revealed as false. Another element-multiple of Australian politics is the position that symbolic gestures lay the ground for economic initiatives. It does force P because if this element turns out to be part of the fidelity, then T will be revealed to be true. The relation between these multiples and statement T is simply one of deduction since a formal apology is a symbolic gesture.

Whilst it is not known which of these positions belongs to the generic truth of Australian politics named reconciliation, T is undecidable. It is not possible to choose economics over symbolism or vice versa as contributing to the progress of reconciliation. However, one term of the situation of Australian politics has turned out to be positively connected of the event of Mabo — it is an element of the generic
truth of reconciliation — and it forces statement T to be true. This element is the symbolic gesture of the people who signed the Sorry Books which circulated around Australia in 1998. The Sorry Books may be regarded as one finite inquiry of the infinite process of reconciliation. As an inquiry the Sorry Books investigated the relation between the history of the dispossession of the aboriginals and community views about such history. The evidence that the signatures of the Sorry Books do belong to the fidelity of reconciliation is the testimony on the part of various indigenous activists and leaders that this symbolic gesture had a positive healing effect in the direction of reconciliation, demonstrating to indigenous peoples that the white majority were not indifferent to their plight. The relation between this element-multiple ‘The Sorry Books’ and the statement cited above is one of simple deduction: symbolic gestures do contribute to reconciliation.1

If, in Badiou’s work, the name for praxis at a global level is a generic procedure of fidelity, then at a local level it is forcing. The procedure of forcing describes in abstract terms the structure of the multiplicity of different forms of creative discovery and production which make up artistic, amorous, political and scientific praxes. In Badiou’s account of praxis, it is the procedure of forcing which shows how praxis creates a new situation.

5 Disqualifying the unequal

The second of the three operations of the subject of praxis, the first being forcing, is the disqualification of the unequal. One can appreciate the importance of this operation by looking at situations undisturbed by events: in such situation everything has its place according to an order. It is this the principle which Plato names justice, arguing that it is the foundation of the harmony of the cosmos. In chapter one I argue that this principle is an element of the ontological schema for functional work. The occurrence of an event in a situation not only reveals the contingency of the unity of the situation as it disrupts it but also the contingency of any hierarchy or order which is grounded in that unity. For a subject of praxis, things no longer have their place: the relation between the situation’s elements and their places appears artificial and ungrounded. The subject disqualifies an element’s place in the hierarchies of value of the established situation by announcing that in the new situation to come this element will no longer have the same value. For example, subjects of the praxis of reconciliation have announced that the economic development of indigenous

1 One should note that the forcing of this statement by one multiple does not definitively resolve the general question of economics versus symbolism in reconciliation but it does show how it must be tied to the concrete inquiries of the fidelity. To take this point further, such forcing may reveal how general political problems can be false problems due to their very generality.
communities is not an item found low on the list of problems with the Federal welfare system, but a pressing priority for the whole nation. In post-figurative art Picasso announced that perspective no longer had pride of place in organising a painting's composition.

The dissolution of an established order as a component of praxis does not result in a slide towards anarchy. In Badiou's model it is concomitant with the creation of new order through the activity of forcing. In functional work, order is manifest in what I term operational function: an order of processes and materials whereby each is assigned a particular role to play in the functioning of the whole. Praxis is not differentiated from functional work by a simple absence of such order but rather by an absence of fixity of order: order is either being torn down or created.

What one should add to Badiou's account is that amidst such a process, the subjective position or existential attitude of a subject of praxis is not only, as he identifies it, one of 'knowing belief' but also one of anxiety, uncertainty and despair. Xenakis' biographer states that he "was prey to secret agonies of self-doubt." In the Christian thought of fidelity, it is often said true faith is a struggle, not blind fanatical certainty. A subject of praxis, since he/she has no secure place in the established situation, literally does not know where he/she is. This is another feature of praxis which distinguishes it from functional work: in a situation of functional work, a worker's identity and role is known and predetermined.

6 Saving the singular

The third operation of a subject of praxis is the saving of the singular. It is with this element of his account of praxis that Badiou guards against schematizing the emergence of violence in political praxes and dogmatism in artistic praxes. This is not a problem, at least within the frame of this thesis, for moral reasons, but rather due to the ontological schemas of violence and dogmatism. The political violence of scape-goating can be schematized as follows: the enemy is a one whose identity mars the unity of an otherwise unified multiple. The schema for dogmatism is simply a unified ordered multiple. Neither of these schemas are compatible with the schema for praxis, an infinite indiscernible multiple. The seeds of violence and dogmatism can be found in the Marxist model of praxis in its adherence to a single theory of history and its identification of the actors who have privileged access to that theory and power to promulgate it: the professional revolutionaries.²

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² Again, I must stress, that these are seeds alone. Further development of my argument would require an investigation of the function of models of praxis within the actual promulgation of praxes.
Badiou assures that the seeds of violence and dogmatism do not occur in his model of praxis by referring back to set theory's construction of a generic extension of a situation: the adding of a situation's generic subset to itself does not result in suppression of any of its multiples. At the level of metaontology Badiou thus argues that a subject can disqualify a multiple's place but it cannot cancel its existence. If the knowledge of the new situation developed through forcing states that a multiple does not exist, then, by what Badiou calls the principle of inexistentiens, such a multiple must not have existed either in the old situation. For example, the knowledge of the situation of Australian politics has as one of its elements the colonialist assertion that the multiple 'aboriginals' can be qualified as a dying race. The adjunction of the truth of this situation consequent to the occurrence of Mabo, is an active demonstration of the inexistence of such 'aboriginals.' On the other hand, the existence of politicians who do not believe in reconciliation nor in the justice of the Mabo decision is just as much a part of the new situation as it is of the old situation. Again, by definition, if multiples of a situation are destroyed during a praxis then that praxis is itself annulled at that point. A subject of praxis is in part constituted by its saving the 'singularity' of multiples which turn out to be unconnected to the event. The subject saves them by preventing their destruction.

7 The subject of praxis is not a unit of functional work

The subject of praxis actually consists of not three but four operations: partial descriptions of the situation to come (forcing), the disqualification of the unequal, the prevention of the destruction of multiples, and the generation of names. Each of these operations evidence that the human as subject is different to the human as worker in a system of functional work. If one briefly considers the human in a situation of functional work, it is a defined set of competencies, and/or a calculable quantity of labour power, and/or a unit in an organization subject to measurable degrees of function and dysfunction. One can extrapolate that its ontological schema would be a unified, ordered inclusive multiple. This is only natural: if humans as workers are elements of situations of functional work and if the schema of the latter is provided by ordinal sets then the schema of those workers is the same — unified ordered inclusive multiples since the very definition or ordinals states that their elements are also ordinals.

However, the weight of the issue — the consequences of the transformations of political praxes into species of functional work in this century such as Bolshevik revolutionary practice into Stalinism — prevents any quick conclusion as to the success of a differentiation of praxis and functional work. There are a number of questions provoked by Badiou's account of praxis. Even if there is no privileged
agent or author of praxis aren't the examples Badiou gives of subjects of praxis — Schoenberg, Mallarmé, Cantor, Galileo, and Lenin — suspect in that they all have been placed in the position of authors of their respective praxes? Furthermore, even if there is no operational function, is there not a teleological function at work in this account of praxis in the form of the promise of a new situation to come — as Badiou admits, the subjects must believe in this new true situation to know that their inquiries are not in vain (435). Isn't the belief in this one ideal telos the very essence of fanaticism and totalitarianism? These questions are all addressed in the following section.

V Two Objections: Authority and subjection in Badiou's model of praxis

There is a common belief, fueled by the demise of modernist art and the emergence of the socialist states from the ruins of revolutionary Marxist practices, that any inventive creative political or artistic praxis is bound to end up being institutionalized, whether it be by absorption into a larger whole or through its own solidification. Yet institutionalization is a vague term and if philosophy is to come to terms with the fate of praxes in this century it must develop a more varied analysis of what elements are at stake when praxes cease to be inventive. To this end, Badiou's model of praxis is accused here of harbouring the seeds of authority and servility — the model invites two interpretations of the position of its subject. In one, the subject is in the authoritative position of an author of the praxis, in the other it is in the servile position of slave to a cause. As stated above, this is not a moral problem but an ontological problem of ensuring the difference between the schema for praxis and that of functional work.

1 Authority: the subject of praxis as author

The examples Badiou gives of subjects of praxis are all individuals who have been placed in positions of authorship. Indeed it would appear that becoming a subject of praxis is only reserved those individuals of unique ability! In the terms developed during the thesis, the existence of an author of praxis renders praxis indistinguishable from functional work because an author is the source of unity and order in the multiplicities named works of art, scientific theorems or political organizations. Moreover an author possesses their work: the ontological schema for possession is a structure of inclusion whereby one multiple including a series of other multiples: the multiple Shakespeare includes all the multiples named Hamlet,
King Lear, Othello etcetera. It is this structure of possession which programs the emergence of authority from the authorial position. For example, if Lenin is taken as the author of what it is to be revolutionary, then he is the one authority who commands what is and what is not to be done because of his privileged relation to revolutionary praxis. The ontological schema of an authored practice is a unified ordered inclusive multiple where the author is the one which unifies the multiple.

Yet Badiou’s subject of praxis cannot be the source of unity and order in a praxis for the simple reason that there is neither an overall unity nor an overall order to a generic procedure of fidelity. Its ontological schema is an indiscernible set which means precisely that there is no property which unifies it. The order which emerges during a praxis — the rules of serialism, the organization of the Soviets, lovers’ reorganization of their lives — is both partial and contingent. Partial because the indiscernibility of the generic truth prevents its total ordering and contingent because amidst the dissolution of the established order and its necessity, there is nothing in the event which determines one way of remaining faithful to it. For example, there have been several different orderings of musical parameters — pitch, timbre, length, dynamics — in modern music, all of which were developed in fidelity to the event of Schoenberg’s invention of the twelve tone series.

Also, the subject of praxis is not a single source of unity and order in a praxis because it is not identical with individuals — for example, those named ‘Lenin’ and ‘Schoenberg’ — but with their works. The works themselves generate partial order through the chance encounter of the generic procedure and its operator of fidelity with particular multiples of the situation and their qualities. There is thus no simple single source — whether individual author or individual works — of the partial orders found in a praxis.

What is essential here is the separation of the event and the invention of an operator of fidelity. Badiou argues that it is structurally possible for more than one operator of fidelity to be invented: the modality of the connection between an event and an operator of fidelity is not one of necessity. Consequently, a generic procedure has a double rather than a simple origin: both the event and the intervention which invents the operator of fidelity. The gap between the two is the resource for any contestation which arises during the process of a praxis over its direction. It is this gap which allowed both Trotsky and Stalin to forge their own fidelities to the event of October 1917, so demonstrating that Lenin was not the single source of the praxis of revolution.

The subjects Badiou names as examples of subjects of praxes — Schoenberg, Cantor, Mallarmé, Lenin — have all been historically placed as the singular proprietary sources of the generic procedures of which they only form a part. It is for this reason that Badiou’s concept of the subject appears to be a concept of an author.
Yet in Badiou's conception, a subject is a \textit{finite} fragment of the \textit{infinite} process of a fidelity (434). A generic fidelity transcends any subject caught up in it. Moreover, that transcendence is of such a nature that a subject of a fidelity cannot know the nature of the fidelity in its entirety — a generic fidelity is not a presented element of the situation in which the subject finds itself: at the level of a particular situation, the praxis is still being unfolded. During that process, as its ontological schema reveals, the generic multiple of a situation is an \textit{excesses}\^c\ multiple; that is, it only resides at the level of the situation's subsets.\(^1\) At that level the generic multiple is indiscernible — it is unknowable in principle because no knowledge of the situation's properties will suffice to discern it. Thus, no subject can claim to know the entire consequences of the event for the situation and remain a subject of the fidelity. It is rather the fidelity which includes a subject than the subject who includes a fidelity. The proprietary relation is reversed. This structural feature corresponds to the declarations of many artists, scientists, political activists and lovers: that it is \textit{their work which owns them} rather than the reverse.

What Badiou is trying to formulate in his model of praxis is a concept of a process which has no single source — whether individual, event or work — but rather which traverses and \textit{opens up} situations and their elements, whether institutions or individuals. For example, the event of serialism broke open the world of music for Xenakis and caught him up in its force and potential. Because an infinite praxis transcends the finitude of its subjects, we may say that their relation to the praxis is as much passive as active — the process of discovery opened up by the invention of serialism traversed Xenakis as much as he traversed it through his singular contributions.

\section*{2 Subjection: Zizek's reading of Badiou}

In Slavoj Zizek's reading of Badiou, the subject of praxis occupies the inverse position to that of an author, that of a slave to a cause.\(^2\) It is worth reconstructing each step of Zizek's reading because although it is a misreading, it does provide a precise characterization of a transformation which may befall a praxis, a transformation which I term an 'ideological perversions'.

The first step of Zizek's reading is to identify the stage of intervention with what Althusser terms the ideological interpellation of a subject. For Zizek, the

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\(^{1}\) See definition of excesses\^c\ multiples in chapter five.

\(^{2}\) Zizek devotes the third chapter of his most recent book \textit{The Ticklish Subject} (London: Verso, 1999) to a reading of Badiou. The chapter is in large part a reworking of an article entitled "Psychoanalysis in Post-Marxism: The Case of Alain Badiou" which was published in the \textit{South Atlantic Quarterly} 97:2 (Spring 1998): 235–261.
subject’s decision to recognize the event as an element of the situation seals a circular structure whereby only those who have already subjectively committed to the event can identify it.¹ Zizek understands this moment as one of the revelation of a prior truth arguing, “religious revelation is the unavowed paradigm of [Badiou’s] notion of the truth-event.”² Yet interpellation for Althusser is a moment of identification and plenitude where the subject is addressed by an imperative call such as ‘you are an honourable man’ or ‘you are the breadwinner.’ The decision that an event belongs to a situation is quite different: it is a moment of rupture and anxiety for its subject. Past guarantees of the order of things dissolve: the address of the event is not so much ‘you are X’ but rather ‘what can you do or be if what you do and are now is unnecessary?’ If there is a revelation, it is negative insofar as it reveals that the order of things in a situation is contingent rather than necessary: it reveals that things could be otherwise; it does not reveal a ready-made new order. Moreover, the subject of a praxis continually tests the existence of the event by working out whether it has consequences for the structure of the situation.

The second moment of Zizek’s reading is his identification of the activity of Badiou’s subject of praxis as one of a hermeneutist: the subject “traverses the field of knowledge from the standpoint of [the] Event, intervening in it, searching for the signs of Truth.”³ Yet, as the entire account of forcing shows, Badiou’s subject participates in the invention of something new rather than searching for signs of something which already exists. For a multiple which an inquiry reports to be connected to the event to be a sign, that which it stood for would have to already exist or be known yet a generic procedure is an infinite process of construction: the generic truth does not ‘already exist’ at any moment of the procedure, nor is it knowable since it is indiscernible.

It is clear that what underlies Zizek’s projection of hermeneutics into Badiou’s conception of praxis is his elision of the nature of the generic multiple. Zizek conflates the event with the truth-procedure, the two being quite separate in Badiou’s account, and then understands this ‘Truth-Event’ to be an all-encompassing unity with an identifiable ‘Ultimate goal.’⁴ This is what allows him to argue that a ‘Truth-Event’ is one and the same thing as an ideology. The aforementioned circular structure is identified as the circle of ideology and read not only into the intervention but also into the subject-language: Zizek seizes upon Badiou’s statement that the

¹ The Ticklish Subject, 135.
² Ibid., 183.
³ Ibid., 135. See also “naming [the event] is the new signifier that establishes what Rimbaud calls the New Order, the new readability of the situation based on the Decision (to recognize the event).” (my italics) 141.
⁴ Zizek uses ‘Truth-Event’ as the first of his chapter’s subheadings and then uses it throughout his argument.
subject-language is senseless from the point of view of the state of the established situation and argues that it thus "involves the logic of the shibboleth": the differences that the subject-language makes are only discernable to insiders; that is, to those other subjects who have already committed to the existence of the event.¹

For Zizek then, there is no way to distinguish the position of a subject of praxis from that of belief, and by implication, from fanatical belief.²

For such a distinction to be possible, a space would have to exist for contestation and rational debate over both the existence of the event and the nature of its consequences. In effect, what results from Zizek's reading is an interpretation of what Badiou terms the 'immunence' of a generic procedure as a form of closure around a full interiority such that first, what one believes in is fully determined and second, one is either a believer or not a believer, an insider or an outsider, there being no possible debate between the two. Zizek writes:

What if we are dealing here with an inherent key component of the Truth-Event — what if the true fidelity to the Event is 'dogmatic' in the precise sense of unconditional Faith, of an attitude which does not ask for good reasons and which for that very reason, cannot be refuted by any 'argumentation'?³

Recognition of the event for Badiou's subject of praxis would thus have priority over recognition of the laws of reasoning. Finally, on Zizek's reading, the subject of praxis serves a cause insofar as the Truth-Event transcends the subject in the form of an encompassing unity.⁴

There are three major points to be made in response to Zizek: they concern the generic nature of the truth-procedure, the temporality of forcing, and the existence of contestation within truth procedures.

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¹ Ibid., 145, 136.
² See: "There is no neutral enlightened public opinion to be impressed by the event, since truth is discernible only for the potential members of the new Community of 'believers', for their engaged gaze."., 140.
³ Ibid., 144
⁴ Ibid., 130. It is tempting to complete Zizek's argument by identifying the elements in Badiou's account of praxis which render it vulnerable to the charge of being a variant of Lacan's discourse of the master. The name of the event is the master signifier (multiple) which unifies all the other signifiers (multiples connected to the event). The ultimate Goal of the procedure is the a in the place of production, the promise of surplus enjoyment. The subject is in the position—that Lacan identifies precisely as that of the slave—of being one of the S2's unified by the S1 of the name of the event. The hidden truth of the generic procedure would then be castration: it is not possible to know what the Truth-Event wants, there is no final determination of its ultimate Goal. My response to Zizek's reading also covers this mapping of Badiou's model of praxis. See the matheme of the discourse of the master — elements: $S_1$ $S_2$ places: agent other

$S$ $a$ truth production

3 A truth-procedure is generic

First, that the multiple-being of a truth procedure is generic means precisely that there is no one point of authority to which a subject could become enslaved or from which one may determine exactly what has to be done in fidelity to the event. That a generic multiple is indiscernible means that it has no discernable unity, that it has no discernable properties for the knowledges of the established situation. These are the very knowledges with which a subject of praxis operates. Badiou’s statement “what authorizes a subject is the indiscernible, the generic” must be given its full weight in its negative sense (446). If a subject claims to know definitively what must be done to continue the truth-procedure then they have ignored and failed to sustain its indiscernibility.

But does this amount to saying that anything can be justified as part of a praxis by appeal to the name of an event? If there is no single knowable point of authority within a generic procedure, from what point can one dismiss an action as fraudulent? One must note that at a general level this objection marks the major risk that generic procedures run — if what they do is not legitimate according to the rules and laws of the established situation, and if there is no new order in place, then what occurs in the name of fidelity to an event could well be fraudulent. But Badiou’s model of forcing is a very strict procedure which requires a known and verifiable relation between a statement-hypothesis on the situation-to-come and a particular multiple of the situation which, upon inquiry, may not turn out to be connected to the event. One can conclude that from the point of view of the state of the established situation what occurs in a generic truth-procedure appears to be just anything — anything whatsoever being another way of saying ‘indiscernible’ — yet from the point of view of the actual fidelity it is not just anything which contributes to its progression.

One must admit though that the name of the event could well play the role of a point of authority within a truth-procedure. But what should be noted here is that the subject of praxis exists during the process of construction of a truth-fidelity and so the subject also exists in the situation within which the event occurred. Their

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1 Zizek gives as an example of a generic multiple the rabble in Hegel’s Philosophy of Right insofar as it “belongs to the situation but is not properly included in it as its subspecies” (The Ticklish Subject, 144). Yet Badiou emphasizes precisely that the generic multiple does not belong to a situation, but is included at the level of its parts despite it not being classifiable as most parts of the situation are, by the knowledges of the situation. This is the essence of Paul Cohen’s discovery: within the constraints of particular types of situation there is a multiple which is not determined by knowledge — it is another moment within set theory (like the Axiom of separation) which allows Badiou to talk of the excess of being over language. The rabble is a bad example of a generic multiple because it is an element of a political situation which for the state is clearly identifiable and knowable.
inquiries uncover multiples of that situation which are not connected to the name of
the event. Consequently, the name of event causes as much division, ruining the
unity of the established situation, as it does unity. The subject of a praxis has to live
and work amidst the confusion and anxiety caused by that lack of unity — since a
truth-fidelity is an infinite and open process, it offers no instant certainty, no ready
made ‘New Order.’

However, the further objection could be made that it is not only the name of
the event but also the ‘ultimate Goal’ of the procedure which unifies it. Here one
must concede to Zizek that Badiou does name the transformed situation-to-come of
various praxes such as “the reign of God, emancipated society, absolute
mathematics, an entirely amorous life” (437). But one must be quite careful in
identifying these terms as ‘goals’. Assuredly, for subjects of their respective praxes
they played the role of a distant goal or promise but strictly speaking, a generic
procedure is infinite, it has no endpoint.

At this point a qualification must be added to Badiou’s doctrine to deal with
objections such as Zizek’s. Such terms — ‘the reign of god’, ‘fully emancipated
society’ — must be said to have exactly the same status as the statement-hypotheses
of forcing; that is, their reference, their accuracy within the procedure of fidelity,
depends upon particular multiples turning out to be connected to the event. In fact,
due to their generality, their accuracy depends on a whole infinite series of multiples
turning out to be connected to the event. Moreover, according to the rules of forcing,
unless a specific knowable relation exists between these multiples and the statement-
hypothesis, then the latter is invalid. The role these terms play within generic
procedures is that they provide promise to a subject of praxis: as Badiou says, they
provide a focus for belief such that “the hazard of the encounters is not gathered
together in vain by the operator of faithful connection” (435). But they do not act
like goals in the same way as teleological function does in functional work: the
reason being that having the status of hypotheses of the subject-language, their
nature is unknown and they have no determined referent. As unknown, they cannot
govern what takes place within the procedure.

For example, neither Xenakis nor Boulez nor Cage were able to hierarchise
the importance of variations in the frequency, timbre, duration or dynamics of the
sounds they composed with reference to some ultimate goal of the fidelity termed
‘modernist music’ because there is no such thing. Nor, for example, does the
promise of continuing happiness in a lover’s praxis, allow the participants to decide
whether one of them abandoning vocational ambition in favour of home life will
lead to a sustainable relationship. In a generic procedure actions occur but they are
not operations subordinated in a known manner to a telos: whatever appears to be a
goal is merely a particularly general statement-hypothesis whose accuracy is
unknown.

If, with Zizek, we must say that Badiou’s subject of praxis serves anything in
its engagement, then it can only be each specific inquiry, each procedure of forcing.
Such servitude is partial, particular and non-continuous. If it is not possible for there
to be points of authority in a praxis, then it is not possible for there to be servants of
a cause.

4 The temporality of forcing

In Zizek’s reading the ‘knowing belief’ of Badiou’s subject of praxis is
indistinguishable from unconditional faith. Yet forcing, which is the very activity
which makes up a truth-procedure, is explicitly conditional: a statement-hypothesis
about the transformed situation is accurate if and only if a particular multiple which
has a known relation to the statement turns out to be connected to the event. It is this
conditionality which Zizek misses when he argues that another ideological feature of
generic procedures is their temporality being that of the future anterior (future
perfect) tense: a subject judges a “historical multiple from the standpoint of
plenitude to come, but the arrival of this plenitude already involves the subjective act
of Decision.” Yet the conditionality of forcing neither requires the complete
accomplishment of a truth procedure nor permits an inference as to the entire present
state of things: if a multiple turns out to be connected then a statement-hypothesis
about the transformed situation will have been accurate. Zizek also does not mention
that Badiou recognizes a type of fidelity, dogmatic or ecclesiastical fidelity, which
corresponds to Zizek’s ideology: one in which every multiple of a situation is
claimed to be connected to the event (262–3). It is distinguished from generic
fidelity because only in the latter is it possible for multiples of a situation to be
unconnected to an event or indifferent to the occurrence of an event.

Zizek uses the example of a fidelity to the “democratic-egalitarian political
Event” wherein “reference to the Democratic Revolution enables us to read history
as a continuous democratic struggle aiming at total emancipation.” What this makes
clear is how Zizek reads Badiou as employing a pre-Lacanian concept of repression
whereby the Truth-Event already exists in its entirety in a state of repression within
the established situation. From this position of latency it is then ‘actualized.’

1 Ibid., 144.
2 Ibid., 144.
3 See: “The Event is the Truth of the situation that makes visible/legible what the ‘official’
situation had to ‘repress.’” 130.
4 “when the Goal is reached, when Truth actualizes itself as a new situation.” 136
However, Badiou is far closer to Lacan’s ‘the repressed and the return of the repressed are one and the same,’ since for him the truth of a situation resides nowhere else than in the *continual infinite inventive construction of a fidelity* — there is no other ontological realm of potentiality or latency and so there are no moments of actualization. An event could well occur in a situation with no corresponding intervention or fidelity. In such a case there would be no generic truth of a situation.

**5 Contestation within truth procedures**

Finally Zizek charges that the immanence of a truth-procedure is identical to the closed interiority of a community of believers who do not have to give good reasons for their conviction and who employ their own hermetic language. Yet Badiou clearly marks out space for contestation both within and outside truth-procedures. Within a truth procedure different statement-hypotheses are possible and so contestation may occur over the nature of the situation-to-come. Witness John Cage in his fidelity to serialism contesting Milton Babbitt’s fidelity to serialism on the grounds that it relied too heavily on mathematics.\(^1\) Moreover, on Badiou’s model there is a criterion which can be applied to arbitrate such conflict — only some hypotheses turn out to be accurate according to whether certain multiples turn out to be connected to the event or not. This is why Badiou qualifies the subjective position of the subject of praxis as one of ‘knowing belief’ or ‘confidence’ rather than simply belief or faith (435). Such internal *rational* contestation prevents there being any simple unity or closure to a collective of subjects of a praxis.

There is space for contestation outside a practice insofar as it is possible, on Badiou’s model, for there to be entirely different generic procedures for the same event. Zizek takes it for granted that for Badiou there is only one ‘Truth-Event’ of a situation.\(^2\) Yet nothing is less sure. This is why it is necessary to *separate* the event and the procedure of fidelity.\(^3\) Between different fidelities to the same event there is tremendous conflict yet again, there are means for the mediation of such conflict such it doesn’t only occur in the form of blind polemic. The language out of which the subject-idiom is constructed is the language of the established situation. The relation between a statement-hypothesis and the multiples which may force it is known and verifiable according to the established knowledge of the situation. The

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\(^2\) See “in every concrete and contingent historical situation, there is one and only one Truth.” 131.

\(^3\) See Badiou: “In the same situation and for the same event there may exist different criteria [of connection], which define different fidelities.” *L’être et l’événement*, 258.
language and knowledge of the established situation are thus the common arena in which a conflict between two fidelities is played out and can be mediated. A subject's fidelity to an event does not involve their abandon of the laws of reason and argumentation: otherwise they would have no means to contest the direction of their own fidelity nor the existence of another fidelity to the same event.

The value of Zizek's reading of Badiou is that what is described by his critique is a possible transformation of generic procedures, wherein they become ideological. Such a transformation is familiar from history — witness the Bolshevik party becoming the socialist state — and to anyone who has participated in experimental artistic or political projects. Thus Zizek's critique does pose genuine problems for the thinking of praxis since it must always be carefully distinguished from what might be termed its ideological double. In fact Badiou does recognize the ideological transformation of generic procedures under the name of 'disaster.' He argues that one possible reaction to an event is its positive ontologization whereby every multiple of the established situation is judged to be connected to the event (262). Zizek does not this concept of disaster but he does not recognize it as Badiou's own attempt to deal with the problem of the ideological transformation of praxis: wherein, precisely, a generic procedure is conflated with an event, and turned into an already constituted, all encompassing unified New Order.1 Zizek's critique is also valuable because it highlights how a generic procedure, if it is said to have an 'ultimate Goal,' may risk the emergence of servility, and an ideological perversion of its progress. Here, at least, Badiou's model of praxis in L'être et l'événement requires some development; along the lines I've identified.

Finally, I should state in contraposition to Zizek, that in my reading of the immanence of a generic procedure of fidelity, such immanence does not refer to some closed interiority but rather to the sheer absence of any transcendental or global guarantee of the direction of a truth procedure.2 All there is of a fidelity for its subjects is the name of the event, past inquiries and the particular work of forcing they are engaged in. What this means is that the only guard against a fidelity becoming an ideology or being fraudulent is negative: if anyone or any institution claims to know the sole direction of a truth-procedure then its indiscernibility has been lost and it is no longer a generic praxis. If anyone claims to know how the ultimate goal of a fidelity governs what is to be done at a point in time, as ends govern means, then the infinite open nature of the fidelity has been lost and it is no

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1 Zizek mentions Badiou's concept of disaster on p. 134 of The Ticklish Subject.
2 In an unpublished interview, Alain Badiou said "there is no external guarantee of the genericity of a truth procedure." (Transcript of interview held between the Melbourne Badiou Reading Group and Alain Badiou 8th September 1999)
longer a *generic* fidelity: it has become a dogmatic or ideological fidelity; in my terms it has become a species of functional work.

The two objections to Badiou's model of praxis charge that it schematizes the emergence of authority and servility within praxes. Upon close examination it turns out that not only is this not the case but that the very maintenance of the generic nature of a fidelity requires the prevention of such phenomena.
Conclusion: ontology, functional work and praxis

In the introduction to the thesis I claim that within the history of ontology one can find a matrix of functional work, a matrix which has determined Western thought of work and praxis. The first three chapters of the thesis reduce the variants of work found in this matrix to one ontological schema for functional work — a unified ordered inclusive multiple. During this process two major impasses occurred in each ontology studied: one concerning the relationship between the one and the multiple, the other concerning the existence of order. It is only once the thesis turns to Alain Badiou’s work that an ontology is found in which these impasses do not occur. Badiou’s set theory ontology confirms that the ontological schema of functional work is indeed a unified ordered inclusive multiple — an ordinal set. Further, Badiou’s exposition of set theory ontology is explicitly designed to unfold the ontological schema of praxis — a generic set. These sets, ordinal and generic, are completely different and so the structures of the practical situations they schematize are also completely different. The model of praxis as a generic process of fidelity succeeds in differentiating praxis from functional work.

The conditions for the existence of praxis are clear in Badiou’s ontology: the existence of a historical situation with an event-site in the domain of art, love, politics or science; the chance occurrence of a disruptive event at that event-site; the nomination of that event as an element of the situation; and, a continual work of fidelity which transforms that situation in the light of the event. In this model, praxis is subtracted from unity in every form, whether it be history as a determined process, a Party line, a ready-made theory of its procedure or even an author.

What one must recognize though, is that however wonderful a model one has of praxis, ideological transformations of praxes do occur. These transformations are usually the result of proprietorial claims about the entirety of the praxis. It is important to note that these claims are not always made by those who position themselves as authors of a praxis, but often by those who position an other as the author of a praxis. Those making such a claim enslave themselves to a cause — as Zizek argues — by recognising as their master the one who names the event qua event. Witness the emergence of the myth of the ‘Great Liberator’ Simon Bolivar from the liberation struggles in Columbia and Venezuela. At a global level what occurs in such cases is the transformation of the praxis into an ideology: at a local level what occurs is the transformation of forcing into a species of functional work. What is to be done — operational function — becomes known and ordered according to an ‘ultimate Goal’ — teleological function — then assigned to the praxis.
Yet it is precisely because such transformations happen so often that praxis must be carefully distinguished from functional work. It is because such transformations have occurred so many times in this century that people believe that there is no other type of work — or rather, no other type of practice which effects change — than functional work. But this belief is not just due to historical events, nor can it be placed solely at the door of personal experience of the institutionalization of praxis. There is no separation between practices, beliefs about the particular nature of those practices, and theoretical models of practice, however crude. Theoretical models of practice are out there in the world, having effect. For example, the Marxist theoretical model of praxis itself changed the world due to Marxist revolutionaries’ knowledge and use of Marxist theory. This is the motivation of the second project of the thesis. It is possible to put another theoretical model of praxis into circulation — at any locality, in any set of practical circumstances. Nor does such a model have to be explained and promulgated in the language of philosophy as it has been here. Nor does it have to be advanced as a model: rather it could be advanced in the form of cautions against the emergence of both spontaneous anarchy and dogmatism; at the same time it could also be advanced as the embrace and celebration of particular actions which evidence the work of forcing.

The model of praxis advanced here is neither ideal nor utopian: it is eminently practical. Although generic praxes are rare, they do occur, they can occur, and they have occurred. If it wasn’t for them we would not live in a world made modern by the existence of modern physics, modern art, emancipatory politics, and, perhaps, love in our lives. These praxes may well have been transformed, interrupted, appropriated, and institutionalized but this does not prevent them being recommenced somewhere else by other subjects.
Selected Bibliography
The following texts are those which have contributed to the thesis in its present form.


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