

The Logic of the Rhizome in the Work of Hegel and Deleuze

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The aim of this chapter is to provide an account of Deleuze and Guattari's model of the rhizome, and to look at a possible Hegelian line of response to it. After outlining why Deleuze and Guattari feel the need to move away from an arborescent model of thought, such as underlies the structure of judgment, I look at Hegel's description of plant life in the *Philosophy of Nature*, and show how this can be related to the dialectic of the finite and infinite in the *Science of Logic*. This leads to the question: as a Hegelian riposte to Deleuze, can we see rhizomatic thought simply as an example of the spurious infinite at play? I want to conclude by showing that Deleuze and Guattari are well aware of this interpretation, and show how Deleuze's distinction between the decentered and the poly-centered, and his characterization of multiplicity as an alternative to the many, allow him to avoid these implications. I want to begin by looking at why Deleuze and Guattari believe we need to move to a new model of thinking.

Arborescent Thought

In this first section, I want to look at why Deleuze feels that we need to move away from a classical conception of thinking, typically tied to the structure of judgment. While Deleuze's critique of judgment occurs throughout his work, I want to focus here in particular on the arguments offered in his collaboration with Guattari in *A Thousand Plateaus*. It is here that Deleuze and Guattari introduce the notion of rhizomatic thought as an alternative to what they characterize as the "image of the world," which they call either a tree or "root-book." To understand why Deleuze and Guattari feel the need to introduce the concept of a rhizome, we first need to understand the limitations of the classical model

of thought which they wish to oppose. Deleuze and Guattari's discussion of the traditional model of thought in *A Thousand Plateaus* centers on two limitations. First, the classical image of thought is imitative. Their point is that insofar as the classical image forms a complete and unified image of the world, it necessarily leads us to posit a radical dualism between the image of thought and the world of which it is an image. That is, we are led to posit two different ontological planes, a position which cuts off the possibility of the kind of immanent and univocal ontology which Deleuze and Guattari want to construct. The world and the image of the world become two distinct entities which cannot be reconciled with one another: "How could the law of the book reside in nature, when it is what presides over the very division between world and book, nature and art?"¹ Deleuze's second criticism of classical logic, as well as the arborescent or root metaphors that characterize it, is that it presupposes a moment of unity, as well as a binary division of this primary unity. It operates by a process of division: "the law of the One that becomes two, then the two that become four" (*TP*, 5). The classical example of this kind of thought would be the *Arbor Porphyriana*, Porphyry's tree of species.² Porphyry's account, given in his text, *Isagoge*, provides a formalization of Aristotle's account of species and genera in the *Categories*, and was one of the standard works in medieval logic. The essential idea which underlay his model was that by the division of a more general category by a difference, we are able to give a precise account of what something is. That is, we gradually approach a more precise definition of something by further adding properties to it which differentiate it from other entities:

What is meant will be clear from the following. In each category there are the highest classes, the lowest classes, and some which are between the highest and the lowest. There is a highest genus beyond which there can be no other superior genus; there is a lowest species after which there can be no subordinate species; and between the highest genus and the lowest species there are some classes which are genera and species at the same time, since they are comprehended in relation to the highest genus and the lowest species. Let us make the meaning clear with reference to one category. Substance is itself a genus; under this is body; and under body animate body, under which is animal; under animal is rational animal, under which is man; under man are Socrates, Plato and particular men.³

The first difficulty with such an approach is that it creates a sharp distinction between nature and the image of nature. Porphyry's hierarchy of terms operates according to sharply opposed differences, but it appears

that in nature we have more graduated distinctions between different objects: “opposed differences do not mix, but opposed accidents may mix.”⁴ It doesn’t help to replace the binary opposition between categories with a larger set of categories, however, as in this case, we still presuppose the notion of a unity from which all of the other categories are divided: “On the side of the object, it is no doubt possible, following the natural method, to go directly from One to three, four, or five, but only if there is a strong principal unity available, that of the pivotal taproot supporting the secondary roots. That doesn’t get us very far” (*TP*, 5). This difficulty in fact stems from a deeper problem: the need to explain both aberrant cases, where the entity falls within a species without having the property which is supposed to govern species membership, and the differences which are not to be taken into account when we consider what a thing is. Thus, on the one hand, we need to take account of the fact that some men are not rational, but are still to be counted as men. On the other we need to deal with the fact that men may have different skin color, without this affecting their nature as men. To deal with these questions, we need to make a distinction between what is essential to something, and what properties that thing has merely accidentally. Such a distinction seems to require a further ontological dichotomy, however, between the ideal image of the thing, its essence, and its actual, worldly, and often imperfect state. The dichotomy between essence and appearance therefore leads to the distinction between the image of the world (essence) and the world itself (appearance).

Deleuze provides an extended discussion of judgment in *Difference and Repetition*, and although we have to be careful moving between his sole-authored and collaborative works, the distinction he makes there between two kinds of sense will be useful in diagnosing exactly where the problem with arborescent thought lies. In *Difference and Repetition*, Deleuze argues for two conditions that must be fulfilled when making a judgment. He argues that the subject must possess both good sense and common sense. Deleuze defines good sense and common sense as follows: “For while common sense is the norm of identity from the point of view of the pure Self and the form of the unspecified object which corresponds to it, good sense is the norm of distribution from the point of view of the empirical selves and the objects qualified as this or that kind of thing (which is why it is considered to be universally distributed)” (*DR*, 133–34). Of these two problems, the problem of accidental and essential properties is one of good sense. It amounts to the ability to attribute predicates appropriately, and to correctly assign things their positions within the hierarchy. Thus, problems of good sense occur when we have difficulties in knowing when to attribute a property to something

and when not to, such as in the degenerate cases which Aristotle discovers in *The Parts of Animals*: “The sea-anemones or sea-nettles, as they are variously called, are not Testacea at all, but lie outside the recognised groups. Their constitution approximates them on one side to plants, on the other to animals.”⁵ In these cases, the possibility of successfully making a judgment is thrown into doubt by the purely empirical question of whether or not a particular entity belongs to the species in question or not. We may be able to deal with these errors of good sense by increasing the sophistication of our hierarchy—by, for instance, as Deleuze and Guattari suggest, moving from bivalent to polyvalent categorical distinctions. Good sense is not the sole presupposition of judgment, however, and it is the case that even the failure of good sense still leaves judgment intact: “It is as though error were a kind of failure of good sense within the form of a common sense which remains integral and intact” (*DR*, 149). Rather than simply address the grounds for good judgment, Deleuze’s project is to examine the grounds for judgment in general. Even when the subject exhibits poor judgment (when good sense fails), we are still dealing with thought in terms of a hierarchy of terms. The subject falls into error by subsuming the particular under the wrong universal, or failing to recognize the essential difference.

Deleuze’s criticism of common sense instead attacks the nature of judgment itself. Judgment involves the attribution of a predicate to a subject, and Deleuze follows Kant in claiming that such an attribution relies on the notion of a pure subject and a transcendental object.⁶ This requires, prior to the attribution of properties themselves, a theory about what is to count as a substance or an individual. That is, prior to the specification of the properties of a subject, judgment already requires a subject to be individuated. In Deleuze and Guattari’s terminology, it already assumes a certain form of territorialization. If we look at the dichotomous approach, we discover that although it can provide an account of the *qualification* of the subject, it cannot provide an account of its *constitution*. At the top of the hierarchy, we simply already have the notion of a being (albeit an empty one): “in order to arrive at two following a spiritual method it must assume a strong principal unity” (*TP*, 7). In other words, the principal unity must always precede the determination of the object, ruling out an account of the emergence of this unity itself. On Deleuze’s reading, there are therefore two principal postulates of judgment. First, judgment presupposes that what exists is a world of objects. Second, judgment presupposes a certain distribution of objects throughout the world. This closes off the possibility of anything like a theory of the genesis of objectivity itself, or a formulation of an ontology that does not presuppose the division of the world into subjects and

properties. Deleuze and Guattari express this by noting that multiplicities in arborescent structures presuppose a point of unity in addition to the multiplicity of properties itself.

How are we to overcome these limitations? Deleuze and Guattari propose that rather than conceiving of thought on the model of the tree or root, we need to develop a new form of thinking, in this case based on the model of the rhizome. Whereas both trees and roots exhibit a branching structure from a central point, much as we found in the *Arbor Porphyriana*, rhizomatic plants do not exhibit this structure. Rather than a vertical branching structure, rhizomes have stem systems which are horizontal in nature, which are not organized around a central point. Further, they are *adventitious* root systems, which means that root systems do not simply develop from a specific part of the plantlet (the radical), but are also capable of developing from other parts of the plant, such as the stem or leaf.⁷ Deleuze and Guattari argue that the rhizome provides a better model for thought, as it does not require a central point, is not hierarchical, and allows heterogeneous connections between parts to be formed. To see how the alternative model functions, it is worth looking at a system which is archetypally rhizomatic for Deleuze and Guattari: the wasp and the orchid. Deleuze and Guattari refer to the *Ophrys* genus of orchids which attract wasps with a modified petal resembling a female wasp. As the male wasp attempts to copulate with the petal, pollinia become attached to its body.⁸ “The line or block of becoming that unites the wasp and the orchid produces a shared deterritorialization: of the wasp, in that it becomes a liberated piece of the orchid’s reproductive system, but also of the orchid, in that it becomes the object of an orgasm in the wasp, also liberated from its own reproduction” (*TP*, 293). If we take the case given above, it would seem that if we were to explain the symbiotic relationship between the wasp and the orchid on the model of judgment, we would have to presuppose some kind of unified center for the interaction. This amounts to in effect seeing the one as a property of the other (the wasp is a moment in the reproductive system of the orchid, or the orchid as a moment in the instinctual system of the wasp), or seeing both as contained in a higher unity. Deleuze and Guattari argue, however, that such an approach ultimately is incapable of explaining the generation not merely of an additive unity of the two organisms, but of an entirely new system: “Whenever there is transcoding, we can be sure that there is not a simple addition, but the constitution of a new plane, as of a surplus value. A melodic or rhythmic plane, surplus value of passage or bridging” (*TP*, 314). Instead, Deleuze and Guattari stress the importance of transversal relations between organisms, and also the openness of biological systems.⁹ In this sense, they want to see the wasp-orchid as

an assemblage:¹⁰ not as the addition or simple exchange between two different organisms, but as the constitution of a wholly new system defined purely in terms of the manifold connections it exhibits. This constitution of a new and open system cannot be understood within an arborescent framework, since such frameworks can only account for the determination of a preexisting subject, rather than the constitution of a novel one. The rhizomatic approach resonates even more closely with Margulis's seminal study of cellular biology, *Symbiosis in Cell Evolution*.¹¹ Margulis argues that eukaryotic cells (cells containing complex structures of organelles) evolved through the formation of symbiotic relationships between more primitive prokaryotic cells. That is, basic elements of the cell, such as mitochondria, migrated within the cell membranes of other cells to form mutually beneficial relationships: mitochondria allow the cell to use oxidizing reactions to produce energy while the cell provides the machinery for the reproduction of the mitochondria. Such an approach breaks with the idea of the progressive differentiation of lineages of organisms by recognizing the importance of transversal communication of genetic data between species. It therefore disrupts the hierarchical model which judgment relies upon by showing that organisms are not to be understood purely as subsumed under species, but also as forming parallel, connective relationships. This move away from a subsumptive logic further opens the possibility that rather than seeing properties as attaching to a preexisting logical subject, we can see organisms as essentially open. Margulis's account is not one of the *development* of the organism (the determination of the subject of predication), but rather of the *constitution* of the organism itself (the emergence of the subject of predication).

It is important to note that Deleuze and Guattari are not introducing an ontological dualism between rhizomatic and arborescent structures. In fact, all structures can be understood in both of these terms. We should note that root systems themselves operate largely rhizomatically. Thus the process of nitrogen fixing (the conversion of nitrogen in the air to ammonia or other nitrogenous compounds), one of the key roles of the root system, relies on a symbiotic relationship with *Rhizobium* bacteria. *Rhizobium* bacteria are stimulated by the emission of chemicals from the root hairs, and in turn emit chemicals which cause the root hairs to bend around them, creating nodules within which the bacteria form colonies.¹² Likewise, grafting allows the formation of what Deleuze would call heterogeneous assemblages. In fact, it should not surprise us to discover that arborescent structures show themselves to be rhizomatic in nature, and Deleuze presents several examples of nonvegetative rhizomatic structures (such as the packs of wolves and rats, and the "rhizome-

city” of Amsterdam). The rhizome therefore should be seen as a model of a logic of connections, rather than as just a state of affairs. In all of these cases, it is quite possible to read the phenomena in question according to either arborescent or rhizomatic categories: “It is true that the same thing is generally susceptible to both modes of calculation or both types of regulation, but not without undergoing a change in state” (*TP*, 17). There is a disanalogy between the two cases, however, to the extent that rhizomatic structures can more or less approximate arborescent structures, whereas arborescent structures, with their requirement of sharply defined subjects, represent the ideal limit of arborescence, which cannot in practice be encountered, as it implies that the organism is completely closed.

Deleuze’s introduction of the rhizome is therefore intended to overcome several limitations of arborescent thought. First, it is intended to provide a logic capable of accounting for the *genesis* of a particular system. It does so by not relying on the notion of a subject as preexisting its determination. Second, it aims at providing a logic capable of explaining transversal connections between systems. A rhizomatic thought will therefore dispense with two interrelated moments on the structure of judgment. First, it will not be based on the notion of the attachment of properties to a central identity. Second, it will not rely on the notion of subsumption. Subsumption is key to the structure of judgment (an individual is subsumed under a general concept, or is allocated to a class intentionally according to a given property). Subsumption allows a subject to be determined by the constant restriction of the logical space it is to be found in, but symbiotic relationships, for instance, disrupt this procedure by creating bridges between different logical spaces: “There is a block of becoming which snaps up the wasp and the orchid, but from which no wasp-orchid can ever descend” (*TP*, 238). Likewise, the eukaryotic cell belongs to two lineages, and hence two arborescent spaces, at the same time. It occurs on two branches of the tree of life simultaneously. To provide a way of understanding the world which does not rely on the linear determination of judgment, the rhizome must therefore be conceived of as “an acentered, nonhierarchical, nonsignifying system without a General and without an organizing memory or central automaton” (*TP*, 21). What is the central logical move that Deleuze makes in putting forward this project? It is the substitution of a logic based on the copula by a logic based on the conjunction. “The tree imposes the verb ‘to be,’ but the fabric of the rhizome is the conjunction, ‘and . . . and . . . and’” (*TP*, 25). In fact, there are two senses in which the verb “to be” is rejected by Deleuze: first, Deleuze rejects the predicative use of “to be,” thus moving away from a subsumptive understanding of determi-

nation. He also rejects a second sense of “to be”: the affirmation of an identity (“A is A”). To escape from this use of “to be,” Deleuze and Guattari need to focus on the relations between terms, rather than the terms themselves.

In this account so far, we have seen some of the key features of Deleuze’s critique of judgment. If we return momentarily to *Difference and Repetition*, however, we can see that Deleuze is quite careful in making a distinction between classical logic, which he calls finite representation, and Hegelian dialectic, which he calls infinite representation. It is clear that Hegel’s approach does rely on a progressive determination of an indeterminate concept (the “Being, pure being” of the *Science of Logic*), but Hegel himself is quite hostile to the idea that judgment should be the driving force in philosophy. He argues, however, against the idea that “the inadequacy of the finite categories to express truth entails the impossibility of objective cognition.”¹³ Hegel therefore puts forward what he calls the speculative proposition. Whereas the two uses of the verb “to be” are kept separate in finite thought (in the sense that “this rose is this rose” is logically a different kind of judgment to “this rose is red”), Hegel’s speculative proposition attempts to combine the identity and predicative uses of “to be” in the same proposition. For Hegel as well as Deleuze, classical judgments rely on a “passive subject” which “constitutes the basis to which content is attached and upon which the movement runs back and forth.”¹⁴ By contrast, in the speculative proposition, the subject is related to another subject, as in the proposition, “the actual is universal” (*PS*, 39). In this case, Hegel argues that although both terms are subjects (and hence relate to themselves through the proposition), we do not have a simple tautology, as the two terms are also not identical with one another. As the speculative proposition cannot be understood either to be asserting the identity of the two terms, or predicating one of the terms of the other, finite thought fails to make sense of the proposition. For infinite (or dialectical) thought, however, the speculative proposition represents the heart of the dialectical method, as the reiteration of the second subject (the universal) as both different and identical to the first subject (the actual) forces thought to consider the subject itself no longer as a fixed identity, but as something which is itself changed by the movement of the proposition. As the second subject is not simply a further determination, but rather the subject itself, the whole proposition is put into motion. As Hegel expresses it:

Formally, what has been said can be expressed thus: the general nature of the judgement or proposition, which involves the distinction of Subject and Predicate, is destroyed by the speculative proposition, and

the proposition of identity which the former becomes contains the counter-thrust against the subject-predicate relationship. (*PS*, 38)

While Deleuze is careful to distinguish Hegel from other thinkers of representation, he argues that “every philosophy of categories takes judgment for its model—as we see in the case of Kant, and still even in the case of Hegel” (*DR*, 33). That is, in spite of Hegel’s attempt to move away from the concept of judgment, the speculative proposition is still too close to the form of judgment to provide the kind of account Deleuze thinks we need.¹⁵ I do not want to explore here the extent to which Deleuze’s criticism of Hegel can be upheld, but rather to reflect on Hegel’s own discussion of conjunctive logic in the *Philosophy of Nature* and the *Science of Logic*. The aim will be to see whether it is possible to formulate a Hegelian riposte to the move to a rhizomatic model of thought.

The Spurious Infinite

Whereas the *Science of Logic* attempts to provide the complete determination of the categories of thought and Being, the philosophy of nature expresses these ideas as they are found in the world itself. Nature is “the Idea in the form of *otherness*.”¹⁶ As Houlgate notes, Hegel’s conception of nature is somewhat Spinozistic (*An Introduction to Hegel*, 109), with Being autonomously determining itself as nature. Nevertheless, the *Philosophy of Nature* is not simply a reiteration of the categories of the *Science of Logic*. Rather, the *Philosophy of Nature* also argues that nature is separated from reason. Whereas the *Science of Logic* discovers reason to be a coherent, internally related whole, nature for Hegel embodies the “unreason of externality” (*An Introduction to Hegel*, 111). The *Philosophy of Nature* therefore presents the categories of thought in a form which is alien to reason; rather than being immanently and internally related to one another, in nature the categories present themselves as separated from one another in the various forms of entities which we encounter in the world. Nevertheless, nature is still the Idea, albeit in the form of this externality. While “externality constitutes the specific character in which Nature, as Nature, exists,”¹⁷ the *Philosophy of Nature* charts the movement of reason back into the form of a unity with Spirit in the form of a “path of return”: “for it is that which overcomes the division between Nature and Spirit and assures to Spirit its knowledge of its essence in Nature” (*PN*, 14). The philosophy of nature will therefore chart the movement from the pure externality of parts to a form where the parts are once again understood

according to internal relations. Much as we found in the case of Deleuze, these categories will not merely allow for a descriptive analysis of nature. Nature embodies the categories of thought, albeit in a different element, and on this basis, there is a normative element to Hegel's descriptions of the natural world. Different forms of life will better embody the Idea, and so his appraisals of the sophistication of different forms of life will allow us to determine his appraisal of the form of logic that they embody. As Hegel's philosophy aims to provide a purely immanent description of the world which does not rely on any external principles, the movement from the pure externality of nature back to the idea of internal relationality given by the end of the *Logic* must itself proceed immanently, that is, not rely on any principles outside of itself. Thus Hegel's account attempts to show how nature *itself* moves from a system governed by externality to one governed by internal relations. Nature will thus appear as a hierarchy of stages, moving from the most external to the least external, as it progressively transforms itself into more unified forms. Hegel's dialectic therefore attempts to show how Spirit gradually becomes embodied in more and more adequate forms of nature, progressing through mechanism, physics, chemistry to life, and finally to the apex of life, man. In the process, we move from an understanding of the world governed purely by the self-externality of matter to one which is centered on a more Aristotelian view of the organism as a relation of parts to a whole, where "in so far as the animal's members are simply moments of its form, and are perpetually negating their independence, and withdrawing into a unity which is the reality of the Notion, the animal is an existent Idea. If a finger is cut off, a process of chemical decomposition sets in, and it is no longer a finger" (*PN*, 352). We therefore move from the literally atomized account of the world offered by physics to the organic worldview, where the parts have no meaning outside of their relationships to one another.

While animal life provides the model of the highest form of organization, plant life occupies a position similar to the rhizome in Deleuze and Guattari's account. Talking of rhizomes in particular, Hegel writes that "strawberries and a number of other plants, as we know, put out runners, that is, creeping stalks which grow out of the root. These filaments or leaf-stalks form nodes (why not from "free portions"?); if these points touch the earth they, in turn, put out roots and produce new, complete plants" (*PN*, 313). Much like Deleuze, Hegel's point here is that the rhizome does not have a fixed and determinate structure such as we find in the "higher plants." Rather, differentiation is always provisional, and not formed around the unity of the plant as a whole. We should note here, however, that Hegel recognizes that even the higher plants ex-

hibit the same structural features that we find in lower plants. For Hegel, the distinction will not be between the rhizome and the root/tree, but between the plant and the animal. It is plant life as a whole that exhibits a structure which escapes from the hierarchical form of judgment criticized by Deleuze. Thus, immediately after providing the example of the rhizome, Hegel introduces the example of the mangrove tree, where “a single tree will cover the moist banks of rivers or lakes for a mile or more with a forest consisting of numerous trunks which meet at the top like close-clipped foliage” (PN, 313). In what sense, therefore, is Hegel’s conception of the plant to be compared to Deleuze’s concept of the rhizome? In both cases, we have systems without a central point of unity, and which do not operate according to the binary logic of diremption which governs the structure of judgment.

Whereas the animal forms a natural unity with each part internally related to each other, the plant lacks what Hegel calls a soul, and forms merely external relations between parts. Whereas the body of the animal is an organized body, the plant “has not at the same time acquired a system of viscera” (PN, 305). The lack of a central unity means that each part of the organism can be connected with each other, and for Hegel, “the *difference* of the *organic parts* is only a superficial *metamorphosis* and one part can easily assume the function of the other” (PN, 303). Therefore rather than having parts inhering in the unity of the whole, we have for Hegel a system where there is no longer any distinction between parts and wholes (or between subjects and properties): “in short, any part of the plant can exist as a complete individual; this can never be the case with animals with the exception of the polyps and other quite undeveloped species of animals” (PN, 314). As we saw above, the classical differentiation of species occurs through a movement of division, with an object being determined through the attribution of a specific difference to the subject. As the plant does not have a central subject, it likewise escapes from the logic of opposition.¹⁸ Differences are no longer presented as oppositions governed by a common center of identity as we found in the *Arbor Porphyriana*.

It therefore appears as if the plant escapes from the kind of arborescent logic which Deleuze criticizes. Rather than operating through a logic of opposition and hierarchy, it operates linearly, and through a process of conjunction. As we shall see, Hegel argues however that this conception of life necessarily collapses back into a model with a definite center, and an oppositional structure, in this case the organized body of animal life. This should already be partially apparent in Hegel’s suggestion that difference in this case can only be understood as a superficial metamorphosis of form rather than a genuine difference. As we saw, De-

leuze's focus on the rhizome implies an underlying logic, and this is also the case with Hegel's discussion of plant life. The philosophy of nature is an expression of reason in its externality, and so we can see it as correlated with the logical categories provided in the *Science of Logic*. The question, therefore, is, which of the categories of the *Science of Logic* correspond to plant life? In this case, the dialectic which embodies the transition from plant life to animal life is the dialectic of the finite and the infinite. I want to turn briefly to this dialectic before returning to Hegel's account in the *Philosophy of Nature*. By doing so, I want to show exactly *why* Hegel thinks the account given there proves to be insupportable.

The dialectic of infinity occurs in the first part of the *Science of Logic*, in the doctrine of Being. As Hegel's dialectic proceeds immanently, we will begin at the stage where the dialectic has reached the notion of "something." The notion of something which Hegel develops is perhaps the most basic which we could conceive of, merely that of the unity of a being and a quality. For Hegel, "something" also contains a moment of self-relation, in that as a unified concept, it is the negation of the difference between being and quality. As self-relating negation, however, we can see it as containing two moments. Whilst it is a determinate being, it is also the negation of this determinate being. It is something other than something: "the second is equally a *determinate* being, but determined as a negative of the something—an *other*."¹⁹ Something therefore contains two moments of being. It implies the existence of another. We should be able to see, however, that each of these moments, the something and the other, have the same structure. The labels, something and other, only apply to the extent that we began our analysis from one of these two entities. Each is therefore both a something, and an other to its other. We can reverse this understanding of each being a something, and recognize that each is also, in its own self, an other: "if of two things we call one A, and the other B, then in the first instance B is determined as the other. But A is just as much the other of B. Both are, in the same way, *others*" (*SL*, 117). As such, we have a continual process of something becoming other than itself. As its nature is to be other than itself, however, this negation is a constant return into itself. That is, in the other negating itself, it becomes other to this other, a something.

While something at first appeared to be a self-contained moment, we can see now that it is in fact better characterized by this moment of openness to another. We should note that we now have an understanding as something being constituted by this relation to the other. Becoming other is a key feature of the structure of something, and to this extent, we can now see something as having a particular constitution. This aspect of constitution is double for something. It is constituted by relating to, and

being distinct from, something other. In other words, it is *this*, rather than *that*. These two moments are the foundation of the distinction between being in itself and being for another, as it is both self-enclosed, but also other related. We can now ask how this essential relation to another plays out in the determination of something. If something is to be determined by its relations to another, it should be the case that at least two conditions must be met: first, it must form some kind of relation to this other, in order that determination can take place. Second, it must differ from the other, as without this difference, there is no other to determine it. These two conditions imply the need for a further concept, that of limit, which will both separate the two somethings, and yet as they share this limit, relate them. The limit circumscribes what a thing is by defining the point at which it transitions into its other. But as such, the limit has a paradoxical quality, as it is the ground for the existence of something (as something requires this relation and separation from another), but is also the point at which something is not. Something is what it is within its limit. Here we transition to another category, however. What is fundamental to the structure of something is its relation to its limit, but its limit is what it is not. This fundamental relationship toward its own negation leads us to recognize that at the heart of something is finitude.

For finitude, therefore, limit is not merely something indifferent, but is rather a fundamental moment in its structure. Without this limit, finitude would become infinitude—it would go beyond itself. This is the first sense of the infinite, as a pure beyond. The limit therefore acts to prevent the finite from becoming something other than itself. As we cannot at this stage countenance the possibility of the finite containing the infinite, the notion of limit does not simply signify an arbitrary point in something's relation to another something, but is also a limitation—that which prevents finitude from becoming infinite. This brings in a new moment into the concept of finitude. As finitude now contains this essential moment of limitation, we can say that it also brings in a notion that it *ought* to overcome this limitation. This “ought” captures the complex structure of finitude. It contains both its being and its limitation. In fact, these two moments are in tension with one another. Finitude wants to transcend its limitation, but as the limitation is integral to finitude, it resists the force of the ought. As the moment of transcendence provided by the ought is integral to finitude, however, it does go beyond itself. These two moments do not collapse into a unity, however. Instead, we have a constant process of moving between the two moments. Finitude perishes because it transcends its limitation, but this perishing simply leads to the emergence of another moment of finitude, as the ought includes the moment of limitation within it. We have, therefore, a perpetual series of

finite moments, the perishing of one leading to the generation of the next. This series of finite moments, however, is an infinite series.

When we look at the notion of the infinite, however, we can see that it relies on its reference to the finite. It is specified as the beyond which escapes from the limitation of finitude. A result of this, however, is that the notion of limitation is inherent to the concept of the infinite. For this reason, this notion of the infinite is characterized by Hegel as the bad infinite. The finite and the infinite are therefore in fact rather similar to each other. Both are defined by their common limitation, and each relies on the other to sustain itself. So each concept requires that the other concept be determinately understood in order that it may itself become determinate. While we want to be able to understand each category in its own terms, we find that each concept leads us to consider the other. This leads us, however, into another form of infinity, an infinite series which oscillates between these two terms, as each refers itself to the other to vouchsafe its own determinacy. What conclusion can we draw from this? Well, the concept of the infinite is now itself defined by a process which can never be completed. It is therefore itself defined in terms of an ought to be which is never achieved. The infinite itself, therefore, once again collapses back into the finite.

There is thus an inherent unity between these two categories, although also a moment of difference between them, depending on the emphasis which we place on the terms themselves. The infinite is determined, in part, by its differentiation from the finite. As such, however, it is tied to the notion of a limit, and thus finitude. It is a finitized infinite. But the finite now has a definite structure. It is no longer defined in terms of its *ought*. As such, it is an infinitized finite. Rather than these two terms being considered as defined in their own terms, we now explicitly recognize that finitude *as part of its structure* has a reference to infinity, and the infinite likewise contains a reference to the finite. These references mean that regardless of which term we begin with, we are driven to the other. Rather than seeing these terms as existing in a series, as was the case with the bad infinite, however, now that we have explicitly recognized that they reciprocally determine one another, we can see them as forming a circle. Thus, from the very structure of the infinite series of finite somethings, we are led to the notion that finite and infinite are concepts which are mediated by one another. Neither can be determined independently of the other. Once we recognize this, we can note that the true infinite is this structure of movement of the finite and infinite as a whole.

So now we can return to the original question of how this notion of infinity is related to the notion of an a-centered, nonhierarchical mode

of organization. In the earlier *Jena Logic*, Hegel explicitly relates the question of the bad infinite to the question of the one and the many. He writes that “the subsistence of the many qualities as of the many quanta has simply the ‘beyond’ of a unity that has not yet been taken up into them and would sublimate the subsistence if it were so taken up.”²⁰ Hegel’s point, therefore, is that any mode of organization which simply relies on a series of properties related without a central notion cannot but immanently develop, under dialectical analysis, a central moment of unity (whereby the series presented by finitude is recognized as containing the infinite). Systems of organization such as that proposed by Deleuze rely on an artificial suspension of this moment of unity: “In order to subsist, the aggregate is not allowed to take up this beyond into itself, but just as little can it free itself from it and cease to go beyond itself” (*The Jena System*, 33). On this reading, therefore, Deleuze’s strategy would rely on an artificial suspension of the movement of the dialectic. If Deleuze were consistent, he would allow the nonhierarchical field to immanently develop a central moment of unity. Of course, this does not mean that Hegel fully supports a model of subsumptive logic such as that which Deleuze criticizes. Rather, Hegel is arguing that the notion of a subject is both necessary, and nonarbitrary for philosophical enquiry. That is, it emerges dialectically from the matter itself. The multiple imposes unity on itself, rather than simply presupposing a moment of unity. We do not, therefore, have the fixed moment of a subject which is central to Deleuze and Guattari’s critique of arborescent thought.

The movement of the infinite is the key to understanding Hegel’s account of life. The plant is explicitly characterized as an infinite, conjunctive multiplicity, lacking any notion of a center: “Each plant is therefore only an infinite number of subjects; and the togetherness whereby it appears as one subject is only superficial” (*PN*, 276). The structure of the plant, therefore, is the expression of the bad infinite. We can now ask, what is the inherent limitation of the structure of plant life? As we saw with the structure of finitude, the infinite series of the bad infinite eventually showed itself to require a moment of unity, which was provided by the recognition that in the good infinite, the determinations of the finite and the infinite were unified, while each moment preserved its determinacy. Deleuze brings forth the rhizome as the archetype of a system without a central unifying principle. Hegel, however, has an analysis of such a form of life that shows that it does have a central point of unity: “The plant has an essential, infinite relationship with light . . . This simple principle of selfhood which is outside of the plant is the supreme power over it; Schelling therefore says that, if the plant had consciousness, it would worship light as its god” (*PN*, 306). The plant therefore

manages to exist without an internal point of unity only because it is alienated from its true moment of unity, light, which is external to it. Were the plant capable of thought, its attitude would be that of the unhappy consciousness of the *Phenomenology of Spirit*. It is only if we ignore this infinite relationship to light that the plant can be seen as a-centered. What appears to be a nonhierarchical structure is in fact coordinated according to a point external to the plane of the rhizome's growth: "potato-plants sprouting in a cellar creep from distances of several yards across the floor to the side where light enters through a hole in the wall . . . in order to reach the opening where they can enjoy the light" (*PN*, 306). As Hegel writes of the finite and infinite in the *Science of Logic*, "if they are taken as *devoid of connection* with each other, they are only joined by 'and,' then each confronts the other as self-subsistent, as in its own self only affirmatively present."²¹ Without the infinite providing a point of unity, therefore, no connection is possible at all between elements, and we are left with a hollow philosophy of the "and . . . and . . . and."

Deleuze's Tripartite Distinction

Hegel therefore puts forward a view of the rhizome which is fundamentally opposed to that of Deleuze, and with this comes a critique of an attempt to found an a-centered logical system. If Deleuze's account of the rhizome can be mapped onto Hegel's account of the infinite, then it could also be shown that Deleuze's philosophical approach itself is simply an example of the bad infinite, and that a more faithful attentiveness to the movement of thought would lead us from the rhizome (and the bad infinite) to the properly centered notion of the animal form (and the good infinite). I now want to show that Deleuze and Guattari are aware of this possibility, and that in fact *A Thousand Plateaus* features a tripartite distinction between images of thought which allows them to recognize the importance of the Hegelian argument while preserving a place for their own rhizomatic vision.

There are three kinds of conceptual schemata that Deleuze and Guattari put forward in *A Thousand Plateaus*. The first, the root-book, is the structure exemplified by the arborescent image, whereby determination is provided by a series of subsumptive operations. Deleuze and Guattari suggest two different ways of overcoming this structure, however. These are the model of the fascicular root and the rhizome itself. Fascicular root systems, such as we find in grasses, do not have a central taproot from which secondary roots emerge, but rather develop a bundle of thin,

fibrous roots, with no obvious center. Deleuze and Guattari identify the fascicular root with a certain reaction of modernism against arborescent or linear thought. The three examples they provide are of Burroughs's cut-up poetry, Joyce's attempt to provide a decentered narrative, particularly in his *Finnegan's Wake*, and Nietzsche's move to an aphoristic notion of philosophy. Burroughs's cut-up poetry operates by combining texts in a random manner, breaking down the inherent unity of the texts which provide the material for his compositions. In *Naked Lunch*, we are presented with the fractured account of William Lee, a junkie. Burroughs interjects into the narrative to tell us:

You can cut into *Naked Lunch* at any intersection point. . . . I have written many prefaces. They atrophy and amputate spontaneous like the little toe amputates in a West African disease confined to the Negro race and the passing blonde shows her brass ankle as a manicured toe bounces across the club terrace, retrieved and laid at her feet by her Afghan Hound.²²

In all of these cases, however, Deleuze and Guattari ask whether “reflexive, spiritual reality does not compensate for this state of things by demanding a more comprehensive secret unity, or a more extensive totality” (*TP*, 6). They give three examples of how this unity functions. In the case of Burroughs, it is through the fact that the work itself created exists as a unity in its own right—“the most resolutely fragmented work can also be presented as the Total Work or Magnum Opus” (*TP*, 6). For Nietzsche and Joyce, it is in the form of a cyclical ordering. Thus Nietzsche brings in the notion of the eternal return to unify the field of differences,²³ while Joyce, in his most radical attempt to break with linear narrative, *Finnegan's Wake*, relies on the form of circularity by developing a structure where the final sentence trails off only to be taken up again at the beginning of the work. Deleuze and Guattari argue that the lack of an overarching unity in nature is only preserved on the basis of positing a subjective unification in the form of a “past, or yet to come” (*TP*, 5). Ultimately, therefore, the field of difference relies on an underlying substratum. Likewise, the world of differences for Nietzsche is unified by the eternal return. Deleuze and Guattari's relationship with these figures is thus ambivalent. “A strange mystification: a book all the more total for being fragmented” (*TP*, 6). Their reference to these thinkers as the “angelic doctors” evokes Aquinas's attempt to provide a consistent equivocal concept of being through the concept of analogy.²⁴ Deleuze and Guattari are therefore going to attempt to show that despite the recognition of the fragmented nature of the world within modernism, this recognition

still in some sense relies on an implicit moment of unity. While arborescent thought leads us to an equivocal ontology, with representation standing opposed to the world, the fascicular thought of modernism tries to break with this ontology by problematizing it, but in fact sets up a problem which demands an equivocal solution. Thus, while the roots do not have a center, they are unified by their relation to the plant as a whole. In this case, therefore, we can apply Hegel's criticism of the bad infinite. While these thinkers generate a field of differences, ultimately, this is only on the basis of an external concept of unity. In these cases, therefore, the subject provides a point of unity for the system, much as the sun was the external point of unity in Hegel's account of plant life. Just as Hegel's spurious infinite immanently transforms itself into the "good infinite," in the case of the logic of modernism, "its ostensibly nonhierarchical presentation or statement in fact only admits of a totally hierarchical solution" (*TP*, 17). Deleuze and Guattari's analysis of modernism thus characterizes it in a way that resonates strongly with Hegel's criticism of finite thinking.

Conclusion

The question thus remains, how do Deleuze and Guattari develop a theory of the multiplicity which is not susceptible to the Hegelian critique? They argue that "the multiple *must be made*, not by always adding a dimension, but rather in the simplest of ways, by dint of sobriety, with the number of dimensions one already has available—always $n - 1$ " (*TP*, 6). The question therefore is, how do we form a multiplicity without a point of unification? Here we come to the key difference between Deleuze and Guattari's rhizomatic structures and those of the root-book. Rather than the unification of elements within a substratum (a species of entities in the classical model of thought), or by way of a super-stratum (the sun as an external reference which unifies the various moments of the plant), Deleuze and Guattari propose that we reconceive the notion of elements themselves. So long as they are viewed as a discrete collection of entities, we will be drawn to introduce a further element, which is the unity of the elements themselves. As long as the plant is conceived of along Hegelian lines as an infinite set of discrete plants, the immanent movement of our image of thought itself will force us to recognize a necessary point of unity and identity above and beyond these elements. Thus we will be returned to the situation of the subsumptive logic of judgment and the associated structures of good sense and common sense. This is not the place to

provide a detailed overview of Deleuze and Guattari's own alternative,²⁵ but we can start to see the direction this approach will take in their claim that "it was a decisive event when the mathematician Riemann uprooted the multiple from its predicate state and made it a noun, 'multiplicity.' It marked the end of dialectics and the beginning of a typology and topology of multiplicities" (*TP*, 482–83). Deleuze and Guattari are thus suggesting here that the move to rhizomatic thought occurs with a shift in the meaning of the term "multiplicity." Rather than seeing it adjectivally, as something which we use to describe various elements, it becomes an entity in its own right—we move from a predicative to a substantive understanding. But this means that we no longer talk in terms of the multiple x , but of a multiplicity itself. To think this way, Deleuze and Guattari do not mean we should take up the many elements into the one ("We can say 'the one is multiple, the multiple one' forever: we speak like Plato's young men who did not even spare the farmyard" [*DR*, 182]). Hegel's solution to the problem of the one and the many (the infinite and the finite) is to show how both moments dialectically imply one another. Deleuze and Guattari's response is to recognize that these two concepts are necessarily intertwined (as is shown by the fascicular root model), and therefore to reject both simultaneously. They therefore give up the notion of the units of the multiplicity being discrete and closed ("There are no points or positions in a rhizome, such as those found in a structure, tree or root" [*TP*, 8]). They also reject the notion of an inherent moment of unity over and above the elements themselves ("The notion of unity appears only when there is a power takeover in the multiplicity by the signifier or a corresponding subjectification proceeding" [*TP*, 8]). By giving up both moments, they fall outside of the dialectic of the finite and the infinite of Hegel: there is no determinate being to trigger the dialectical process, but rather an "anexact yet rigorous" (*TP*, 483), continuous multiplicity.

Deleuze and Guattari therefore put forward three different models of thought in *A Thousand Plateaus*: the root-book, or arborescent model, the fascicular root, or modernist model, and the rhizome, or "vegetal model" (*DR*, xvii). The key result of this tripartite structure is that it allows us to recognize that it is not simply enough to renounce the classical hierarchical form of arborescent thinking to overcome judgment. Deleuze and Guattari argue that we must be careful not merely to reintroduce the moment of identity at a higher level, as they claim occurs in the thought of Burroughs, Nietzsche, and Joyce. In this sense, we must be wary of taking too loosely Deleuze's proclamation of a new logic of "and . . . and . . . and," as this is also the slogan of the conjunctive logic of Hegel's spurious infinite. Rather, the rhizome is "open and connectable in all of its dimensions" (*TP*, 12) and is a-centered, rather than poly-

centered. While opposing hierarchy, it does not do so by recourse to linear series. This chapter has provided a *via negativa* of rhizomatic thought: it is not the thought of judgment, nor the attempt to incorporate judgment into the movement of infinite thought which we find in the dialectic. A positive account of rhizomatics would require us to see exactly how Riemann allows the move from dialectics to topology, and why we naturally believe judgment to provide an adequate understanding of the world. Only with such an account could we truly evaluate Deleuze and Guattari's concept of the rhizome.

Notes

1. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987), 5.

2. Deleuze refers to Porphyry's *Isagoge* in his discussion of Aristotle in *Difference and Repetition*, trans. Paul Patton (New York: Columbia University Press, 1994), 30–35.

3. Porphyry, *Isagoge*, trans. Edward W. Warren (Toronto: Pontifical Institute of Mediaeval Studies, 1975), 37.

4. *Ibid.*, 60.

5. Aristotle, *Parts of Animals*, in *The Complete Works of Aristotle*, ed. Jonathan Barnes, trans. W. Ogle (Princeton, N.J.: Princeton University Press, 1995), 681a37–681b5. See Ermanno Bencivenga, *Hegel's Dialectical Logic* (Oxford: Oxford University Press, 2000), chap. 1, for a full discussion of these border cases in Aristotle.

6. This is one of the main results of Kant's transcendental deduction. See Immanuel Kant, *Critique of Pure Reason*, trans. Norman Kemp Smith (London: Macmillan, 1929), A84/B116–A130/B170.

7. Kingsley Stern, *Introductory Plant Biology* (Burr Ridge, Ill.: McGraw-Hill Higher Education, 2000), 63.

8. *Ibid.*, 428–29.

9. A good example of a transversal connection is Raoul Benveniste and George Todaro's "Evolution of C-Type Viral Genes: Inheritance of Exogenously Acquired Viral Genes," *Nature* 252 (December 1974): 456–59, which is referred to by Deleuze and Guattari (*TP*, 29). Benveniste and Todaro show that as well as DNA passing between organisms through descent, it can also be incorporated into the genome as a result of virus infection. Through infection, virus DNA becomes part of the genome of the host organism, which is then transferred by lineal descent to the host's progeny. In this case, we have a horizontal (or transversal), rather than vertical, transmission of DNA.

10. Deleuze and Guattari define an assemblage as follows: "A multiplicity has neither subject nor object, only determinations, magnitudes, and dimensions that cannot increase in number without the multiplicity changing in nature (the

laws of combination therefore increase in number as the multiplicity grows) . . . An assemblage is precisely this increase in the dimensions of a multiplicity that necessarily changes in nature as it expands its connections" (*TP*, 29).

11. Lynn Margulis, *Symbiosis in Cell Evolution* (San Francisco: W. H. Freeman, 1981).

12. Stern, *Introductory Plant Biology*, 75.

13. G. W. F. Hegel, *The Encyclopaedia Logic, Part 1 of the Encyclopaedia of Philosophical Sciences with the Zusätze*, trans. Theodore F. Geraets, Wallis Arthur Suchting, and Henry Siltou Harris (Indianapolis: Hackett, 1991), 6.

14. Hegel, *Phenomenology of Spirit*, trans. A. V. Miller (Oxford: Clarendon, 1977), 37.

15. Deleuze and Guattari make a similar point in *A Thousand Plateaus*, writing "one becomes two: whenever we encounter this formula, even stated strategically by Mao or understood in the most 'dialectical' way possible, what we have before us is the most classical, and well reflected, oldest, and weariest kind of thought" (*TP*, 5).

16. Stephen Houlgate, *An Introduction to Hegel: Freedom, Truth and History* (Oxford: Blackwell, 2005), 109.

17. Hegel, *Philosophy of Nature*, trans. A. V. Miller (Oxford: Clarendon, 1970), 14.

18. "This reproduction is not mediated by opposition" (*PN*, 312).

19. Hegel, *Hegel's Science of Logic*, trans. A. V. Miller (Atlantic Highlands, N.J.: Humanities Press International, 1989), 116.

20. Hegel, *The Jena System, 1804–5: Logic and Metaphysics*, trans. H. S. Harris, John W. Burbidge, and George Di Giovanni (Kingston, Can.: McGill-Queen's University Press, 1986), 33.

21. Hegel, *Hegel's Science of Logic*, 143–44.

22. William Burroughs, *Naked Lunch: The Restored Text*, ed. James Grauerholz and Barry Miles (London: HarperPerennial, 2005), 187.

23. Deleuze and Guattari's analysis on this point is in sharp contrast to Deleuze's earlier incorporation of the eternal return into his philosophy. As well as *Nietzsche and Philosophy*, trans. Hugh Tomlinson (New York: Columbia University Press, 1983), see *Difference and Repetition*, particularly Deleuze's discussion of the third synthesis in chap. 2.

24. "The abortionists of unity are indeed angel makers, doctores angelici, because they affirm a properly angelic and superior unity" (*TP*, 6).

25. We have already seen several cases where the rhizomatic model of thinking is helpful in understanding systems. In the examples of the wasp and the orchid and of Margulis's work on cell evolution, for instance, we have the development of assemblages that are not defined by interior relations such as we find in the Hegelian model of the organism, or of the infinite, but rather by the capacity of each part of the system to interact with other parts. Such a model is particularly apt for discussions of evolutionary theory, as the parts of an organism are no longer defined in terms of the function they perform in relation to the purpose of the organism as a whole, but in terms of the relations that they are able to enter into. As such, the function of a part can change by entering into

new relations, as the function of the mitochondria change by entering into new relations with other organelles (whereas on the organismic model, the part is defined by its purpose, and therefore cannot enter into new relations without ceasing to be what it is). The ability for the same element to play different roles in different assemblages is a cornerstone of an evolutionary understanding of life. In *A Thousand Plateaus*, Deleuze and Guattari expand this rhizomatic model of conjunctive logic to other domains, such as the social and the technological. Their discussion of the stirrup, for instance, shows how the introduction of new elements into an assemblage allows for new forms of interaction, and hence new functions for preexisting parts:

The very general primacy of the collective and machinic assemblage over the technical element applies generally, for tools as for weapons. Weapons and tools are consequences, nothing but consequences. It has often been remarked that a weapon is nothing outside of the combat organization it is bound up with . . . The lance and the sword came into being in the Bronze Age only by virtue of the man-horse assemblage, which caused a lengthening of the dagger and pike, and made the first infantry weapons, the morning star and the battle-ax, obsolete. The stirrup, in turn, occasioned a new figure of the man-horse assemblage, entailing a new type of lance and new weapons; and this man-horse-stirrup constellation is itself variable, and has different effects depending on whether it is bound up with the general conditions of nomadism, or later readapted to the sedentary conditions of feudalism. (*TP*, 398–99)