

**Binding and Axiomatics: Deleuze and Guattari's Transcendental Account of Capitalism**

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**Introduction**

In *A Thousand Plateaus*, Deleuze and Guattari claim that capitalism is organized according to an *axiomatic*, a term more clearly associated with set theory rather than political theory. In this paper, I want to explore this claim, which, for Deleuze and Guattari, is given a particularly strong formulation. For them, “capitalism and present-day politics are an axiomatic in the literal sense.”<sup>1</sup> The question I want to address in particular, is whether such a strong position can really be justified, given the apparent differences between the political and mathematical realms. Many of these difficulties rest on the apparent differences between Deleuze and Guattari's emphasis on the intensive nature of forms of organization of many kinds, including political organization, and the fact that set theory seems to deal exclusively with sets, which are understood as operating purely in terms of discrete, extensive entities. If capitalism cannot include the key Deleuzian term of intensity, then this presents us with a choice between rejecting the idea that capitalism is axiomatic, or rejecting the possibility of an intensive multiplicity.<sup>2</sup>

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<sup>1</sup> Deleuze and Guattari (1987, p. 461).

<sup>2</sup> Jon Roffe incisively formulates this uncomfortable choice as follows:

“The crucial problem is that there is no possible distinction in kind, in set theory, between different ways of belonging, between (for example) connection and conjunction. For set theory, it is strictly size that matters and nothing else. It is concerned strictly with what, from Bergsonism onwards, Deleuze will define as extensive multiplicities; there is no room at all for intensive multiplicity in set theory. As a result, one must either proceed without reference to set theory if the notion of intensive multiple is to be retained (the decision Deleuze explicitly makes in his work elsewhere), or dispense with the category of intensive multiplicity.” Roffe (2016, p. 146)

In this paper, I want to argue that this choice is really a false choice that emerges from not giving sufficient weight to the Kantian aspects of Deleuze and Guattari's politics. Returning to Deleuze's lectures on *A Thousand Plateaus*, reveals that they do not read the notion of axiomatics purely in terms of set theory, but argue that the central structures of Kant's transcendental idealism form an axiomatic. This Kantian moment shows itself most prominently in the notion of binding, which becomes central here to Deleuze and Guattari's politics. In section 1, I will set out the two different roots of the term axiomatic in Deleuze and Guattari's thought. The first of these is the axiomatic approach to formalizing fields of mathematics, and the second the Kantian account of the indeterminate relationship between the transcendental unity of apperception and the transcendental object. In section 2, we will see how this transcendental aspect of Deleuze and Guattari's account of axiomatics is expressed in the notion of binding, which Deleuze and Guattari take to be a process that forces us to understand a field of entities in a certain manner, namely as clearly delimited and deployed in a homogeneous space. I will argue that this process of binding operates as a transcendental condition for capitalism for Deleuze and Guattari. Section 3 addresses some of the details of the capitalist axiomatic itself, drawing out why a Kantian reading of Deleuze and Guattari's account of the axiomatic provides a response to the kinds of criticisms of it that rest on a purely set theoretic reading of it. Section 4 then analyses Deleuze and Guattari's account of the outside of capitalism, using the double signification of the noumenal to understand the complex relationship between what they call the war machine and its representation within the axiomatic.<sup>3</sup> These claims together show that despite a common conception that Deleuze and Guattari move away from the strongly Kantian form of Deleuze's early work, Kant's

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Holland (2019) takes the former route here, arguing that there can be no question that on the basis of Roffe's account, 'Deleuze and Guattari's use of terminology from axiomatic set theory is either simply wrong, seriously muddled, or at the very least extremely misleading.' (310) In this paper, I want to argue for a reading that maintains the relevance of set theory to Deleuze and Guattari's account while also leaving space for the notion of the intensive multiplicity.

<sup>3</sup> "If there is no history from the point of view of the nomads, to the point where they are the 'noumena' or unknowables of history, it is because they are inseparable from an enterprise of abolition that made the nomadic empires dissipate themselves, at the same time that the war machine either destroyed itself, or else passed into the service of the State." Deleuze and Parnet (1987, p. 145).

thought remains central to their collaborative work. Bringing in this Kantian moment also allows us to see more clearly just how nuanced Deleuze and Guattari's account of capitalism is.

### 1. What is an Axiomatic?

Deleuze and Guattari claim that the definitive feature of social formations is not the mode of production, which we might see as central in Marx's thought, but rather the structures of organization that characterize those formations. Focusing on organization allows Deleuze and Guattari to relate a range of seemingly diverse fields, and to argue that there is a direct connection between a model of the structure of thinking and the structure of society. This in turn allows the claim that capitalism is literally an axiomatic, a term normally applied to a rigorous methodological exploration of the foundations of a field of mathematics. Deleuze writes of the axiomatic that "whenever you have a system of relations between unspecified elements, you are in the domain of an axiomatic," defining it as "precisely the system of elements considered as unqualified elements."<sup>4</sup> We can see two related roots of the state here. First, they associate it with the axiomatization that takes place in mathematics. This aspect of axiomatization has been the most prominent in the literature on the axiomatic of capitalism to date. There is a second moment, however, where Deleuze and Guattari associate axiomatics with transcendental idealist philosophy and its successors in the German idealist tradition.<sup>5</sup> Without recognizing this moment, we risk downplaying one of the central characteristics of the axiomatic, namely that it operates as a transcendental structure, bringing with it the notion of a transcendental illusion at the heart of capitalism.

Let us begin with the mathematical account of axiomatics: here, axiomatics is the attempt to provide a rigorous foundation for areas of mathematics such as geometry. Axiomatics emerged from the attempt to avoid

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<sup>4</sup> Deleuze (1980).

<sup>5</sup> Ibid. It is in this lecture that Deleuze recognizes that the relation between the transcendental unity of apperception and the transcendental object meets what he takes to be Bourbaki's claim that "there is an axiomatic every time you find yourself faced with ..., or every time you build relations ... every time you determine relations between unspecified elements."(Ibid.) His claim that capitalism "is the relation between a subject posed as universal and an object posed as any object whatsoever" (Ibid.) will be unpacked in this essay, but already highlights the relevance of the Kantian paradigm for understanding the capitalist axiomatic.

the kinds of ambiguities that are taken to emerge from implicitly giving intuitive meanings to terms in the proof. These intuitive meanings give the proof persuasive value, but can also cover over the strictly logical relations between terms or lead to intuitive but false claims being taken as true. The axiomatic approach attempts to solve these problems by explicitly enumerating primitive terms and axioms, defining relations between terms purely logically, and bracketing the question of the meaning of primitive terms and relations. To give an example, Blanché, Deleuze and Guattari's key source here, introduces Peano's theory of arithmetic. It assumes three primitive terms, "zero," "number," and "successor of," and the following primitive propositions to define the series of natural numbers:

1. Zero is a number.
2. The successor of a number is a number.
3. Different numbers do not have the same successor.
4. Zero is not the successor of any number.
5. If a property belongs to zero, and if, when it belongs to a given number, it belongs to the successor of that number, then it belongs to all numbers. (Principle of Induction)<sup>6</sup>

We can see how the first two propositions can be used together to define the number one, and then in turn, to define two, etc. As such, by recursively applying these propositions, we can generate the whole series of natural numbers. Blanché notes that because we are dealing with an axiomatic theory here, the primitive terms are indeterminate, and hence do not unambiguously determine one set of concrete propositions. This means that there are several particular meanings that we can give to them:

As Russell points out, if, for example, we give 'successor' its usual meaning, but understand by 'zero' any given number, say 100, and by 'number', each of the numbers starting from 100, the five axioms remain true together with, of course, all the theorems deducible from them. In the same way we could, by giving 'zero' its ordinary meaning, understand by 'number' pairs of numbers only, and by 'successor'

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<sup>6</sup> Blanché (1962, p. 31-2).

the next but one after; or again, with 'zero' standing for the number 1 and with 'successor' meaning a half, 'number' would denote each of the terms in the series 1,  $\frac{1}{2}$ ,  $\frac{1}{4}$ , etc.<sup>7</sup>

In this sense, then, we have a series of indeterminate primitives which can be expressed in a variety of models. Deleuze and Guattari will argue that this abstraction of the axiomatic is central to capitalism, where I claim it leads eventually to what they call machinic enslavement. Just as the axiomatic method deliberately avoids the question of sense to give a rigorous account of the relations between the terms, capitalism reduces the self to an unspecified relation within a system of knowledge:

This aggregate includes both subjection and enslavement taken to extremes, as two simultaneous parts that constantly reinforce and nourish each other. For example, one is subjected to TV insofar as one uses and consumes it, in the very particular situation of a subject of the statement that more or less mistakes itself for a subject of enunciation ("you, dear television viewers, who make TV what it is . . ."); the technical machine is the medium between two subjects. But one is enslaved by TV as a human machine insofar as the television viewers are no longer consumers or users, nor even subjects who supposedly "make" it, but intrinsic component pieces, "input" and "output," feedback or recurrences that are no longer connected to the machine in such a way as to produce or use it.<sup>8</sup>

Deleuze and Guattari point to a second moment of the axiomatic which emerges from the unqualified element of Kant's transcendental philosophy. In the transcendental deduction of the *Critique of Pure Reason*, Kant aims to show that concepts such as causation can be known to apply to experience. He begins with a simple claim about self-consciousness:

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<sup>7</sup> Ibid., p. 32.

<sup>8</sup> Deleuze and Guattari (1987, p. 458).

It must be possible for the “I think” to accompany all my representations; for otherwise something would be represented in me which could not be thought at all, and that is equivalent to saying that the representation would be impossible, or at least would be nothing to me.<sup>9</sup>

This claim amounts to noting that without being able to see all of my experiences as my own, experience would be fragmentary. Now, this analytic unity for Kant presupposes a moment of synthesis, since even if we take our experiences to be naturally unified, we still need a synthesis on the part of the subject by which we recognize this unity:

That relation comes about, not simply through my accompanying each representation with consciousness, but only in so far as I conjoin one representation with another, and am conscious of the synthesis of them. Only in so far, therefore, as I can unite a manifold of given representations in one consciousness, is it possible for me to represent to myself the identity of the consciousness in [i.e. throughout] these representations. In other words, the analytic unity of apperception is possible only under the presupposition of a certain synthetic unity.<sup>10</sup>

What provides this unity is that we relate all of our representations together as being representations of an object. Corresponding to the synthetic transcendental unity of apperception then is the notion of a transcendental object. Now, this synthetic ‘I think’ which makes the unity of experience possible precedes experience, and so cannot be understood in terms of the categories we use to understand it. Similarly, the object that is a correlate of the I is simply an indeterminate object that provides a placeholder for synthesis. Deleuze expresses this point as follows: “The *cogito* in Kant is expressed like this: I think and, insofar as I think, I think of any object whatsoever, namely, what Kant names with a very beautiful word: the object = X.”<sup>11</sup> Deleuze considers Kant’s account here to fulfil the definition of an axiomatic insofar as Kant’s transcendental logic operates in terms of a set of relations (the categories) between two objects that are completely indeterminate.

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<sup>9</sup> Kant (1929, B132).

<sup>10</sup> *Ibid.*, B133.

<sup>11</sup> Deleuze (1980)

Deleuze and Guattari argue, following Marx, that we find an analogous structure at work in capitalism (or perhaps even, given the subject and object are indeterminate for Kant, the same structure). While in prior social forms, labor and wealth are defined in terms of a particular aspect – wealth as land in pre-capitalist societies, with capitalism, we arrive at a conception of wealth as something that is not tied to any particular form of expression, and with it, the notion of labor as equally abstract. Deleuze and Guattari quote Marx as follows:

It was a tremendous advance on the part of Adam Smith to throw aside all limitations which mark wealth-producing activity and [to define it] as labor in general, neither industrial, nor commercial, nor agricultural, or one as much as the other. Along with the universal character of wealth-creating activity we have now the universal character of the object defined as wealth, viz. product in general, or labor in general, but as past incorporated labor.<sup>12</sup>

In his lectures, Deleuze reads Marx's claims here on the Kantian model, defining capital as "the subjectivity of wealth. It is wealth insofar as universal subjectivity, that is, it is wealth which is no longer qualified or determined as such objectively, land wealth, monetary wealth, this wealth, that wealth, but which is wealth itself related to the wealth-creating activity, namely: capital. Capital is the subject of wealth-creating activity."<sup>13</sup> This relates to "the universality of the object insofar as being wealth, namely: labor which, for its part, was no longer determined as this or that, but as unspecified labor."<sup>14</sup> Between the two, rather than the categories, we have a series of abstract rights that allow us to convert indeterminate wealth into determinate goods. While overcoding develops an abstract unity over an intensive set of relations, capitalism is instead a process that immanently determines the field it governs by transposing it into an extensive multiplicity. In *Difference and Repetition*, Deleuze argues that Kant's transcendental deduction is an extensive representation of processes that operate intensively – a surface effect of these processes – and the same seems true here. Just as Kant's transcendental deduction guarantees that the structures of judgement apply to all phenomena, the axiomatic of capitalism presents all phenomena in terms of abstract rights connected to capital. Deleuze and Guattari call this process of fixing phenomena within a system of coordinates so that these abstract categories can apply to them "binding." As we

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<sup>12</sup> Marx (1904, p. 298)

<sup>13</sup> Deleuze (1980).

<sup>14</sup> Ibid.

shall see, binding represents a transcendental condition within which a system of axiomatics can operate, but also a transcendental illusion that reduces all determination to an extensive model.

## 2. Binding

Binding in this context is a movement whereby a mode of organization that falls outside of a state formation is recast so that it is able to be integrated into the state.<sup>15</sup> Pierre Clastres, for instance, argues that when we look at archaic non-state societies, we discover that the organization of these societies intentionally wards off the production of a surplus that could lead to the emergence of a differentiated class structure.<sup>16</sup> The condition of possibility of the state involves recasting this model of society into one that understands action in terms of labor, thereby opening the possibility of surplus labor. The claim that Kant's transcendental deduction is itself an axiomatic gives us a model for understanding this process of recasting action as labor. In *Difference and Repetition*, Deleuze presents an account of the constitution of experience that shows how the subject and its world arise from a pre-individual field of intensive processes. There, Deleuze argues that Kant's own account of synthesis necessarily distorts the nature of synthesis because Kant is subject to a transcendental illusion which Deleuze entitles representation.<sup>17</sup> This illusion leads us to believe that all determination operates in terms of the ascription of properties to subjects, which in turn implies that synthesis is understood as the act of a subject on a manifold ("By synthesis, in its most general sense, I understand the act of putting different representations together, and of grasping what is manifold in them in one [act of] knowledge."<sup>18</sup>). The presupposition of a subject rules out in advance the possibility of an intensive field itself giving rise to the structure of a subject, leading to the kind of epiphenomenal account Kant ends up with where synthesis is replaced with a representation of synthesis:

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<sup>15</sup> It is worth noting that the term "binding" is used in *Difference and Repetition* to describe the process whereby "free differences" are systematically organized and related to the ego, suggesting a Freudian motif to this model of binding. See Deleuze (1994, p. 96-7)

<sup>16</sup> Clastres (1989).

<sup>17</sup> Deleuze (1994, p. 265).

<sup>18</sup> Kant (1929, A77/B103).



[W]e have seen that receptivity, understood as a capacity for experiencing affections, was only a consequence, and that the passive self was more profoundly constituted by a synthesis which is itself passive (contemplation-contraction). The possibility of receiving sensations or impressions follows from this. It is impossible to maintain the Kantian distribution, which amounts to a supreme effort to save the world of representation: here, synthesis is understood as active and as giving rise to a new form of identity in the I, while passivity is understood as simple receptivity without synthesis.<sup>19</sup>

Deleuze and Guattari's diagnosis of this error is that such representational accounts presuppose a logic of solid bodies.<sup>20</sup> We can get a sense of what this means from Bergson's analysis of counting. Bergson notes that when we are confronted with a series of objects to count rather than simply list, the first thing we need to do is disregard the qualitative differences between them. Counting requires us to see the collection as qualitatively homogeneous in order to be a part of the same group for the purposes of counting. Once we have removed the notion of qualitative distinctness, however, then we need an alternative principle of individuation, and this is given by occupying a different position within a homogeneous space. We can see a similar structure at play in Kant's thought. Kant's claim that the "I think" must accompany all of my representations presupposes that these representations are seen as essentially distinct from each other and self-sufficient, much as objects are. Representations then require something in order to hold them together, and this is their binding by the "I think," which here functions as a homogeneous medium that allows them to be related in much the same way as space made counting possible. Bergson himself generalizes this point:

Concepts, in fact, are outside each other, like objects in space; and they have the same stability as such objects, on which they have been modelled. Taken together, they constitute an 'intelligible world' that

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<sup>19</sup> Deleuze (1994, p. 87).

<sup>20</sup> Deleuze and Guattari explicitly relate this logic to the state in the War Machine plateau: "the State needs to subordinate hydraulic force to conduits, pipes, embankments, which prevent turbulence, which constrain movement to go from one point to another, and space itself to be striated and measured, which makes the fluid depend on the solid, and flows proceed by parallel, laminar layers. The hydraulic model of nomad science and the war machine, on the other hand, consists in being distributed by turbulence across a smooth space." Deleuze and Guattari (1987, p. 363)

resembles the world of solids in its essential characters, but whose elements are lighter, more diaphanous, easier for the intellect to deal with than the image of concrete things: they are not, indeed, the perception itself of things, but the representation of the act by which the intellect is fixed on them. They are, therefore, not images, but symbols. Our logic is the complete set of rules that must be followed in using symbols.<sup>21</sup>

Representation, then, is the “site of transcendental illusion,”<sup>22</sup> essentially holding that all determination operates in terms of the connection via juxtaposition in a homogeneous medium of discrete determinations. Now, we can see this Kantian moment also at play in the mathematical model of axiomatics. When we look at the definition of the set, the basic notion of a collection at the heart of the axiomatic method, we find that it too is structured according to the transcendental illusion of representation. As Milič Čapek puts it:

Cantor's definition of the set (*Menge*) as ‘a collection of definite, well discernible objects’ (*die Zusammenfassung der bestimmten, wohl unterschiedenen Objecte*) shows clearly the external character of the relations in which its constitutive elements stand to each other - relations which are modeled after the relation of juxtaposition.<sup>23</sup>

Here we have a process of what Deleuze and Guattari will call striating space, where determination is reduced to the imposition of form on matter. As we shall see, what Deleuze and Guattari call nomadic thought will operate in terms of a non-formal mode of determination: “[t]he new discourse is no longer that of the form, but neither is it that of the formless: it is rather that of the pure unformed.”<sup>24</sup>

Deleuze and Guattari do provide several more intuitive accounts of binding that show how this process operates in practice. They helpfully cite Anne Querrien’s work on the introduction of descriptive geometry into engineering in the 18<sup>th</sup> century. Prior to its introduction, construction involved a negotiation between the engineer,

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<sup>21</sup> Bergson (1944, p. 177).

<sup>22</sup> Deleuze (1994, p. 265).

<sup>23</sup> Čapek (1971, p. 75).

<sup>24</sup> Deleuze (1990, p. 107).

who understood the aims of a construction project, and the artisan, who understood the various singularities which defined the characteristics of the material. This changed with the introduction of descriptive geometry, which allows for a precise specification of form, and can be applied to a range of domains regardless of the materials used to specify what the engineer requires. It is, in effect, a universal language, and, for Querrien, leads the engineer to become the one who is trained in “the handling of an ideological discourse rather than the possession of a professional skill”<sup>25</sup>:

The master carpenter did not want to abandon his traditional drawing methods for the new language, which implied a much more radical hierarchy of work between the designer and the executor: thanks to the new language, the designer can in fact enter into the most small details of the execution, adopting an entirely prescriptive attitude, whereas until then he had to respect the conventions specific to the trades, their traditional know-how, their particular languages. With descriptive geometry, a technical graphic language is developed which installs the power of synthesis, of coordination, of the engineer on the building trades.<sup>26</sup>

At this point, we have the movement from an artisanal relation to the singularities of the materials they work with to a science of forms, and with it a movement from mutual education and practice to hierarchy. “Descriptive geometry is a language necessary and common to the man of genius who conceives a project, to the artists who must direct its execution, to the workmen who must execute it.”<sup>27</sup>

Querrien’s example shows the interconnection of a certain conceptual understanding of the world and its implications for transformation of economic organization. The introduction of descriptive geometry involves a transformation of the understanding of the material the artisan works on. The work of the artisan is now governed by a model produced by the designer, a form which takes no account of the singularities or particularities of the material the artisan is to work with. Thus, the introduction of descriptive geometry is transformative of the nature

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<sup>25</sup> Querrien (1979, p. 112).

<sup>26</sup> *Ibid.*, p. 104.

<sup>27</sup> C. A. Prieur de la Côte-d’Or, director of the agency for uniformity in weights and measures, quoted in Querrien (1979, p. 104).

of work and draws with it a transformation of power relations. “In any case, if the State always finds it necessary to repress the nomad and minor sciences, if it opposes vague essences and the operative geometry of the trait, it does so not because the content of these sciences is inexact or imperfect, or because of their magic or initiatory character, but because they imply a division of labor opposed to the norms of the State. The difference is not extrinsic: the way in which a science, or a conception of science, participates in the organization of the social field, and in particular induces a division of labor, is part of that science itself. Royal science is inseparable from a ‘hylomorphic’ model implying both a form that organizes matter and a matter prepared for the form.”<sup>28</sup>

The introduction of descriptive geometry is, then, a process of binding that introduces a new model of labor that no longer recognizes the singularities of the materials which the artisan relies on, but operates in terms of the definition of form via extensive planes. This in turn allows for a particular distribution of labor, where the engineer and the artisan take on a hierarchical and formal relation to each other. First, we have a process whereby an activity or territory is reterritorialised on a new form, thus altering the coordinates by which the activity is understood, then on a second level, this new structure allows a system of homogeneous comparison which opens the way to exploitation. This therefore is the process of mutilation with which Deleuze and Guattari associate binding. As they write:

State overcoding is precisely this structural violence that defines the law, “police” violence and not the violence of war. There is lawful violence wherever violence contributes to the creation of that which it is used against, or as Marx says, wherever capture contributes to the creation of that which it captures.<sup>29</sup>

Opposed to this thought of extensive geometries and solid bodies, Deleuze and Guattari develop “a hydraulic model, rather than ... a theory of solids treating fluids as a special case.”<sup>30</sup> This will be what they call a “nomad” or “minor science.”<sup>31</sup> They argue that war machines are systems which attempt to constitute what they

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<sup>28</sup> Deleuze and Guattari (1987, p. 368-9).

<sup>29</sup> Ibid., p. 448.

<sup>30</sup> Ibid., p. 361.

<sup>31</sup> Ibid.

call smooth spaces, in effect counteracting the process of binding that is at the heart of the state.<sup>32</sup> Once again, in keeping with the parallels between different domains where the same mode of organization may occur, Deleuze and Guattari note that this same set of conflicts between smooth and striated spaces may occur both in politics and between different images of our categories of thought. This claim helps us to understand their claims that “a method is the striated space of a *cogitatio universalis* and draws a path that must be followed from one point to another,” and that “the form of exteriority situates thought in a smooth space that it must occupy without counting, and for which there is no possible method, no conceivable reproduction, but only relays, intermezzos, resurgences.”<sup>33</sup> Here, we can draw a parallel with Bergson’s account of movement, which we can only represent as a trajectory that passes through a series of points, but which escapes this representation, and is “like the Vampire; it has no image, either to constitute a model of or to copy”<sup>34</sup>:

We argue about movement as though it were made of immobilities and, when we look at it, it is with immobilities that we reconstitute it. Movement for us is a position, then another position, and so on indefinitely. We say, it is true, that there must be something else, and that from one position to another there is the passage by which the interval is cleared. But as soon as we fix our attention on this passage, we immediately make of it a series of positions, even though we still admit that between two successive positions one must indeed assume a passage.<sup>35</sup>

### 3. The Axiomatic

This notion of binding, then is integral to the process of axiomatization. Now, as one might expect, axiomatics is related to royal science, and “[t]he great axiomaticians are the men of State of science, who seal off the lines of flight that are so frequent in mathematics, who would impose a new *nexum* [binding], if only a

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<sup>32</sup> Patton (2000, p. 114-5) rightly notes that the war machine is not inherently tied to the notion of war, war only occurring when the war machine encounters the resistance of the state. The war machine may also attempt to constitute smooth spaces in domains such as art and philosophy.

<sup>33</sup> Deleuze and Guattari (1987, p. 377).

<sup>34</sup> Ibid.

<sup>35</sup> Bergson (1946, 170).

temporary one, and who lay down the official policies of science.”<sup>36</sup> Deleuze and Guattari divide their analysis of the axiomatic of capitalism into seven “givens.”<sup>37</sup> I do not want to go through all of the “givens” here, and in particular I want to leave to one side the givens that deal with the various ways in which states may be organized through the addition and subtraction of axioms, to focus instead on the questions of completeness and non-denumerability. It is these axioms that explain in the most nuanced manner the interrelation of the set theoretic and Kantian strands of Deleuze and Guattari’s account here.

The first given that I want to discuss is the notion of completeness.<sup>38</sup> Blanché presents two limitations of the axiomatic, the first related to Gödel’s theorem, the second theorem to Skolem’s paradox. In effect, we can read these as developing an account of the external and internal limitations of the axiomatic, though Deleuze and Guattari read these as interrelated. Turning to the external limitations, Blanché describes completeness in the following terms: “A system of postulates is called *complete* when, of two contradictory propositions correctly formulated in terms of the system, one at least can always be demonstrated.”<sup>39</sup> Now, there are two important senses in which an axiomatic may not be complete. The first is if it is intentionally “weakened” such that a level of indetermination is deliberately introduced into the system. We can see how this works using Blanché’s example of geometry:

If, for example, we deny the uniqueness of the parallel while retaining intact the other Euclidean postulates, we obtain Lobatchevskian geometry which, though differing from that of Euclid, has the same logical characteristics. But if, on the other hand, we allow the number of possible parallels to be completely undetermined, that is to say if, instead of replacing the postulate concerning the parallels by another, we content ourselves with simply omitting it, leaving as it were a gap in the system, then we

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<sup>36</sup> Deleuze and Guattari (1987, p. 461).

<sup>37</sup> Ibid.

<sup>38</sup> Massumi, in translating *A Thousand Plateaus*, takes over Blanché’s term, *saturation*, into the English, but the correct English translation of *saturation* in a logical context would be completeness, (compare Blanché [1959, p. 39], Blanché [1962, p. 37]) and so we can read Deleuze and Guattari’s claim here as being that no axiomatic is complete.

<sup>39</sup> Blanché (1962, p. 40).

obtain the principles of a more general geometry of which the Euclidean and Lobatchevskian geometries appear as particular specializations.<sup>40</sup>

Here we have a nested series of geometries, such that we move from the general to the specialized.<sup>41</sup> It is also the case that Gödel's proof shows that *any* axiomatic of even a rudimentary expressive power is incomplete in this sense. Nagel and Newman in their book on Gödel's proof sums this up as follows:

Gödel showed that *Principia* [Russell's attempt to derive mathematics from formal logic], or any other system within which arithmetic can be developed, is essentially incomplete. In other words, given any consistent set of arithmetical axioms, there are true arithmetical statements that cannot be derived from the set...[E]ven if the axioms of arithmetic are augmented by an indefinite number of other true ones, there will always be further arithmetical truths that are not formally derivable from the augmented set.<sup>42</sup>

The second limitation is of a different nature. This is that non-denumerable infinities, such as those of real numbers, or the continuum, escape from the axiomatic:

Another limit is traced to the use of the axiomatic method by a paradoxical theorem of Skolem. To any system that goes beyond a certain fairly elementary level and that includes a model in any domain, it is possible to also assign a model in the domain of natural numbers. Now, the set of natural numbers constitutes a countable infinity, which is the weakest power of infinite sets. It therefore follows from this theorem that the axiomatic treatment causes all the higher powers to vanish, in a way. The continuum, for example, cannot be conceived axiomatically in its structural specificity, since any axiomatic that we give of it will include a countable model.<sup>43</sup>

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<sup>40</sup> Ibid., p. 43.

<sup>41</sup> It is this notion of a nested series of axiomatics that allow Deleuze and Guattari to explain how states may differ in the axioms they develop while still participating in the global capitalist axiomatic.

<sup>42</sup> Nagel and Newman (2001, p. 58-9)

<sup>43</sup> Blanché (1959, p. 88-9).

This is not a problem of completeness in a formal sense, since it is not one of conceivable structures not being provable within an axiomatic, but rather one of certain structures being inconceivable within the axiomatic. Nonetheless, Deleuze and Guattari introduce it here, noting that the axiomatic seems unable to properly capture the nature of flows: “There is always a fundamental difference between living flows and the axioms that subordinate them to centers of control and decision making, that make a given segment correspond to them, which measure their quanta.”<sup>44</sup> Blanché sees both of these problems as emerging from the exclusion of intuition from axiomatics, intuition loosely corresponding to the conception of science as related to problems (with affinities with nomad science) rather than axioms.<sup>45</sup>

These two claims, then, suggest that there is a limit to the capitalist axiomatic. Deleuze and Guattari’s claim is that while capitalism sees these limits as being limits of the world, they are actually limits of the nature of representation itself:

[Capitalism] would like for us to believe that it confronts the limits of the Universe, the extreme limit of resources and energy. But all it confronts are its own limits (the periodic depreciation of existing capital); all it repels or displaces are its own limits (the formation of new capital, in new industries with a high profit rate).<sup>46</sup>

To understand how this account of the limit works, we need to turn to Deleuze and Guattari’s account of power. Here is Blanché’s definition of power in this context:

[T]wo sets are said to have the same power when one can establish between their elements a one-to-one correspondence (i.e. to any element of one corresponds one and only one element of the other, and reciprocally) ; that, for finite sets, having the same power is reduced to having the same number of elements; that, for infinite sets, the weakest power is that of the countable (the indefinite sequence of

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<sup>44</sup> Deleuze and Guattari (1987, p. 464).

<sup>45</sup> Blanché (1959, p. 86-91).

<sup>46</sup> Deleuze and Guattari (1987, p. 463).



natural numbers); that the power of the continuum (that, for example, of the points of a line, or of the set of real numbers) is greater than that of the countable.<sup>47</sup>

If we return to Skolem's paradox, we saw that it shows that axiomatics can only relate to a countable, arithmetical, domain. It is thus unable to account for the continuum, which is a set of a higher power. Now, Deleuze and Guattari on the face of it equate this notion of the non-denumerable set with the war machine, but in fact the situation is more complicated. We saw in relation to Cantor that the notion of a set appears to be based on the model of countability, and indeed, the Löwenheim/Skolem theorem holds that "every structure is elementarily equivalent to a countable structure."<sup>48</sup> This account has been used to argue that there are in fact no uncountable sets,<sup>49</sup> but perhaps better expresses the fact that the non-denumerable here is negatively determined as that which escapes from the axiomatic. Deleuze and Guattari claim that "the axiomatic manipulates only denumerable sets."<sup>50</sup> Here, we find ourselves very close here to Kant's conception of the noumenon. As Kant argues, once we notice that for reasons internal to reason (the antinomies), we are led to contradiction when we attempt to extend our representation to a complete understanding of the world, we are forced to introduce a *representation* of a moment outside of representation in order to prevent thought from overreaching itself. This for Kant is the concept of the noumenon:

In fact, if we view the objects of senses as mere appearances, as is fitting, then we thereby admit at the very same time that a thing in itself underlies them, although we are not acquainted with this thing as it may be constituted in itself, but only with its appearance, i.e., with the way in which our senses are affected by this unknown something. Therefore the understanding, just by the fact that it accepts appearances, also admits to the existence of things in themselves, and to that extent we can say that the representation of such beings as underlie the appearances, hence of mere intelligible beings, is not merely permitted but also unavoidable.<sup>51</sup>

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<sup>47</sup> Blanché (1959, p. 88).

<sup>48</sup> Potter (2004, p. 114).

<sup>49</sup> Ibid., p. 115.

<sup>50</sup> Deleuze and Guattari (1987, p. 470).

<sup>51</sup> Kant (1997, §32).

On this reading, “the concept of a noumenon is thus a merely *limiting concept*, the function of which is to curb the pretensions of sensibility; and it is therefore only of negative employment.”<sup>52</sup>

The noumenon for Kant therefore has two aspects. First, we can say that there is the negative conception of the noumenon, which is merely the limit for representation, since “we can apply to it none of the concepts of our understanding, the representation remains for us empty.”<sup>53</sup> Second, the noumenon is that itself which falls outside of representation. Deleuze and Guattari here propose a similar structure in terms of the axiomatic. The non-denumerable as it appears within the axiomatic is equated with the continuum, as a series of points that exceeds the power of the series of natural numbers. Such a conception is only in the end a negative conception of the noumenon as the “*un-countable*,” though it still maintains the nature of “a collection of definite, well discernible objects” and hence provides a *representation* of that which is outside of the axiomatic. The mathematician Herman Weyl puts this point well:

We must not forget that in the “continuum” of real numbers the individual elements are as completely isolated as the whole numbers ...

Certainly: the intuitive and the mathematical continuum do not coincide; there is a deep chasm which separates them.

It was a merit of Bergson's philosophy to point out emphatically this deep discrepancy between the conceptual world of mathematics and the immediately experienced continuity of phenomenal time (*la duree*).

The conception of the flux (*Ablauf*) consisting of points and thus being disintegrated into points, proves to be mistaken. Precisely that by which continuity is made escapes us, the overflow (*Oberfluss*) of one point into another, that which continually lets the enduring present glide away into the ever deepening past.<sup>54</sup>

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<sup>52</sup> Kant (1929, A252/B310-1).

<sup>53</sup> *Ibid.*, A288.

<sup>54</sup> Weyl, quoted in Čapek (1971, p. 140).

If the continuum is merely characterized negatively in the axiomatic, then what is its positive value? For Kant, there is no positive characterization of the sense of the noumenon as outside of all representation, since all determination operates in terms of the categories of representation. As we have seen, however, for Deleuze and Guattari, there is an alternative mode of determination from that of axiomatic thought. In *Difference and Repetition*, Deleuze characterizes this alternative mode of organization as difference, writing that “difference is not phenomenon but the noumenon closest to the phenomenon.”<sup>55</sup> Difference here is the structure that is constitutive of representation, but differs in kind from it, and thus is covered over by representation’s transcendental illusion. In his work with Guattari, the nomads are likewise the “noumena or ‘unknowables’ of history,”<sup>56</sup> and similarly, the problem-centered thought of the nomad escapes from the structures of the axiomatic. Such a model of thought takes smooth, non-metric space as primary, rather than attempting to reconstruct it from the categories of the logic of solid bodies. “The question has always been *organizational*, not at all ideological: is an organization possible that is not modelled on the apparatus of the State, even to prefigure the State to come?”<sup>57</sup> We can see, then, that what is characterized within the axiomatic as the non-denumerable infinity of the continuum is in fact merely a representation of the non-metric continuum that operates in terms of a smooth space rather than the striated space of the axiomatic. Just as the noumenon for Kant is both a representation within representation that acts as a limit, and a non-representable element beyond that limit, so the nomadic appears as the non-denumerable within the axiomatic, but then also as a positive structure that has an organization that differs in kind from the axiomatic.

#### **4. The War Machine and the Minoritarian**

The continuum can thus only be captured tangentially by the axiomatic. What is a smooth space without clearly defined elements becomes a non-denumerable collection of discrete elements. Smooth space escapes first as the war machine, which is the mode of organization typified by the nomad, and second through the notion of the minority within the state. Such an understanding allows us to see why Deleuze and Guattari see the relation of the state to the war machine as apocalyptic in our time. While states appropriate nomadic war machines in

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<sup>55</sup> Deleuze (1994, p. 222).

<sup>56</sup> Deleuze and Parnet (1987, p. 145).

<sup>57</sup> *Ibid.*

order to develop military structures that can be used against other states, the capitalist axiomatic changes this relation, since the axiomatic of capitalism is an encompassing global framework within which individual states are just modes of realization. Once the war machine is the outside of the axiomatic as a whole, war stops being a relation between states, each utilizing a war machine, and the war machine comes to dominate states themselves. There is thus a single continuum that surrounds this axiomatic, forming an “autonomous war machine”<sup>58</sup> which operates through the states as its parts. We can see this in our own day through the perpetual “war on terror,” which Virilio also recognizes as what in the late 20<sup>th</sup> century also “*providentially* sustained the international repression and systems of mass incrimination praised by the various media, already afforded a glimpse of this kind of asocial organization.”<sup>59</sup>:

The war machine, the new antagonisms traversing it considered, no longer had war as its exclusive object but took in charge and as its object peace, politics, the world order, in short, the aim... The world became a smooth space again (sea, air, atmosphere), over which reigned a single war machine, even when it opposed its own parts. Wars had become a part of peace. More than that, the States no longer appropriated the war machine; they reconstituted a war machine of which they themselves were only the parts.<sup>60</sup>

This structure is all the more “apocalyptic”<sup>61</sup> since it can be understood only negatively in relation to the axiomatic of capitalism. Thus, what is the positive potential for another mode of organization of the social becomes instead seen purely in terms of the negative disruption of the axiomatic. Here, once again, we find no way of thinking anything other than the already formed or the groundless abyss.

While the first moment involves a smooth space outside of the state, by “minority,” Deleuze and Guattari present a group within the state itself. Minorities here are populations which deny easy assimilation into the categories of the majority, not because they have different characteristics, but because they have a different kind of organization. Here, majority represents those groups that are “denumerable,” or commensurable with

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<sup>58</sup> Deleuze and Guattari (1987, p. 467).

<sup>59</sup> Virilio (1990, p. 62).

<sup>60</sup> Deleuze and Guattari (1987, p. 467).

<sup>61</sup> *Ibid.*, p. 466.

axiomatic. As we saw above, Skolem's paradox holds that axiomatics reduce non-denumerable sets to denumerable sets, which explained why the war machine, as a non-denumerable grouping, fell outside of it.

What distinguishes [the minority] is that in the case of a majority the relation internal to the number constitutes a set that may be finite or infinite, but is always denumerable, whereas the minority is defined as a nondenumerable set, however many elements it may have. What characterizes the nondenumerable is neither the set nor its elements; rather, it is the connection, the "and" produced between elements, between sets, and which belongs to neither, which eludes them and constitutes a line of flight.<sup>62</sup>

While the axiomatic can only understand the minority as extensively non-denumerable, with the implication of being denser than any countable set, this is once again an illusion generated by an inability to think elements that are not clearly demarcated. The minority is rather positively non-denumerable in terms of the nomadic, as that which is incommensurable with the axiomatic, except insofar as they are transposed into numerical terms. As such, minorities connote a form of organization in terms of smooth space, rather than being merely an arithmetic minority. This explains how Deleuze and Guattari can develop a universal project of becoming minoritarian – the project of moving from the discontinuous multiplicity of the axiomatic to the continuous multiplicity of the problematic, a process governed by "[opening] the gap between two types of propositions, propositions of flow and propositions of axioms"<sup>63</sup> to create a social formation that is unrecognizable and cannot be formulated in terms of the axioms of capitalism:

What is proper to the minority is to assert a power of the nondenumerable, even if that minority is composed of a single member. That is the formula for multiplicities. Minority as a universal figure, or becoming-everybody/everything (*devenir tout le monde*). Woman: we all have to become that, whether we are male or female. Nonwhite: we all have to become that, whether we are white, yellow, or black.<sup>64</sup>

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<sup>62</sup> Ibid., p. 470.

<sup>63</sup> Ibid., p. 471.

<sup>64</sup> Ibid., p. 470.

I believe this resolves the criticism Jon Roffe puts forward when he argues that Deleuze and Guattari confuse the set theoretical notion of power as size (the non-denumerable set of the continuum can be shown to contain more elements than the natural numbers) with the political notion of power as capacity.<sup>65</sup> Roffe cites claims such as the following for the confusion:

Let us suppose that the axiomatic necessarily marshals a power higher than the one it treats, in other words, than that of the sets serving as its models. This is like a power of the continuum, tied to the axiomatic but exceeding it. We immediately recognize this power as a power of destruction, of war, a power incarnated in financial, industrial, and military technological complexes that are in continuity with one another.<sup>66</sup>

Roffe's criticisms present a powerful response to a non-transcendental reading of the axiomatic. On the reading offered here, this apparent confusion is an effect of the transcendental illusion whereby the war machine (power as capacity) is understood as a non-denumerable set (power as size). We can compare this with Bergson's analogy of the simplicity of a curve being only approximated by an infinite number of straight lines:

A very small element of a curve is very near being a straight line. And the smaller it is, the nearer. In the limit, it may be termed a part of the curve or a part of the straight line, as you please, for in each of its points a curve coincides with its tangent. So likewise "vitality" is tangent, at any and every point, to physical and chemical forces; but such points are, as a fact, only views taken by a mind which imagines stops at various moments of the movement that generates the curve. In reality, life is no more made of physico-chemical elements than a curve is composed of straight lines.<sup>67</sup>

Compare this with Deleuze and Guattari's claim that "[t]here are no points or positions in a rhizome, such as those found in a structure, tree, or root. There are only lines."<sup>68</sup> Here we can see that, just as was the case with Bergson,

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<sup>65</sup> Roffe (2016, p. 141).

<sup>66</sup> Deleuze and Guattari (1987, p. 466).

<sup>67</sup> Bergson (1944, p. 36-7).

<sup>68</sup> Deleuze and Guattari (1987, p. 8).

for Deleuze and Guattari, there is the sense in which there is a process of transposition which makes possible the capitalist axiomatic.

## 5. Conclusion

We can see, then, that while the capitalist axiomatic operates in terms that Deleuze and Guattari take from set theory, we need to understand this set theoretical moment within the context of Kant's own "axiomatics." Doing so does two things. First, it allows us to draw on the rich resources provided by the German idealist tradition, and with the interventions made in that tradition by both Deleuze and Bergson, in order to provide a stronger philosophical grounding to Deleuze and Guattari's account here. Once we recognize that the axiomatic is a mode of organization, we can bring to bear on our reading of it the full force of Deleuze's account of intensive and extensive multiplicities. Recognizing that there is a Kantian moment to Deleuze's account of the axiomatic allows us to see how an apparent similarity between capitalism and approaches that Deleuze and Guattari favor (that they operate on decoded flows) in fact covers a decisive difference. While the axiomatic does indeed operate on flows, this is only insofar as these flows are taken up as representations in a Kantian sense, and laid out in a homogeneous plane. It is this moment that captures the curious transcendental illusion of thought whereby the non-denumerable can be understood in its dual meaning, both as bound and unbound. It is this which allows us to understand how "what characterizes the nondenumerable is neither the set nor its elements; rather, it is the *connection*, the 'and' produced between elements, between sets, and which belongs to neither, which eludes them and constitutes a line of flight."<sup>69</sup> Finally, reading Deleuze and Guattari with both set theory and with transcendental idealism allows us to maintain the insights of their recourse to axiomatics while leaving space for a political response that develops a positive, intensive account of our relations with others.

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<sup>69</sup> Ibid., p. 470.

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