LA DELEUZIANA – ONLINE JOURNAL OF PHILOSOPHY – ISSN 2421-3098
N. 11/2020 – DIFFERENTIAL HETEROGENESIS

Deleuzian Problematics: On the Determination of Thought

by JACOB VANGEEST*

Abstract

This paper investigates the influence of the mathematical problematic on the political function of Gilles Deleuze's work (including his work with Guattari). Most prominent is an investigation into the Deleuzian problematic—signified by Deleuze as the (non)being or? being of being—which is traced through the work of French mathematics by way of Georges Bouligand, Salomon Maïmon and Albert Lautman. This mode of mathematical formalization is explored in relation to Kantian axiomatization (in terms of both extensive magnitudes and intensive magnitudes/distances, as well as the relationship between problems and ideas). This paper explores the way that Deleuze uses Lautman's discussion of the mathematical real to bring mathematical concepts into other discourses (such as politics). The paper concludes by enacting this move, exploring the way that the concept of the problematic is used within the political register by putting it into conversation with the aleatory.

Introduction

Discussion of the Deleuzian problematic tends to focus on the question of problems in relations to solutions. Following Bergson (Deleuze 1991: 16) and Kant (Deleuze 1994: 161), Deleuze has focused on the question of true and false problems.[1] In light of the work of Simon Duffy (2017) and Daniel W. Smith (2006) this paper investigates the notion of the problematic element—its relationship with both problem and solution—in light of the influence of

* Centre for the Study of Theory and Criticism at The University of Western Ontario. I'd like to acknowledge the many people who helped make this essay possible. I'd like to thank everyone at the Centre for Theory and Criticism for engaging in my presentation of this material, especially those who helped workshop the paper. Jeremy R. Smith and Christina Elle Burke have been particularly supportive, regarding our sustained conversation on this and so many other topics. I want to thank John Vanderheide for feedback on an earlier draft and Nandita Biswas Mellamphy for her continued help and supervision of my work. Furthermore, I would like to acknowledge both J. Adams and Mohammad Salemy for their continued support of my work as their former student. Finally, I'd like to thank my reviewers for their helpful suggestions on how to integrate Lautman and the editors of this publication for their hard work and support. Financial support for this research has been provided by SSHRC through the Joseph Armand Bombardier Canadian Graduate Scholarship-Masters.

1 The Kantian influence will be explored later in this essay. The Bergsonian influence is seen most prominently in Deleuze's work on Bergson (1991). The influence of the Bergsonian problem on Deleuze's work has been written about at length. For just a few examples see Bowden 2018, Koopman 2018, Bryant 2008: 159-174. In general, discussion of 'problems' in western philosophy has seen recent vogue—most notably in a 2018 issue of Angelaki, which focused on 'problems' in twentieth century French Philosophy.

Georges Bouligand, Albert Lautman, Salomon Maïmon, among others.[2] To begin, I situate the problematic as an alternative to axiomatic formalization by looking at the way Deleuze uses Bouligand, Proclus, and Lautman. Drawing upon the way Smith distinguishes problematic and axiomatic, I analyze how Deleuze uses different types of mathematics—initially Poincaré curves, but later in the paper Euclidean and Archimedean geometry, number theory, and Riemannian space—to differentiate them. I then explain how Deleuze's problematic form can be read as a response to Kantian axiomatization: first by way of intensive and extensive magnitudes and then through the relationship of problem and Idea. This discussion culminates in a discussion of the problematic and the aleatory as co-determining principles. In this light, the problematic assumes a political implication in its insistence on the aleatory.

Mathematical Development of the Problematic

In *Difference and Repetition* (1994), Deleuze indicates the problematic as an "indispensable neologism" distinct from problems in general (323). He locates the term in the work of Georges Canguilhem and Georges Bouligand. Canguilhem is notable due to his typical placement in contrast with Bergson.[3] Deleuze suggests that Canguilhem produces a "problem-theory distinction" integral to the problematic (323). Unfortunately, neither 'problematic' nor 'problem-theory distinction' appears explicitly in Canguilhem's work. One might infer that Deleuze is drawing upon Canguilhem's suggestion in *The Normal and the Pathological* that the aim of philosophy is to "reopen, rather than close problems" (1989: 35), but this is not immediately made evident in either Deleuze or Canguilhem's work. For this reason the mathematician Bouligand is more helpful for situating the problematic. Deleuze cites *Le décline des absolus mathématico-logique* (1949) in which Bouligand and Jean Desgranges explore controversies of 20th century French mathematical philosophy. Deleuze focus would appear to be the discussion of Kurt Gödel's second incompleteness theorem, which Bouligand argues has rendered "present-day attempts to formalize and axiomatize mathematics [as] both trivial and doomed to failure" furthermore insisting "that formalization and axiomatization have proven barren as methods of mathematical discovery" (Leblanc 1951: 72).[4] For Bouligand, if axiomatic formalization has been rendered barren something must take its place. Deleuze answers with problematics.

Daniel W. Smith (2006) has provided an integral exploration of axiomatic and problematic formalization in the history of mathematics. Axiomatics formalize the axiom as an *a priori* condition to its formalization; problematics formalize problems through *a posteriori*

[2] For more on Deleuze and mathematics see Duffy 2006a, 2006b, 2013, 2017.
[3] Arguably Deleuze's most important influence, see Borradori 1999; Deleuze 1991.
[4] *Le déclin des absolus mathématico-loguique* is currently unavailable in both English and French. Thankfully, a review by Hughes Leblanc (1951) is wildly available.

sensation. Axiomatics are extensions, problematics are intensive. Smith traces Deleuze's exploration of these concepts to Neoplatonist Proclus (see Deleuze 1994: 323; Deleuze & Guattari 1987: 554). Axiomatics begin with *a priori* axioms, which are used to develop theorems, resulting in geometrical systems such as those produced by Spinoza or Descartes; Conclusions and solutions are deduced through axiomatic propositions. The classical example of axiomatization is Euclidean geometry. Here, one moves in a formal fashion starting with essential and purely static terms — axioms — which are used to develop mathematical theorems. This mode of formalization tends to produce giant, closed systems, such as Spinoza's *Ethics* (2005) which can be built around just a few axiomatic definitions. Furthermore, insofar as these systems rely on fixed axioms, they tend to produce a coded and fixed system, which breaks apart with change to the axiomatic structure. In contrast, problematic formalization works backwards from a problem to develop or locate the determination of said problem. Problematics begin from empirical conditions to produce a problem, rather than from a set of axioms to produce a solution. It is inductive rather than deductive. The mathematical basis for problematics is tied to non-Euclidean, Archimedean geometry. Smith provides a welcome explanation of this distinction:

> Euclidean geometry defines the essence of the line in purely static terms that eliminate any reference to the curvilinear ('a line which lies evenly with all points in itself'). Problematics, by contrast, found its classical expression in the 'operative' geometry of Archimedes, in which the straight line in characterized dynamically as 'the shortest distance between two points.' (Smith 2006: 148)

Euclidean geometry starts from the axioms of the line to develops rules and laws which become codified, whereas Archimedean geometry begins from the material conditions of the world to produce a problematic form that is malleable to changes in these conditions.

According to Smith, Deleuze relates the problematic to the axiomatic, suggesting that transcendental empiricism describes a problematic formalization which is then solidified under an axiomatic. Smith links the problematic to a minor or nomad science which is then axiomatized by a major or royal science. *A Thousand Plateaus* enables this reading by situating major and minor science aside Euclidean and Archimedean geometry:

> the tendency of the broken line to become a curve, a whole operative geometry of the trait and movement, a nomad science of placing-in-variation that operates in a different manner than the royal or state science of Euclid's invariants and travels a long history of suspicion and even repression. (Deleuze & Guattari 1987: 109)

Euclidean geometry is presented as an axiomatization of the problematic: the axiomatic curve solidifies the problematic broken line. Deleuze and Guattari further expound on this in later chapters, stating "royal science is striving to limit when it reduces as much as possible the range of the 'problem-element' and subordinates it to the 'theorem-element'" (362). This is extrapolated further in a footnote which notably places Proclus in relation to Bouligand.[5] A minor or Archimedean science in *ATP* is, via Bouligand, related to the problematic formalization of mathematics brought about in my discussion of *DR*. Following the influence of Bouligand—who suggests axiomatics have been rendered barren—Deleuze prioritizes the problematic as a method of formalization; the Archimedean is prioritized over the Euclidean.

In addition to the history of problematic formalization, the influence of Albert Lautman can be explored to more fully flesh out the problematic in relation to the problem and solution. Lautman's characterization of Poincaré's singularities and Riemannian space provide Deleuze with mathematical examples in *DR* and *ATP* respectively. As shown in the work of Simon Duffy (2017), Lautman's development of the mathematic real provides Deleuze with the ability to implicate mathematical concepts in their determination (110-115).[6] For instance, Poincaré singularities provide a mathematical basis for something akin to the problematic determination. Poincaré develops a qualitative method of determining a topological singular point. A curve will continue around a singular point to infinity within a closed cycle. It will only diverge upon reaching a second point (Lautman 2011: 176-177). Lautman outlines the way these singular point have been granted a "dominant and exceptional role" in modern theory (178): "[T]he nature of singular points on a domain determines, at each point of the domain of the variable *z*, the existence of solutions of the proposed equation" (181). This enables Lautman to develop a conceptualization of a dialectic immanent to mathematical concepts. The singular point and the curve have the same genesis. Yet, simultaneously, the singular point determines the curve (in-the-last-instance). This problematic determination is not dissolved in the solution, but remains implicated as a formalized problem (Duffy 2017: 110-111). Deleuze's claim that "Problems are always dialectical" refers to Lautman's development of a dialectic between problematic determination and the problem-idea determined or solution (Deleuze 1994: 164). For Lautman, the solution is generated through a dialectic genesis in the problem, where the determination remains implicated in the solution that it determines. Thus, there is an immanent dialectical element (a problematic element) inherent to each solution. Beyond even this, the dialectic is produced under a reciprocal

[5] Deleuze & Guattari (1987) write, "Proclus analyzes the difference between the poles, taking the Speusippus-Menaechmus opposition as an example. Mathematics has always been marked by this tension also; for example, the axiomatic element has confronted a problematic, "intuitionist," or "constructivist" current emphasizing a calculus of problems very different from axiomatics, or any theorematic approach. See Bouligand 1949: 554.

[6] "Deleuze takes Lautman's concept of the mathematical real, which includes the sum of all mathematical theories and the structure of problematic ideas that govern them, as the basis for reflection on the theory of problems, and casts it as a model for our understanding and the structure of the problematic ideas that govern them within the discourse. Insofar as he claims that all discourses can be modeled in this way, Deleuze argues that there is a *'mathesis universalis'* (Deleuze 1994: 181). Deleuze is not positing a positive mathematical order to the universe, but he is rather nominating the Lautmanian mathematical real, and the theory of problems that he characterizes by means of it, as a model for our understanding of the structure of other discourses" (Duffy 2017: 115).

determination of problem and solution in its genesis (the problematic determination of both problem and solution). Problem and solution are generated in the same determination, and remain implicated in a reciprocal relation. It is the problematic or determining element that is the element of this genesis. The problematic, as determining element, is not represented in the Idea (1994: 178), but immanently generates this dialectic. Following Lautman, the problem is immanent to the solution where solution is dialectically determined (1994: 178), but beyond this Deleuze suggests that "ideal connections constitutive of the problematic (dialectical Idea) are incarnated in the real relations which are constituted by mathematical theories and carried over into problems in the form of solutions" (Deleuze 1994: 179). Each solution contains a dialectic with its problem, as generated in the problematic determination. According to Duffy, it is from this mathematical basis that Deleuze then extends the immanent, problematic criteria, as a theory of genetic determination in other areas of production:

> For Deleuze, the way that a mathematical theory, and the mathematical concept derived from it, is implicated immanently in the conditions of the problem that determines it serves as the model for a way that a philosophical concept is implicated in the philosophical conditions of the problem which determines it. (Duffy 2017: 119)

Lautman's development of a mathematical real provides Deleuze with a structure for the immanent problematic (for Lautman an immanent dialectic) within mathematical solutions, using that problematic to structure for the problematic in other discourses (Duffy 2017: 115-116).

Intension and Extension: Deleuze's Inverted Kant

Deleuze's investigation into the problematic is a response to Kantian *a priori* axiomatization. Thus, an investigation of Kant's influence on Deleuze enables a better understanding of the latter's project. Here I am indebted to Levi Bryant's discussion of Deleuze and Kant (2008). Three interrelated Kantian aspects are integral: a) his development of extensive and intensive multitudes; b) the extrapolation of Ideas as problems; and c) the relationship posited between problems and axioms. In *The Critique of Pure Reason* Kant discusses intensive and extensive multitudes in response to Hume's rejection of causality; using the multitudes to suggest that we can rationally derive causal relations within phenomenal conditions (see Adkins 2018: 535). Magnitudes are defined by Kant as "the unity of the assembly of the manifold homogenous in thought" (Kant 1996: A162, B203). More simply put, magnitudes are appearances (Sutherland 2004). Extensive magnitudes are developed as principles of the intuition or reason and relate to mathematical axioms. One gains the appearance of an extensive magnitude through rational deduction. These magnitudes belong to the 'pure conscious', presenting as the condition which can be rationally determined prior to empirical determination. They are defined by Kant as:

> ...a magnitude where the presentation of the parts makes possible (and hence necessarily precedes) the presentation of the whole. I can present no line, no matter how small, without drawing it in thought, I.e. without producing from one point onward all the parts little by little and thereby tracing this intuition in the first place. (Kant 1996: A162-163, B203)

These magnitudes can be understood as the appearance or form of Representation which functions *a priori* as rule or axiom. For Kant, this is expressed in "the conditions of sensible *a priori* intuition under which alone the schema of a pure concept of outer appearance can come about—e.g. the axiom that is between two points only one straight line is possible" (1996: A163, B204). Akin to the geometrical investigation, extension can be understood as the production of an *a priori* rule, which develops as the appearance of the aggregate via rational deduction: the synthetic *a priori* of the pure understanding.

Intensive magnitudes, on the other hand, are perceptive and sensational, coming about through *a posteriori* sensation. Intension is placed in relation to perception: "The *principle* that anticipates all perceptions, as such, reads thus: In all appearances sensation as well as the real that corresponds to it in the object, has an *intensive magnitude,* i.e. a degree" (Kant 1996: A166, B207). One might relate this latter form of magnitude to the problematic, as it develops through empirical sensation rather than rational deduction. Intension is a magnitude of degree; an appearance of sensation rather than intuition or reason; an *a posteriori* considered an increase from nothing or the zero degree (Kant 1996: A166, B208). Intensity is described by Kant as the magnitude of the real; an appearance that comes out of experience rather than one developed through intuition (*a posteriori* not *a priori*). Intensity appears through perception and inductive reasoning rather than rational deduction. It is not the result of rational abstraction, but empirical observation — differentiating in degrees rather abstract absolutes.

Against a rigid and dogmatic abstraction (akin to the geometrical formations), Kant recognizes both extensive and intensive magnitudes as alterable within spatio-temporal relations (1996: A170, B212). As a result, even a priori extensive magnitudes are flowing or continuous. There is thus a synthetic continuity in the two magnitudes. Nevertheless, in posing the extensive as *a priori* to the intensive, Kant retains a hierarchical relation between the two, despite rendering them synthetic. *A posteriori* intension is always placed in a secondary position to the rules developed under *a priori* extension. Because one can only measure change under the transcendental illusion of phenomena — via the extensive magnitude of intuition — extension is not understood as real but is nevertheless presented as *a priori to intension and the real* (see Adkins 2018: 536). Intension, while real, is only ever considered immanent *to* extension. Ergo, the axiomatic condition of extensive magnitude — rendered as *a priori* intuition —always renders the intensive magnitude (particulars in the real) as immanent to the extensive.

Deleuze aims to invert this structure of magnitudes through his prioritization of the problematic. This can be shown through his inversion of the intensive and extensive. For Deleuze intension or intensity possesses three principles: it "includes the unequal in itself", "affirms difference", and is "implicated, enveloped or embryonized quantity" (1994: 232-247). I find it useful to explore these principles, anachronistically, using 'inclusive disjunction', a concept Deleuze and Guattari developed alongside connection and conjunction as the legitimate syntheses presented in *Anti-Oedipus.* Inclusive disjunction allows Deleuze to think distinction or difference without negativity. It is defined, with Guattari, as "a distinction that remains disjunctive, and that still affirms the disjointed terms, that affirms them throughout their entire distance, *without restricting one by the other or excluding the other from the one"* (Deleuze & Guattari 1977: 76). One might take two terms that contradict each other and understand them as enveloped — where the difference between the terms does not negate the terms but mixes them together. This should not, however, be taken as a connection nor a dialectical synthesis. The enveloping mixture allows for the terms to remain a distinction or disjunction in a way that is mixed without mixing. This is described through the example of the schizophrenic: "the schizophrenic is not man and woman. It is man or woman but [they belong] precisely to both sides, man on the side of men, woman on the side of woman... *everything divides, but into itself"* (Deleuze & Guattari 1977: 76). Man and woman do not mix, but their difference does not equal a contradiction within the schizophrenic. The two terms exist simultaneously as disjunct but nevertheless inclusive. Disjunction does not result in a synthesis nor a negation, but a perpetuation of itself in an envelopment that doesn't annul either term. Difference is not understood as a negation or contradiction, but a mutual envelopment. Thus, difference ceases to be difference between identities, axioms or terms, but is taken as "*differing only in intensity"* (Deleuze & Guattari 1977: 154).

Intensive difference is show through the distinction between ordinal and cardinal numbers. Ordinal numbers can be represented in the designation of 1^{st}, 2^{nd}, 3^{rd}, etc. These numbers do not presuppose and identity or unity between 1^{st} and 2nd but are given a numerical value only on the basis of the implicated or intensive *spatium* of their ordered differences (Deleuze 1994: 232). The 1st does not need to be identical to 2nd or 3rd, but relates by spatial and temporal difference. Distance determines their order. Contrary to the ordinal are the cardinal, designated 0,1,2,3,4. Cardinality is the extension of ordinality (Deleuze 1994: 233). The axiomatic cardinal comes to abstract (and suppress) the problematic ordinal: 1^{st}, 2^{nd}, 3^{rd}, are abstracted as 1, 2, 3. Negation, while impossible under intension due to the lack of identical numbers, is made possible within the abstracted extension. While the 2^{nd} cannot be negated, but only spatially or temporally reordered, in relation to the 1^{st}, under extension both 1^{st} and 2^{nd} are abstracted as identical units equally 1, which are then added together as 2. From this axiomatic form, 1 can then be subtracted from 2, insofar as they are identical abstract axioms. This produces the possibility of negative values (-1, -2) and 0; figures which are impossible under intension (always a degree from 0). For Deleuze, it is important that "the divisible is defined as that which bears in itself the unequal, whereas the indivisible (the Same or the One) seeks to impose an equality upon it, and thereby render it docile" (Deleuze 1994: 233). The extensive suppresses the intensive producing a docility and use-value for the extensive. Nevertheless, beneath and immanent to the docile and equalizable sameness of the cardinal lay the rumblings of a differential and intensive ordinality — a problematic which renders itself possible as the problem of the cardinal; a surplus which cannot be reproduced in the clearly demarcated numeric values of the extensive and axiomatic cardinal. It is notable that Deleuze returns to this distinction with Guattari, specifying that the "ordinal, directional, nomadic, articulated number, the numbering number pertains to smooth space just as the numbered number pertains to striated spaces" (Deleuze & Guattari 1987: 485). The ordinal and cardinal are directly related with a re-conceptualization of intensive and extensive magnitudes as 'distance' and 'magnitude' respectively. Here, the ordinal and distance become the problematic alternative to the axiomatic cardinal and magnitude (Deleuze & Guattari 1987: 484-485).

Ideas as Problems

One must again venture into *The Critique of Pure Reason* in order to explicate an understanding of Deleuze's claim that in Kant "Ideas are essentially problematic" (Deleuze 1994: 168). It can be said that Kant breaks from the history of philosophy in providing an "immanent conception of Ideas that expose the illusion of assigning Ideas to transcendental objects (such as the Soul, the World, or God)" (Smith 2006: 147). Nevertheless, as appearances of the intuition, the object of Ideas are not 'real' nor empirically grounded, but instead exist within the intuition, foreclosed to experience. For Kant, Ideas transcend experience but retain an immanent employment (Bryant 2008); in other words, they develop out of problematic and empirical conditions which are then organized through the intuition to produce rational axioms. While organizing these problematic conditions into categories, the intuition produces rational rules for understanding them. In positing these rules as rules of reason, Kant can then situate them as *a priori* to the empirical. Kant refers to this as a process wherein 'transcendental ideas' develop out of the 'categories of the understanding': "transcendental ideas are just as natural to human reason as the categories are to the understanding" (Kant 1996: A642, B670). Errors can occur when a particular concept of the understanding is extended to a transcendental and universal Idea. The latter, despite developing through the organization, are not produced in experience, but are grounded in the intuition outside of experience:

> If reason is a power to derive the particular from the universal, then there are two alternatives. Either, first, the universal is already *certain in it-self* and given. On this alternative, only the *power of judgment* is required for subsumption, and by this subsumption the particular is determined necessarily. I shall call this apodeictic use of reason. Or second, the universal is assumed only *problematically* and is a mere idea; I.e. the particular is certain but the universality of the rule for this consequence is still a problem. (Kant 1996: A646, B675)

Unlike Deleuze's claim that the axiomatic universal develops out of the solidification of problematic, real particulars, for Kant, the intuitive universal is determined through the intuition alone. Levi Bryant explains that for Kant, Ideas are "conditions under which our experience becomes organized" (Bryant 2008: 163). But, for Kant, we are mistaken if we suggest that this is an on ontological process of moving from experience to universal, as it is the universal a priori as rational rule, which rationally precedes the particular. For example, one can determine a rule about a line from a universal category. For Kant, real particulars cannot break from this universal determination because that would be contrary to the given rule. A line must follow this universal rule or else it is not a line. Furthermore, for Kant, we cannot assume a relationship between the particular and the universal. The object of the universal Idea belongs to the intuition, not to the real or empirical, because the real is foreclosed to reason and intuition. Ideas operate within the intuition that is foreclosed from this real. Thus, the object of the Idea cannot be said to be real, but only an object of the intuition. This means that there is a problem immanent to the Idea—the determination of the Idea is not the real, but the intuition. Ideas seek to produce a totality of the real, but are foreclosed to the real. Each Idea has as its object a problem. This is not a particular object, nor a real thing, but an intuitive problem.

Unlike Kant, who moves from the universal/ideal to the particular/real, Deleuze moves from the particular to the universal. Nevertheless, Deleuze draws from Kant to suggest that Ideas are problems independent of their solution. He clarifies that this does not mean that "Ideas are necessarily false problems" but "that true problems are Ideas, and that these Ideas do not disappear with 'their' solutions, since they are indispensable conditions without which no solution would ever exist" (Deleuze 1994: 168). Ideas develop out of the problematic through the organization of an Idea or axiom. Insofar as one works from the problematic register, the problematic is never dissolved in the axiom or solution but remains a true immanent principle for the generation of an Idea. Problematics can be said to be generative of, but not identical to, the Idea, which holds a problem as its object. Yet, in breaking with Kant, Deleuze turns to Salomon Maïmon and Albert Lautman. He finds that "Maïmon's genius lies in showing how adequate the point of view of conditioning is for a transcendental philosophy: both terms of the difference must equally be thought — in other words, determinability must itself be conceived as pointing towards a principle of reciprocal determination" (Deleuze 1994: 173). Rather than a hierarchical relation of *a priori* and *a* *posteriori*, Maïmon suggests a reciprocal relation between the two where a particular comes about through a particular differential, rather than a transcendental universal axiom: "A particular object is the result of a particular rule of its production or the mode of its differential, and the relations between differential objects result from the relations between the differentials" (Maïmon as cited in Deleuze 1994: 174). This is opposed to the Kantian notion that the differential is between two *a priori* or axiomatic forms; a difference in intensity replaces a difference in extension. Deleuze produces a problematic notion where the idea develops out of differential relations between particulars. These particulars are not collapsed via synthesis, nor mediated in negation, but enveloped in inclusive disjunction. Deleuze turns to the example of the shortest line to suggest that 'shortest' can be conceived as either a 'schema' between concept and intuition or 'Idea' which overcomes concept and intuition. Here he again relates this through Archimedean geometry, reinforcing the primacy of the problematic over the axiomatic.[7]

Deleuze (with Guattari) expands upon this by way of Riemannian spaces. Riemann works within differential geometry studying curves and surfaces within Euclidean space using tools to describe the surfaces in fine detail. Riemann generalizes a space where what is studied is not the surfaces, but the maps or distances between the surfaces. Deleuze and Guattari cite Lautman on these spaces:

> Riemann spaces are devoid of any kind of homogeneity. Each is characterized by the form of the expression that defines the square of the distance between two infinitely proximate points… It follows that two neighboring observers in a Riemann space can locate the points in their immediate vicinity but cannot locate their spaces in relation to each other without a new convention. Each vicinity is therefore like a shred of Euclidean space, *but the linkage between one vicinity and the next is not defined and can be effected in an infinite number of ways. Riemann space at its most general thus presents itself as an amorphous collection of pieces that are juxtaposed but not attached to each other.* (Lautman 2011: 97-98; as cited by Deleuze & Guattari 1987: 485)

Within this space, forms are derived through the connection between spaces, rather than by an *a priori* axiomatization. For Deleuze and Guattari, the space itself comes to form the mathematical system within that space. Math, within such a space, is based on "connections" or "tactile relations." Within a unique space is a uniqueness that can be translated to other spaces, but only as translation. Within such a space there are "enveloped distances or ordered distances, independent of magnitude" (Deleuze & Guattari 1987: 485). Because the space because the determination of the values (rather than the values determining the space) the space itself becomes the determination that cuts up the space. These cuts are, then, *a posteriori* to the space itself, rather than transcendent to this space. For Deleuze and

7 Deleuze states the following: "In this sense, the mathematician Houël remarked that the shortest distance was not a Euclidean notion at all, but an Archimedean one, more physical than mathematical" (1994: 174).

Guattari, then, Riemannian space is a smooth space that develops out of its problematic. The *nomos* of this space is immanent to the space itself: the cutting up of space that produces ideas. Here, ideas are (as in Maïmon) the result of an *a posteriori* problematic formalization: one which is understood through the smooth space of an Archimedean nomad science—produced via a problematic formalization.

Here we can once again return to the discussion of singular points. For Deleuze, a form is dependent upon its singular points. The singular points are nevertheless subsumed within an Idea (Deleuze 1994: 176). Thus, the singular points both determine or condition the Idea, but are nevertheless subsumed within the Idea (189). For Lautman the singular point and the curve it determines produce a dialectic; within the Idea of the curve is an internal dialectic that perpetually insists against that Idea (Duffy 2017: 115; Lautman 2011: 199). For Lautman, this dialectical operation extends beyond mathematics and into other discourses (see Duffy 2017: 116). In Deleuze, the mathematical dialectic is symptomatic of a larger differential calculus implicit in all Ideas: "It is not mathematics which is applied to other domains but the dialectic which establishes for its problems…the direct differential calculus corresponding or appropriate to the domain under consideration" (Deleuze 1994: 181). There is, then, a differential calculus that is intrinsic to every Idea. This differential calculus is the problem of the Idea—the one that is the Idea presupposes (168). This problem is not, however, *a priori* to the Idea: the Idea and singular point share a genesis. The singular point nevertheless determines the Idea in-the-last-instance through problematic, rather than axiomatic formalization.

Problematic in relation to the Aleatory Event

Deleuze continues to discuss the problematic using non-Euclidean, Archimedean geometry in the 9th series of *The Logic of Sense*. Looking to Proclus, he returns to the distinction between the problematic-problem and the axiomatic-theorem aporia. He again separates problem and theorem stating the former develops "by means of the vents which come to affect a logical subject matter" while a latter "deals with the properties which are deduced from an essence" (Deleuze 1990: 54). Through this discussion, he relates the problematic to the event suggesting that "The mode of the event is the problematic" (54). As *the* mode of the event, the problematic is understood by the singular points which condition and determine the event—a determination of "singularities inside the field of vectors [which] preside over the genesis of the solutions of the equation" (54). Following Kant, the problematic remains "an indispensable horizon of all that occurs" (54), but in contrast to transcendental idealism, Deleuze's problematic is rendered through a transcendental empiricism. The event is determined through this problematic horizon, which is central to its generation and individuation. Beyond its given position as mathematical formalization under an Archimedean science, Deleuze's intent is the introduction of the problematic as a tool for undermining dogmatic and rigid Representation. He writes

> The problem is determined by singular points corresponding to the series, but the question is determined by an aleatory point, corresponding to the empty square of mobile element. The metamorphoses or redistribution of singularities form a history; each combination and each distribution is an event (Deleuze 1990: 56).

If the problem is the mode of the event, then the aleatory is the instantiation of a true event: an event in which the problematic is enveloped. The aleatory point is introduced in *Difference and Repetition* as a single roll of the dice which alters all other rolls — both future and past—one time and for all time. It can be understood as the opening to an indeterminable, unknown outside:

> The set of throws is included in the aleatory point, a unique cast which is endlessly displaced through all series, in a *time greater than the maximum* of continuous, thinkable time. These throws are successive in relation to one another, yet simultaneously in relation to this point which always changes the rule, or coordinates and ramifies the corresponding series as it insinuates chance over the entire length of each series (Deleuze 1990: 59).

It follows that the aleatory is not merely the affirmation of the roll of the dice: it is the affirmation of change each time in a single roll containing all throws in a singular point that alters the playing field. One can read this as the altering of the conditions of possibility — a break from the initial aporia (beyond good and evil...) — working through Aion time, rather than Chronos, to alter the conditions of the future-past and not merely the linear development of the present (Deleuze 1990: 77). This dice roll is, furthermore, linked with singular points (as discussed above), putting the aleatory in direct relation with the problematic: "The throw of the dice carries out the calculation of problems, the determination of differential elements or the distribution of singular points which constitute a structure" (Deleuze 1994: 198).

Deleuze suggests a parallelism between this aleatory point and Nietzschean transvaluation:

> This aleatory point which circulates throughout singularities and emits them as preindividual and impersonal, does not allow God to subsist. It does not tolerate the subsistence of God as an original individuality, nor the self as a Person, nor the world as an element of the self and as God's product… It is the decentered center which traces between series, and for all disjunction, the merciless straight line of the Aion, that is, the distance wherein the castoff of the self, the world and God are lined up: the Grand Canyon of the world, the

> 'crack' for the self, the dismembering of God. Upon this straight line of the Aion, there is also an eternal return (Deleuze 1990: 176).[8]

It follows that the aleatory point is akin to the Overhuman: it renders a point beyond the given conditions of God and man, which God and man are incapable of conditioning. It is a transductive break with the World in order to completely transform the playing field. While the aleatory renders the conditions of possibility within the problematic field, it is this problematic field which renders the aleatory possible as well. Deleuze and Guattari suggest that this nomad or minor science of the problematic "is bound up in an essential way with the war machine: the *problematic* are the war machine itself and are inseparable from inclined planes, passages to the limit, vortices and projections" (Deleuze & Guattari 1987: 362). The war machine — a machine of nomadic design — seeks to 'deterritorialize' the conditions of the dominant or major science. In this deterritorialization it aims at something akin to the aleatory point, a point where the problematic intensification produces a change in threshold at which point there is no turning back. This vehicle of intensification has been prominently explored through *Anti-Oedipus's* desire to "accelerate the process" (Deleuze & Guattari 1977: 232) of intensity, pushing it through an aleatory point where the conditions of capital are broken, yet in a way that is arguably more cautious than how this quote has been taken up.[9] Through this process, one can see that the aleatory enters a reciprocal determination with the problematic, insofar as the aleatory event sets the conditions for problematic singularities, while the intensification of the problematic produces the determination of the aleatory. A certain circularity exists in this depiction – with each determined and determining the other in a productive circle.

This ultimately allows us to explore the way the problematic operates, in Deleuze, as a method or tool for the aleatory. If we follow Deleuze's logic, one can see the development of

---

8 This passage allows one to situate the aleatory and transvaluation elsewhere in Deleuze's oeuvre. In *Foucault* (Deleuze 1988) Deleuze suggests that Nietzsche is not the thinker of the death of God, but the death of Man. The death of God is found in Feuerbach, who produces a dialectic between man and God. Feuerbach "shows that since God has never been anything but the unfold of man, man must fold and refold God" (130). This can be related to *Nietzsche and Philosophy* (Deleuze 1983) when Deleuze suggets that "Man takes God's place, [man] recuperates the divine as his own property or essence, and that theology becomes anthropology...God becomes Man, Man becomes God" (158). Man and God enter into a relationship with one another where man inverrts God, but dialectically reifies God in himself. The failure of the death of God brings about a formula or structure integral to Deleuze's work: the difference between the quantitative and qualitative break. Here we get a structure which can be expressed numerically in the 1-2-3. Feuerbach repeats the (1) God, when God is inverted into the (2) man. This 1-2 constitutes a quantitative difference: Man does not break from the structure of God, but merely folds, unfolds, and refolds that structure in a variety of ways. The (2) is a mere inversion of the (1) which nevertheless renders a qualitative break. For Deleuze, Nietzsche is not the thinker of the death of God—a thought which retains the logic of God under the logic of man. Nietzsche is unique in his refusal of both and the attempt to go beyond: the Overhuman.

9 This passage has been a prominent driver in what has been labelled "Accelerationism". This movement has included texts from a number of divergent but interrelated theorists, many of whom hold connections to the University of Warwick's now defunct Cybernetic Culture Research Unit. Prominent works in this area include Land (2011), Williams and Srnicek (2014; 2015), and Cuboniks (2015).

the 'problematic' through Bouligand as an alternative to the axiomatic formalization which has been rendered moot. Via Kant, this problematic form can, furthermore, be understood as the determination implicit in each Idea or problem, but through a transcendental empiricism of immanent development, rather than a transcendental *a priori*. The Idea develops out of a problematic field as an event which contains its own immanent determination. A question now arises: while the two terms exist in a reciprocal relationality, how might this problematic be used as a tool to produce the aleatory? In the latter work with Guattari, Deleuze develops an understanding of a nomad science which renders change possible through intensification. Yet, to do this one must be cautious not to reproduce all the destructive tendencies of our capitalist milieu. The problematic may hold the key to a solution.

Daniel Colucciello Barber has attempted to relate Deleuze's use of the problematic to Adorno's 'nonconcept' or 'nonidentity' in a way that I believe is helpful to this study. In *Negative Dialectics* (1983) Adorno states "Thought as such, before all particular contents, is an act of negation, of resistance to that which is forced upon it; this is what thought has inherited from its archetype, the relation between labor and material" (19). Thought produces an idea or concept, but the act of production simultaneously produces a 'nonconceptual' excess or surplus, insofar as "every definition of concepts requires nonconceptual deictic elements" (12). These elements, which might be signified as 'non', are the excess left behind in the production of the concept (much in the way the ordinal intensive numbers are immanent to, but nevertheless a problematic which is distinct from the cardinal extension). In other words, the nonconcept is the excess matter left over from the concept's individuation. Barber (2014) summarizes this process: "The concept, insofar as it proceeds according to identity, cuts itself off from what must be thought; what the concept fails to think — that is, the nonconceptual — is the very thing that needs to be conceived" (151).[10] Deleuze's positing of the problematic within the Idea is akin to Adorno's nonconcept or nonidentity: the problematic is the immanent determination of the Idea which is nevertheless distinct and Other from the Idea. As such, the problematic, insofar as it is immanent to the Idea, possesses a problem for the Idea because it is not included. Problematic or nonconceptual excess undermines the concept from which it is excess; containing the possibility of an aleatory event or explosion of the concept. The problematic holds the potential for the event's creation of a new concept, one

[10] It is worth acknowledging the fact that Deleuze's relationship with the concept changes throughout the course of his career—with his early work often being read as anti-concept and his later work being more pro-concept. The most obvious contrast to his positions in *DR* would be his discussion of concepts with Guattari in *What is Philosophy?* (1996) where Philosophy becomes a task of concept creation. My sympathies are to suggest that these readings do not so much constitute a break as a continuation. My basis for this reading is grounded in my expansion of Barber's relating of Deleuze and Adorno. Barber starts from the Deleuze of *What is Philosophy*—the Deleuze who claims his philosophy of conceptual creation is related to what Adorno calls the 'negative dialectic' (1996: 99). Building on Barber, I place this relationship in *DR* with the us of the 'problematic'. In this way, I've implicitly linked the production of concepts in *What is Philosophy* with the nonconceptual, problematic production in *DR,* suggesting that the two areas of creation might be conceptually related.

which one hopes will hold the "ability to speak from the nonconceptual essence" (Barber 2006: 153). For Barber, both Deleuze and Adorno speak from this immanent excess something that is unnamed in the concept, and that unnamed excess provides the possibility of the aleatory.

Like Adorno, Deleuze uses the prefix 'non' to signify this nonconceptual excess or problematic. Describing the problematic of being, Deleuze states "Being is also non-being, *but non-being is not the being of the negative;* rather it is the problematic, the being of the problem and the question" (Deleuze 1994: 64).[11] Being, as Idea or concept, contains an immanent problematic which determines its conditions. This determination or problematic is nevertheless distinct from Being as excess or surplus. Being's nonidentity or problematic is, thus, rendered non-being. Yet, insofar as the 'non' would imply a negation of being, Deleuze alters the term to (non)being or ?-being (Deleuze 1994: 64), providing the (non) or ? a signification of the problematic of the concept. The problematic-problem chips away at the solidity of the axiomatic-theorem foundation, undermining the universality of being in positing itself as an excess to that universal. This (non) interrogates the totality of Representation insofar as it interrogates the determination of that totality. If the history of metaphysics is the study of 'what is' than a problematic or (non)metaphysics would attempt to consider the determination of this question, rather than solve it. When Deleuze instigates the problematic of being — (non)being or ?-being — he interrogates the underlying determination of being, rather than the question 'what is being?'. Yet, insofar as (non)being is immanent, but not identical to being, that differential or excessive element (the aspect of (non)being excluded from the identity of being) seeks to conceive an aspect of being which being fails to conceive in itself. Rendering in this aporia a third term or aleatory point which explodes its conditions of possibility, Deleuze attempts to produce an event which re-conditions possibility via a new Idea in the hopes of speaking the unspoken.

Now one is able to place being and (non)being within the axiomatic-problematic aporia. Under being, difference is mediated as an exclusive disjunction between two representations: ignoring the fact that 'something in the world' determines those representations, determining and forcing thought to occur (Deleuze 1994: 139). Drawing upon his discussion of empirical intensity, Deleuze produces a general principle of transcendental intensification of difference in itself. He abstracts from particular conditions to produce a determining principle of all identity and representation. Suggesting that difference includes the unequal in itself (by way of my discussion of inclusive disjunction), Deleuze promotes an equation to solve

---

11 It is notable that Deleuze's discussion of non-being as the problematic of, rather than the negation of being occurs directly before his short section on Heidegger in *DR.* Here, he suggests that the chief misreading of *Being in Time* (1962) is an understanding of Heidegger's *not* as a negative: "the Heideggerian *Not* refers not to the negative of Being, but to Being as difference; it refers not too negation but to questioning" (Deleuze 1996: 64). In this regard, Deleuze is sympathetic to Heidegger. He is less sympathetic a few pages later, stating that Heidegger fails to adequately conceive of being as disengaged from representational domination (66).

the aporias of being-being, and difference-same: monism=pluralism. A univocal plane (monism) as a differential and intensive field of individuation (pluralism) together under an inclusive rather than exclusive disjunction: a mixture of the aporia. Intensive (non)being mixes with extensive being in an inclusive disjunction of intensive difference. Identity is reduced to a simulated illusion of difference and repetition (Deleuze 1994: xv). Difference is no longer the difference between identities, but the generative differential in the formation of identity. It is not the negation of one identity in its mediation of another, but the positive force which produces identity by way of a cut. Difference in itself, as the problematic of being, undermines the classical conception of philosophy wherein being totalizes thought. This is a revolution in thought – an aleatory event. Now, Deleuze may boldly claim, “difference is behind everything, but behind difference there is nothing” (1994: 157). In promoting difference from its subordination to being, Deleuze breaks with the transcendence of being, identity, and the same. Yet, he does not institute difference as transcendence. Difference in itself does not transcend being but is immanent to being. Deleuze undermines the Logo-centrism of the image of thought, liberating thought from this domination. An attempt to liberate from the dominance of a certain dogmatic hermeneutic which has dominated our very ability to think. This liberation occurs through the problematic or (non)being of being — the immanent generator of being which, as immanent to being, is no longer transcended by being. Here, Difference is co-constituted in being, rather than being preceded by it. Being, under these new conditions (via the aleatory revolution) does not determine as axiom. It is rather determined as problem by it problematic: (non)being as determination of being in-the-last-instance.

BIBLIOGRAPHY

Adkins, B. (2018). “To have done with transcendence: Deleuze, immanence, intensity”. *The Journal of Speculative Philosophy*, 32(3). Retrieved from https://www.jstor.org/stable/10.5325/jspecphil.32.3.0533.

Adorno, T. (1983). *Negative Dialectics.* New York: Continuum.

Barber, D.C. (2014). *Deleuze and the Naming of God: post-secularism and the future of immanence.* Edinburgh: Edinburgh University Press.

Borradori, G. (1999). “On the Presence of Bergson in Deleuze’s Nietzsche”. *Philosophy Today*, 43 (1999), 140–145. https://doi.org/10.5840/philtoday199943Supplement58.

Bouligand, G. (1949). *Le Déclin des absolus mathémaitco-logique.* Paris: Ed. D'Enseignement Superieur.

Bowden, S. (2018). “An Anti-Positivist Conception of Problems: Deleuze, Bergson and the French Epistemological Tradition”. *Angelaki* 23(2). Retrieved from https://doi.org/10.1080/0969725X.2018.1451461.

Bryant, L. (2008). *Difference and Givenness: Deleuze's Transcendental Empiricism and the Ontology of Immanence.* Evanston, Il: Northwestern University Press.

Canguilhem, G. (1989). *The Normal and the Pathological.* New York: Zone Books.

Cuboniks, L. (2015). *Xenofeminism: A Politics for Alienation.* Retrieved from https://www.laboriacuboniks.net/.

Deleuze, G. (1983). *Nietzsche and Philosophy*. New York: Columbia University Press.

Deleuze, G. (1988). *Foucault*. Minneapolis: University of Minnesota Press.

Deleuze, G. (1990). *The Logic of Sense.* New York: Columbia University Press.

Deleuze, G. (1991). *Bergsonism.* New York: Zone Books.

Deleuze, G. (1994). *Difference and Repetition.* New York: Columbia University Press.

Deleuze G., & Guattari F. (1977). *Anti-Oedipus.* Minneapolis: University of Minnesota Press.

Deleuze, G., & Guattari F. (1987). *A Thousand Plateaus*. Minneapolis: University of Minnesota Press.

Deleuze, G., & Guattari, F. (1996). *What is Philosophy?* New York, NY: Columbia University Press.

Duffy, S. (2006a). *The logic of expression: quality, quantity, and intensity in Spinoza, Hegel, and Deleuze.* Burlington VT: Ashgate Publications.

Duffy, S. (2006b). *Virtual Mathematics: the logic of difference.* Manchester: Clinamen Press.

Duffy, S. (2013). *Deleuze and the History of Mathematics: In defense of the new*. New York: Bloomsbury.

Duffy, S. (2017). "Deleuze and the conceptualizable character of mathematical theories". In N. Sinclair, A. Coles & E. de Freitas (Eds.), *What is a Mathematical Concept?* Cambridge: Cambridge University Press, 108-122.

Heidegger, M. (1962). *Being and Time*. New York: Harper & Row Publishers.

Juliette, K. (2018) "Kurt Gödel". *Stanford Encyclopedia of Philosophy.* Ed. Zalta, E.N., Winter 2018. https://plato.stanford.edu/archives/win2018/entries/goedel/

Kant, I. (1996). *Critique of Pure Reason.* Indianapolis: Hackett Publishing.

Koopman, C. (2018). "Problematization in Foucault's Genealogy and Deleuze's Symptomatology: Or, How to Study Sexuality without Invoking Oppositions". *Angelaki* 23(2). Retrieved from https://doi.org/10.1080/0969725X.2018.1451583.

Lautman, A. (2011). *Mathematical Ideas and the Physical Real.* London: Continuum Press.

Land, N. (2011). *Fanged Noumena: Collected Writings 1987-2007.* Windsor Quarry: Urbanomic.

Leblanc, H. (1953) "Review of Georges Bouligand and Jean Des-Granges: Le declin des absolus mathsmatico-logiques." *Isis* 42(1). Retrieved from https://www.journals.uchicago.edu/doi/10.1086/349256.

Smith, D.W. (2006). "Axiomatics and problematics as two modes of formalisation: Deleuze's epistemology of mathematics". In S. Duffy (Ed.), *Virtual Mathematics: the logic of difference*. Manchester, UK: Clinamen Press, 145-168.

Spinoza, B. (2005) *Ethics*. London: Penguin Classics.

Srnicek, N., & Williams, A. (2015). *Inventing the Future: Postcapitalism and a World Without Work.* New York: Verso.

Srnicek, N., & Williams, A. (2014). "#Accelerate: Manifesto for an Accelerationist Politics". In MacKay, R. (Ed.). *#Accelerate: An Accelerationist Reader*. Windsor Quarry: Urbanomic, 347-362.