Part III. The Economic Concept of Ordinal Value in Chapter 9

Socially-necessary labor time, supply and demand, marginal utility, putative or nominal price, risk-weighted interest rates, or some combination of the above: what do all of these conceptions of the determinates of value share in common? In short, they service cardinal theories of value. And as such, according to D&G they are not so much completely wrong as they are ordinary and partial and not general enough. Against a theory of cardinal value D&G advocate the concept of ordinal value, the latter of which is in a state of perpetual becoming, emanates between the flows of quanta, along their basins of attraction, and are only then metricized as segments and lines of, for instance, rates of return on labor or on capital, spreads between supply and demand, nominal and real interest rates, and so on. The economic indices of cardinal values differentiate from out of ordinal value, but then exogenously feed back into it, continuously remaking the latter’s vacant interiority. This is the concept of ordinal value sketched by D&G in Chapter 9.

We said in Part I that our first concern is to familiarize ourselves with the complex of technical terms culled by D&G, then developed and deployed in the service of their project. Of course D&G’s project is neither exclusively nor first and foremost economic, nor political-financial, as is ours herein—albeit as we have already begun to see, it is readily tailored to these concerns. Because D&G’s broad intention in TP is to inaugurate a new method of doing social science now definitively under the umbrella of conceptual resources endemic to dynamical systems theory, and insofar as political finance includes itself under the social scientific wager on the commensurability of its discourses, we can both exposit the concepts developed and deployed in Chapter 9 at the same time that we tailor our exposition of these technically-rigorous if highly-novel conceptual resources to our own task at hand.

Example (part I of II)

Let’s head straight away to the example used by D&G to illustrate the dynamics of ordinal value. Then we’ll back our way out to elaborate the content of the concepts involved therein.

At this point in the Chapter 9, D&G have just asserted that ‘every society’, ‘every individual’—and thus by implication and importantly for us every economy—are simultaneously ‘ployed’ by two modes of segmentarity: ‘one molar, the other molecular’; and that there is a ‘double reciprocal dependency between them.’1 The molar, which we will elaborate in depth below, is macroeconomic —rigid, veridical, Euclidean, arborescent. The molecular, which we will also elaborate in depth below, is microeconomic —fungible, horizontal, topological, rhizomatic.

However, D&G then observe:

‘[T]he words “line” and “segment” should be reserved for molar organization, and other, more suitable words should be sought for molecular composition…. [F]or whenever we can identify a well-defined segmented line, we notice that it continues in another form, as

---

1 Ibid pg. 213 {my emphasis}
a *quantum flow*. And in every instance we can locate a “power center” at the border between the two, defined not by an absolute exercise of power within its domain but by the relative adaptions and conversions it effects between the line and the flow.’

Less abstractly, what are these lines and segments, quanta flow, power centers, and the like? Concretely, what do these terms mean?

D&G provide an example:

‘Take a monetary flow with segments. These *segments* can be defined from several points of view, for example, from the viewpoint of a corporate budget (real wages, net profit, management salaries, interests on assets, reserves, investments, etc.).’

**FIGURE 3.1. D&G’S IMAGE HERE**

This is D&G’s example, from which we derive their concept of ordinal value. Their example here is ‘a monetary flow’ —as in *cash flow, the flow of money, the distribution of money*. And the ‘viewpoint’ from which one ‘defines’ its rigid segments are a ‘corporate budget’, or in other words and to begin with, the metricized data recorded in any economic accounting report, when attempting to account for, as in numerically-register or measure, a given value. These are the *lines* and *segments*, the stratified, striated metrics of the flow of money.²

However, they then clarify:

‘[T]his line of payment-money is linked to another aspect, namely, the flow of financing-money, which has not segments, but rather *poles, singularities, and quanta* (the poles of the flow are the creation of money and its destruction; the singularities are nominal liquid assets; the quanta are inflation, deflation, and stagflation, etc.). This has led some to speak of a “mutant convulsive, creative and circulatory flow” tied to desire and always subjacent to the solid *line* and its *segments* determining interest rates and supply and demand.’³

Poles and quanta and singularities —these comprise elements of the mutant dynamical flow of money, which as D&G put it ‘link’ the metricized flows of ‘payment-money’ to the more fungible, anexact, topological flows of ‘financing-money’. And then this last line in the above quote is crucial: they assert that the ‘mutant’ and ‘creative’ composition of the flow of money is ‘subjacent to’, *viz.* it underlies or lies just below the perceptual field of the lines and segments that determine interest rates, generative tensions between supply and demand, and so on –the latter of which are, in other words, the extensive properties constitutive of metricized value, the value-form, or what D&G regard as *cardinal value*.

---

² We will elaborate this point in more depth below (in Example (part II of II)). For now let us observe that “economic accounting” is the contemporary financial term (which, incidentally, was not commonly used term when D&G wrote *TP*) to denote the record keeping system of transactions of the principal segments (called “sectors”) of the economy. Such records report macroeconomic and financial flows data.

³ Ibid pg. 213 {my emphasis}
Such flows, then, are every bit as real as the metrics of the molar, it’s only that they are ‘subjacent’ to it. Such flows comprise ‘a mutant convulsive, creative and circulatory flow tied to desire and always subjacent to’ the molar determinates of cardinal value. It is strictly speaking not actual, but every bit as real.

And so lastly, D&G add:

‘When we talk about banking power, concentrated most notably in the central banks, it is indeed a question of the relative power to regulate “as much as” possible the communication, conversion, and coadaptation of the two parts of the circuit. That is why power centers are defined much more by what escapes them or by their impotence than by their zone of power. In short, the molecular, or microeconomics…is defined not by the smallness of its elements but by the nature of its “mass” – the quantum flow as opposed to the molar segmented line. The task of making the segments correspond to the quanta, of adjusting the segments to the quanta, implies hit-and-miss changes in rhythm and mode rather than any omnipotence; and something always escapes.’

D&G’s understanding of banking power, or what is today more expansively referred to as simply ‘finance’ (or what a political economist might dub ‘the power of finance capital’), is that it’s ‘concentrated most notably in central banks’, but also in other places, such as ‘the World Bank…[and other] credit banks’. D&G define banking power as the power ‘to regulate “as much as” possible the communication, conversion, and coadaptation of the two parts of the circuit’ – the ‘two parts of the circuit’ being the molar (macroeconomic) and the molecular (the microeconomic). It’s then hardly a sovereign power, or what we would typically think of as a ‘power center’; which is why D&G say that, for instance, central banks yes do regulate, they ‘regulate “as much as possible”’ the oscillating intercourse between the molar and molecular; but in truth they’re ‘defined much more by what escapes them or by their impotence than by their zone of power.’ Power centers of the economy, such as central banks, and other major financial institutions, attempt to mediate the molar and the molecular flows, but in reality, and as we so often hear, always “have the tiger (the mutant-molecular machine) by its tail (the molar machine)”.

Molar Machines, Molecular Machines

Obviously some elaboration here is required. A first thing to observe is that since 1980, when D&G originally published TP, material developments in and of finance have caused changes to its discourse, which in turn have caused changes to its terminology. It is therefore prudent to update a few financial terms used in D&G’s example, to better specify both the contemporary relevance of their ordinal concept of value, as well as its application for dromocracy. A second thing to observe is that since 1980, further research and developments in DST, especially in chaos theory, would have now caused D&G to modify some elements endemic to their concept of ordinal value. We will do this for them.

NOTE ON HOW THIS IS TECHNICALLY CORRECT – NOTE MOLARITY, OR MOLAR MASS…

TP pg. 217
So as we said we would, let us now back out our aperture from D&G’s example, in order to recalibrate our lens of analysis to the ontology developed in Chapter 9, whose conceptual deployment in their example we will reencounter once again—and whose terminology we will be tinkering with and updating at the same time.

The opening pages of Chapter 9 include a series of compelling observations about the ways in which social, political, economic phenomena are organized by modes of segmentation. As D&G put it, '[w]e are segmented all around and in every direction. The human being is a segmentary animal. Segmentarity is inherent to all the strata composing us.' D&G proceed to outline three common modes of social segmentation—the binary (man-woman, adult child, etc.), the circular (the disks or coronas of house, neighborhood, city, state, etc.), and the linear (from family to school, from school to work, etc.). And to be clear, D&G do not here explicitly say anything by way of example about economic segmentation; but it is not the case that about it there is nothing to be said.

Although, as we have observed, planned economies are evident actualizations of the arborescent model of the distribution of flows, and the former are often represented as centralized through and through, D&G do not concede as meaningful any opposition between centralization and segmentation. Rather, the principal differences in any manner of economic flows pivot on two different types of segmentarity—the rigid and the supple: as D&G note, ‘rigid segmentarity is always expressed by the Tree’—it is macroeconomic, veridical, and Euclidean; but there is also supple or fungible segmentarity, which is rhizomatic, and ‘results from multiplicities of n-dimensions’—it is microeconomic, horizontal, and topological. And as D&G note, these two different manners of flows are effected according to their different (abstract) machines: there is the (macroeconomic) machine of overcoding, which involves territorializations and reterritorializations of rigid segmentations; and there is the (microeconomic) machine of decoding, which involves deterritorializations of more fungible or supple segmentations.

There is still some conceptual unpacking for us to do here. However, let us be sure to proceed with caution. D&G have, to begin with, arranged an ostensible opposition between the molar and the molecular: in broad economic terms, this means that on the one hand, the molar is of the ‘realm of representations’, which in macroeconomic terms denotes, as they say, ‘large scale aggregates’, the rigid segments and lines, the metrics, the indexical determinates of cardinal value; and on the other hand, the molecular is a subrepresentational content that constantly leaks out of the molar, is irreducible to the molar, but then always crystallizes into and is only ever articulated, or capable of ‘representation’ in and by the molar. D&G define the molar as rigid, and the molecular as fungible. The molar is arborescent, while the molecular is rhizomatic.

---

6 Ibid pg. 2018
7 It is relevant to notify our reader that the three principal Euclidean geometric motions—which are rigid motions, called ‘congruent motions’—are reflection (of binary images), rotation (in circles), and translation (which is linear). Segментations and lines are the rigid motions for organizing the distribution of social flows.
8 ‘There is no opposition between the central and the segmentary. The modern [economic] system is a global whole, unified and unifying, but is so because it implies a constellation of juxtaposed, imbricated, ordered subsystems; the analysis of decision making brings to light all kinds of compartmentalizations and partial processes that interconnect, but not without gaps and displacements.’ For this reason, ‘the classical opposition between segmentarity and centralization hardly seems relevant. Not only does the State exercise power over the segments it sustains or permits to survive, but it possesses and imposes its own segmentarities.’ Ibid pg. 210, 209-210
9 Ibid pg. 212
molar is all metrics, but the molecular is relatively nonmetrical. And on and on the elements of this ostensible binarity are delineated. However, this is precisely why we have said we must proceed here with caution. Like all ostensible binaries we encounter in the work of D&G, in truth this binary is not so much a binary, as we will see, but a differentiation—and as a differentiation any ostensible binary is *only ever ostensible* insofar as it’s a shred of a moment in the life of the differentiation, but one that’s quickly on its way to further fragmentation, further splitting, creating new differentiations out of its prior differentiation. In short, it is a becoming.

This is certainly the case with the ostensible binary developed herein. First D&G have asserted that they do not regard as accurate or meaningful political economic distinctions made between the ostensible binary of centralization and segmentation. Rather, that either segmentation already includes centralization as a subclass of itself, or (which is to say the same thing) that even centralization is always compelled to effect its own segmentations. Then later, D&G will distinguish as ‘two kinds of segmentation’ the supple (primitive) and the rigid (modern), but then once again undercut the apparent binarity of this differentiation by asserting that not only is it not enough to oppose the centralized to the segmentary, ‘[n]or is it enough to oppose two kinds of segmentarity, one supple and primitive, the other modern and rigidified.’ For as D&G say, ‘[t]here is indeed a distinction between the two, but they are inseparable, they overlap, they are entangled’ (This is, properly speaking, both a re- and a de-differentiation—the supple and the rigid are ontologically distinct, but in actuality, and empirically, always entangled). The key thesis of Chapter 9 then follows (and our reader here will observe yet another, new, ostensible binary-to-be-introduced-but-then-undercut-and-revealed-as-a-differentiation):

‘Every [economy], and every individual, are thus plied by both segmentarities simultaneously: one molar, the other molecular. If they are distinct, it is because they do not have the same terms or the same nature or even the same type of multiplicity. If they are inseparable, it is because they coexist and cross over into each other… [T]here is a double reciprocal dependency between them.’

Given their immediate concern with social segmentation, D&G invoke as an example the case of an individual. They say: ‘Take aggregates of the perception or feeling type: their molar organization, their rigid segmentarity does not preclude the existence of an entire world of unconscious micropercepts, unconscious affects, fine segmentations that grasp or experience

---

10 (‘It might be objected that the segments themselves presuppose a power center, as what distinguishes and unites them, sets them in opposition and makes them resonate. But there is no contradiction between the segmentary parts and the centralized apparatus. On the one hand, the most rigid of segmentarities does not preclude centralization: this is because the common central point is not where all the other points melt together, but instead acts as a point of resonance on the horizon, behind all the other points. The State is not a point taking all the others upon itself, but a resonance chamber for them all. Even when the State is totalitarian, its function as resonator for distinct centers and segments remains unchanged: the only difference is that it takes place under closed-vessel conditions that increase its internal reach, or couples “resonance” with a “forced movement.” On the other hand, and conversely, the strictest of centralizations does not eradicate the distinctiveness of the centers, segments, and circles. When the overcoding line is drawn, it assures the prevalence of one segment, as such, over the other (in the case of binary segmentarity), gives a certain center a power of relative resonance over the others (in the case of circular segmentarity), and underscores the dominant segment through which it itself passes (in the case of linear segmentarity). Thus centralization is always hierarchical, but hierarchy is always segmentary.’) Ibid pg. 224

11 Ibid pg. 213

12 Ibid pg. 213
different things, are distributed and operate differently.13 However, we also immediately recognize its implications for economics. For when it comes to the distribution of economic flows, attempts to account for macroeconomic ‘aggregates’, i.e. ‘molar’ or ‘rigid segmentarities’, is all well and fine, but by no means exhaust the causal determinates of economic flows. Indeed, D&G argue, when it comes to the determinates of economic flows, ‘[t]here is a micro[economics] of perception, affection, conversation, and so forth. If we consider the great binary aggregates [of macroeconomics, e.g. goods and services, investment spending, consumption, savings, and so on] it is evident that they also cross over into molecular assemblages of a different nature, and that there is a double reciprocal dependency between them.’14

So with some justification, at first glance one may believe that D&G have re-articulated, if also expanded, the more or less orthodox macroeconomic-microeconomic distinction of the determinates of the distribution of economic flows, albeit have now re-labeled it in terms of molar and molecular machines. However, no sooner have D&G itemized this ostensible binary, does it then reveal itself, retroactively, to have all along been a latent differentiation among three different kinds of lines: rigid lines, supple lines, and now several lines of flight. So now we see that in reality there are three modes of flows:

(i) There are rigid lines: these denote the fixed and Euclidean binary, circular, and linear segmentations that characterize molar segmentations, the general and generalizing metrics, the codes and overcodings of macroeconomic representation (about which we will say more below).

(ii) Then there are supple lines: these denote the ‘interlaced codes’ that still constitute segmentation, albeit now microeconomic segmentation –and while still segmented in and as binaries, circles, and linearities (the three common modes of segmentation), they’re marked by more fungibility or pliability, i.e. they are comparatively more plastic in their mode of composition of actualized economic flows; which is only to say that while their mode of segmentation is more fungible, the outcome is always just as segmented: here, it’s as if non-Euclidean motions are merely used to transform Euclidean objects into their rigid images.

(iii) And then there are the lines of flight: and as we will see, D&G define these in terms of chaos, or as chaotic flows.15

What was then once a simple ostensible binarity between the molar on the one hand, and the molecular on the other hand, has now split, or differentiated, or even bifurcated (which is to say –effected a ‘phase transition’) into the molar on the one hand, which has three common modes of rigid segmentation (binary, circular, linear), and now two different modes of the molecular on the other hands, which on the new one hand has three supple modes of segmentation (binary, circular, linear), and on the new other hand has a dynamic set of lines.

---

13 Ibid pg. 213
14 Ibid pg. 213
15 Reading the full quote is instructive (‘Now we are in a better position to draw a map. If we return to a very general sense of the word "line," we see that there are not just two kinds of lines but three. First, a relatively supple line of interlaced codes and territorialities; that is why we started with so-called primitive segmentarity, in which the social space is constituted by territorial and lineal segmentations. Second, a rigid line, which brings about a dualist organization of segments, a concentricity of circles in resonance, and generalized overcoding; here, the social space implies a State apparatus. This system is different from the primitive system precisely because overcoding is not a stronger code, but a specific procedure different from that of codes (similarly, reterritorialization is not an added territory, but takes place in a different space than that of territories, namely, overcoded geometrical space). Third, one or several lines of flight, marked by quanta and defined by decoding and deterritorialization (there is always something like a war machine functioning on these lines).’) Ibid pg. 222
which are wholly-unsegmented, wholly-immune to any segmentation, wholly immune to empirical representation, as such (D&G call it ‘submolecular’ or ‘subrepresentational’ —meaning it is real, but neither actual nor capable being ‘accounted’ for, i.e. by way of standard economic accounting techniques). Now, in addition to (ii) the supple-segmented molecular, on this new other hand, D&G posit that (iii) there are also several lines of flight.

We well know the features of (i) the rigid, and well know the features of (ii) the supple. What are the features of (iii) several lines? While (i) and (ii) comprise two dissimilar modalities —macroeconomic and microeconomic— for the composition of lines and segmentations, which means they are two dissimilar but interrelated manners of coding economic phenomena, and therefore comprise different modes of economic territorializations alike, by contrast (iii) the several lines of flight, as D&G put it, are ‘marked by quanta and defined by decoding and deterritorialization’ —and, it is absolutely important for us to note, as D&G wish underscore (by italicizing the text, as if now raising their voices to be heard): ‘there is always something like a war machine functioning along these lines.’

If the lines of flight are chaos, unsurprisingly, so too will be the model of economy which gives priority to its modality of flows. We have arrived at a crucial wager about dromocracy of which we should take note. D&G assert that a war machine economy will ‘function’, by which they mean ‘operate’, along and as a set of lines of flight. However, again, as they observe, the problem is—which in truth is an empirical problematic posed by the ontology of economics, and about which D&G are alerting us, and now enjoining their reader to think with them as a financial economic (methodological) challenge to confront: namely, ‘the three lines do not only coexist [in any given economic phenomena, or set of economic objects], but [constantly] transform themselves into one another, cross-over into one another.’ That is to say, D&G are asserting that all three modes —the supple, the rigid, and the lines of flight— are always bound up in one and the same entity, whether object (e.g. asset), phenomena (e.g. an exchange), or spacetime (e.g. a market). For this reason, an economy founded on chaos does pose a set of technological challenges. And its institutional viability requires their redress. These challenges are tied to the material wagers of nomadic distribution, which we will attend to in Part IV.

D&G now assert:

‘In view of this, it would be better to talk about simultaneous states of the abstract Machine. There is…an abstract machine of overcoding: it defines a rigid segmentarity, a macrosegmentarity, because it produces or rather reproduces segments, opposing them two by two, making all the centers resonate, and laying out a divisible, homogeneous space striated in all directions.’

The machine of overcoding is molar and macroeconomic, or rather actualizes its representations as ‘economic macrosegmentarity’ —and as such, D&G note that it is ‘linked’ to the State but is not precisely ‘equated’ with the State itself, insofar as the State is defined by D&G as merely the set of the assemblages that ‘effectuate’ the overcoding machine. (We return to this point below)

16 Ibid pg. 222
17 Ibid pg. 223
18 (‘This kind of abstract machine is linked to the State apparatus. We do not, however, equate it with the State apparatus itself…. [The State] is only the assemblage of reterritorialization effectuating the overcoding machine
But then at the ‘other pole’ of economic reality:

‘[T]here is an abstract machine of mutation, which operates by decoding and deterritorialization. It is what draws the lines of flight: it steers the quantum flows, assures the connection-creation of flows, and emits new quanta. It itself is in a state of flight, and erects war machines on its lines.’\(^\text{19}\)

Formally speaking, the machine of mutation is nonmetricized, nonmetricizing, and nonmetrical; it has no segmentations, no fixed Euclidean lines, no codes or coding capacities, and for all purpose is unactualized, albeit very real, both in itself and in its effects. It’s mode of distribution is nomadic, not sedentary, it is topologically-distributive, but only ever representable in and as the molecularized, segmented lines of microeconomics, or rather ‘economic microsegmentarity’.

What then is the relation between these two machines –in addition to the fact that they are both simultaneously operative in the self-same entities? D&G note that the inter-physics of these machines is such that the molar involves a metricization, and thus a ‘freezing’ or ‘fixation’ of the lines of flight –the ‘molar or rigid segments always seal, plug, block the lines of flight’; whereas the machine of mutation always produces its lines of flight ‘between the rigid segments and in another, submolecular direction.’ But that between these two poles,

‘there is also a whole realm of properly molecular negotiation, translation, and transduction in which at times molar lines are already undermined by fissures and cracks, and at other times lines of flight are already drawn toward black holes, flow connections are already replaced by limitative conjunctions, and quanta emissions are already converted into center-points.’

So there is the overcoding machine of rigid segmentarity, macroeconomics, the molar. And there is the mutant machine of submolecular lines of flight. And in between them is the ‘realm’ of ‘molecular negotiation, translation, and transduction.’ Moreover, and crucially for D&G, their overlapping dynamics are all happening simultaneously (‘[a]ll of this happens at the same time’).\(^\text{20}\) In economics, and therefore in any economy, lines of flight continually connect-to and unconnect-from the molar, but then may even reconnect to some other point on a line sometime later. For lines of flight are marked by asignifying rupture: they are highly nonlinear, intractably irregular, suffused with turbulent motions, and operate along strange attractors. But just as much is it the case that, because by their very chaotic nature lines of flight are immune to empirical representation, a molecular machine is therefore always required to operate (e.g. ‘negotiate, translate, transduce’) the flows of the lines of flight.

There is a related point to make here. As promised, we will more fully define the dynamical systems-theoretic heritage of these concepts below (see Some Concept Definitions), and

\(^{19}\) Ibid pg. 223
\(^{20}\) Ibid pg. 223-224
especially in Part IV (Elements of Nomadic Distribution). However, we must make one note immediately herein on D&G’s explicit reference to the DST concept of ‘black holes’.

When describing the turbulent dynamics of economic flows, D&G assert that lines of flight may ‘whip particle-signs out of black holes’, but then also ‘retreat into the swirl’ of their own self-made ‘micro-black holes or molecular conjunctions that interrupt them’; or they may effectuate a decoding, but then immediately ‘enter overcoded, concentized, binarized, stable segments arrayed around a central black hole.’ And of course—as we already saw in the abovementioned block quote—amongst such chaos, ‘there is also a whole realm of properly molecular negotiation, translation, and transduction’. In such ‘realm’, D&G argue, agents or operators, i.e. molecular, microeconomic operators ‘negotiate’, ‘translate’, or ‘transduce’ the empirically-conjoined supple-rigid-chaotic flows. Molecular operators are imbricated, standing in, amidst and amongst their inconstant, nonlinear, n-dimensional, hypervolatile economic dynamics. For example, they say, ‘at times molar lines are already undermined by fissures and cracks’. At other times, lines of flight are already drawn toward black holes’. Or even sometimes, ‘flow connections are already replaced by limitative conjunctions, and quanta emissions are already converted into center-points.’

These portions of Chapter 9 are dense and demanding. But D&G are neither being obfuscatory, nor experimental, nor off-the-cuff creating concepts as they go along. Everything D&G have said up to this point (with one important exception—which we will draw our reader’s attention to below (see Some Concept Definitions)) is either derived from and/or consistent with the mass of mathematico-scientific research emanating from DST. The concept of black holes is no exception. I

In fact it nicely illustrates this point.

From DST we know that some systems—in particular nonlinear systems—are such that parameter values exist for which there is bistability between one or more attractors. Glass and Mackey, for example, have observed that ‘[o]ne possibility for the initiation and termination of biological rhythms is that an underlying rhythm is continuously maintained but that an organism can tap into and out of [more than one] rhythm by changing a control parameter.’ So for example, often either a stable limit cycle attractor (of the type provided by D&G to illustrate economic flows, presented in Figure 3.1) may be present; or a steady state fixed point attractor may be present—depending on the stimulus history of the system, the size of its attractors and their basins, and character of control parameters (we will discuss in more depth later that there are finite regions or boundaries of influence called ‘basins of attraction’ defining each attractor). In such cases of nonlinear bistability, there are instances wherein a system moving along a limit cycle receives some perturbation or critical stimulus, which effectively ‘knocks’ the system off its stable limit cycle, and now onto a new basin of attraction, with a new attractor, exhibiting new system-behavior—for example, now onto the a steady state fixed point attractor. This results in the annihilation of the rhythm of the limit cycle oscillation. Because a limit cycle (as one will already intuit from its term) has an rhythmical oscillation, whereas a steady state fixed point (as one will also intuit from its term) does not have any rhythmical oscillation, such a region has been called by the topologist, biologist, and DST theorist Arthur Winfree a ‘black hole’: a perturbation effectuating a condition to a steady state from which the respective system will not return.

21 Ibid pg. 224
22 Ibid pg. 223-224
23 Glass and Mackey pg. 82
D&G have purposely invoked this DST concept in a manner illustrative of the method to which we have attributed them—namely, of deploying mathematical and scientific concepts in order to give them philosophical transformation. First, because of the principal of the univocity of being, D&G convoke black holes in order to think both the actualized and virtual-but-unactualized bistable attractors in a dynamical system, in terms of the flows endemic to not a biological system, but now an economy. Second, D&G give philosophical transformation to this concept: They posit that lines of flight both deterritorialize and reterritorialize on and by way of black holes; or as we said above, and will now repeat—that such lines of flight may ‘whip particle-signs out of black holes’, but then also ‘retreat into the swirl’ of their own self-made ‘micro-black holes or molecular conjunctions that interrupt them’. Or they may effectuate a decoding, but then immediately ‘enter overcoded, concentricized, binarized, stable segments arrayed around a central black hole.’ And of course, crucially, amongst all these dynamics, ‘there is also a whole realm of properly molecular negotiation, translation, and transduction’. That is, in this ‘realm’ molecular operators qua microeconomic agents ‘negotiate’, ‘translate’, or ‘transduce’ the conjoined supple-lines of flight of flows. Molecular operators are imbricated, standing in, amidst, and amongst these inconstant, nonlinear, turbulent, hypervolatile economic dynamics. D&G, in other words, are now clearly philosophically-operating on the DST concept of black holes: They wager that if, as Winfree has shown, an operator effecting a well-timed and -placed critical stimulus of the right size and duration can annihilate an oscillation, so too it is possible for an equally apt stimulus to initiate one anew. Such condition, D&G are suggesting, may yet merely prove itself an alternative manner of illustrating that molecular operations between the mutant, creative, and convulsive lines of flight and those of the rigid, metricized segmented molar machines are the condition of possibility for any and all change, economically.

The reader really does get a clear sense that D&G are here moving towards—and enjoining us to think with them—a wholesale inauguration of a new heterodox method of economics, now under

---

24 Reproduction of the full quote is appropriate (‘[T]here is an abstract machine of mutation, which operates by decoding and deterritorialization. It is what draws the lines of flight: it steers the quantum flows, assures the connection-creation of flows, and emits new quanta. It itself is in a state of flight, and erects war machines on its lines. If it constitutes another pole, it is because molar or rigid segments always seal, plug, block the lines of flight, whereas this machine is always making them flow, "between" the rigid segments and in another, submolecular, direction. But between the two poles there is also a whole realm of properly molecular negotiation, translation, and transduction in which at times molar lines are already undermined by fissures and cracks, and at other times lines of flight are already drawn toward black holes, flow connections are already replaced by limitative conjunctions, and quanta emissions are already converted into center-points. All of this happens at the same time. It is at the same time that lines of flight connect and continue their intensities, whip particles-signs out of black holes; and also retreat into the swirl of micro-black holes or molecular conjunctions that interrupt them; or again, enter overcoded, concentricized, binarized, stable segments arrayed around a central black hole.’) Ibid pg. 224

25 Transduction is the process by which an operator converts one kind of signal or message into another.

26 Winfree himself has conceded this point, without developing it in the aforementioned manner of D&G, when expanding his concept of a singularity (‘The singularity itself is a locus of states near which timing is infinitely delicate; and if the singularity bounds a black hole, a stimulus on the black side of the singular locus is guaranteed to lead to no recovery. But “no recovery” may imply approach to a steady state or it may forebode transition to a new mode of activity, possibly aperiodic, possibly periodic in a new way. This last “possibility” is a vivid reality in spatially structured oscillations,…’) Arthur Winfree, When Time Breaks Down: The Three Dimensional Dynamics of Electrochemical Waves and Cardiac Arrhythmias, Princeton, 1987 pg. 99 Operating into being such ‘new mode of activity’ is D&G’s, and our speculative materialist, wager of following singularities for purposes of institutionalizing an economy of the war machine.
the auspices of the conceptual resources endemic to dynamical systems theory. But surely our reader will wish to know more? For instance, a question that arises here is a question one would ask of any self-proclaimed ‘new’ economic methodology: namely, given these aforementioned assertions, what are the causal determinates of—or if not ‘determinates’ then at least relevant factors associated with—these manners of economic flows? For example, in D&G’s economic terms, if the lines of flight leak out of the cracks in the molar, but if the molar can in turn limit, block, or reterritorialize such flows; if lines of flight can whip particle-signs out of the nothingness of black holes, establishing new modes of oscillation, but then such particle-signs can dissipate and turn or return to nothingness, endure encoding, recoding, effectuate another decoding, or even morph into further deterritorializations; in short, if all this is the case, the question is, how or under what conditions does all of this occur? Is it completely random, pure stochastization (which D&G have given us no reason to believe)? Or is it partially-deterministic and partially-stochastic (which D&G have also not outright asserted)? Or is it fully-deterministic (which, based on our understanding of dynamical systems theory, intuitively sounds wrong, and which D&G have also not given us reason to believe)? And if it is deterministic, then of what brand of determinism (mechanical, formal, chaotic, etc.) is it?27

The short answer—which is Deleuze’s DST-informed reply to this question—issued ahead of time, first given in the opening chapter of his book on Bergsonism, then more systematically-elaborated in Difference and Repetition, and now reformulated in TP in abbreviated form—is that these are poorly-formulated questions, insofar as stochastization and determinism both cohabit each other (this is already shown in Bénard cells, the most elementary exposition of a nonlinear system28), and even under certain conditions are ontologically one-and-the-same: the technically-proper term for conflation of both of these states is deterministic chaos. And Part IV involves an exposition of its relevance to dromocracy. However, even here we will begin to give our reader a more complete reply.

Example (part II of II)

By now we well know there are qualitatively different modalities of economic flows. And we have observed that every economic flow is simultaneously ‘plied’ by two modes of segmentarity: ‘one molar, the other molecular.’ We know that the molar is macroeconomic – rigid, veridical, Euclidean, arborescent. The molecular is microeconomic – fungible, horizontal, topological, rhizomatic. And that there is a ‘double reciprocal dependency between them’29 Moreover, D&G observe that as a rule, the stronger the molar organization of an economy, the more it tends to reproduce the ‘molecularization of its own elements, relations, and elementary apparatuses.’30

27 See Bunge (1979) for good overview of these distinctions.
28 Accessible introductions to Bénard cells are found in G. Nicolis and I. Prigogine, Exploring Complexity: An Introduction, W.H. Freeman & Company pg. 8-15; and G. Nicolis (1995) pg. 5-12
29 (‘Every society, and every individual, are thus plied by both segmentarities simultaneously: one molar, the other molecular. If they are distinct, it is because they do not have the same terms or the same relations or the same nature or even the same type of multiplicity. If they are inseparable, it is because they coexist and cross over into each other. The configurations differ, for example, between the primitives and us, but the two segmentarities are always in presupposition. In short, everything is political, but every politics is simultaneously a macropolitics and a micropolitics…..If we consider the great binary aggregates…it is evident that they also cross over into molecular assemblages of a different nature, and that there is a double reciprocal dependency between them.’) Ibid pg. 213
30 Ibid pg. 215
For as they say, ‘when the machine becomes planetary or cosmic, there is an increasing tendency for assemblages to miniaturize, to become micro-assemblages.’ And yet it’s also true that ‘molecular movements do not [only] complement but rather thwart and break through [the molar]: ‘it is as if a line of flight, perhaps only a trickle to begin with, leaked between the segments, escaping their centralization, eluding their totalization…. There is always something that flows or flees….’

For this reason, D&G say:

‘[T]he words “line” and “segment” should be reserved for molar organization, and other, more suitable words should be sought for molecular composition. And in fact, whenever we can identify a well-defined segmented line, we notice that it continues in another form, as a quantum flow. And in every instance we can locate a “power center” at the border between the two, defined not by an absolute exercise of power within its domain but by the relative adaptions and conversions it effects between the line and the flow.’

For example, D&G say (and here we’re back to where we left off):

‘Take a monetary flow with segments. These segments can be defined from several points of view, for example, from the viewpoint of a corporate budget (real wages, net profit, management salaries, interests on assets, reserves, investments, etc.).’

We’ve already once considered, albeit in a more elementary manner, this example of ‘a monetary flow’—as in cash flow, the flow of money, the distribution of money, or what we’ve since simply been calling economic flows—which is the example D&G use to illustrate their concept of ordinal value. We have also observed that the ‘viewpoint’ from which its lines and segments ‘can be defined’ are the metrical data recorded in an economic accounting report, when the latter attempts to account for, as in numerically-register or measure, a given value; and that these are what D&G intend to denote when invoking the terms ‘lines’ and ‘segments’—they are the stratified, striated metrics of the flow of money, or economic flows. So let us now more fully examine the contemporary relevance of this ‘viewpoint’.

One might have earlier asked, what exactly are D&G intending to denote when using this term ‘flow’ in their example? What exactly is a flow? This is precisely D&G’s point. There are always two ways to answer this question: (i) The first is from the ‘viewpoint’ of its rigid segments and lines, i.e. the determinative metrics of cardinal value: whether it’s the price of wages, net savings, net profits, rates of interest, capital and reserves requirements, investment spending, consumption, and so on; this approach is the naïve realist approach to representing value—cardinal value. Its flows are of the molar machine.

It’s also worth observing that while financial discourse and its terminology has altered somewhat since D&G first provided this example (in the 1980s), if we update their terminology, we quickly see that and how this ‘viewpoint’ of a flow is still more or less accurate. How so? Let us consider in more depth the overcoded flows represented by contemporary methods of financial accounting.

31 Ibid pg. 216
Financial accounting defines a general macroeconomic system of accounting, whose reports record the segments and lines of the aggregate flow of money. The two most prevalent financial accounting reports in the United States are The National Income and Product Accounts (NIPAs) and the Flow of Funds Accounts.

NIPAs are produced quarterly by the U.S. Commerce Department. They record the broadest macrosegmented economic data: all major macroeconomic metrics are represented therein—e.g. income flows, production of goods and services, investment spending, consumer spending, and above all and especially what is ostensibly the broadest metric for total market value of all goods and services produced within the geographical boundary of the United States—namely, gross domestic product (GDP). What is the total national cardinal value for any given quarter (and let us note here the term “quarter” is already both a temporally-segmented linearity (i.e. 1-2-3-4 quarters unfold forward in time as one unit annual year) and a spatial circularity (i.e. 4 quarters proportionally ‘add-up’ to comprise one unit annual year))? The answer to this question is always found by looking to GDP—the segments and lines, i.e. the line-itemized GDP, broken down into its various segments by NIPA. For example, personal consumption expenditures are segmented along the binarity of durable-nondurable goods; net exports of goods and services are also segmented along the binarity of imports-exports; government consumption expenditures and gross investment are segmented along the concentric circles of local-state-federal boundaries; and gross private domestic investment is segmented along a linear set of changes to fixed investment relative to changes in private inventories. This is the kind of concrete illustration D&G were presuming when observing it in abstract terms, in their example above.

NIPAs, however, while providing rigidly segmented data, otherwise take account of very few, if any, metrics on financial transactions, which are considerably more supple in their mode of segmentation. To correct this empirical myopia, the Flow of Funds Accounts is published quarterly by the Federal Reserve. The Flow of Funds method of accounting first segments the economy into a series of nonconcentric circles qua sectors: Households, Commercial Banks, Noncommercial Banks, Governments, Farm Businesses, Nonfarm Businesses, Monetary Authorities, other International transactors, and so on. Then a line-itemized balance sheet is constructed for each sector as a series of cardinal value binarities: for example, assets-liabilities (which metrically-represent current net worth), financial-nonfinancial assets, lenders-borrowers, funds raised through debt-equity, and so on; such binarities in The Flows of Funds Account proliferate en masse. Moreover, each Flow of Funds statement records proportional, additive, linear changes to the distribution, or flow of funds: for example, changes in holdings of financial assets and liabilities, changes in net worth, etc.

**TABLE 3.0 NTS: PRODUCE GRAPHS HERE (LOCATE BY TRACING FROM ROSE AND MARQUIS)**

Financial accounting reports, such as NIPAs and Flow of Funds Accounts, are considered indispensable sources for representing cardinal value, or what D&G have been describing as ‘the well-defined segmented lines’ comprising the metricized distribution of economic flows. However, limitations on the ability of this ‘viewpoint’ to capture those aspects of flows that do

---

33 Ibid pg. 83
not lend themselves to such lines and segments are profound. We have already observed that NIPAs are considered inept at accounting for financial transactions, the latter of which, on the one hand are comparatively supple and contingent, but on the other hand are also determinative of the direction, amount, and velocity of economic flows that NIPAs precisely purport to represent. The Flow of Funds Accounts attempts to correct this representational shortcoming, but in turn has its own limitations. For example, The Flow of Funds Account does not record intra-sectorial flows of funds, which means it fails to represent, or metricize, those changes in flows falling within—and therefore outside—its own aforementioned sectored segmentations. More importantly, it also does not capture any of the dynamics of intertemporal financial becomings: only those net flows occurring from one and to another discrete time period are represented by the metrics of the Flow of Funds Account, but never those changes occurring between two discrete time periods. And especially and above all, D&G emphasize that the overcoded molar organizations of flows represented by such financial accounting methods fail to grasp those ‘quanta’ so determinative of the microphysics of flows. For this reason, D&G observe that

‘a monetary flow with segments…can be defined from several points of view, for example, from the viewpoint of [financial accounting]’

…but then observe that one can also observe a flow distributing itself in ‘another form’ at the same time. In fact, as D&G note:

‘whenever we can identify a well-defined segmented line, we notice that it continues in another form, as a quantum flow.’

What is this this quantum flow? What is its character? To begin with, it is ‘convulsive’, ‘creative’, and ‘circulatory’—it is the flow of finance. As D&G say,

’[It is] the flow of financing-money, which has not segments, but rather poles, singularities, and quanta (the poles of the flow are the creation of money and its destruction; the singularities are nominal liquid assets; the quanta are inflation, deflation, and stagflation, etc.).

Moreover, D&G posit that these quantum flows of finance are ‘subjacent’ to the flows whose metrics comprise the elements of cardinal value. It is, in other words, again,

’[a] “mutant convulsive, creative and circulatory flow” tied to desire and always subjacent to the solid line and its segments determining interest rates and supply and demand.’

Simply put: the metrics of cardinal value + this ‘mutant, convulsive, creative circulatory flow tied to desire and always subjacent’ to the former are, for D&G, what ordinal value is. This means that ordinal value is not a fixed ‘thing’. It is not a number, a set of numbers, or any metrics putatively frozen on a financial accounting report. Rather, ordinal value is a process of perpetual becoming—a kind of ‘dust’ that is both infinitely many and yet infinitely sparse. It does

34 TP pg. 217
35 Ibid pg. 213 {my emphasis}
Indeed involve segments and lines, albeit it repeatedly splits-off, fissures, or otherwise deterritorializes from such rigid metrics by manner of lines of flight — whereupon, as we have discussed, they may ‘whip particle-signs out of black holes’, but then also ‘retreat into the swirl’ of their own self-made ‘micro-black holes’, or ‘molecular conjunctions that interrupt them’. They may effectuate a decoding, but then immediately ‘enter overcoded, concentized, binarized, stable segments arrayed around a central black hole.’ Moreover, these mutant, creative, convulsive circulatory flows of finance, these lines of flight, do all this, which is to say effect their materiality, to such an extent. Yet it is just as much the case that the substance of their dynamics comprise no volume at all; in fact, it is an incessant becoming-zero of economic volume in space. From this observation, we now realize that the materialization of ordinal value is a fractal.

Cantor Dust is the original mathematical illustration of a fractal.36 To make this set [Figure 3.2], we begin with a line of one unit of length (territorialization). We now cut away the middle third (deterritorialization). Then we cut away the middle third of the two remaining portions (a deterritorialization of preexisting deterritorialization). Then we cut away the middle third of the four remaining portions (a deterritorialization of a deterritorialization of a deterritorialization). We repeat this process an infinite number of times; the set of remaining points is called a Cantor set.37 It has substance, but a substance in perpetual becoming. Only a dust of points remain, an infinite dust, a set whose size is infinitely negligible but unmistakably real. Its set is infinitely many, but its volume is always a becoming-zero, which is only ever asymptotically approached.

Figure 3.2

The answer to the question of “what exactly is an economic flow?” for D&G, therefore, has two answers. The first answer is (i) from the macroeconomic ‘viewpoint’ of financial accounting, the segments and lines of molar organization, which in turn represent the metrics of cardinal value. And (ii) the other ‘viewpoint’ is the mutant flows of what D&G (in the 1980s) label ‘financing-money’, but which today we better understand to be the flows of finance, or financial flows. This second aspect, or ‘viewpoint’ of flows is still indexable by the metrics of accounting, it still effectuates itself in and through segments and lines; but D&G have observed that it’s mode of segmentation is more supple, molecular, i.e. microeconomic. Lines of flight operate between poles, around singularities, and through quanta. For this reason, D&G say, the molecular

---

36 NOTE THAT ITS ALSO CALLED THE ‘CANTOR SET’….BUT [NOW SEE MANDLEBROT ON THIS]
37 Glass and Mackey concede that ‘nonmathematicians may consider [Cantor sets and the ensuing] discussion of fractals to be useless mathematical gibberish. Yet it is now clear that nonlinear systems can have strange attractors that are fractals.’ Pg. 53 We comprehensively examine the significance of strange attractors and fractals for dromocracy in Part IV.
machine is exclusively capable of giving articulation to the lines of flight, which in and by themselves are, as such, inarticulable, nonmetricizable, subrepresentational. In this way “(ii)”, this other ‘viewpoint of financial flows, is ‘tied to desire’ (how do we metricize desire?) and ‘always subjacent to’ the molar determinates of cardinal value –which means, if it is to be accounted for, it will not be by macroeconomic accounting techniques. Therefore, this second aspect of flows, financial flows, is depicted by D&G as difficult but not strictly in itself impossible to represent –as are, for instance, the lines of flight. The molecular then is not so much unreal or nonmetricizable, as that its metrics tend to resist rigid metricization –and yet there it is: desires operating subjacent to their effects are still desires, beliefs subjacent to its representation are still beliefs. And desires and beliefs are, formally speaking for D&G, affects. Financial flows, then, as the supple ‘viewpoint’ of monetary flows, comprise that mode of flows closest, ontologically-speaking, even materially-speaking, to that which cannot be captured on any macroeconomic accounting line whatsoever –which is namely, affects: and yet it determines the direction, amount, and velocity of flows, which are in turn then represented by cardinal value.

In summation, D&G then formulate the intraphysics of the three modes of flows (supple, rigid, lines of flight), accordingly:

‘We could also put it this way: lines of flight are primary, or the already-rigid segments are, and supple segmentations swing between the two.’

The stakes involved for achieving the rhizome model of economy for D&G are clear: either the molar machine occupies the predominate mode of the distribution of flows, or the mutant-creative war machine, generative of lines of flight, will: and if it is to be the latter, microeconomic operators will ‘swing’ between the two.

**Some Concept Definitions**

That ‘lines of flight’ is the term used by D&G to house their philosophically-deepened and economically-transformed concept of deterministic chaos means that chaos is the nomadic distributive mode of flows of the system of economy called dromocracy. For this reason, we should better understand the science to their proposition.

D&G have argued that lines of flight, when articulated, are articulated by the supple, molecular segmentations of financial flows. But we only have begun to examine its dynamical systems theoretic intonations, and at that in abstract, definitional passing (e.g. in our consideration of black holes, or before that in select portions of Parts I and II). Let us now consider in more depth the meaning, relations, and meaning of relations among some of prevalent concepts used, and in the process given philosophical development by D&G. This will also effect some momentum to these concepts for Part IV.

They are the concepts of financial flows, desire, singularities, attractors, poles and quanta.

---

38 *TP* pg. 222
Financial Flows.
To begin with, we should observe D&G’s assertion that *poles, singularities, attractors, and quanta* are the constitutive elements of financial flows. They define *poles* as the creation and destruction of money involved in every act of exchange; *singularities* as nominal liquid assets, but which is more accurately today simply labeled ‘liquidity’ – the liquidity required and present, though in truth unactualized, in every act of exchange; D&G slip between the concepts of attractors and singularities, and while singularity is yet the only term they actually use, their figure of illustration [Figure 3.0] is an example of an *attractor* (called a ‘limit cycle’ – we will discuss this, as well as its significance, below); and *quanta* are the becomings of inflation, deflation, disinflation, stagflation, and the like. We reproduce the full-quote:

‘the flow of financing-money…has not segments, but rather *poles, singularities, and quanta* (the poles of the flow are the creation of money and its destruction; the singularities are nominal liquid assets; the quanta are inflation, deflation, and stagflation, etc.)’\(^{39}\)

These are the elements of financial flows – i.e. the flow of finance (as they put it) ‘has’ these elements. However, D&G also assert that financial flows are all about belief and desire.

‘What…is a flow? It is belief or desire (the two aspects of every assemblage); a flow is always of belief and desire.’\(^{40}\)

Our reader is encouraged to resist any surreptitious decision to discursively re-separate the scientific from affective denotations of these two assertions. For D&G, they are not to be separated, for they are not separable, but rather are isomorphic. Our task, moreover, is not to attempt to translate, or fuse, or believe we must in some way reconcile the scientific concepts (poles, singularities, quanta) with those affective ones (beliefs, desires) – as if understanding *that, were we to do this, only then can we think the dynamics of financial flows. On the contrary, D&G are observing that any time we’re thinking financial flows, we’re thinking a multiplicity. And anytime we’re thinking a multiplicity, we’re thinking the affects endemic to an attractor, along with a set of associative concepts (singularities, poles, quanta) direct from DST.

Now, if financial flows effectuate the ‘mutant’, ‘convulsive’ and ‘creative’ flows that are immune to attempts at its metricization by financial accounting, it’s not so much because such flows are unquantifiable, as that *because* such flows are irreducibly a matter of beliefs and desires, our present methods of financial accounting are inept at capturing their affective dynamics. For this reason common methods of quantitative analysis will be of little use. Rather, topology, fractal geometry and their combined resources deployed by DST, when constructing images of multiplicities in phase space, are to be preferred. However, let us also note that when D&G say that from the ‘viewpoint’ of financial flows the ‘two aspects of every assemblage’ are belief and desire, they do not intend to imply a strictly individuated content, solely confined-in and/or isolable-to the ‘minds’ of economic actors. They are not proposing an economic

---

\(^{39}\) Ibid pg. 217

\(^{40}\) Ibid pg. 219 D&G actually use Gabriel Tarde’s work to tease out this position; but textual content and context render it easy to attribute this notion to D&G.
psychologism. As they say, ‘in the end, the difference is not between the social and individual…but between the molar realm of representations, individual or collective, and the molecular realm of beliefs and desires in which the distinction between the social and individual loses all meaning since flows are neither attributable to individuals, nor overcodable by collective signifiers.’

This fact is also key to understanding the inherent analytical limitations of financial accounting. Its mode of economic representation is perfectly capable of capturing the metrics of cardinal value. But such methods of obtaining cardinal values always arrive both too early and too late: they are too early because the deterritorializing creation, destruction, and transformation of beliefs and desires are precisely those lines of flight that always leak-out of macroeconomic indicators, and in a real sense do ‘cause’ the specificity of the attractors governing the tendencies of the system, the trajectories of its flows; and yet they’re also too late because the overcoding work of such macroeconomic segmentations have always already reterritorialized any of their molecular negotiations, translations, or transductions. Indeed, this is why we have observed that it’s not so much that cardinal theories of value are so much ‘wrong’ as that they are both ordinary (whereas we concern ourselves with the singular, or singularities) and partial (they’re only one half of the ‘double reciprocal dependency’ of ordinal value discussed above), and therefore not general enough.

Beliefs & Desires

What then do D&G mean by belief and desire? If ‘a flow is always of belief and of desire’, and if the ‘mutant’ and ‘convulsive’ and ‘creative’ flows of finance are always ‘tied to desire’, we are already here in Chapter 9 receiving a cue from D&G about how to move towards an economy of the war machine. In short, we require a technology for arranging the attractors around which affects circulate, differentiate, actualize. Attractors give pathology to flows.

First, on belief. D&G do not provide us with a formal definition of ‘belief’, so we assume its common definition –namely, the affective state that a conjecture or premise is true. And on desire. D&G’s assertion on desire is worth quoting here in full, insofar as the economic importance of desire is later explicitly deployed in the service of their practical outline for dromocracy, elaborated in Chapter 12 (and treated in Part IV). They observe:

‘Desire is never separable from complex assemblages that necessarily tie into molecular levels, from microformations already shaping postures, attitudes, perceptions, expectations, semiotic systems, etc. Desire is never an undifferentiated instinctual energy, but itself results from highly developed, engineered setup rich in interactions: a whole supple segmentarity that processes molecular energies and potentially gives desire [its] determination.’

We know that there is no such thing as ‘belief’ in itself –for belief is always a belief in or of or about something. So too for D&G, desire has no in itself. There is never an articulation or expression of ‘pure desire’; no such pure, nonobjectival desire exists. Rather, desire is always a desire for or of; and the for or of of desire is always inseparable from a complex of complex assemblages; it’s only ever differentiated through, as D&G put it, a ‘highly developed, engineered setup’ of assemblages, whose ‘rich interactions’ ‘necessarily tie into molecular

---

41 Ibid pg. 219
42 Ibid pg. 215
levels, from microformations already shaping postures, attitudes, perceptions, expectations, semiotic systems, etc.’ The challenge for dromocracy is here clarified: how do its denizens arrange those complexes of assemblages, institutionally-speaking, ‘already shaping postures, attitudes, perceptions, expectations, semiotic systems’? It is one thing to assert we need new beliefs and desires, and quite another to know how to arrange those attractors giving such affects their tendencies, the structure to their shape of trajectories.

We have seen that, on the one hand, ‘[r]epresentations already define large scale aggregates’; and we know these comprise the metrics of cardinal value; and who would deny that financial flows are perceived to be typically driven by or even overdetermined by such metrics? But D&G now alert us to the equal importance of beliefs and desires for financial flows –that ‘beliefs and desire, on the other hand, are flows marked by quanta, flows that are created, exhausted, transformed, added to one another, subtracted, or combine.’

In other words, in summary form, we now recognize that D&G are suggesting we involve DST’s conceptual resources (e.g. with attractors, basins of attraction, singularities, and the correlative notions of stimuli or perturbations capable of terminating or initiating anew systemic arrangements), now into our thinking of financial flows. Can we construct a heterodox economics, a political finance, indeed a speculative materialism, by thinking affects and attractors as the causal determinates of flows, and attractors as the techno-linguistic institutions, the institutional elements which give affects their velocity, weight, and directional tendencies? Moreover, is this not the first step to satisfy on our way towards operating a well-timed and -placed stimulus of the right size and duration, capable of annihilating an oscillation, or by conversely operating an equally apt stimulus, to initiate one anew –and with it a new mode of activity, with new capacities, attractors, and affects? That this is possible, as we will see in Part IV, is the crux of the wagers of dromocracy.

Singularities & Attractors
If beliefs and desires are ‘inseparable’ from assemblages, what exactly do D&G mean by assemblages? One answer is that assemblages bear close conceptual relation to multiplicities, which we have already (formally, in Part II) defined as the mapping of an n-dimensional nonlinear system in phase space. However, the two are ultimately ontologically distinct. We have just seen D&G attribute that assemblages ‘engineer’ a ‘rich interactions’ of affects. How? By what manner do assemblages do this? How do assemblages ‘engineer’ the amount, direction, and velocity of beliefs and desires, which then determine financial flows?

This line of inquiry once more convokes both the concept of attractors and the concept of singularities. It is true that any reference by D&G to assemblages should always be understood in terms of singularities. An assemblage, at its most basic, for D&G, is simply as they say a ‘constellation of singularities.’ As with attractors, the concept of singularity has a robust mathematically-scientific heritage independent of D&G, and its use by D&G should be understood in this light. For D&G, singularities are concrete universals, and along with affects and their attractors, are the constitutive elements of any multiplicity. This is a universal claim we have no

---

43 Ibid. 219 Too, for this reason, D&G assert that ‘[t]he stock exchange gives a better image of flows and their quanta than does the State.’ Ibid pg. 226
44 (We will call an assemblage every constellation of singularities and traits deducted from the flow –selected, organized, stratified– in such a way as to converge (consistency) artificially and naturally; an assemblage, in this sense, is a veritable invention.) Ibid. pg. 406
intention to minimize: we regard any nonlinear system as dynamical; and any dynamical system has singularities and morphogenetic properties, viz. attractors and affects.

**FIGURE 3.3 VISUAL EXAMPLES OF ATTRACTORS**

DST illustrates that singularities are motionless, empty, locus of states. They are atemporal organizing centers, those arrhythmic vacant points around which the spatial patterns of timing in a dynamical system, such as for instance an economy, will coordinate. We also know from DST that attractors are invariant sets of points which persist in the flow. And that a dynamical system’s parameters can be altered by some perturbation so as to cross a singularity onto a new attractor, into a new basin of attraction. For this reason, we will recall, as we discussed in Part II, that singularities are what Arthur Winfree has called ‘the special point upon which the whole mystery turns.’

We will also recall from Part II that attractors define a basin of attraction for a flow: attractors provide a structure to a region in phase space, in which its variable points are asymptotically attracted towards it. And in Part IV we will return once again to examine singularities and attractors, their affective or behavioral importance for dromocracy. However, even here, about their distinct but related concepts something more must be said.

To begin with, singularities. D&G have asserted that liquidity is a singularity. That liquidity is a singularity, and that liquidity is the requisite condition of possibility for every act of exchange, is both a compelling notion, yet also a bit of a mystery indeed. Any serious student of finance well knows that liquidity often appears to be a mere property of an asset: we call this ‘transaction liquidity’, and understand that an asset ‘has’ liquidity if it is readily exchanged for its image of value as money (the object is said to have liquidity, i.e. it is at this time a property attached to the asset). But liquidity can also appear to infuse, or characterize a variety of markets, and which different varieties of assets will populate: here one is now no longer speaking of an asset’s liquidity, but now of ‘market liquidity. One will then wish to attribute ‘liquidity’ to a space of an exchange if its participants can unwind their positions readily enough, without excessive price deteriorations to the assets involved (note the subtle but important ontological shift from liquidity as purely an objectival property, to now property of space, with correlative consequences for the cardinal values of objects). But of course liquidity today can also just as readily denote a property ostensibly attaching itself to a borrower, or what is today labeled ‘funding liquidity’: this involves a borrower’s creditworthiness, and especially his or her or its ability to continuously finance their assets at an acceptable borrowing rate, so as not to experience the conversion of illiquidity into insolvency (once more let us note the subtle but important ontological shift to liquidity: once again not as an objectival property, and now also not as a property of space with objectival consequences, but rather now a property of a subject with objectival (asset) and spatial (market) consequences).

How then should one understand the mysterious thing called liquidity, in that it is said to adhere to an asset, market, or borrower alike? Is liquidity not a kind of spatiotemporal ‘point’ that is approached and then passed through but never occupied in an exchange? It is as if the

---

45 Winfree pg. 12
46 As discussed above, they actually say ‘singularities are nominal liquid assets’. Ibid pg. 217 We have interpreted this to, in contemporary terms, mean ‘liquidity’.
effects of liquidity were constantly circulating around and between them, but in actuality never finally settles into one or the other of its three forms (object, space, subject). Even if we attempt to simplify things by asserting that all acts of exchange constitute a moment of approaching liquidity, for all that ‘liquidity’, as such, does not actually ever occur—which is to say it is only ever asymptotically approached, a kind of motionless, empty locus of states, a vacant organizing center standing at the precipice of a phase transition called exchange. For insofar as the moment of exchange is called ‘liquidation’ (i.e. in which an asset is exchanged for an amount of money), if liquidity is considered a property of an asset, it is the seller who has exchanged the asset for money, and hence has no liquidity (in the objectival sense), while the buyer likewise has no liquidity, insofar he has traded, exchanged, which is to say he has ‘calcified’ his money now into the asset.

Liquidity truly is that which can be said to propel the exchange; and while yet we may insist that it is indeed ‘present’ or ‘real’ to any exchange, it cannot be said to be actual, or actualized, or even actualizable at a point in the exchange. It is rather a vacant spot, a quilting point, never occupied, as such—but nonetheless drives the exchange. If liquidity proves to be a mystery, it is also, again to paraphrase Winfree, the special point upon which the whole mystery of exchange turns: in terms consistent with DST, then, liquidity is a motionless, contingent point, an always vacant organizing center around which the attractors and affects—the beliefs and desires—endemic to an exchange are coordinated, and from which the elements of cardinal value (whether rigid or supple) are refracted out into the actual. And yet, as we have seen, it is these same elements of cardinal value that are then capable of feeding back into liquidity, remaking, resituating the states of the system whose vacant locus it occupies. For this reason, in Part IV, we will observe that singularities are those peculiar signposts upon which the brink of our material institutions always stand poised. Their contingent but absolute and virtual substance comprises a kind of empty boundary between two radically-different states of an economic system.

But what then is the role of liquidity *qua* singularity to attractor, according to D&G? Here, regretfully, we must apprise our reader of an error on their part.

Textual analysis of Chapter 12 of *TP*, in Part IV, will cause our position that D&G enjoin their reader to search-out and discover technological methods for arranging attractors—which, our own contribution herein is to suggest, are, fortunately, already available to us by way of presently existing financial technologies (of course, *some* tinkering is still required): they’re locatable in the tranching process of synthetically-structured finance (in a USCDO), and as contingent communities of exotic options operators (in CEOs); and that institutionalizing a USCDO and CEOs will realize *en concreto* the rhizomatic model of flows outlined in Chapter 1 (Part II herein); and henceforth the wagers of the model of economy called dromocracy are achievable by way of what we term a H₂0fall economy. This will involve understanding both economic attractors and economic singularities, and in particular how its operators commune with them to effect an economy of deterministic chaos. For this reason, we must first clarify that singularities and attractors are not the same, and in fact are importantly quite different—especially insofar as D&G, perplexingly, at times conflate the two, and are therefore uncharacteristically unhelpful herein, or even outright wrong!

By contrast, Nicolis provides a helpful, nontechnical explanation the difference between singularities and attractors, and their associative concepts. His explanation will prove
instrumental to our own analysis of the issue at hand, and will also help us show where D&G go wrong.

**Figure 3.4.** (Figure 3.1. (Nicolis pg. 49))

Nicolis—who is obviously not thinking of Deleuze, is not a Deleuzian, has likely never read Deleuze—begins by explaining the DST method of imaging a multiplicity in phase space, and in perfect agreement with D&G: ‘We embed the evolution of our system…into the abstract n-dimensional space spanned by the full set of variables \((X_1\ldots X_n)\), which we shall refer to from now on as *phase space*, \(\Gamma\).’

Phase space is a map. We immediately recall D&G’s fifth principle of the rhizome model of economic flows, as discussed in Part II— that of map-making. To capture the state of a dynamical system at any point in time, we make a map, a map of the phase space of a system, we map a virtual image of its multiplicity. And so, Nicolis adds: ‘By definition, an instantaneous state of the system is given a particular set of values \((X_1\ldots X_n)\) — hence a unique point \(P\) in phase space. Conversely, a phase space point \(P\) can be characterized by its coordinates \((X_1\ldots X_n)\) and defines, therefore, the state of our system in a unique fashion.’

To begin with, the map freezes the image of the multiplicity in time. But it’s becoming is what we truly seek to grasp. For this reason, Nicolis says:

‘Consider now a succession of states \((X\ldots X_t\ldots)\) attained in the course of time \(t\). By the above arguments this will determine in phase space a succession of points \((P \ldots P_t \ldots)\) joined by a curve \(C\), the phase space trajectory….Repeating the process for all possible histories \((X'\ldots X'_t\ldots)\) etc. one generates a continuous family of phase space trajectories, in other words, the evolution of a system amounts to a *mapping* of \(\Gamma\) into itself.’

Nicolis has just provided the standard DST definition of mapping the becoming of a multiplicity in phase space. Such a system is called a *dynamical system*.

He is, and we are, thus far still in precise agreement with D&G. For instance, quantitative analysis may move to assert that, because there appears to be one-to-one correspondence between a succession of states of the system in time and its flow in phase space, it is then possible to use this map of the phase space of the system to provide us with information about the ‘full set’ of the system’s possible behaviors. However, our *qualitative* analysis, our minor science, our speculative materialism, is much more modest in aim. Along the lines of D&G’s sixth principle—the principle of decalcomania—we do not seek out constancy among variables, but instead seek to place the variables into constant variation. We seek to tinker on and with matter, to find out what more it can do, to cause it to do more than even it knows itself to be capable. Nicolis agrees. For this reason, as he puts it:

‘The objective [of nonlinear science, to begin with] is limited to a classification of the types of phase space portrait that can be realized. Qualitative analysis [—by which we understand a principal feature of the method we call speculative materialism—] is thus

---

48 Nicolis pg. 49
49 GOOD QUOTE HERE ON MAP-MAKING FROM CHAPTER 1 D&G
50 Nicolis pg. 49
51 Ibid pg. 49-50
reduced to a well-defined geometric [i.e. topological] problem. It is for this reason that phase space is so central to the study of nonlinear phenomena.\textsuperscript{52}

What universal features, according to Nicolis, mark the structure of phase space—which, we should observe, is merely another way of asking what properties characterize a multiplicity? We well know the answer. We have discussed this before. They are (i) singularities and (ii) morphogenetic properties—and by (ii) we understand (a) attractors and (b) affects. Nicolis also emphasizes these same two features.

He first speaks to the importance of singularities.

‘One property that plays a decisive role in the structure of the phase portrait [derives from] the “uniqueness theorem” of the solutions of the ordinary differential equations underlying our dynamical system…[which] automatically rules out the intersection of two trajectories or the self-intersection of a given trajectory \textit{at any point other than a singular point}.\textsuperscript{53}

If singularities are the only points wherein different trajectories or the self-same trajectory can overlap, it is because singularities are the contingent, virtual points which a dynamical system will cross on their way to new states, new conditions, new modes of organization. Nicolis explains that this feature—the principle of non-self-intersection \textit{except at points of singularities}—‘introduces an important topological constraint delimiting the time of phase space motion’; and moreover is especially important, he adds, for understanding ‘complex dynamical behaviors in the form of deterministic chaos.’\textsuperscript{54}

The other property of (ii) is what Nicolis either refers to as an ‘invariant manifold’ or an ‘attractor’, but which we’ve simply been calling an attractor.

‘A second element of great importance in organizing the phase portrait of a dynamical system is the [attractor] that may exist in the flow. By this we mean objects embedded in the phase space that are bounded and mapped onto themselves during [its] evolution…’\textsuperscript{55}

Following DST, we have defined an attractor as an invariant set of points virtual to the flow of a multiplicity, and identified with it a basin of attraction—a boundary or region in phase space to which variable sets of points are asymptotically attracted. Attractors characterize the mode of organization of a dynamical system. We are interested to know the tendencies of an economic system. To know these tendencies, DST says we must know the system’s attractor.\textsuperscript{56} Transient

\begin{itemize}
\item \textsuperscript{52} Ibid pg. 50
\item \textsuperscript{53} Ibid pg. 51 \{my emphasis\}
\item \textsuperscript{54} Nicolis clarifies that such singularities, while contingent, are nonetheless absolute topological properties of the multiplicity that provide a virtual structure for the system’s flows (‘This [theorem] introduces topological constraints delimiting the type of phase space motion These constraints are particularly severe in one or two-dimensions, and it is not an accident that complex dynamical behaviors in the form of deterministic chaos become possible only in three-or higher-dimensional continuous time dynamical systems.’) Ibid pg. 51
\item \textsuperscript{55} Ibid pg. 51
\item \textsuperscript{56} Gleick observes: ‘In the short term any point in phase space can stand for a possible behavior of a dynamical system. In the long term the only possible behavior are the attractors.’ pg. 138
\end{itemize}
motions are ordinary and inessential, whereas analysis of the system’s attractor captures an image of its disposition. Some perturbation, disturbance, or other stimulus may momentarily bump a system’s trajectory off its course; but the resulting transient motion will always be dampened if such stimulus is not ‘critical’, i.e. strong enough to shove the trajectory out of its respective basin of attraction. Such system will eventually return to its course along its attractor. Of course there is more than one kind of attractor.

If we observe that ‘parameters’ are simply another term for what DST calls ‘sets of points’, and that these are either invariant or variable, we can then propose that attractors and affects are parameters—the former are invariant; and the latter are variable—and while, technically speaking, its ‘possible’ for velocity, direction, and amount of such affects to ‘be’ anywhere in phase space, there is a pathology, or virtual structure to their flow.

D&G’s notion is that as parameters in a dynamical system are altered, phase transitions across a singularity may occur, shifting the system to a different mode of organization. So while attractors are universal features of any dynamical system, we will also observe that their characterization of a given system is contingent, system-dependent, fungible, and ever open to change.

We also have said there are more than one kind of attractor. What are the principle types? To temporarily oversimplify things, we can construct and then build-on a rough paraphrase of dynamical systems theorist, Robert Shaw, who says that there are fixed point attractors—wherein everything stops; there are limit cycle attractors—wherein everything oscillates; there are tori attractors—wherein everything quasi-periodically oscillates; and there are strange attractors—which is everything else.57

Let us consider these in more depth.

Steady-state fixed point attractors. Fixed point attractors are the most elementary example of an invariant set. Nicolis observes: ‘Fixed points in phase space describe the stationary states that can be reached by the underlying system.’58 [Figure 3.5]

Homeostasis marks the disposition of system maintaining a relatively constant internal milieu amidst changing environmental conditions. For this reason, in DST, homeostasis is often associated with a stable steady state attractor. Glass and Mackey define ‘a steady state (also called equilibrium point or fixed point) [as] a set of values of the variable of a system for which the system does not change as time proceeds.’59 We know a steady state is stable wherein, in the event some stimulus is applied to a system, it may be temporarily ‘knocked’ it off its steady state, but as time proceeds the effects are dampened, as the trajectory returns to its steady state.

It’s also worth observing that the dimensionality of a multiplicity associates it with its correlative attractor; and the multiplicity is always a minimum of one dimension less than its phase space—which, incidentally, is why D&G consistently define a multiplicity as always n – 1.60 This means an epistemological consequence follows from our methodology just as much as from a multiplicity’s ontological status. The only analytical possibility available to

57 Relayed by Gleick pg. 269
58 Ibid. pg. 51
59 Glass and Mackey pg. 21
60 QUOTE FROM CHAOS AND FRACTALS TEXTBOOK HERE?
macroeconomics (molarity) is rigid lines and segments, with single or coexisting fixed points.\textsuperscript{61} Nicolis, in essence, here agrees with D\&G of the very limited ‘viewpoint’ (or ‘portrait’, is how he puts it) provided by a one-dimensional phase space, which in turn results in the reduction of a multiplicity, as conveyed by financial accounting methods, to a zero-dimensionality—that is to say, the reduction of however complex dynamics to of economic flows to fixed points, on rigid lines, now purified and represented as cardinal value.

\textbf{FIGURE 3.5 Reproduce FIGURE 3.3 PG 52 FROM NICOLIS HERE}

\textit{Stable Limit Cycle Attractors.} A second type of an attractor is that which is proffered by D\&G to illustrate the complex dynamics of economic flows [Figure 3.6]: it is a closed curve, free of fixed points, but which exhibits an oscillating, periodic behavior. We have seen that a steady-state attractor conveys an unchanging system. By contrast, a rhythmical or oscillating system, one which exhibits stability and periodicity, lies along an attractor called a ‘limit cycle’. It is important to observe that, on the one hand, limit cycles are neither possible in linear systems, nor in one-dimensional systems—which means that, limit cycles are attractors endemic to multidimensional, low-level, periodic, nonlinear systems. On the other hand, systems whose flows move along such attractors will repeat the same motions, go through exactly the same states, i.e. the flows are forever ‘limited’ to its ‘cycle.’ As Nicolis observes: ‘Once on such a curve the system goes repeatedly through exactly the same states, in other words, it exhibits a periodic behavior.’\textsuperscript{62}

This is precisely what is so puzzling about D\&G’s choice of visual illustration in Figure 3.1. It is also the cause of our allegation that herein D\&G go wrong, or at least are utterly inconsistent with their wager on deterministic chaos, vis-à-vis the war machine-generated lines of flight. Their propositions about dromocracy, their wager of a rhizomatic model of flows, their thesis of an economy actualizing deterministic chaos—such notions are ontologically-anathema to a limit cycle, which, while yes, is nonlinear, and while yes, has more than one dimension (i.e. has more than one degree of freedom), it is no more than this, and certainly an incorrect characterization of phenomena associated with deterministic chaos.

This is puzzling, indeed. Have D\&G provided as they’re example of economic flows a visual illustration of a limit cycle attractor; but therein elaborate a description of it that greatly exceeds a limit cycle’s dynamical capacities—e.g. in terms of degree of nonlinearity, order of dimensionality, sensitive dependence to initial conditions, and hypercontingency? Or have D\&G provided a description of economic flows as marked by high-degree nonlinearity, fractal dimensionality, sensitive dependence to initial conditions, and hypercontingency; but have then oddly, inadvertently, inconsistently provided a visual illustration of a limit cycle attractor that \textit{at best} exhibits a low-level nonlinearity, but at any rate maintains strict Euclidean dimensionality, far less (if any) sensitive dependence to initial conditions, and negligible amounts of contingency? Either way there is a great disconnect. Either way we must be willing to admit that D\&G have committed an error. Either way it is an error we must conceptually clarify and correct, now in terms more consistent with DST’s synthesis of the conceptual resources of chaos theory, as well as D\&G’s own wagers of dromocracy.

\textsuperscript{61} ‘[If the phase space is one-dimensional…[s]ince the dimensionality of the [attractor] is strictly smaller than the phase space one, the only possibility one is left with are zero-dimensional multiplicities—the fixed points.’) Nicols pg. 52

\textsuperscript{62} Ibid pg. 51
Tori Attractors. Glass and Mackey provide the most succinct if underelaborated definition of an attractor: ‘a set of points $S$ such that for almost any point in the neighborhood [viz. basin of attraction] of $S$ the dynamics approaches $S$ as $t$ approaches infinity.’\(^6^3\) We have considered a steady state fixed point attractor, which is a stable, zero dimensional multiplicity, wherein all motion of its trajectory is moving towards an unchanging, sedentary, stationary state. We have also considered a limit cycle attractor, which is still stable but also now a periodic, one dimensional multiplicity, wherein all motion is confined to a closed circuit, a nonintersecting curve. If we add one-degree of freedom to this closed curve, the multiplicity becomes two-dimensional, and obtains a new attractor called a torus [figure 3.7]. The trajectory of a system moving along a torus may wind around it and infinite number of times, yet always remaining on its surface, and never self-intersecting. For this reason the behavior of a system on a torus attractor exhibits quasi-periodicity.

Figure 3.7 REWORK FROM PG.50 GLASS AND MACKEY OR PG. 54 NICOLIS

It is true that D&G would have been still wrong, albeit less wrong, had they elected to defer to a torus attractor as their choice of visual illustration. For a system moving along a torus at least has one-more degree of freedom, exhibits higher-order nonlinearity, and consequently obtains a quasi-periodicity?

Our position on this issue going forward, then, will be this: Insofar as limit cycles, unlike steady state fixed point attractors, are not possible in any one-dimensional and/or linear system – which means that systems on a limit cycle are characterized by at least more than one degree of freedom, and at least some (albeit low-level) nonlinearity, by contrast with those steady state fixed point attractors that service cardinal theories of value – this helps to partially explain D&G’s choice of visual illustration for imaging the structure to the dynamics of economic flows: a limit cycle is indeed nonlinear, its dynamics will indeed be open to asignifying ruptures (e.g. where quanta particles can whip out of or be swallowed up by black holes, etc.), and it does have dimension. But we must to push D&G further, here. In fact, we must push ourselves, our project, and D&G further than perhaps they even knew to go –further towards strange attractors. In order to realize the terms of their wager of the viability of an economy whose rhizomatic order of flows is deterministic chaos, we must push past steady-state fixed points, past limit cycles, even past quasi-periodic tori, and now on to strange attractors, whose image of trajectory is fractaled and topological, and whose modus operandi is deterministic chaos.

Strange Attractors. ‘Equilibrium’ is loaded but commonly used term in economic modeling. Closer inspection of its uses will reveal that, in truth, it more often likely intends to denote “homeostasis”. Glass and Mackey define homeostasis as ‘the relative constancy of [an] internal environment with respect to variables such as [in physiology, for instance] blood sugar, blood gases, electrolytes, osmolarity, blood pressure, and pH’; adding: The physiological concept of homeostasis can be associated with the notion of steady states in mathematics.’\(^6^4\) We have discussed that systems along steady state fixed point attractors are marked by steadiness, stability, constancy, and additivity, and therefore exhibit a linear disposition through and through. Linear behavior is quite easy to conceptualize, and is ostensibly all around –but then

---

\(^6^3\) Glass & Mackey pg. 50  
\(^6^4\) Glass & Mackey pg. 4
again, DST shows us, is perhaps surprisingly much less common than one might expect. For example, already in our example from physiology, as Glass and Mackey proceed to explain: ‘although the mean blood pressure is maintained relatively constant...the contractions of the heart are approximately periodic.’ Here then, what appeared as a simple steady state, is in truth a stable, oscillating motion, moving along a closed circuit (limit cycle). Moreover, over the course of even a normal sleep-awake cycle—which in itself exhibit a periodicity—various physical oscillations will ensue: for example, in response to diet, exercise, and other environmental stimuli. Moreover, it is important to observe that such stimuli are rarely additive, but rather actualize combined outputs, contingent to their spatiotemporal arrangement, and incommensurate with input of each variable, or parameter, taken individually. In other words, they are nonlinear phenomena. Indeed, Glass and Mackey note, [e]ven systems that are assumed to be stationary or periodic will always have fluctuations about the fixed level or periodic cycle—and that for this reason these systems are called nonlinear. However, amongst such nonlinear systems, Glass and Mackey then add, there are some systems that exhibit such irregularity, that it’s difficult to characterize them as either a stationary or periodic. The term DST gives to such class of nonlinear systems is chaos.

Chaos, this class of nonlinear phenomena, for Nicolis begs already begs the question. He observes:

‘Our exploration of the geometry of phase space has led us to identify the prototypes of stationary behavior (fixed-point), periodic behavior (closed curve), and quasi-periodic behavior (torus). We are still not in possession of the prototype of chaotic behavior’.

Regular attractors on whole exhibit simple geometries with integral dimensions. There is nothing overly complex or irregular about them—they are not strange. Systems moving along strange attractors are characterized by chaos. For this reason, and given that dromocracy is an economy of deterministic chaos, we will fully concern ourselves with strange attractors in Part IV.

FIGURE 3.8 STRANGE ATTRACTORS

Poles and Quanta
Poles are the creation and destruction of money involved in every act of exchange. Why? If we simply define an exchange as the transformation of an economic object into its image of value as money, we quickly see why D&G invoke the concept of poles: on the one side of a bilateral
economic transaction, viz. *exchange*, lies the liquidation of the asset for money; on the other side lies the asset purchased with liquidity, or money, which is to say that the calcification of a given amount of liquidity is the price that’s paid for an asset. D&G are observing that very act of exchange therefore occurs between two poles: and the poles situate this dual-tiered simultaneous event between a positive charge (+), which is the creation of money, and the negative charge (-), which is the destruction of money.

Quanta, then: *quantum* are instantiations of inflation, deflation, disinflation, stagflation, and the like, and which operate along the poles, but only ever effectuate themselves within the relations between an asset and its image of value as money. Economic objects never “have” inflation, deflation, and so on, as if the latter were properties of an object; rather these are relations, spreads; and it is such spreads between different objects and their images of value as money that experience or obtain inflation, deflation, etc. Quanta are not objects, then, but the stochastic processes around which and through which objects obtain their objectivity. In this respect, inflation, etc. is like weather—it is a haeccty, a stochasticization of movements that only articulate themselves in objects, without yet ever being reducible to such objects.71

To summarize, then, in closing we can say that quanta and flow are the stochastic processes whose dynamics take shape or coordinate around singularities, and which then refract out into lines and segments, i.e. the metrics of representation—the representations of cardinal value. Hence the thesis of ordinal value: monetary flows emanate from the double reciprocal determination of the mutant molecular and molar machines, they each have their different ontological modalities, and they each comprise two dissimilar systems of reference, albeit they are two circuits of flows that are materially-interconnected and always flow as one. *But* –and this is D&G’s ‘but’ to be developed in Chapter 12, *given their concept of ordinal value outlined in Chapter 9*– if an operator or sets of operators were to enter into, or rather ‘between’, these ontologically distinct but actually conflated circuits, it must be through the molecular. An operator operates, or enters into an operation on, which is to say communes with ordinal value, through operating the technologies, machines, markets, assets, and classes of exchange whose lines of flight are financial: these are the supple lines, whose actualization is closest in articulation to the smooth, nonmetricizable, indeed chaotic flows of the lines of flight. For as we will see, the intensive properties of financial flows that give rise to its extensive properties, i.e. those macroeconomic lines and segments represented in cardinal metrics of value, are often not yet covered over or cancelled out when convoking them into actuality. Rather, there are key areas in finance where the virtual can be briefly glimpsed and –as the wager of dromocracy goes– even accessed, and tinkered with, for universal nomadic distributive purposes. This must be our wager, the wager of dromocracy, moving forward in Part IV.

---

71 **NOTE ON INFLATION, NOMINAL INTEREST RATES, REAL INTEREST RATES, INFLATION PREMIUM**