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Part Two
Networkologies: A Manifesto

Networks are everywhere, and increasingly so. With the rise of the Internet, mobile computing, globalization, digital finance, and social media, ours is an increasingly networked age. Networks are not only our present, but our past and future as well, for it seems more each day that the world was always already networked, as if simply waiting for the rise of new network formations, and the Internet in particular, for us to have the eyes to see this. Nevertheless, so many of the models we use to help understand our world, from economics to politics to ethics and beyond, are prenetworked not only in terms of content, but also form, products of a time before networks changed everything.

We need new models in sync with the needs, crises, and potentials of our age. Various branches of contemporary science, mathematics, and social science increasingly employ networked models, but there has yet to be an attempt to develop an entire worldview, a philosophy, based on networks. Such a philosophy would have to take into account the massive advances of the technology, science, mathematics, and social sciences of networks. But it would also have to bring these quantitative approaches into sync with qualitative concerns related to meaning, interpretation, value, and power, so as to develop an ethics, aesthetics, and politics which could help us better navigate the challenges of our networked age.

This book, the first installment of "the networkological project," will begin to develop a general worldview based on networks, a philosophy not merely about networks, but of networks, in all senses of these terms. The basic notion of what makes up a network is simple: a network is anything composed of parts, connected to others, against a background, with each of these composed of more networks in turn at multiple levels of scale. In the terminology of networks, the parts are called nodes, they are connected by links, contextualized by grounds, and layered in levels, with nodes, links, grounds, and levels as the primary aspects, or elements, of networks.

From a networkological perspective, anything and everything can be seen as networks composed of networks. Atoms are networks, as are ordinary objects, societies, organisms, brains, concepts, thoughts, languages, and economies. The differences between these, however, is in the form of their networking. Networks can be homo- or heterogeneous, static or dynamic, centralizing, directional, or multi-centered. They can link to one another in a variety of ways, containing and differentiating, absorbing or producing one another, emerging spontaneously under some conditions, or produced for specific purposes in others. When aspects of a network come into sync with aspects of another, they diagram each other. Networks can give rise to intensities and complexification's, and grasp each other in various modes of experience, meaning, valuation, and thought. Deviously centralizing potentials or distributing them amongst one another, the various forms of networking have ramifications for technology, economics, ethics, politics, and beyond. Networks not only represent the world, they are the world; they not only unfold potential, they are potential; they not only describe thought, they are thought; they not only emerge from the world, they are this emergence. Understanding the different types of networks, their modes of structuration, interaction, intertwining, and formation, how they reflect and refract one another, as well as the meanings, values, actualities, and potentials which emerge from them is what the networkological project is all about.

This project is a thought experiment to see what the world could look like when viewed as composed of networks of branching networks. If anything and everything can be seen as networked, then networks are ultimately a way of looking at the world, a set of lenses which can show not only how everything can be seen as networked, but as having the potential within them for more intense forms of networking. Showing how and why this could be, as well as why we might want this, is the

primary task this project sets for itself. To paraphrase a famous philosopher: "To those who look at the world networkedly, the world will look networkedly back." This is the fundamental wager of this text. The networkological worldview takes the notion of the network and transforms it into a concept, diagram, ethic, and project. Welcome to the world of networkologies.

This manifesto will sketch, in hypercondensed, programmatic form, this project as a whole, describing in each section below not only how networks "are" in the present, but also how they could be if they network more intensely to liberate the potentials within them in the manner described by this project. In this sense, while not all networks "are" robust, they could be, and they tend towards this when not turned against ultimately networked ends by means of various forms of what will be described below as overreification. In addition, it should be kept in mind that, due to the form of this manifesto, the task of explaining and grounding the claims made in such a short text will necessarily need to be continued by future networkological texts.

nodes: access, science, mathematics, image of thought, process, complexity, emergence, relation, fractality, holography, spacetime, immanence, principles, experience, realities, (un)limits, semiotics, mediology, machinology, value, symbolic economies, robustness, practics, metaleptics, sync, understanding, evolution, metaevolution, hyper-evolution, thinking, critique, deconstruction, reconstruction, post-foundation, refraction, diagram, difference, distributedness, historiography, psychology, panpsychism, liberation, commons, oppression, economics, political economics, politics, transviduality, post-anarchism, pantheism, theophanic post-theology, erotics, praxis, aesthetics, nothing, philosophy, metaphilosophy, history of philosophy, beginning, dream

*Networks are about access.* The networkological project will address impasses in many fields, and draw upon recent advances

at the cutting edge of science, mathematics, and technology, various branches of the social sciences, as well as philosophies present and past. Nevertheless, it will not engage in endless debates with specialists tied to narrow academic disciplinary modalities, rigid ideologies, or deadlocked partisan divides. Rather, it will emphasize the creation of the new, and the potential impact this can have upon our lives. And since change comes about when many can access new ideas, this project is designed with access in mind. For as this project will work to show, when not put to ultimately non-networked ends, networks tend towards the radical democratization of information, power, and potential. And so, unless specifically stated otherwise, networkological texts will be written so that no prior knowledge of science, mathematics, philosophy, or any specialized discipline will be required of readers, everything will be explained along the way. Due to the "manifesto" form of this text, however, what follows will necessarily be to some extent an exception to this, one which finds its full context, however, in relation of the rest of the networkological project itself.

Networks are a science. The networkological project finds inspiration in complex systems science, and the science of networks to which it gave rise during the second half of the twentieth century. Developing the implications of this new way of looking at physical, biological, and cultural phenomena, along with insights drawn from resonant approaches in a variety of other disciplines, this project will work to synthesize these to build an overall relational way of looking at the world, one which can help recast dualist, binary, reductionist, and otherwise non-relational models and practices which have led to impasses in a wide variety of fields, in and beyond the traditional domains of the sciences.

Drawing inspiration from emergent and embodied cognitions theories, as well as those related to "soft-computing" technologies, including fuzzy control systems, genetic and evolutionary algorithms, and artificial neural networks, this project will develop non-binary and networked models for dealing with a wide variety of phenomena.<sup>3</sup> This project will also build upon insights drawn from developments in epigenetic, autopoeitic, and multi-level selection theories in biology, non-substantialist models in philosophy of chemistry, and relational approaches to the radical findings of contemporary quantum physics, as described by notions such as spacetime smearing, Feynman networks, Gell-manian consistent histories, and David Bohm's notions of implicate folding.<sup>4</sup>

While this project will pull widely from various branches of contemporary science and mathematics, it will hardly accept the findings of these fields unquestioningly. Building upon work in science and mathematics studies by theorists such as Thomas Kuhn, Bruno Latour, Isabelle Stengers, Brian Rotman, Albert Lautman, Gilles Châtelet, and Fernando Zalamea, the networkological project views science and mathematics as social practices. Rather than view interpretations and values within scientific and mathematical practices as biases to be one day removed, all model-making and experimentation will be seen as fundamentally perspectival and participatory, with biases serving as enabling conditions of these activities as such.

Intertwining relational approaches to mathematics and science with those in fields which pertain to meaning and value, this project will work to expand the potential implications of quantitative and qualitative approaches to the world, in order to show these as complementary aspects of not only our attempts to understand the world, but of the world itself. While some of what follows may therefore seem strange to those working in mathematical and scientific research, it should nevertheless be noted that nothing which follows will contradict the findings of contemporary science and mathematics, even as many of the assumptions at work in these practices will be reframed.

Networks are a mathematics. Working to sync with post-foundationalist movements in contemporary mathematics, as described by group and category theories, this project will also draw from many other aspects of contemporary mathematics, in fields such as graph theory, set theory, analysis, post-Euclidean geometries and topologies, topos theories, sheaf theories, and multi-valued logics. In the process, it will work to show how networks can be used to describe a wide variety of mathematical objects, from sets to functions, categories to surfaces, and even numbers themselves, and to indicate the ways in which non-linear models provide a general interface between mathematical language and the types of feedback indicative of complex systems in their many forms.<sup>6</sup> In the process, this project will view mathematics as a particularly abstract form of semiotically networked metagaming, one more fold within the foldings whereby worlds continue to emerge from themselves in forms abstract, concrete, and everything in between by means of complex networking.

Networks are a new "image of thought." Artificial neural networks have shown that the primary elements of thought can now be simulated on computers using networked models, and in ways which are increasingly feeding back into neuroscientific research on living brains. Artificial neural networks learn, guess, and forget in the manner of animal brains, and show, if in radically simplified form, how the basic elements of animal and human thought, such as the induction of patterns, memorization, association, categorization, and temporal modulation can be seen as types of networked wiring diagrams within complex dynamic systems.

It is therefore possible to see thought and thinking as simply what happens when matters intertwine in particularly complex ways in dynamic systems, with the most complex forms of matter, such as those found in the human brain, having the most complex types of thought. The very form of artificial neural

networks and other modes of soft-computing, so different from that of the architecture of traditional serial computing, debunks many of the traditional myths about thought which have dominated philosophy and science, such as the notion that thought is somehow like human language, that it is linear, or that it is composed of binary switches. Researchers are increasingly coming to see complex forms of thought as taking a form which is non-linear, non-binary, and the result of emergent forms of sync which can occur between heterogeneous networks in relation to a relatively small set of wiring diagrams.

While the serial forms of computation at work in most computer hardware today provide us with incredibly fast tools which complement the limitations of human brains, serial computers are still massively simpler and less flexible than organic forms of computation present in even simple mammalian brains. Even the complex semiotic meta-networks of language and mathematics, which have made the engineering of computers possible, are much simpler than the brains that gave rise to them, which remain the most complex systems we know. While it may one day be possible to produce parallel computers which can exceed human computational abilities, this will likely require some sort of shift away from serial silicon chips to nano-, bio-, or quantum technologies which can change and grow in the manner of organisms. Soft-computation in its many forms, including fuzzy, networked, and evolutionary modalities, shows how this might be possible, beyond the limitations of binary, serial computation, which are simply the beginning of what synthetic minds will likely be able to do one day.

The implications of these changes is that it no longer makes sense to imagine, as many have this century,<sup>9</sup> that the most complex forms of thought we know take the form of a rapid linear series of binary computations. Rather, in the manner of the human brain, complex forms of thought can now be seen as the ability of a dynamic network to have some of its subnetworks

come into sync with aspects of what is to be thought, so as to be able to change and develop in relation to it. This is something which animal brains do with massive rapidity and elegance all the time. Dominant conceptions of what it means to reason and to think, including assumptions based on these, which often guide our notions of logic, symbolic or otherwise, all need to be rethought in light of these new developments and the perspectives they provide.

Networks are a philosophy of process. Everything we experience in the world is only ever the same for a short while, with human scales of time mere flickers in the long durations of time at cosmic scales. Whatever manifests to us in our experience presents us with only a tiny fragment of the spacetime relevant to it, such that if one were to place something in a different set of conditions elsewhere in the universe it would be hard to say in advance precisely what it might do, or of what it might be capable. A sample of liquid water, for example, is always potential ice and steam, as well as part of a plant or a person, a star or a symphony. Everything we experience always was and will one day again be radically different than it is here and now in front of us, such that ultimately, anything is only ever a temporary stasis within patterns of processes. Nothing is then ever fully what it appears; all empiricism is to some extent always already an implicit idealism, and all physics always already partially metaphysics, for both empiricism and physics bracket what is beyond the here and how, even if these are always virtually present. 10 In this sense, to say that something "is" this or that, or is in this or that state, is only ever a convenient or useful fiction, for it describes, if often indirectly, the perspectival relation between an aspect of the world and those which grasp it in a particular context.

For these reasons, the networkological project is a philosophy of process. Drawing upon group and category theory in mathematics,<sup>11</sup> as well as the work of process philosophers<sup>12</sup> and theorists of scientific practice such as A.N. Whitehead, Gilbert Simondon, and Gilles Deleuze, the networkological project sees each experience of the world as a limited reification, literally "thing-ification," of the processes of differentiation, intertwining, and emergence which brought it about. While reification is necessary if there is to be interaction and experience in the world, practices or models which take these snapshots of more encompassing processes of change as somehow ultimate tend to radically simplify the way they relate to the world.

Rather than freezing the world into a collection of static images, this project views any aspect of the world as having been different in the past and likely the future, such that all entities, states, or reifications of other sorts conceal within them potentials, forces, and tendencies which are themselves result of others and will lead to others in turn. All networks and their elements are only ever patterns of symmetries, balances between forces which provide momentary localized stases within the dynamic changes at work in the world around them. Reifications always therefore need to be seen as related to contexts and processes of change beyond them, for failing to take the processural aspects of the world into account results in a lack of sync with the world, in practices as diverse as science and ethics. Overreification, which the networkological project will generally simply refer to as reification for the sake of simplicity, is in its many formations that which this project argues holds networks back from reaching many of their more robust potentials.

*Networks are a philosophy of complexity.* According to complex systems science, "complexity" is the manner in which "a whole exceeds the sum of its parts." While a car can therefore be described as merely complicated, something like an organism, whose actions and reactions cannot be fully predicted from the form of its components, is complex. A tornado or convection cell,

each of these has a form and potentials distinct from that of the components which give rise to it.

Complex systems are difficult to engineer; rather, they need to be grown, and complex systems science has shown that complexity tends to come about spontaneously in particular conditions. These generally include the presence of diverse materials, "meta-stable" conditions "on the edge of chaos" between stable equilibrium and unstable dissolution, relatively distributed or "small world" modes of organization between parts, and relations of feedback between the aspects that modulate the way they interact with each other and their contexts, whether internal or external, and often in a manner which is "scale-free" or fractal across levels of scale, thereby leading to the potential for sync in and through difference and change.<sup>14</sup>

In such conditions, new forms of organization which could not be predicted by the form of their parts, and as such have "non-linear" relations between earlier and later states, tend to emerge on their own, something which can be observed in various physical, biological, or cultural contexts. 15 A whirlpool in a draining pool of water, the swirling groupings in schools of fish, or the branching patterns in lightning are all self-organizing complex phenomena. Self-organization, often called "autopoeisis" or "emergence," 16 not only comes about on its own in these conditions, but this process also tends to feed on itself and selfpotentiate as well, giving rise to the very materials and conditions which support the development of even more complexity, up to and including the advent of life and the evolution of organisms. Complex systems also tend to adapt flexibly to the world around them. Put a stone near a whirlpool or a predator near a school of fish, and both whirlpool and fish will rework their patterns ways which are relatively decentralized, and whose form cannot be predicted from that of its individual elements.

Complex systems science explains "how newness enters the world," as well as how this newness can self-potentiate and adapt in the right conditions. Because each complex system can be seen as composed of networks of distributed agents which nevertheless often find ways to work together, the science of networks and complexity have developed in an intimately intertwined manner. Complex systems science will therefore be essential to the networkological project's efforts to describe how networking can give rise to a wide variety of experiences in our world.

Networks are a philosophy of emergence. Expanding upon the scientific usage of the notion of emergence, if in a way which does not conflict with the usage of this term in complex systems science, this project will develop a philosophy of emergence. And so, this project will view everything in the world as the result of self-organizing, self-potentiating, complex networking, or emergence, if to differing degrees and in different ways. From such a perspective, emergence is the very stuff of the world, its self-differing substance, that which emerges from itself by means of its differentiation and complex networking, and of which any particular network, including those which are merely complicated, are simply aspects. Emergence can then be seen as a principle of radical creativity, in and beyond any particular creation to which it gives rise, present within all we experience, yet only able to be unleashed by particular forms of differentiation and networking. Building upon philosophies of radical creativity, as described in the work of theorists such as Gilles Deleuze, Gilbert Simondon, or Henri Bergson, 19 this project will work to bring these into sync with complex systems science and the needs of our networked age, with a goal of giving rise to an emergence which is more than the sum of its parts.

Viewing the aspects of the world as various forms of networked emergence in this manner allows for them to be seen anew. From such a perspective, relatively static matter can then be seen as dormant emergence, while the actual or potential motion of matter, or energy, can be seen as active emergence. While energy is indistinguishable from matter at high energy levels, at lower energy levels it folds with itself to give rise to matter, which it can then move in ways which allow it to fold with other matters in ways which can give rise to qualitatively new and more complex forms of matter and energy in turn. As the networking of dynamic and stable matters and energies, all complexity, which is all potential for emergence in the future, is the result of emergence in the process of differentiating from and then networking back with itself. The result is the self-potentiation of complexity by itself, with matter, energy, actuality, and further potential for further emergence as so many aspects of this process.

While such notions may sound strange when phrased in abstract language, they nevertheless allow the world to be described in new ways, even in regard to everyday circumstances. For example, energy gives rise to new potentials by means of intertwining with matters of various sorts, such as the manner in which the sun gives rise to fuel, which can be used to produce electricity, which can build and run the computer used to write this book. All of these are examples of the emergences which come about when potentials of various sorts are renetworked back with themselves in particular ways. Beyond everyday circumstances, however, the approach to emergence described above can also make sense of the often counterintuitive findings of quantum physics, as well as the complex experiences which arise in networks such as the human brain, or a wide variety of social phenomena, and much of this project will be an attempt to describe how and why this might be.

From a networkological perspective, everything in the world of experience can be seen as aspects of emergence networking with itself. And in this sense, this project will itself emerge from the concept of emergence, even as it works to foster emergence in the world by means of this in the process. Showing how and why this expanded notion of emergence comes into sync with complex systems science, philosophies of radical creativity, and the needs of contemporary philosophy and society will be one of the primary tasks of this project as a whole.

Networks are a philosophy of relation. As a philosophy of emergence, the networkological project is also a philosophy of relation, for it views complexity as that which emerges as it differentiates and then intertwines, or networks, with itself. All reifications, disjunctions, or separations can then be seen as aspects of the manner in which the self-differing stuff of the world differentiates and intertwines with itself. From such a perspective, everything is then ultimately related to everything else, even if by its disjunction, a position which has strong support in quantum theories of cosmology.<sup>20</sup> According to this view of the origins of our world, all we have ever experienced comes from that which gave rise to the "Big Bang," a quantum singularity with the potential for our entire universe layered on top of itself in a superposed and entangled manner, smearing and condensing space, time, matter, and potential upon themselves. Our whole universe can therefore be seen as the manner in which this singularity explores itself in the process of its complex emerging by differentiating and renetworking with itself, moving from potential to actual, across and through the extended spacetime of our everyday experience.

Viewed as aspects of this singularity, as refractions of the same relational continuum which is both within and beyond spacetime as we know it, anything can be seen as related to all others, fractally and holographically, no matter how distantly they are separated in our everyday worlds of experience. As such, the potential for anything we have ever experienced or dreamed, and likely much more, should not be seen as coming from someplace

radically distinct from us, but from the whole of relational emergence of which any aspect of the world is a part, for ultimately, even if our world is the result of another, we would have to be related to this other world in turn. <sup>21</sup> Each aspect of the world can then be seen as an aspect of a whole that gives rise continually to all we experience, and potentially much more. For if any of these only complexify by means of emergent networking, each then has the potential, in the right circumstances, to do the same and potentially more in both quality and quantity.

The networkological project therefore sees the potential for radical emergence as infinitely present, here and now, right in front of us. Potentially and certainly practically infinite potential is within the very fabric of the world, as the self-differing substance of emergence itself, even if this can only ever be unleashed by differentiation and networking, in a manner which nevertheless self-potentiates the more it complexifies. We can never know what an aspect of the world can do, for it is potentially and practically infinite in relation to how it networks, with the singularity as the most complex potentiality of which we know, the human brain as the most complex actuality of which we know, and everything else on a continuum of complexity between these. While these and other related insights in this section are described in relation to abstract physics and philosophy, the ramifications for political and social theory are manifold.

Networks are fractal. The networkological project views the manner in which emergence networks with its differentiations as fractal and holographic in form. Building on research in quantum physics on topics such as quantum foam and the divisibility of quarks, mathematical issues such as the divisibility of continua, as well as a wide variety of philosophical concerns, the networkological project views networks as always nested, or

layered, into other networks, at potentially and practically infinite levels of scale.<sup>22</sup> Such a structure is what Benôit Mandelbrot famously described by means of the term "fractal."<sup>23</sup> Having no smallest or largest scale, such a "scale-free" view of the fabric of the world is "self-similar" in the manner whereby it differs from itself and its contexts, and it is intertwining of sameness and difference, differentiation and sync, which gives rise to the proliferation of qualities, entities, forms, and processes which comprise our world.

Drawing upon the notion of multiple intensities of infinity in transfinite set theory,<sup>24</sup> this project also views some aspects of the world as networking the infinite potential of its aspects into greater intensities than others, not only in terms of quantity, but qualitatively in relation to their differentiation and intertwining within networked emergence. When the networked fabric of the world contains itself more intensely in this manner, the result is potential which can emerge in practically and potentially infinite ways, in regard to the self-differing refraction of these potentials with themselves as matters and energies and all to which they give rise.

Networks are holographic. The networkological project views the relational self-similarity of self-differing as not only self-similarly fractal across levels of scale, but across space and time as well. This form of complex self-similarity, often called holography, describes the manner in which wholes and parts are complexly interdependent in a manner not unlike that of a living organism, and which, like fractals, exist between more traditional notions of dimensionality. Such a form is illustrated in the manner in which holographic images, which are able to represent an entity from multiple sides, are constructed by recording an interference pattern between parts and wholes.<sup>25</sup> And so, if a section of a holograph is examined, it will reproduce an image of the original whole, if with less clarity than the original whole holograph, for

the parts of a holograph record not merely parts of what they represent, but the relation between these parts and the whole, as a whole, within and in relation to each part.

When holography and fractality intertwine in a manner which is emergently self-differing, they describe how complexity can manifest in the structural fabric of an entity, a notion which this project will describe as refraction. A refractive structure isn't one in which all its parts are like a hall of mirrors reflecting. nothing but itself, but rather, is like a continually shifting, self-shatteringly differing crystal of emergence. The emergence of such a crystal within itself in one location ripples into others, with parts and wholes resonant with each other even if never fully the same.

The fractal and holographic refraction of self-differing describes the manner in which emergence manifests relationally, for fractals and holographs are fundamentally infinite in relation to more traditional notions of limitation, with fractals proliferating to potentially infinite levels of scale, and holographs made up of parts which only make sense as aspects of a whole which exceeds any part or even the sum of these, and which can be fractally subdivided as well. Reifications can only ever grasp small aspects of such refractive structures, even as they can contribute to, yet also hinder, their processes of emerging. The world itself can be seen as such a refractive structure, in which the quantum singularity before the Big Bang explores itself in all its polychrome potentialities, with space, time, matter, energy and all these give rise to as its many aspects by means of this process.

Networks are a spacetime. The networkological project views spacetime as fundamentally networked. While the spacetime of most human physical worlds is commonly described in terms of three dimensions of space and one of time, our inner worlds do not follow these rules, nor do the phenomena of quantum physics, or the non-Euclidean and topological approaches to

spacetime in contemporary mathematics. We need models of spacetime which can include the inner and outer experiences of our worlds, as well as the less everyday formations of mathematics and physics, while making room for the potential for alternate spacetime formations previously unknown.

Working backwards from lived physical experience on Earth today, we can surmise that space and time indicate forms of incompossibility and displacement which are exclusive to varying degrees, and which when intertwined with others give rise to extension, of which the spacetime of lived physical experience is merely one type. Intensive spacetime, which takes place within an entity, can be distinguished from extensive spacetime, which occurs outside of an entity, such that both intensive and extensive spacetime can be grasped from either within or without an entity capable of doing so. And so, an example of intensive spacetime, grasped from within, can be seen in the manner in which humans experience the flow of thoughts in an inner mental landscape, one which expands, condenses, jumps, loops, speeds up, slows down, and can produce many forms of containment and layering, and in regard to forms of motions which defy the parameters of the external physical world, giving rise to the various combinations of thoughts and feelings which determine the topologies of inner spacetime. All of this seems to be the result of the manner in which the patterns of activation in the brain come into sync with each other so as to feel the inner topology of the brain, at least from a perspective which, like that of the networkological project, does not firmly segregate mind and matter from each other. While inner spacetime would then simply be how it feels, from the inside, to activate particular aspects of the networks of the brain, this hardly changes the fact that the brain has a particular spacetime structure which, while contained in our standard four dimensions, is, in the manner of a subway system or computer network, hardly four dimensional when explored from within.<sup>27</sup>

When a human grasps the spacetime of the world beyond it, however, this tends to manifest as a relatively static domain in which loops, dilations, layerings, and many of the other relatively normal phenomena of internal spacetime are generally precluded, so long as the human remains in a relatively standard, non-accelerating inertial frame. However, in between intensive and extensive spacetime, quantum phenomena and spacetime seem to "smear" within each other, at least in regard to localized areas within more traditional, macroscopic, decoherent, "non-smeared" spacetime observed by humans. Time thereby becomes spatlialized, for quantum phenomena in such states are able to be in more than one space and time at once, at least in regard to those grasping them within the parameters of more traditional spacetime. In such cases, the law of the excluded middle falls out of the logics of the spacetime of these phenomena, and their appearance becomes fuzzy, a matter of degree of intensity rather than simple either/or, presence or absence. As a result, spacetime becomes branches of incompossibility and possibility of varying intensity in relation to those around them, breaking down many of the binaries which structure more limited types of manifestation in experience.<sup>28</sup> If extensive spacetime manifests in the networks formed by quantum events as they flicker in our worlds, quantum spacetime can be thought of as networking space and time within quantum phenomena, as intensities, even if this can be grasped externally for example, by an observing human, in the mode of clouds of probability.

The simpler forms of spacetime which dominate the world of lived physical experience on Earth today seem ultimately to derive from these branching networks of graspings, pathways, fields, and processes. As many theorists have argued, the "arrow" of our time,<sup>29</sup> whereby time flows only forwards and space can only be traversed in one direction at a time, likely derives from the flow of energy from the Big Bang, which pushes

time in one direction and space into a relatively flat expanse. Without the continual flows of energy resulting from this originating event, which extended spacetime as we know it, there would be no need for time to only continue in one direction in the physical world. To complicate this picture, as relativity theory has shown, acceleration curves the parameters of spacetime, turning points into paths, paths into fields, and fields into processes which have fuzzy aspects of all of these as they increase in intensity. Energy and matter then seem to affect spacetime inversely, with the movement of energy compacting spacetime by means of acceleration, and material forces of repulsion (i.e.: electromagnetic, weak force) pushing against this to extend spacetime, thereby giving rise to spacing and timing within this. This has led some to even argue that matter is little more than spacetime knotted with itself by energy, such that the manifold forms of the world of experience as we know it, from the singularity to humans, are ultimately aspects of the differentiation and networked intertwining of one fundamental stuff.<sup>30</sup>

While it is ultimately impossible to describe the spacetime of a singularity such as the Big Bang, at least by means of bodies and languages adapted to the extended spacetime of relatively fixed points, linear paths, homologous fields, and metricizable patterned changes, it seems clear from what has been described that the networks of spacetime we see around us, based largely on four axes of relatively linear displacement, and idealized by means of the Cartesian grid, are only one particular case within the many potential spacetime mappings available. From the singularity to the brain, the networks of spacetime are much more complex.

**Networks are immanent.** If everything is related to everything else, and the fundamental stuff of the world is self-differing, there is no need to imagine that the source of the world and its potential to produce the new is elsewhere, somehow radically

transcendent or separated off from the world of experience. Transcendence and immanence can therefore be seen as aspects of a continuum whereby aspects of the world continue to transcend themselves as aspects of the manner in which the radically immanent self-differing fabric of the world emerges from itself, with the potential for transcendence immanent within any and all.<sup>31</sup>

The networkological project therefore views any approach to the world which splits it into two or more types of fundamental substance, or which radically divides the world between mind and matter, mind and body, heaven and earth, divine and profane, human and animal, animate and inanimate, sensate and inert, us and them, or me and world as attempts to reify aspects of the world in ways which run the risk of losing sync with its refractively relational emergence. Rigid binary hierarchical reifications of this sort limit the emergence of potential by foreclosing possibilities, and have often been used to justify and promote worldviews and actions which reduce the world to tidy certainties, easily divided into good and evil, or that worth valuing and that which can be ignored or treated with contempt or neglect, with potentially disastrous consequences.

The world is and can be infinitely more complex than this. For these reasons, this project will work to recast binary models of the world as continua of intensities, moving from models based on "black and white" distinctions to "shades of grey." It will then show how the networked intertwining of these intensities, themselves the product of forces and tendencies within and yet also beyond otherwise reified matters, can be used to account for what binary models do, but in ways which can also tie these back into the contexts and processes of their production, thereby avoiding many of their otherwise often profound limitations.

Networks are a set of principles. The notions of immanence, relation, refraction, and emergence, briefly articulated in the

preceding sections, describe the four principle ways in which the networkological project views the world of experience. These principles, abstracted from the redescriptions of the world which networks provide, can then be applied back to the world to produce more networked descriptions in turn, such that ultimately, they describe what this project means by networking.

To summarize, according to the principle of emergence, the basic stuff of the world is fundamentally emergent, self-differing, self-organizing, and self-potentiating in regard to conditions of diversity, distributed refraction, meta-stability, and feedback which can lead to sync. According to the principle of relation, all aspects of the world find their meaning and value relationally, in the contexts of their production, such that nothing in the world can be understood except relationally, with reification as an aspect of this process, but not its end. The principle of refraction describes how distributed forms of organization, between centralization and decentralization, which when manifested fractally and holographically, tend to potentiate emergence of complexity. And according to the principle of immanence, the stuff of the world, its fabric, is of one type, a notion which is only sensible in regard to the diversity of our world if this stuff is fundamentally emergent.

The principles of immanence, relation, refraction, and emergence, which correspond to the notions of node, link, ground, and level of emergence, are the primary descriptive principles of this project as a whole. The very concept of a network employed in this project is in this sense ultimately a shorthand for the manner in which the world can be described according to these principles, which are simply four aspects of what it means to network. From these principles, it is possible to describe the ways in which networks describe the world as it manifests to us as experience, meaning, value, and thought, and in a manner which, as will become clear, is itself a refraction of the valuation of robustness which grounds this project as a

whole. The rest of this manifesto will articulate some of the ramifications of these principles, in regard to particular ways in which networks redescribe aspects of the world in fields as diverse as ethics, politics, aesthetics, and beyond.

Networks experience. In relation to the principles described above, the networkological project articulates a theory of experience. According to this perspective, each experiencer can be seen as having a networked world of experience which is carved into interconnected segments, known as worldslices. Each worldslice is a network of other worldslices, foregrounded against a background, which is composed of more networks of worldslices, and this is layered into levels at practically and potentially infinite levels of scale. Worldslices are abstractions from a given world of experience, even as each world of experience is also an abstraction in turn from the world of experience as such, that which exceeds yet manifests in all worlds, with each experiencer as a topologically non-orientable worldtwist between these.<sup>32</sup>

Each worldslice manifests as it does by means of the intertwining of the networks of a given experiencer, those of other experiencers, and those of the world. This intertwining produces networks of reference which form the grammar of worldslices, which appear to an experiencer in a world at a given location in their spacetime, and upon which more networks of reference can be applied to produce multiple interpretations of networks of worldslices, depending on the complexity of the experiencer in question. Complex brains, for example, are able to layer networks of reference in this way. Nevertheless, since all networks are composed of other networks, all networks of experience and their networks of reference are ultimately layered at potentially infinite levels of scale.

As an immanent philosophy, this project sees all worldslices, from humans to atoms, as worldtwists, which is to say, experi-

encers, even if simple worldslices only experience the world is simple ways. Matters like atoms feel the world around them even if they are not able to experience this experiencing reflexively, a more complex form of experience known as consciousness. Humans, however, are complex in this manner, and so can feel their brains, thereby producing thoughts, which are layered into the feedback between how they feel their brain and body, thereby producing feelings and emotions, 33 which are layered into the feedback of both of these with how they feel their bodies, thereby producing sensations. Those experiencers without a central control system like a brain nevertheless seem to only feel the way their bodies feel the world, in a relatively decentralized manner, and in a manner which cannot experience its own experiencing in the manner of conscious or self-conscious organisms.

It is important to note, however, that no experiencer can ever directly experience the experience of another, for they could only do so by being inside them, and so, the experiences of others can only ever be surmised by the ways in which these entities act, the structure of their bodies, and the patterns between these. From such a perspective, however, there is no need to imagine that simple matters, like stones or atoms, do not experience, but rather, that they experience simply, while more complex matters, such as organisms, experience more complexly. While such a perspective on the world cannot be proven, it is justified in the same manner in which humans surmise that each experiences the world in ways which are at least similar, and simply follows this reasoning to its conclusion, thereby avoiding the need for a dualist approach to the relation between mind and matter.

Networks are a theory of realities. When experiencers are able to coordinate their actions this is because of symmetries between how they experience their worlds. The areas of overlap and resonance between any group or set of worlds is known as a

reality, while those areas which do not overlap between a set of worlds, which are reality excesses, manifest within these realities as sites of incoherence, inconsistency, or incompletion. This sort of networked layering of worlds and realities is fractal and holographic, for there are as many realities as there are groups of experiencers, just as there are as many worlds as there are individual experiencers.

From the excesses of a given reality or world, experiencers can learn about various ways in which other realities or worlds are in excess of their own, for excesses relevant to various realities can indicate, if indirectly, aspects which exceed them by means of incoherence, incompletion, or inconsistency. It is important to keep in mind, however, that worlds are always in excess to any realities of which they may be a part, just as the world is in excess to all the worlds of the various experiencers which experience it, for it only manifests within these indirectly. In this sense it is also possible to see those aspects of worlds which appear in more realities as having a greater degree of reality than others, just as those which appear in more worlds have a greater degree of appearance in the world of experience, even if we can never know if there is more to the world than the world of experience other than by indirect means. There are many implications of these issues, not only in regard to physical experience, but also for ethics and politics.

Networks have (un)limits. The excess of the world to worlds, and worlds to realities, are only aspects of the ways in which emergence can only ever be partially grasped; no network is ultimately ever able to fully grasp any aspect of the world, there are always excesses. These limitations do not prohibit access to the world, but rather, make it possible. Each limitation marks the site of excesses, which manifest as paradoxically uncloseable openings, or "(un)limits" within experience, which can be conceptualized as aspects of "the network paradox," which is

abstracted from the way these (un)limits manifest in worlds and realities from the perspective described by networks.

The network paradox manifests most directly in the form of the paradox of the ground, the way in which grounds are always neither fully within nor outside a network. Whenever an effort is made by a network to grasp a ground, it becomes a network of networks, with other networks forming new grounds behind it, even if these are often indistinct.

Likewise, the boundaries of a network are only ever determined by other networks. And so, whenever a network attempts to grasp the manner in which its own networks impact what it experiences beyond it as grasped or ground, it can only do this by means of its own or other networks, which are themselves contextualized by grounds. Any attempt to grasp all of these, however, will run into difficulties, for there will always be more grounds. And so, while it is possible to determine the manner in which networks impact the experiencing of others in particular contexts, it is never possible to do this completely for any experience or context, for there are always more grounds which manifest whenever a network grasps another, and any attempt to grasp these will be altered by this very action to reveal more grounds in turn.

The paradox of levels indicates how there are always more levels within networks and their elements, and the paradox of the link indicates the manner in which links always connect to other additional links, such that nodes can be seen as simply what happens when links intertwine and bend. The paradox of the node describes the manner in which no aspect of the world can ever be fully grasped as a node or network, for more networks are always required to fully grasp something, in that a complete God's eye view of any aspect of the world, or of the world as a whole, is ultimately impossible. Bringing the paradox of the node, link, ground, and level together is that of emergence, which describes the self-potentiating incompletion of emergence as

such. This paradox brings these all together, and the network paradox is simply the concept which articulates the manner in which the paradoxes of node, link, ground, and level describe the paradoxical manner in which emergence manifests in experience as networks of emergence as such.

Networks are a general semiotics. In addition to theorizing experience, networks are also a theory of meaning. All aspects of experience are always themselves and more, for they are always aspects of contexts that exceed them. The manner in which any particular aspect of our worlds of experience manifests in relation to others is known as meaning. Since all aspects of experience are always already meaningful, viewing the world through the lens of experience alone is only ever an abstraction from the networks of meaning of which they are a part, with networks of experience as aspects of the networks of meaning in the world.

Unlike many contemporary philosophies of meaning, the networkological project does not see the world as fundamentally divided between language and the world, meaning and matter, or signifier and signified, but rather, works to overcome these binaries. Building on the semiotic theories of Félix Guattari, C.S. Peirce, Louis Hjelmslev, Thomas Seebock, Yuri Lotman, and Vilém Flusser,<sup>34</sup> as well as contemporary trends in information theory,<sup>35</sup> this project works to show that all the world is a semiotics, full of meaning, with human language as one particularly complex formation, anchored in the complex memory machines which are human bodies, brains, and culture, within the simpler and often more aleatory meanings, grammars, and languages at work in the world.

In this sense, meaning can be seen in the world all around us, beyond language and human life. On a physical level, matters interpret the world around them when they react to each other, storing the results in the memory incarnated in their physical

form, modulating the potentials they unfold in relation to what is around them in regard to this, reading and writing upon their physical form and that of others in turn. The physical world is in this sense full of rippling waves of metonymic impacts and metaphoric imprints, as well as continual processes of erasure. scripting, and rewriting. In more complex systems, these can then be intertwined to produce stable contexts which allow for the emergence of codes which can link readings and writings in complex memory systems over time. In living systems, material symbols become organic signs in complex relational networks of relays which regulate DNA protein feedback networks,36 which can develop by means of evolution to produce neural networks which regulate loops of inputs and outputs in webs of feedback in complex organisms. By means of these, organisms are able to modify their physical form in relation to their surroundings, producing continually new writings on themselves, their brains, and the world in the process.

Humans have taken these processes of complexifying meaning in memory systems the furthest, not only by means of language, but also by the modification of the physical environment and production of meaningful objects, processes which then feedback into evolution. Human forms of meaning making, however, are ultimately only complexifications of the processes of reading, writing, translation, and interpretation, which are ultimately aspects of a wider prose of the world, with human language as abstractions thereof. From this, it is possible to then see the world as having a grammar of which human grammars are merely a part. Intensities of qualities produced by tendencies are like the world's adjectives, entities produced by the patterned knotting of these together are like the world's nouns, grammars of relations which sediment from relations between these are like the world's linking words (i.e.: conjunctions, prepositions, copula, etc.), while the processes of which these are only ever so many reifications are like the world's verbs,

with human meanings as abstractions of the meanings within the world of experience in which we find ourselves.<sup>37</sup>

Human sign systems are in this sense extensions of the various ways in which molecules read each other, cells read enzymes, organisms read sensations, and all write upon each other. Language is neither prison-house nor glass house, 38 for our world is full of layers of mediation which each reveal and conceal the worlds and realities they present at potentially infinite levels of scale, with human meaning-making as simply abstractions of abstractions which grasp each other in layers which are practically and potentially without end. Within this, human images are two-dimensional signs for aspects of our fourdimensional experiences, a slice of worldslices, and languages systems of abstract conventions represented by matters in the world such as bits of sound or squiggles on paper or screens. Like any other worldslices, those which form images and words in their many forms produce networks of meanings which can impact the patterns of networks of neurons whereby we store memories in our brains, and in ways which can help us sync with our worlds and each other as we learn how to read languages, images, and our experiences in relation to our memories as children. Our worlds of objects and gestures, architecture and sounds, all these are meaningful because they are patterned, and by means of comparing patterned relations between aspects and contexts in the present and the past we learn to come into sync with aspects of our worlds to differing degrees.

From such a perspective, even mathematics can be seen as simply an extremely abstract form of the process whereby humans link abstractions and meta-abstractions into systems of memory in relation to cultural systems of meaningful matters which feedback into these. Mathematics is simply the most abstract form of this, in which signs are stripped of all but the most abstract qualities present in our relations with the world. Building on notions developed by theorists such as Albert

Lautman, George Lakoff, Gilles Châtelet, Brian Rotman, and Fernando Zalamea,<sup>39</sup> the networkological project will therefore see figure in geometry as abstraction from lived space, quantity and number as abstraction from counting, and algebras and problem-solving techniques of various sorts based on these as abstractions from the problem-solving activities of our embodied lives.

Mathematical formalizations are in this sense merely specialized languages for dealing with particularly abstract situations and meta-situations derived from the world, and ultimately only meaningful in relation to these. As such, even symbolic logics and the law of the excluded middle need to be seen as contingent as the notion of orientability in geometry, which is to say, as abstractions of the world as it generally manifests itself to us, even if quantum physics demonstrates that these are ultimately restrictions of the various ways the world can be.<sup>40</sup> In all this, the radical effectiveness of language and mathematics should not then be seen as indicating their transcendent existence, nor that they cut us off from the meaningfulness of the world, but rather, the manner in which they echo aspects of the world of which they are ultimately aspects. For they are simply various forms of tools which evolve in relation to our own evolution in relation to our worlds.41

Networks are a mediology. Networks grasp aspects of each other, such that no aspect of a network should be seen as the result of only one network, but rather, as an intersection or symmetry whereby many aspects grasp aspects of each other. In this sense, any aspect shared by networks can be seen as a form of mediation, or betweenness, and hence, as an interface or media device.

Media interfaces abound in our world, from the distributed mediation provided by screens, to that of our biological sense organs, or the chemical reactions that make the physical world a

continual process of reading, writing, and translation, which are all forms of mediation. Media transform what they connect, always connecting and separating in disjunctive syntheses, and can be as simple as a physical connection between things, such as the manner in which a wall mediates the relation between roof, floor, and other walls in a house, to the complex chain of mediations whereby my eye mediates the relation between light and my optic nerve, then my optic nerve to my visual cortexes, and my visual cortexes to various other aspects of my brain, each an interface for the others. And just as physical and biological phenomena are complex media ecologies, so are language, economies, and various other cultural formations. The study of media logics, which Régis Debray has called "mediology," provides a lens on the world by means of which it can be transformed into networks of so many mediologies which take a variety of physical, biological, and cultural forms.<sup>42</sup>

Networks are a general machinology. The networkological project views all aspects of the world of experience not only as meaningful signs connected in signifying media systems, but also as machines whose forms represent not only meanings, but also values. Signs and their meaningful contexts are aspects of combinatories, media machines which transform flows of potentials into actions, giving rise to themselves in the process of transforming inputs into outputs in this manner, making choices and partially determining the potentials for future choices in the process.

Whether complex machines, known as complexes, or complicated machines, known as complicates, machines transform potentials, which is how emergence manifests in particular contexts, into aspects of processes, or actions, thereby giving rise to meanings and values. Each machine has its own grammar of codes which transform matters into meaningful functions, using memory stored at one level to potentiate meaning at the next,

and all according to what that system and those which gave rise to it value. Grammars of codes within these can be represented by meta-signifiers of meaning, allowing for the transformation of meanings into functions within machines, while the potential for the comparison and evaluation of codes themselves can be represented by means of meta-meta-signifiers, or hyper-signifiers. These hyper-signifiers of value, or currencies, incarnate and represent what that system values, and the investment of currencies, as well as their stores in the forms of "capitals," forms of accumulation of surplus currencies, are what allow systems to evaluate particular aspects of its world by means of its actions, including those of interpretation, and hence, the production of meaning.

In this way, systems can use meta-signifiers to evaluate the ways in which meanings are produced, and hyper-signifiers to evaluate how values are produced. Examples of how meta-signifiers operate at more than one level of meaning can be seen in the manner in which biological meaning is regulated by stop-codons in DNA, how linguistic meaning is regulated by particular grammatical functions which also play a role in this language (i.e.: the word "I"), or how cultural meaning is regulated by the ways in which grounding terms (i.e.: "God," "truth," "reality," "proof") function to regulate how cultural discourses relate meanings with values to guide actions. In terms of value, biological systems regulate their various economies by means of ATP, similar to the ways in which cultural economies use money. Building on the work of Félix Guattari and Régis Debray, this project works to show how semiotics, machinology, mediology, and ultimately economics are varying aspects of the same.44

Networks value. All systems are economies which value many things, qualities, modes of relating, and processes, in regard to the systems which evolved them to value in these ways according to their values in turn. From this, it is possible to develop a

networkological theory of value. Building on the productivist theories of value in the Marxist tradition, the symbolic economics of Jean-Joseph Goux, David Graeber's social action theory of value, attention theories of value in the work of Jonathan Beller, and the econophysics of Octavian Ksenzhek and Doyne Farmer, 45 the networkological project views valuation as the manner in which potential unfolds into action, with that which is valued being that in relation to which potential is unfolded. In this sense, value is retroactively determined by the action of a system in relation to its contexts.

As aspects of processes, actions unfold potentials in regard to the values of a system in relation to those of its contexts, according to its interpretation of the meanings at work in and around it. All complex systems value the production of themselves and their own potential for growth as primary valuation, with all other forms of value derived from this, while complicated machines indirectly express the values of others as their quasi-values, which manifest according to the ways in which they were designed. All forms of value, however, are representations of the open-ended potential of a system, which is potentially and practically infinite in regard to the way it networks with its contexts, with the ultimate grounding value as the potential for emergence as such: that which gives rise to various subforms of value. While simple systems, such as molecules and simple matters, tend to value whatever their contexts of emergence value, the more complex a system, the more potential it has for emergence from its contexts, and hence, to evaluate aspects of its world relatively independently from values of the actions which brought it about. If all value is ultimately a manifestation of emergence, what emergence ultimately values in and through its many forms is the potential for emergence from emergence, with so many subforms of value as aspects thereof.

Within particular contexts, value and its representations can

take as many forms as there are potentials. In physical systems there are many forms of energy, such as heat, electricity, magnetism, and nuclear forces which can be seen as so many currencies which move matters, or can be stored as capital in the forms of matter, which can itself then be moved and thereby express forces at higher levels of scale. Living systems also have particular currencies, such as the nutrients and molecules needed to keep that organism alive, and all living systems are complex networks of economies that work to regulate each other. In regard to human social systems, these value many aspects of the world beyond money, and demonstrate this by means of allocating prizes, positions, jobs, degrees, relations, prestige, commodities, properties, etc.

The more centralized a system, the more one particular form of value comes to represent the value of particular currencies in relation to one another, with varying intensities of this currency shifting in relation to the evaluation of these currencies by the system. Such a centralized value system can help the system modulate its relation to various value systems, and coordinate various sub-systems and currencies within itself. ATP in living organisms or money in human society are examples of currencies which modulate the relations between other forms of value in regard to the systems in question. A similar situation can be seen in the ways in which particular terms organize meanings in human discourses, with notions like truth, freedom, God, or love functioning as various qualitative currencies which modulate the way other terms are valued in various semiotic economies, even if they do not generally do this quantitatively in the mode of money or ATP. While the ability of ATP to perform its function relates to its form, fully financial economies which have gone off the gold-standard, such as those of most economies today, do so in relation to pure regulatory function, allowing for the creation of new forms of feedback, but also making them particularly susceptible to feedback crises.

Networks are symbolic economies. In all its forms, value is always fundamentally intertwined with meanings, for meaning and value are obverse sides of each other. Valuation is the ground of meaning, for meaning describes the ways in which patterns emerge in the ways in which a system intertwines its actions with those of the world, even if these patterns then feedback into processes of valuation in the ways in which they produce interpretations. If the meaning of any particular entity is its position within a particular context (i.e.: "what" that thing is in regard to its contexts), value describes that which indicates which context is used to determine how action relates to these meanings in regard to the unfolding of potential (i.e.: "how" to act in regard to that thing in the context of a more fundamental "why"). While meaning is in this sense the position which one entity has in a context in relation to a meta-context, value is the meaning of this meaning in regard to another meta-context, which relates this meaning to a system which values according to processes which unfold potential into action. Just as experience is an abstraction from meaning, so meaning is an abstraction from the values of the systems which gave rise to it.

Attempts to completely centralize and control systems of meanings and values tend to lead to crises, and since meaning and value are so intimately intertwined, crises in meaning tend to become crises of values when taken to the extreme, and viceversa, for both are ultimately always about the potentials for emergence in regard to experience. Paranoid conservatism, cancerous reproduction, idolatrous absorption, and chaotic dissolution are so many ways in which potential can unravel in this way, while evolution is the process which attempts to learn from past mistakes and learn to avoid such crises in the future. Ultimately, such crises can be seen as manifestations of the ways in which the attempts to bypass the network paradox arises as so many limit-effects in regard to particular systems, even if this notion is itself simply an abstraction from these.

Networks value robustness. As a meaningful system like any other, the networkological project is itself a manifestation of values. Rather than pretend it has no values, this project will work to show how the relation between its values and meanings are an integral part of the way it attempts to relate to the world around it. In contrast to those systems which base their values on some sort of transcendent source beyond the world of experience. this project will ground its values, as well as the ethics and politics which it derives from these, in an immanent manner, by means of abstraction from the best of the world in front of us. For if ethics is the study of what we should value, an immanent approach to ethics needs to base itself on that within the world which has the potential to give rise to an even better world than we currently experience. Since the best of everything in the world, and even the potential to pose questions of value itself, seems to be potentiated by the self-potentiation of emergence itself, this project will value that which can give rise to this, and not only in the present, but emergently, in the future as well.

As such, this project will not value those aspects of the world which are merely complexly emergent, but those which emerge the most sustainably in relation to their contexts, which continue to emerge as emergence, a notion which complex systems science calls "robustness." 46 Robustness is never growth of mere quantity, for any aspect of emergence only ever potentiates itself by qualitatively differing with itself, either by differentiating from and renetworking with itself, by transforming itself so as to intertwine with differing aspects of its contexts, or both, since ultimately, these are aspects of each other. Robustness is also never simply short-term growth which sabotages itself in the long-term, and so robustness must also work to foster its contexts. Robustness is emergence in its most relational form, and ultimately, is the emergence of emergence from its own limitations so as to emerge more intensely, not only in the past and present, but future as well, not only in one location, but also

in many locations in space and time at once.

Considered as enrichment and development in the widest possible senses, robustness is an increase in complexity, in terms of quality, quantity, quantity of qualities, and quality of quantities, and in a relational manner, which is to say, ecological and sustainable in regard to its contexts for the long haul. In terms of organisms, robustness is life lived more abundantly, for any and all, for its own sake and for what it can become, beyond any attempts to reify it in regard to particular organisms, contexts, goals, or communities. Robustness can never be for the few, for this is always self-defeating in the long run, and leads to pain, suffering, and destruction of complexity and potential, which are ultimately aspects of the same. As the source of all that makes life worth experiencing, robustness is the primary value of this project, and fostering maximum robustness is one of the key tasks of network ethics. Building on the implicit valuation of robustness at work in complex systems science, the networkological project will describe robustness as the grounding value of the networkological project and its values as such.

Networks are a practics. Based on what is described above, the grounding maxim of network ethics can be formulated as follows: "Let all your networks operate at maximum robustness." Robustness, the sustainable emergence of complexity, can only occur in a relation of mutual sustainable emergence with your networks, which are ultimately all networks, if to differing degrees, starting with those most relevant to your own potentials for robust emergence. While we cannot know the consequences of our actions in any ultimate sense, if we all promoted robustness in regard to whatever is near and relevant to us, our world would be a much better and more robust place, for ourselves and all relevant to us, for little acts can exceed the mere sum of their parts if they reach a critical mass.

Beyond the grounding maxim, there are many refractions of

this which indicate sub-valuations of this project. For example, since organisms experience pain whenever they experience a destruction of their complexity, and complexity in its many diverse forms potentiates the emergence of robustness, the reduction of pain and suffering is one of the values of this project as well, at least to the extent that it does not supervene the valuation of robustness. While some forms of pain may be necessary to produce overall gains in complexity and robustness. reduction of pain in the overall remains one of the goals of this project, since pain is an indication of the destruction of complexity. And since fear of pain gives rise to tension in organisms, the reduction of this sort of lessened suffering is also a goal, just as the reduction of the destruction of complexity in regard to the physical world, which likely produces some sort of proto-pain, are sub-goals as well, once again, to the extent to which they do not contradict the valuation of robustness.

The attempt to develop tools for dealing with the sorts of issues which arise when the grounding maxim articulates with particular situation is the task of practical ethics, or practics. In order to help imagine robust ways of dealing with the challenges the world presents to us, the networkological project advocates studying robust systems in the world, to see how they react to situations in ways which potentiate their robustness, so as to abstract potential strategies which can relate to our own challenges. These guides can give rise to principles, that which can help guide our intuitions and model-making in regard to aspects of the world which go beyond our knowledge. And these can help us to determine which aspects of the world can serve as models to help us imagine new strategies to evolve more robust ways of acting in our world. Since the human brain is the most complex entity on the planet, and potentially the most robust as well, the radical democratic socialism at work in the brain can therefore serve as an ethical, political, and aesthetic model, one which can not only describe the complexities which could come

to be in the world beyond the brain, but provide potential roadmaps for strategies to help evolve these in the world beyond the brain as well, a complex issue which will be described at length in future texts.

There are many lessons to be learned from the ways in which complexity has emerged from the quantum singularity, the most complex potential we know, to matter up to life, and from life to the brain, the most complex actuality we know. Particular values, decisions, actions, and the way these inform particular meaningful practices in the world, can be framed in relation to the ways of approaching the world this general orientation describes. Practics is the task of applying the general principles ethics abstracts from the world, which are never ultimately unrelated to how that world is interpreted, and the values and processes underlying this. In this sense, ethics and practics should be seen, as with all meaningful, descriptive, or philosophical practices, as aspects of the processes of which they are all a part, which is to say, the manner in which the world emerges from itself, and in ways which, it is hoped, can give rise to greater robustness in the future.

Networks are metaleptic. The valuation of robustness which grounds this project should not be seen as grounded merely in the here and now. Rather, any attempt to determine not only what we value, but also what criterion we should use to intervene in the process of determining which values we should value in the future, which is to say, the question of ethics, needs to get a more comprehensive sense of precisely what is at issue with such a question, and what could bring it about in relation to value and the emergence of valuation as such. This requires an attempt to ground the question of value and valuation in regard to the contexts and processes which gave rise to their possibility, as well as the possibility of their being questioned and influenced by this, and the values at stake in relation to these.

Human valuation is produced by human evolution, and human evolution is itself the result of the various evolutionary processes that gave rise to it in turn. Since anything we could value was produced by the various processes which gave rise to the world around us, understanding the contexts which lead to the evolution of the world around us, as well as the relation this has to our own evolution, can help us understand what might be at issue with this sort of questioning. For by understanding this, we get a better sense of what it means for us to value, both in the past and the present, as well as the stakes of what it means to value in the future. It can also help us get a sense of the potential limitations which our evolution, including that of our ability to value, may have produced in us in the process, as well as potential pathways beyond these. For ultimately, evolution has sculpted us to think, value, interpret, and experience in particular ways, and only when we understand what this means can we begin to get a sense of what it could mean to understand our experiences, interpretations, values, and thoughts in ways which potentially go beyond this.

Moving from valuation to the processes which gave rise to these, the networkological project will work to show that not only are all experiences meanings, and all meanings values, but all values are aspects of processes which can be seen as forms of thinking. In the process, this project will work to think of what it might mean to engage in a thinking which emerges from itself in robustness. Describing what it desires to see in the future as potential within its own past, a process which rhetorical theory has at times referred to as metalepsis,<sup>47</sup> this project will work to self-potentiate itself, in the manner of all emergence, jumping over its own shadow to frame the emergence of robustness as both the source and end of all valuation, like a snake eating its own tail and emerging fractally out of the other side. It will do so with its eyes set upon action which can proleptically then bring about that which it metaleptically desires to see as its own

potential future pasts, past futures, and robustly emergent present. As paradoxical as this may seem, this is simply resonant with the structure of the emergence of complexity in the world itself. Such a post-teleological form of metaleptic self-narrativization not only serves to ground the ethics of this project, but also in fact, the way the ethics of this project grounds the manner in which this project thinks its relation to its world in the process. It will do this by means of describing the process of the evolution of valuation and thinking which attempts to understand what it could mean to emerge robustly in relation to these.

Networks sync. As detailed earlier in this manifesto, networks describe a new image of thought. From the perspective of neural networks, artificial and biological, thinking can be seen as what happens when aspects of networks come into sync with each other in ways which potentiate robustness. For example, when a human senses an obstacle in its path, this occurs because aspects of its networks of sensory neurons come into sync with that of incoming data from the obstacle. The patterns of activation in sensory neurons then work to come into sync with those in memory which can recognize the object, and these work to come into sync with those linked to potential solutions, such as moving to avoid the object. These then work to come into sync with other aspects of the brain which control motion, in relation to the continuing stream of incoming data which keeps tabs on how this process of reaction is going. The result is actions which, if all goes well, sync with the challenges presented by that environment.

Sync describes the manner in which diverse and distributed aspects of the world are able to work together in ways which potentiate robustness. The most complexly robust forms of sync are those which manifest sameness within difference, and are radically distributed in nature, which is to say, they are complex. In the example described above, none of the neural populations

involved are the same, nor are they the same as the obstacle, or the muscles and bones involved. While the brain does centralize processing, it is radically distributed in its modes of organization, and in regard to the body and environment which could make sense of its electrochemical pulses. Because of the widely divergent scenarios with which humans can come into sync, and the highly complex problems we are able to solve, humans and their incredible brains present the most complex forms of potential for sync of which we know.

From the evolution of simple forms of sync, such as present between sub-atomic particles, to that whereby complex brains can come into sync with aspects of themselves and their world so as to emerge more robustly, this project will work to produce an account of the evolution of thinking which metaleptically bring its potential futures and remembered pasts into sync in ways which potentiate robust emergence in the process of this thinking.

Networks are a theory of understanding. Building on the work of theorists of embodied and emergent cognition, as well as theorists of the evolution of cognition such as Eric Baum and Gilbert Simondon, the networkological project will view the simplest manner in which thinking occurs as the manner in which processes give rise to simple forms of memory which then feedback into these very processes. 48 From such a perspective, all physical form, even at the most basic level, is a repetition of a pattern of symmetry between materio-energetic forces, and this is the simplest manner in which memory manifests in the physical world. Physical form is, in this sense, a recording of a pattern of balance within a much more complex dynamic network of influences, even though this is ultimately an interpretation of the contexts and processes which give rise to it. From this, material form emerges as a knot or residue which then serves to modulate these contexts in regard to this particular aspect in the future, and

in a way which can potentiate new and potentially robust emergences. While some memories may fade when conditions change, those which remain the same are able to form the basis for more complex forms of memory which can then give rise to more complex forms of sync.

Memory in this sense is a form of knowledge, for it is an abstract and condensed recording of aspects of an environment which can serve as a foundation for potential sync between that aspect and others in the future. That is, this recording of aspects of its contexts can then help that aspect to coordinate, work with, or sync, with aspects of its world that are resonantly similar to those which give rise to this form, such that conditions which potentiate emergence in the future are not wasted, but can build upon these complexifications of the past, stored in memory, to produce new complex emergences, and potentially more robust emergences, in the future. In this sense, it is possible to say that the knowledge stored in the memory of the body of a physical matter potentiates its ability to know how to work with aspects of its future contexts in ways which tend towards the evolution of greater complexity. This know-how is reified as knowledge in memory, but is the result of processes past which can potentiate the emergence of more complex processes in the future in a process this project will refer to as understanding. In this sense it is possible to say that a hammer understands nails better than dirt, and its ability to produce a house in relation to nails and other materials is the result of this. Likewise, the body of a fish understands water better than that of humans, and this is because of the knowledge stored in the forms of the matters of their bodies, which allows them to know how to deal with their contexts, which is to say, understand them in ways which can potentiate their future emergences. Understanding in this sense is that which gives rise to knowledge which can then potentiate the complexification and emergence of greater understanding, even if only when that knowledge reintertwines with the world

to produce new forms of understanding.

While simple matters cannot read what their environments have written on them, complex systems can compare the patterns at work within these. Simple matters only have the memories written on the form of their bodies, but these are erased each time a matter changes its form, such that only complex systems of matters are able to store multiple memories within them, and hence, to be able to sync with dynamically changing situations. Genetic material is an example of how this can happen, for DNA is a form of meta-writing which uses the position of particular formed matters within dynamic patterned sets of moving matters to produce positional, functional meta-meaning on top of more limited, static formal meanings. By means of this, matters assume functions in addition to their physical forms within the complex system of an organism.

The result is that organisms can modify the form of their body so as to sync with a wider degree of situations in their environment than before, evidencing an increase in their knowledge of the world, and hence, their ability to understand more of its aspects in the process. As organisms complexify, they tend to differentiate, specialize, and renetwork, ultimately giving rise to distinct organs for reading, interpreting, and writing in relation to the world, which leads to the development of sense organs, neural networks, and motor organs, respectively. Building from basic chemical messengers, the differentiated evolution of specialized organs leads to the production of specialized organs for sync production, with neural networks as the result, for it is the role of neural networks to help create sync Within the organism and to sync this with the world without by means of the body in a way which can maintain, if not increase, the complexity of the organism in question.<sup>49</sup>

Networks evolve. All sync in the world as we know it comes about, in one form or another, from a process of evolution.

Building on modern evolutionary theory and models of evolutionary computation, as articulated by thinkers such as Daniel Dennett, Gerald Edelman, Edward O. Wilson, and Martin Nowak,<sup>50</sup> the networkological project views evolution as a problem-solving algorithm, operating in a multi-dimensional fitness "landscape" of potentials. Such a notion is hardly linear or teleological in the sense of older evolutionary models. Rather, it views evolution as a multi-agent search operation, with many potential pathways towards an ever mutating set of peaks of fitness, nested within a variety of layered landscapes which operate in regard to many potential levels of selection, in potentially infinite levels of scale of evolutionary processes operating within each other.

From such a perspective, it is possible to see evolution as the attempt by the world to think itself, which is to say, to differentiate with itself so as to unfold its potentials in a manner which is able to sync with its own robust emergence from itself. And if this is the case, then the problem which evolution works to solve by means of this thinking is robustness, with experience, meaning, valuation, sync, and more complex forms of thinking as aspects thereof.

This occurs in several stages. All simple physical matters act to maintain their complexity, as seen in the principle of least action in physics,<sup>51</sup> and yet, given the opportunity, tend to complexify spontaneously. In this sense, it is possible to say that physical matters value their complexity, yet the process of physical evolution which can come about in relation to these in the right conditions values emergence. And this process of physical evolution is what leads, ultimately, to the production of living organisms, which value not only the maintenance of their complexity, in the manner of all matter, but its growth as well, which is to say, their emergence from the complexity they already possess in the form of continuing to live and even grow. And while individual organisms value their life and growth in

this manner, the evolution of life which brings them about values not only that organisms live and grow, but that they do not go extinct in the process, which is to say, evolutionary populations and biological evolution itself values robustness. Biological evolution exists within the gap between the valuation of emergence and that of robustness, just as physical evolution exists within the gap between the valuation of complexity and that of emergence.

In the process of evolving organisms which value what it values, biological evolution has given rise to a wide variety of mechanisms to bring this about. Instincts keep organisms programmed to follow specific instructions, but because evolution cannot anticipate all the changes possible in a dynamic environment, evolution has built pattern-completing brains. These brains record relevant aspects of the environment, store these in neural patterns, and try to bring these into sync with new, incoming patterns to trigger actions that have led to good outcomes in the past. This is the process of learning. To keep animals from straying too far from the goals of evolution, however, evolution has produced value systems,52 such as hormones, and in complex organisms the limbic system, which creates sensations of tension and satisfaction, by means of various chemicals, when the organism goes against or follows the goals of evolution, respectively. None of this, however, world work if there were not some sort of sensitivity to pain and pleasure already within living organisms, as part of their flesh, since satisfaction is generally triggered in complex organisms whenever there is pleasure or the expectation thereof, and the same in regard to tension and pain. It does not seem unlikely then that simple, non-living matters might even feel something like proto- pain or pleasure, even if explicitly not aware of this in the manner of higher organisms, for they certainly act in ways which demonstrate a valuation of at least the maintenance of their complexity. Such a view further collapses the need to differentiate mind and matter, a notion supported by the development of artificial neural networks.

If value systems keep an organism on the path set by evolution, complex memory-prediction systems such as the brain, while intertwined with this, allow the organism to intervene in its world, and this ultimately feeds back into the evolutionary process, potentiating it while changing it in the process. Complex planning, for example, is intertwined with the evolution of the ability to conceptualize potential future states of the organism, its ability to imagine itself as if grasped in the mode of an object, a basic aspect of self-consciousness. By means of such a process of recursion, not only is complex planning possible, but also the self-questioning which gives rise to learning, which can eventually lead organisms to question a wide variety of things, and to challenge yet also potentiate their evolutionary programming.

The development of recursion in complex organisms is intimately tied in human evolution to what is potentially the most powerful product of biological evolution after the evolution of the brain, for in addition to storing memory in our bodies, DNA, and brains, we have also developed external memory storage, our "wideware."53 These distributed networks of memory, stored in gestures, tools, images, and words, have radically potentiated our evolution, and have produced feedback effects which have led to massive increases in the complexity of our physical brains, and ultimately, more advanced forms of wideware, such as language.<sup>54</sup> The evolution of wideware is part of what this project will refer to as cultural evolution, for wideware is inherently distributed and social, it happens over a "wide" distribution of locations in space and time, and in a manner which is profoundly social. In this sense, wideware builds upon the evolution of sociality which is present in only a handful of species, such as social insects, where the individual not only values itself, but the population as well, in a process

known as "inclusive fitness." <sup>55</sup> Radical advances in complexity are potentiated by the cooperation which wideware makes possible, and massive increases in the brain can be seen as aspects of the ways in which cultural evolution has emerged from biological evolution and ultimately radically potentiated it. In many senses, wideware and culture are aspects of each other, the former the materialization of the latter. As with physical and biological evolution, cultural evolution has infinite potential pathways and levels of scale, and all of these are valuable, for diversity potentiates robustness.

Networks meta-evolve. Evolution has produced the most complex, emergent, and robust creature we know, which is to say, humans, and this has been potentiated by our abilities to plan and question, to self-consciously imagine ourselves changing in the future, and to develop gestures, tools, images, and language which can help us modify the world in our own refracted images. While evolution values the production of robust populations, and in this sense, values robustness, we do not, for like all life, we value our complexity and its increase as emergence, which is to say, our life and growth. While we are self-conscious, in that we are able to represent ourselves to ourselves, and in this sense, come into sync with aspects of our past and future selves, evolution can only do this through us, for it is ultimately only a form of quasi-life, distributed networks of populations which have living beings as its wideware. And yet, evolution acts in a way which indicates that it values robustness, and it has given rise to our self-consciousness in an attempt to potentiate this. Our ability to think about ourselves self-consciously, and to question our own behaviors by means of this, even to the point of questioning our values and to imagine potential changes in relation to these, needs to be seen in this light, and in regard to the potentials for robustness to which this could lead.

The radical potentials which emerge in light of this only

become apparent in regard to the ways in which evolution itself has shifted over the course of human evolution, for the human evolution of wideware has not only complexified our bodies and brains, but has also given us the power to affect the very environments which provide the contexts of our own evolution. Such a process of meta-evolution began simply, with the production of tools and images, but as we developed architecture and agriculture, language and weapons, we quickly began to modify our environment in radical ways. We are now coming to the point where we will be able to not only modify the conditions of our cultural and physical environments, but also the very genetic writing whereby biological evolution evolves us.

The ability to take over our own evolution as meta-evolution is already occurring. And yet, we still only ever think, value, interpret, and experience in the manner in which evolution evolved us to. While our cultural evolution has potentiated our physical evolution, this is now out of sync with our biological evolution, and the result is that we are slaves to the paranoid and aggressive programming of our limbic systems which protected us early in our evolution by giving rise to the "flight or fight" programming which helped us to avoid predators. But once we outwitted our predators and solved the problem of our own food production by means of organized agriculture, we have replaced our predators with ourselves, even as the situation on earth only requires this because we perpetuate it.

And so we are caught in a feedback loop of our own making, in which paranoia and aggression are both cause and effect. While evolution has given us a massive neocortex which can plan and even understand evolution itself, we remain restricted by the limbic system the cortico-adrenal circuits, which hold back the oxytocin systems which could lead us to greater desire, curiosity, trust, and cooperation. While we may realize intellectually that we should be less destructive towards each other, we do not desire this, and until we do, little is likely to change. 56 We

need to cultivate new desires, then, as well as new technologies, and this can only happen if we desire to give rise to the evolutionary conditions which could make this possible. This has been the case since early human evolution. But now that we can destroy everything on the planet, and will soon have power over our own genetic code, the need to deal with this problem is beyond urgent.

Networks hyper-evolve. To truly understand our situation, we need to understand the contexts and processes which gave rise to it, so as to influence not only this situation, but the way it produces us as well. This would be to come into sync with it in a manner which allows us to robustly emerge in relation to it, which is to say, to think robustly in relation to it. For to think evolution would be to evolve in relation to it, and by means of it. It would be, in fact, to take over evolution, to liberate us from the way it manipulates us to value, interpret, experience, and think in certain ways. Such a coincidence of thinking and thinker, of evolution and evolved, is similar to the manner in which a population of neurons in the brain is able to participate in the process of thinking at multiple levels of scale, and to feedback into itself, to meta- and proleptically influence its own becoming by means of affecting the situation which determines it, in a way which attempts to understand itself, its contexts, and the contexts of its contexts: a thinking that works to potentiate the robust emergence of itself in relation to these.

In regard to human evolution, such a process would only be possible if we truly understood evolution, and that towards which it tends, the limitations and potentials within it and us, and the manner in which we could bring physical, biological, and cultural evolution into sync so as to robustly emerge from and in relation to these. Such a thinking of evolution would put its resources at our disposal, and would sync our thought with that of evolution itself even as it became part of our thinking.

Thinking with evolution in this manner would be the first time in biological evolution in which the products of evolution and the process of evolution came into sync by valuing the same thing, a process which is not only a meta-evolution, but the potential for the robust emergence of evolution from itself, in the manner in which physical evolution gave rise to the evolution of life. In this sense, such a self-conscious meta-evolution, in sync with the values of its own evolution, a thinking that seeks to robustly emerge from its own evolution, could then be seen as a form of hyper-evolution.

This would then be an attempt to evolve ourselves, by means of evolution, towards the self-conscious valuation of the evolution of our emergent robustness. Put in simpler terms, it would be the attempt to question how we could work to evolve ourselves to be not only more robust, but more valuing of robustness, which is to say, more open, curious, desirous, and altruistic, and less paranoid, defensive, acquisitive, territorial, defensive, and aggressive. Of course, simply deciding we want this will not do much. Nor will the attempt to impose this on others have any chance of success. Change comes about not because of the decision or desire of any individual or even group, but rather, a shift in the processes which evolve us.

We need to build new social structures which evolve us towards greater trust, which promote those things which lead to robustness and its self-conscious valuation, such as diversity, meta-stability, feedback and questioning across levels of scale, and the long-term relational outlook which helps produce sustainability. That is, we need to build the sort of world which will make us the sort of people we know we should be and wish we could be. This could only happen if we self-consciously agreed, as a society and a species, that we wanted this, and if we actually and truly did. Learning to stop sabotaging oneself, as an individual and community, is part of what therapy and education, as practices of liberation, are about. We need to learn,

as a species, to liberate ourselves from the chains of the paranoia and defensiveness which were adaptive to our evolution but which now restrain us. We need, as a species, to heal from the traumas and scars of our own evolution, so as to liberate ourselves from ourselves, our own worst enemy.

The only way to do this, however, is by means of a self-potentiating "tiger's leap" into the future, a proleptic metaleptics, one which sees the potentials in our moment and learns how to develop these so as to help liberate ourselves from ourselves.<sup>57</sup> Change of this sort can never be applied top down; we have hopefully learned the lesson of the failure of violent attempts to make a better world which always end in more violence. It is impossible to solve violence with more violence, rather, there is a need to build trust to give rise to more trust. As any therapist will tell you, people do not change and become less self-sabotaging unless they feel safe enough to be vulnerable, to let their defenses down, to learn from others how they may have wronged them, and to develop ways to work with others better in the future. This is only done when the therapist creates a relational context which functions as a safe-space in an often terrifying world, where the person can begin this process of self-questioning, healing, and growth. Any attempts at a shortcut to this process will, as history has shown us, on an individual or collective level, necessarily backfire.

Distributed, refractive, democratic, socialist modes of change, starting small and growing slowly, provide the sort of structures which make people feel less the need to prey on each other, or to create social structures, such as multinational capital, which do this to us with an agency which often appears beyond us, and which make people more likely to experiment with trusting each other. This process is self-potentiating, and it does not need to start at a governmental level. It can start in the way we treat those around us, how we raise our children, how we create small-scale social groups. Altruism is self-potentiating as much as paranoia.

At some point, we have to hope that, when the evolutionary fitness landscape allows, we may reach a tipping point in our own evolution, and hopefully we can then tip the scale in a more robust direction, and away from destruction. Only if we prepare the ground now will this ever be possible. Helping to encourage this way of looking at the world, so as to give rise to more robust emergences, refractively different from this yet robustly resonant with it in its own way, is what this project is about.

All of which is to say that the time has come to liberate ourselves from the baggage of our evolutionary history, to bring the biological evolution of our limbic system up to speed with our cultural wideware and the brain, and particularly the hyperdemocractically socialist neocortex which gave rise to it. And the only adversary to this process is ourselves. G.W.F. Hegel famously argued that evil is the particular when sundered from the universal,<sup>58</sup> but time has shown that the universal has its evils as well, at least when these are particular universals. But beyond any particular universal is the emergence of robustness as such, that which gives rise to singulars, particulars, and universals, which is only ever reified and reifying in part, which can come into sync with itself only by sustaining its ability to differ from itself to give rise to yet greater robust emergences of complexity. Or, put differently, we need to realize, as Guattari has argued, that "everyone wants to be a fascist," 59 which is to say, everybody wants to be a despot of their own paranoid kingdom, as well as one of the wealthier cogs in the capitalist infosphere. The lures of paranoia, and the continual need for more, these fears and the defensive postures which relate to these, are part of our biological hardware. Evil is never primarily in the other, unless we project it there. We are always what we fear, and should fear, most, for no one can ever hurt us more than ourselves.

It is time we took over our own education, our own therapy, our own liberation. Evolution is a brutal process, feeding the

spawn of one species to that of another, herbivores to predators, remorselessly producing a ratchet to ever greater complexity. But altruism and cooperation, in the forms of multicellular organisms, colonies of insects, herds of animals, and ultimately, the radical cooperation of the human brain, are the apogee of its development. New stages in our evolution can only arise if we overcome, as a species, the scars of our evolutionary past. And this can only come about if we want it to, and begin to develop the world which can evolve us to be able to better work together rather than destroy each other.

The desire for destruction, for the pain of others, sadism and evil, these are all inside each one of us. Only by recognizing this can we learn that it is not ever the other's evils which are those we need to worry about, but only our own. For only when we develop a radical practice of listening to others, to try to understand what we have done against them, in the past and potentially in the present and future, can we begin to change. It is only by such a practice of radical listening,60 not to any universal other, but to the particular others around us, and even to the ways in which we hurt ourselves, can we begin to get beyond the destructive ways which we needed to evolve, both as individuals and as groups, but which now make it impossible for us to grow in ways which are not destructive of others, and ultimately, ourselves. The affects of terror, disgust, rage, what do these ever give us but a spiral of pain? And yet, we cannot wean ourselves from them. Only by creating a world which requires less of them, by recreating ourselves to require these less in relation to each other, might this be possible.

And we need not wallow in self-hatred or guilt, but learn from our own tendencies, and realize that the desire to lord over others, or to grow at all costs, will always be part of us. Understanding this is the key to our futures. But we cannot merely tell ourselves, intellectually, that we should want this, we need to actually desire this, in our core. How to cultivate new

desires in ourselves? The first step is always one of faith, the gesture of the outstretched hand, the principle of openness, of fostering robustness within yourself and all around you, with no expectation of an immediate return, other than the joy which that which leads to robustness always brings.

As paradoxical as this may sound, only by means of this can we, at this juncture in our evolution, increase our power, and our pleasure. The most selfish strategy would be, in this sense, the most altruistic. And in this process, we would become more like the neocortexes of our brains, radically democratic and socialist robustness machines, which have the potential to bring this liberation to any and all, so long as we can learn to shed the shells of our evolutionary pasts. Beyond selfishness and altruism, and building on a Spinozist approach to questions of power and pleasure, 61 as well as the forms of sync with our worlds needed to increase these, this project argues that the more we come into sync with the evolutionary tendencies of the world around us, the more it will open before us, providing greater power and pleasure in regard to ourselves and our worlds. To sync with evolution in this manner is to outthink it, to evolve ourselves so as to supersede it from within, to radically differ from ourselves and it in a way which potentiates even more of this robust growth in the process. To never be satisfied with our understanding of the pain we have caused, are causing, or will cause ourselves or others, we become better at learning how to learn from ourselves, and we emerge, more powerful, more pleasureful, in a world more in sync with its own radical selfdiffering in and through our own, each transcending the other in the process of immanent thinking.

*Networks think*. If thinking is an attempt to emerge robustly by coming into sync with aspects of something, then part of what it means to think would be to try to understand how evolution evolved us to think in certain ways. We need to come into sync

with evolution, to think by means of it, and in this, to emerge from and in relation to it. Only this would be a thinking of evolution, of robust emergence, and ultimately, ourselves and our processes of thinking.

Such a thinking would radically potentiate not only our own power but our pleasure as well. For rather than pitting ourselves against the world and each other, we would realize we no longer need to do so, and that the only reason why a paranoid disposition makes sense today is because of the fact that there are other humans with similar dispositions in the world along with us. By coming into greater sync with each other in the self-conscious valuation of robustness, in an ever more complex relation to internal and external differences, we think in and with evolution, not only in relation to each other, but to ourselves and the wider world as well, which would put us back into sync with it in the process.

Such a form of sync would necessarily go beyond the binaries which could be used to describe it, for it is fundamentally multiplicitous and non-dual,<sup>62</sup> beyond rigid distinctions such as necessity and freedom, internal and external, differing and sync, activity and passivity, and ultimately, the reifications of language and embodiment which are only ever aspects of the processes of robust emergence of which our thinking can be the most robust part. It is an evolution of thinking and evolution itself, and ultimately, a manifestation of emergence as robustness itself. It would be to emerge in and as thinking in a way that could change the world which thinks us by means of this, and vice-versa.

Such a controversial notion has much in common with many easily misunderstood notions in the history of philosophy, such as the Stoic love of fate, Baruch Spinoza's amor intellectus dei, Hegel's notion of grasping one's concept both as substance and subject, Marx's notion of becoming the subject-object of history, as well as Taoist notions of wu-wei (non-action), Sufi notions of fana', Hindu notions of realizing that Atman is Brahman, and

Mahayana and particularly Vajrayana Buddhist notions of entering a non-dual state with the Buddha-embryo/matrix (tathagathagarbha) which is both the potential for liberation and the fabric of experience itself. <sup>63</sup> In contrast with the Eastern aspects of this, however, this project will nevertheless argue for the need for an active transformation of the world which brings self and others, past and future into sync in a way which does not simply focus on the personal transcendence of this world nor absorption in some larger power by means of a hypostatization of the present. Unlike Western aspects of this, however, it will not view transformation of the world beyond the self by means of the filters of reified individuality. The firm separation of self and world needs to be superseded by a process of more radically robust thinking before our species destroys itself and its world. To think in this way is to go beyond thinking in reified form, abstractly, in the form of an experience which can be memorized and known, which is to say, in the mode of objectification. It is to come into sync with the liberation of thinking from its own less complex forms of prior development.64

This project works to do just that. Experience, or the simplest form of thinking, describes the manner in which the world reflects upon its own workings to feel itself: and the networkological project views all matter as feeling itself in relation to its world, no matter how simply. When we abstract meaning, value, and processes from this, we feel the world simply in a more developed, human form of immediacy which finds its antecedent in this mode of thought, one which this project will view as analogous to thinking in terms of nodes, of the reification of thinking which can produce mere knowledge at best.

Meaning comes about, however, when aspects of the world are read in relation to a wider context. All experience is always already meaningful, but simple matters can only feel themselves and other aspects of the world through this, and hence, cannot read the meanings that they themselves feel and are. Only

complex dynamic systems can compare and contrast in order to grasp the samenesses and differences which can relate an aspect to a wider set of contexts, and to read it in relation to these, and then, by means of the evolution of this, to write an interpretation on its body, then on its bodyplan, then on its bodily actions, then on its neural network, then on its wideware. When humans grasp any aspect of the world in relation to others, they do so in a manner of seeing all aspects of the world as the result of linkages between aspects, as manifestations of forces, analogous to seeing the world composed of nets of links. This can help humans to better understand the world around them in regard to a particular set of circumstances or needs. By comparing multiple contexts, modes of interpretations, ways of linking and even forming nodes and links with grounds beyond them, however, the limitations of this way of thinking can soon become apparent.

Meaning is always already intertwined with valuation, for all meaningful systems are formed in order to help systems unfold potentials in ways which can help produce sync in relation to an often dramatically changing set of circumstances. If organisms find meaning in their world, they always do so in regard to the instincts which program them to value particular interpretations and actions over others. Only organisms with self-consciousness, however, seem to be able to grasp their interpretations and actions, as well as the meanings and values behind these, and ask about what grounds these. This continual questioning of grounding contexts, of comparing and nesting these in each other, is to see the world as a set of contexts in relation to each other, and is analogous to seeing all aspects of the world as networks of grounds. The questioning of values and self-reflexivity in this sense, however, reaches a limitation unless it begins to think in terms of the processes which brought these contexts about, including the ability to question the values of meanings and values.

Going beyond the attempt to grasp the world as valuation,

thinking requires understanding processes nested in processes, in which values emerge as expressions of nested networks of evolutions of which the very questioning of values, meanings, and experiences is a part. Doing so does not seek to merely grasp thinking as an abstract experienced thing, to understand its meaning to determine the appropriate response, or to evaluate it in regard to deeper or even self-questioning values, but to emerge in relation to it. For the question of the value of valuing, and the questioning of even the value of questioning, brings about the question of the potential of these processes in relation to the whole, which is to say, the potentials of emergence here and now in relation to emergence as such. Such a thinking can only emerge from itself and in relation to itself as the selfconscious valuation of the emergence of robustness. In regard to human evolution, this would require the attempt to move beyond the ways in which our own evolution continues to hinder our ability to do just this, so as to begin to evolve new ways to more robustly evolve ourselves by means of our world.

This section has worked to show that all aspects of the world can be seen as an experience in a world, a meaning in language, value in an economy, and a thought within an embodied dispersed thinker, or a brain. Each of these networked ways of diagramming the world is hardly a stable, reified, completed entity, for each upon closer examination opens on to the others, refracting and shattering in relation to each other, the world, and so many other potentials. Each resonates with aspects of the network diagram, of node, link, ground, level, and emergence, each refracting the other. This project works to think emergence by such a process of diagramming, by thinking thought as diagramming, so as to come into sync with emergence to emerge from it more robustly in and as thinking. The rest of this manifesto will attempt to describe ramifications of this way of thinking the world.

Networks critique. Viewing all meaning as expressions of sedimented values, all values as sedimentations of valuing processes, and all valuing processes as reifications of processes of emergence, this project will work to show how a redescription of the world from the perspective of robustness can not only describe the world potentially more adequately than other models, but in a way which can help it self-potentiate in the process as well. Such a mode of description not only works to resonate with the world as it is, but also the world as it could be, which is to say, more robustly. And so, this project will work to show how it is possible to redescribe our world in ways which minimize the need to rely upon reified and reifying concepts and models, displacing by more networked forms those conceptual models which use relatively isolated individual elements, static hierarchical binaries, monocausal explanations, rigid proofs, linear histories, axiomatic or transcendent foundations, or other forms of decontextualized, non-processural disconnection. The critique of reified and non-relational forms of modeling gives this project its critical edge.

Networks deconstruct. In an effort to move beyond the skeptical nihilism which has gripped philosophy in general for much of the late-twentieth century, particularly in regard to highly self-reflexive philosophies of "the linguistic turn," and the deconstructive modalities which work to dissolve these and traditional philosophies without putting something new in their place, the networkological project puts deconstruction in the service of reconstruction. Beyond the incoherence of deconstructive skeptical nihilism, the incompletion of paranoid traditionalism, or the inconsistency of the cynical realpolitik which emerges from an oscillation between these, the networkological project will recontextualize these as what happens whenever social paradigms have foundational crises which question the values of their meanings and the meanings of their values, and approach

the sort of reflexivity which allows for the potential thought of and as emergence, which can manifest as opportunity, crisis, or both, whether on a personal or social level.

Such a crisis occurred in most forms of human meaning production during the twentieth century, reviving the ancient threat of skepticism, something which occurs whenever cultures try to deal with radical changes in their worlds by searching for new paradigms, often bringing on paranoid and cynical defensive structures in the process. Taken to their extreme, such crises can cease to be adaptive, and lead to self-perpetuating cascades of feedback which can destroy physical or living systems, such as when a microphone nears a speaker system, or a cancer develops in an organism, both cases in which feedback does not help a system to regulate its development in relation to its contexts, but rather overwhelms its attempts to adapt and transform itself, leading to either feedback in the service of isolation and rigidity, or growth and expansion without adaptation.

Rather than try to move beyond such crises, this project takes these as part of its own grounding, working to learn from and integrate them into its own structure rather than simply repeat them.66 Synthesizing paranoid traditionalism, deconstructionist skepticism, cynical realpolitik, as well as the seduction of the belief that new paradigms will not be subject to the same sorts of crises in turn, the networkological project instead works to come to sync with the emergence of robustness in and beyond itself by constructing a philosophy of radical creativity which continually reconstructs itself. Assuming that any and all systems must risk dissolution whenever they try to change, this project will view all social paradigms, including philosophies, as able to be deconstructed in regard to any of their grounding conditions, such as language, the body, the economy, and beyond, any of which can lead to the paradoxes which occur whenever an attempt is made to grasp emergence as a whole. The question then it not whether a paradigm is grounded or not, but why it is grounded in one way over another, a question of values, and how its system of values relates to its contexts of emergence. The networkological project will therefore view the need for a new, networked paradigm as an opportunity to relate to paradigms and their groundings differently from the way reified and reifying world-views have done so in the past, so as to produce a post-foundational philosophy and praxis not merely about emergence at the level of context, but of emergence as well, in regard to both content and form.

Networks reconstruct. Viewing the ground of any aspect of discourse to be its potential to foster robustness in particular situations, the networkological project espouses a continually shifting "experimental pragmatics" in place of notions like proof or any other sort of ultimate justification.<sup>67</sup> This project will then view all its own concepts as potentially deconstructible, and will only retain any of them to the extent that they foster robustness; even its primary concepts, such as robustness and emergence, will continually deconstruct and reconstruct, shifting in meaning and ultimately value as this project modifies in the process of producing new descriptions of the world and itself. As a metastable post-foundation, the particular way in which emergence and robustness articulate other concepts in this project will therefore be perpetually tentative and fluid, even if always grounded in the attempt to maintain and foster the most robust notions of what these concepts can become as a form of refractive self-potentiation. Framing the lack of certainty in the world as an opening towards the production of meta-stable evolution of greater robustness, the networkological project therefore works to evolve itself from its contexts in the same way. Rather than look for any sort of secure, final, ultimate, or otherworldly foundation, nor simply repeat the fascinating tragedy of its impossibility, the networkological project recontextualizes deconstruction and reconstruction as aspects of the more encompassing process of the robust emergence of complexity in the world, up to and including the emergence of the networkological project itself.

Networks are post-foundational. In the process of its emergent refraction, the networkological project works to reintegrate aspects of the world which other worldviews tend to segregate off as either exceptions to all rules, or as transcendent guarantees or repositories of meaning which are always ever incomplete, incoherent, or inconsistent. Exceptionalisms, such as notions that the human soul or mind are radically distinct from the rest of the world from which they emerged, will therefore be reworked to produce relational models. This also applies to discourses which try to "prove" themselves by assuming "axiomatic foundations"68 which somehow do not need to be justified in turn, or which depend on foundations in what has never been experienced, such as otherworldly promises of something like heaven, or a God who makes sure our proofs are secure. We can only ever justify our actions and descriptions in regard to the world from which these emerge, of which proof and otherworldly foundations are a part, even if the benefits of such notions are ultimately a question of the values these promote.

Rather than condemn this world, or the flesh of our bodies, or other ethnic groups, matter, animals, or systems which do not ignore the full complexity of the world as sinful, unworthy, inferior, or unproven, the networkological project sees this world as the source and locus of all values. As such, it evaluates descriptions of the world not against preconceived notions of value or truth, but rather, the degree to which they sync with the project of emerging more robustly in relation to the world in which we find ourselves, which is always ever the product of the cultural, biological, and physical conditions of its emergence. Such an always already situated process of contextualizing views the networkological project itself as a product of contexts, which

provide the very means for its attempt to think its relation to the world as such.

Networks redescribe to refract. In the process of articulating itself the networkological project will produce a series of crystalline,69 fractal redescriptions of whatever subject matters it touches, from economics to politics, evolution to language, philosophy to neuroscience, from the science of networks to various philosophies and beyond. By keeping its commitments tentative, and continually unraveling itself to reconstruct itself anew, the networkological project will describe how the emergence of the self-differing fabric of the world can immanently and refractively give rise to the complexity of the world of experience, up to and including that of the networkological project itself. This will be done by getting inside more traditional ways of describing the world, and exploding them from within, by showing the networks waiting to emerge under the surface of their reifications, and in the process producing new, networked redescriptions which go beyond the limitations of discourses of the past. But rather than hold on to these new networked redescriptions as firm foundations, this project will then do the same thing to its own redescriptions as it articulates them. It will shatter whatever new lenses it produces from within, showing how even these relationally and refractively structured networks of description contain yet more networks within them, which can then be renetworked with shards of more traditional description which have been similarly shattered from within, so as to give rise to yet more, new, networked forms of description in turn. The result will be a fractal proliferation of networked lenses, each of which describes the world from a particular perspective, some more complex than others, all networked to each other, and with all of these ultimately unraveling the notion of emergence, and viceversa. Any and all of the networked lenses produced in this process are able to be subjected to the same process of shattering

and redescription, of any and all their elements, changing the relation between these in the process, all in relation to the general value of robustness, new processes of redescription, and potentially changing circumstances in the world.

Networks diagram. In the process of refractively producing itself by means of its redescriptions, the networkological project abstracts its organizing concept, the concept of the network diagram. Composed of the sub-concepts of node, link, ground, and level of emergence, the network diagram is the continually mutating yet fundamentally refractively opening seed of emergence which manifests in yet is fully contained in none of the networks which it describes or to which it gives rise. The network diagram is a structure for the production of emergent networks, an abstraction from and guide for the networkological practice of redescription which has a commitment to the robust emergence of the potential for ever more radical creativity as its ethical, political, aesthetic, descriptive, and conceptual core.

Rather than function as a unitary master logic, the network diagram refracts within each other a general commitment to robustness with the singularity of a wide variety of contexts, producing its particular redescriptions in the process, potentiating and grounding itself in the process. The results are so many proliferative and proliferating networkologies which provide new ways of looking at various aspects of the world, each of which then reshatters to give rise to ever more refractive networkologies in, around, and in relation to those already in the process of emerging.

Radically productive and never quite where it seems to be, the network diagram is always ever emerging differently, even as it resonates with networks in the world which do the same, if to varying degrees. The network diagram is a concept for a diagramming which emerges from itself, and emergence, robustness, and all the other concepts of the networkological

project are only ever aspects of this process. The networkological project emerges from the world and itself in a manner which values robustness and promotes this in the world, not only in terms of its content, but also its form. And so, the redescriptive diagramming of the network diagram, which gives rise to this project does not then produce anything like a single networkology, but rather, only an ever increasing refraction of networkologies.

Networks embrace difference. If the world is fundamentally selfdiffering, any attempt to fully grasp any of its aspects, or even the whole of it, will lead to frustration, for any such attempt will ultimately be incomplete, incoherent, or inconsistent with the way any and all aspects of the world differ from themselves in the present, past, or future. Building on the theories of Kurt Gödel, Douglas Hofstadter, Jacques Lacan, and David Bohm, the networkological project views any attempt to fully organize, describe, evaluate, or think any aspect of the world, or the world as a whole, as a paradoxical endeavor. Organization, description, valuation, and thinking are recursive modes of action which are always in between fixed states, and attempts to fix them, in part or whole, or bring them to some sort of complete or reified end, seem to always lead to frustration. That is, whatever the cause, the world appears to ultimately resist extreme reification, and this can be seen in the manner in which quantum events do not seem to allow themselves to be ever fully reified, axiomatic systems in mathematics are not able to be recursively grounded, complex systems exceed the sums of their parts, and rigid and exclusionary modes of psychological and social organization inevitably lead to symptom formations.<sup>70</sup>

For this reason, this project works to avoid what it calls reflective forms of organization, description, evaluation, and thought. Reflective structures try to bring parts and wholes into perfect resonance, producing coherence, consistency, and

completion at the cost of expelling that which undermines these outside of itself. This results in the need for defensive operations which seek to maintain coherency, consistency, and completion, at the expense of potential which could be used to foster robust growth rather than maintain guard against the systemic possibility of potentially destructive crises. In contrast to reflective structures, refractive structures embrace differing, both within and beyond themselves, and work to promote difference, both within and without, to the extent to which it enriches robustness.

By making differing central to the fabric of its logics, such a mode of organization is only ever partially coherent, consistent, and complete, but what is gained is greater potential for robustness. This is not to say that refractive systems are disorganized, but rather, that their modes of organization are open, adaptive, similar yet not the same throughout, with "family resemblances"71 between various local autonomies as that which helps them cohere, as opposed to the centralizing logics of reflective systems. And ultimately, the only fundamental exclusion upon which these systems are based then is that of the extremes which can undermine robustness, whether in the form of extreme disorganization which can lead to dissolution, or extreme organization in the form of reflective structuration, in either reproductive or conservative modalities. Of the organized, reflective modalities which do not destroy organization outright, the first requires complete sameness in organization, while the second allows for differing only so long as it ultimately serves to always promote growth of a particular type of structuration. This sort of cancerous reflective structuration, as opposed to conservative structuration, is still reflective, and while more flexible, it can be equally as destructive to a system in the long run. For rather than expel difference and then expend energy on defense against internal and external forms of differing, at ultimately great cost and leading to perpetual threat of crises, refractive structures work to incorporate differing within them by emerging in relation to difference in a manner which frustrates extreme reification. While refractive structures give up the false sense of security which rigid, centralizing, reifying, conservative reflective structures tend to bring, or the often startling cycle of growth and collapse which tends to accompany cancerously reflective structures, refractive structures make up for this in flexible and stable growth. From the mathematical to the psychological, refractive modes of organization indicate a roadmap to more democratic, adaptive, robust futures.

Networks are distributed. Networks tend towards robustness. but there are networks in the world which maintain and foster the tendency to reification by means of various forms of centralization and monopolization of control and potential. While many of these networks may thrive in the world, and may even use distributed, robust network formations for centralizing ends, these networks are ultimately not networked enough, and ultimately undermine their own robustness, as well as that of the contexts which support them. This is not to say that there might not be times in which centralization is necessary for survival, but since tendencies to centralization and distributedness self-potentiate, these states have a tendency to overstay their usefulness. In such situations, these network formations may make radical advances in the short run, while devastating aspects of their contexts that could ultimately support their own robustness in the future.

Between forms of centralization and decentralization, which would tend to destabilize a system, there is a zone of distributedness in which a system is likely to evolve to further complexity. There is wide leeway, however, within this zone between those approaches which are more and less robust. The world as it is currently constructed seems designed to maximize the degree of reification possible to evolve complexity for the smallest group possible without risking total collapse, even as the world would

be the most robust if it maximized decentralization without risking total collapse, a state of maximum distributedness which, based on the science of networks, tends to lead to the greatest self-potentiation of robustness. The promotion of maximal distributedness, or the minimum necessary centralization, is part of the practics of the networkological project.

Networks are a historiography. In order to understand the stakes of the present moment, it is necessary to historicize the times in which we live by producing narratives, even if these are continually adjusted in a process of renarrativization. Rather than see this process in terms of traditional, reified notions of historiography, the networkological project works to develop a more relational approach to this process. History never moves in straight lines, nor does it simply connect reified influences, periodizations, or unitary causes to produce tidy narratives. Our readings of the past are always selective, inflected with our desires for the future, and both past and future only ever are refractions of our present. Attempts to reduce history to simple relations of cause or effect, or linear narratives which are not multidetermined by forces and entities with multiple potentials is to reify what history is and can be.

Rather than try to ignore these enabling conditions of writing history, this project views the production of narratives as the intertwining of multidetermined networks of influences in regard to aspects of past, present, and future which intertwine to produce new networks which we can use to help interpret the multiplicity of influences upon us in the worlds in which we find ourselves. This is a continual process of renarrativization, of meta-historicization, which is ultimately networked to the core. Advocating a "constellatory" rather than linearizing view of history,<sup>72</sup> one which views time as having many potential forms and any history as necessarily inflected by the perspectival meanings and values of its production, the networkological

project views the notion of objectivity as being a dangerous fiction not only in historiography, but also in journalism, science, anthropology, and beyond. Rather than aim for objectivity, this project aims to help to understand and work with how our perspectives necessarily inflect our ways of narrativizing our present, pasts, and potential futures in relation to our values, and in ways which perpetually recreate them. Rather than attempt to remove the bias at work in the production of narratives, this project attempts to reflect upon how we network with these to help produce the narratives which can help us best foster robustness in regard to both the world of the past and the futures we hope will be.

Networks are a psychology. Not only do societies attempt to understand how they relate to their worlds, but individual organisms do as well, and so the networkological project is not only a theory of society, but a psychology as well. As an immanent and relational worldview, rather than one which views thought and emotion as radically distinct, the networkological project understands thought as how the brain feels itself, emotion as how the brain feels itself in relation to how it feels its body, and sensation as how it feels its body. All of these are intertwined aspects of each other, even if only some aspects of these are available to conscious awareness at any moment. Bringing together insights from networked artificial intelligence and cognitive neuroscience with relational approaches to psychotherapy, the networkological project views the intertwining of affective states and meanings in individual, transvidual, and collective formations as varying sides of the same. Building on the work of theorists such as John Dewey, Maurice Merleau-Ponty, and R.W. Fairbairn,<sup>73</sup> this project works to develop networked models of processes of thought and emotion which can help us intervene in what we do so as to best help those of us who suffer or hurt others, which is all of us, if differently and in differing degrees, so as to develop more robustly in relation to our worlds and each other.

Networks are panpsychist. As a non-binary approach to the world, the networkological project does not separate mind and matter in traditional ways. Much of the cutting edge research in artificial intelligence and cognitive neuroscience is increasingly moving beyond dualist approaches to the world which divide mind from body, or even mind from matter. Working to show how human forms of thought could emerge from the intertwining of dynamic systems of networked matters, complex systems science show how matter and mind, or "psyche," can be seen as aspects of the same, like two sides of a sheet of paper.

Such a perspective is generally known as "panpsychism," an approach to the world which has nothing to do with psychics or the paranormal, but rather, philosophy and science.<sup>74</sup>

A panpsychist view of the world sees all matter as feeling and experiencing, if in a manner much less complex than that seen in living organisms and human beings. If mind is simply how matter feels itself, then more complex minds come about when matter complexifies. As a result, there is no need to consider life or humans as fundamentally different from what is around it, but rather, as results of emergent complexity. Moving beyond the hierarchical dualisms and human exceptionalisms which have been used to justify everything from the denigration of sex and the body to incredible violences against our environment, animals, and groups of people considered less special than others, such an approach views the world as composed of shades of grey rather than overly simplistic and conceptually violent hierarchies, so as to help us imagine more complex and less destructive futures.

Networks are a pedagogics and therapeutics of liberation. As a philosophy of emergence, the networkological project views self-

liberation in relation to others as an ethical, political, and social responsibility and goal. And yet, practices of liberation, which in theory should include education, individual or group psychotherapy, and various artistic and reflective practices, are often reduced to institutionalized structures which work to make such practices harmless to the dominant social status-quo.

And so, the institution of education today has become a machine for the production of social hierarchy which reduces teachers to tools, students to recording machines, and learning to abstract hurdles which only the privileged have enough time and resources to master. All this is a parody of education. We are never educated, we only ever educate ourselves, and teachers are only ever life-long learners who work to create the sorts of environments which help others to more robustly emerge on their own. Education should therefore move from models of discipline, storage, and testing to that of rigorous play and pleasurable experimentation, with a goal of the emergence of robust complexity in and between individuals and groups. Rather than teach specific bodies of knowledge, education should provide supports to help students teach themselves about the world in relation to their desires and goals, a process which can lead to any sort of knowledge or skill production in the future, even as it works to introduce learners to new avenues for potential creativity.

All of this applies equally to therapy, for by providing the type of environment which supports emergence, people will not only teach themselves, but heal themselves as well. Therapy should exist to promote happiness and reduce suffering according to the desires of the client, rather than promote normalization according to the values of dominant society, and the same with education on a larger scale. Therapists and teachers need to learn from their clients and students about their desires and goals, and work to find ways to create environments for experimentation with new modes of living which can help develop the means to

emerge in relation to these.

Drawing upon the pedagogical and political theorizings of John Dewey, Lev Vygotsky, Paulo Freire, Stuart Hall, Enrique Dussel, and bell hooks,75 as well as psychodynamic psychotherapies from relational, intersubjective, and gestalt modalities,76 the networkological project believes we have yet to learn how to liberate and grow ourselves as individuals and collectives. By studying the emergence of robust complexity in the past, including that of the natural and physical world, as well as modes of organizational, educational, and collective experimentation in the present, we learn how to better heal, develop, and evolve ourselves and those around us, and the networkological project is committed to the furtherance of this goal. And since people grow best when they feel safe, for it is only then that they are able to question their own destructive behaviors, and potentially take risks by experimenting with new ways of acting, this project views the creation of safe spaces to learn and grow, in education, therapy, and society at large, as one of its primary concerns.

It should be kept in mind that there are many forms of therapy beyond the sort developed in the West. Of these, the various Buddhist paths of meditation practice indicate a form of therapeutics as developed as any Western psychotherapies. Many of these ultimately reify the development of the self from that of society and world nearly as much as Western therapies do, and in this sense, there is a need to image what more collective forms of these therapeutics might look like. While Vajranaya Buddhism seems an attempt to do this with Tibetan society, if one with many problems, the question of what a revolutionary activist, world-changing therapeutics and/or meditation practice would look like remains to be seen. Building on the work of Engaged Buddhists, particularly the work of Thich Naht Hanh, this project works to foster these sorts of projects in relation to the wider world.

Networks are a theory of commons. Bridging social theory and theories of value is the theory of enclosure, capture, and commons. There are limited resources of potential in our world, and the manner in which potential is distributed determines in part the potential for development in the future. The binding of potential into particular forms affects the way it can play out in the future, with more distributed forms allowing for greater potentials for robust emergences.

Networks are produced by processes of differentiation and emergence which give rise to fields whose interfaces produce overlappings and boundaries between them, which can then give rise to bounded solids and nodes, including singularities which act as points of symmetry between multiple systems. All these change in regard to the condensations, expansions, dissolutions. and emergences of potential as it actualizes, becomes dormant, reemerges, and complexifies in relation to other aspects of its contexts. In the process, nodes can separate off, link up to similar nodes, which are often produced or modified by similar circumstances, each share traits in common with others by means of similarity of physical form. When this happens in a meta-stable environment, these nodes can then circulate and become part of dynamic networks of flows, digital rather than analog forms of connectivity, and these circulations of formed matters can then give rise to ever more complex forms of networking. Economies and languages, or the complex webs of chemicals seen in living organisms, are examples of such digital networks.

Digital networks form domains and fields of flows, and these can give rise to various types of dominance, resonance, and play, the dynamic interplay of which can influence the unfolding and refolding of potential as these processes influence others in turn. The result is that potential is often enclosed in particular forms, described by singularities, boundaries, territories, and dynamic landscapes, which incarnate patterns whose production and reproduction determine, in part, those of the future. Mapping

these structures, as well as the ways in which they determine potentials in various contexts, can help us understand the power dynamics of these situations. From state and phase diagrams in the physical sciences, to the evolutionary fitness landscape diagrams used by biologists and increasingly economists to understand evolutionary processes both living and cultural, understanding how potential is unfolded and refolded, distributed or hoarded, channeled and shaped, can help us not only understand the way power produces and reproduces itself, often in hardly robust ways, but how to best try to intervene to make these structures more distributedly robust in the future.

Capture of potential, the shaping of its products and flows, the biasing of territories towards certain forms of production and reproduction, all these are crucial to the ways in which dominant powers remain in dominance today. The study of the formation and maintenance of fields of play which foster robustness, which many theorists today have called "commons," 77 as well as how various types of commons are drained, undermined, and reworked to benefit particular paranoid or cancerous power structures, in ways which limit the sort of distributed organization which tends to foster the sustainable development of complexity for all, is essential to the networkological task of promoting all which can help robustness grow in our world. Describing the ways in which various types of commons, whether physical, biological, or cultural, can be produced and reproduced, as well as how they are often unraveled and captured by various paranoid or cancerous mechanisms, works to help develop forms of potential intervention within these situations, as well as imagine new means for production of new types of commons which can offset non-robust forms of capture and enclosure. Working to increase the distributedness of flows of potential and the structures to which they give rise is one of the primary goals of this project, and working to help foster the production, reproduction, expansion, and robust transformation

of various forms of commons is a crucial part of this.

Networks work to be a discourse of the oppressed,78 Discrimination, racism, homophobia, misogyny, religious persecution, transphobia, ethnocentrism, xenophobia, so many hatreds in our world rely upon hierarchical, binary division, reified categories, fundamentalist reductionisms, paranoid fantasies. and dogmatisms of all sorts. The networkological project therefore works to learn to be continually reworked and expanded by post-colonial, anti-racist, feminist, anti-poverty, and queer discourses, as well as discourses of those oppressed in ways to come. In fact, this project advocates a continual listening for new forms of oppression which emerge from our ever new ways of acting, or which were previously submerged by various power structures which have only now loosened, for it is only by such an attentive listening that we grow as individuals and societies. From this attentive listening, this project will work to develop its concepts with the hope that their structure makes it possible for them to be put to work by the various discourses and movements of the oppressed, for in many senses, this is an indication that these discourses are in fact truly what our world needs.

In relation to these concerns, the networkological project will work to help articulate a mode of discourse which can help continually refractively intertwine with those of the oppressed to produce a continually mutating set of discourses of the oppressed. In its valuation of robustness, the networkological project views maximum diversity, so long as this does not push a system into dissolution, as a condition which fosters robustness. Ever proliferating forms of diversification are necessary if our world is to grow, and diversity in all its forms needs to be protected, fostered, nurtured; for learning to intertwine with diversity on its own terms is the manner in which the robust emergence of complexity occurs. The same can be said of

refractive, distributed concentrations of surplus, power, and potential in their varying forms. Too much concentration of resources is as bad for growth as too little. These conditions can only come about, however, when there is meta-stability which keeps the formations in society changing, as well the conditions of feedback between parts, to help learn about both the beneficial and detrimental effects these changes may cause in the various aspects of society in the process, so as to help us modulate these processes.

In all of this, the oppressed can always teach the world how it can be more robust by liberating the potentials it has repressed in the process of its prior complexifications.<sup>79</sup> While this may result in lowered relative complexity for the few who do the oppressing, it actually increases even their overall robustness, for it potentiates them in the long-term. In this sense, learning from those aspects of the world and ourselves which are different, and allowing ourselves to be transformed by these, to the extent to which any of these promote robustness, is the school and therapy of the world, the practice of liberation for us all, and is in fact emergence of robustness itself in its sociopsychological form. The liberation of the oppressed liberates the world, and teaches the world, and us with it, how to better liberate ourselves from our self-constructed cages.

No particular oppressed group, however, should be seen as ultimately holding the key to liberating the world from itself, and history is full of oppressed who failed to learn the lesson of their own oppression, who oppressed others through or following their own oppression.<sup>80</sup> Working for your own liberation can only ever achieve so much, what is needed is a "cross-activism" in which one works for the liberation of others on their own terms, not merely for the end of one's own oppression, but towards the lessening of oppression as such in its many forms. Even those aspects of yourself and your world which hate you and which you hate contain the lesson to your own liberation, for

continual listening and attentiveness to the pain of the world is the pathway towards learning to grow. The continual production of discourses and practices of learning about oppression and the potential for liberation can therefore help us all emerge more robustly. And this applies to those with privilege in our world, as well as those with less, for it is only when the oppressed refract in each other can they transform the world, for power ultimately tends to work by making the oppressed hate each other more than they hate those who oppress them. And this applies to the parts of oneself as well. In all this, it is always to the oppressed and to those in pain that we must listen, learn from, and be taught, in and through our own oppressions, within and beyond ourselves, for only in this way can we liberate ourselves and our world from ourselves.

*Networks are an economics.* Cultural evolution produces various forms of social technology, various wideware networks, or "plexes," such as our educational, banking, or economic systems, including markets. As products of evolution, markets are simply evolutionary systems which generate social structures in regard to the cultural fitness landscapes of regulations, currencies, modes of production, and various other social and political formations within a society. While all systems code the world into in regard to the ways in which its aspects can contribute to the maintenance and increase of the complexity of the system in question, contemporary financial markets prioritize highly abstract notions of value, cut off from more qualitative modes of valuation. Rather than modulate the relations of value between these, they try to absorb all other currencies and the meaningful systems these describe into themselves, a tendency which can lead to feedback crises which can liquidate all aspects of society beyond pure quantitative reproduction at worst, or give rise to crashes, which lead to the massive destruction of potential and centralization of the system as a whole at best. All of this describes a condition analogous to the way in which cancer can overpower biological systems, or the manner in which too much feedback in physical systems can drown out the signal it would otherwise amplify. At the other extreme, favoring stability over growth or hoarding of currencies can lead systems to dangerous imbalances as well, not of growth, but lack thereof. Between the two extremes are more distributed and refractive modes of organization which lead to more robust forms of growth.

While physical and biological evolutionary processes tend to manage their modes of organization by means of evolution within fitness landscapes whose contours are largely beyond the control of the organisms in question, humans have enormous ability to sculpt the fitness landscapes in which our cultural products evolve. In regard to economics, modifying the structural parameters in which markets operate is to change what determines fitness in a particular market, and in this sense, not only what they value, but also the meaning of the value of particular currencies and markets in regard to their contexts. That is, if short-term earnings are valued by corporate governors above all else, then markets will evolve corporations which structurally produce this above all else, but change the conditions of selection, for example, by means of changes in the governmental regulatory structure, or the manner in which boards of directors are themselves hired or compensated, and the situation itself will change on its own.

Our corporations and markets, and the social institutions to which they give rise, are ultimately the products of our own values, even if we often pretend otherwise, or convince ourselves that they are simply too complex and must be left to their own devices. If this is so, it is because we have made them this way, and it is in our power to change this. Ideologies of the free market, however, imagine the market as ideally without bias, and when this is valued, the result is a system which promotes unlimited quantitative growth of the qualitative status quo,

without other forms of feedback to prevent this from becoming cancerous to the system as a whole. Rather than see markets as beyond human control or logic, economics need to be seen as an attempt to produce the types of fitness landscapes in which the most robust social structures can emerge on their own in relation to conditions which are always at least partially of our own making.

Rather than assume that economic and social systems have to take particular forms, we need to study robust systems in the world, gain insights in what tends to help evolve robust physical and living systems, and try to imagine cultural analogs that can help evolve robust cultural systems as well. Such an approach is one which would necessarily prioritize a more distributed form of organization than that present in contemporary forms of transnational monopoly capitalism, with its distorting effects of unlimited accumulation, and the horrible injustices this produces. <sup>81</sup>

Networks are a political economics. Neoliberalism and austerity doctrines are based on the notion that the economy can run out of money. But money is simply a representation of the potential within people and the environment, and credit simply the faith people have in their ability to make this into action. Recession, financial crises, and value crashes in today's world, in which external factors play a minimized role, are generally artificially produced by the hoarding of surpluses or cancerous pursuit thereof. These are practices which value stability or growth at all costs over the evolution of structures which can produce robust growth for all, rather than the crash and burn growth cycles which serve to pump surplus to the few, or the practices which prevent the greater distribution or these. It is not possible for society or an economy to be broke, only bullied, for an economy is only ever the potential for action and change, and money only ever a particularly abstract representation of this when stripped

of all the qualities which, in theory, money should help us to produce.

Economies are about trust and time, labor and action, and debt is only ever a form of slavery, a fiction but with very real results, one often used to keep people laboring within systems which ultimately oppress them, and anyone who tries to tell you otherwise is simply trying to manipulate you thereby. Humans and their labor, along with the physical potentials of the world, are where value comes from, and we have the right to evaluate our values, rework them, and determine what they should be. The economy is not determined by forces beyond our comprehension, or by equations which only the few can understand. We are the economy, and we can and should determine the fitness landscapes upon which markets are allowed to evolve, and in ways which are in accord with our values, which for this project, means robustness for any and all.

Building on the work of Naomi Klein, Mark Taylor, Philip Ball, David Graeber, and Eric Beinhocker, the networkological project takes a complex systems view on political economy.<sup>82</sup> Our world has more than enough ability to provide the basics of life and happiness to everyone, including food, health care, housing, education, and employment. Until all have these basics, luxury is theft from the robustness of all, and the only debt worth talking about is the social debt we have to the welfare of each other. Rather than develop fitness landscapes which value rapid yet unsustainable bursts of growth which then crash and destroy complexity in the process, we need to build structures to last for the many rather than the few. We need to invest in human beings, and the only way to do this is to design fitness landscapes, so that our cultural search algorithms, including markets, find fitness not in cancerous growth in quantity but in sustainable growth in quantity and quality in a robust manner. This requires value-based interventions in fitness landscapes, by means of rethinking institutions. Commons shares, carbon

credits, and other alternative currencies are one way to change the ways in which markets function so that they value what society values, rather than have these values dictated by financial capital.<sup>83</sup>

Networks are a politics. Complex systems scientists often describe complexity as that which self-organizes "at the edge of chaos." Here are radical political implications to this, even if these tend to remain under-thought by many of those who restrict their investigations to the sciences. The networkological project views the study of networks in the world, whether physical, biological or cultural, as necessary to learn strategies that can help us promote robustness in our own networks. And if maximum sustainable diversity, distributedness, and multi-level feedback, when supported by meta-stable energetic conditions, tend to support robustness in the world, then radical democratic socialism is the form of organization which is most likely to promote this in human societies.

Building upon contemporary evolutionary theory, with its notions of fitness landscapes and search algorithms, this project works to imagine less oppressive and more robust ways of evolving our social networks so as to help produce a better world. Viewing society as having been most robust in the past when small local organizations spurred each other to creation, so long as there is both a strong safety net and anti-monopoly conditions in place which could prevent the centralization of potential, the networkological project views contemporary formations such as nation-states with rigid borders, joint-stock corporations, monopoly currencies and forms of capital, oppressive debt instruments, restrictive forms of representation, traditional forms of wage labor and private property, and all reifying social structures as potentially in need of refractive redescription and renetworking. With the human brain as political and ethical model and source of organizational inspiration, this project sees flexible

roles, shifting configurations, mobility within networks, and relations across levels of scale as so many strategies to combat reification, hierarchization, and monopolization of surpluses. All elections and changes in governments happen because of shifts in the ways in which populations evolve in relation to the various networks to which they are connected in various fitness landscapes. Revolutions and elections are hardly an exception, and these only ultimately lead to robustness when the fitness landscapes in which they operate further these values.

Intimately intertwined with these issues are those of power and belief. The networkological approach to these issues, as with those of value, is to find a way to describe these which can be found in simpler forms in simpler systems, and in more complex forms in complex systems, and in ways which harmonize with the account of value already described. If value describes the manner in which economies unfold potentials into actions, then power is their ability to unfold potentials into actuals, with belief as the degree of unity and unanimity with which it can do this. In complex cultural systems, however, power is often modulated by the manner in which systems believe that others control what is of value, just as belief describes the degree to which a system agrees with itself in regard to its interpretations of the factors involved with its attempts to actualize potentials. An animal eats, for example, because it believes that this will alleviate hunger, and hence help it better achieve its goals. Just as action describes what a system values, the presuppositions which underlie the linkage between these actions and contexts indicate what a system believes.

In this sense, a system in which there is lack of unanimity of purpose is one of diversity of beliefs. While this can be a source of robustness, it can also be disorganizing, and robust evolution requires a modulation of these issues accordingly. Conflicting beliefs in a human society occur when there are conflicting values which cause aspects of that society to see holding these

beliefs as worthwhile in regard to their contexts. While statements are actions which indicate valued beliefs, they always only exist within the context of the other actions of the system. A person who says they dismiss something as a rumor but still act as if they do not "just in case" is someone who acts multiply, and hence, believes multiply.

All of these issues have ramifications for how systems change. Changing the ways others value, believe, or act is unlikely to occur if the underlying value systems do not change, even if these only ever unfold potentials in regard to beliefs which link interpretations of contexts to actions. Change tends to come about, however, when beliefs need to be changed because they no longer are able to effectively link potential to action in ways which help the system achieve its goals according to its values. While in physical systems this is often a simple, mechanical process of the conservation of energy, this is much more complex with more advanced organisms such as humans. Nevertheless, the basics are the same. Create a more robust situation, and people will be more likely to change their values and ideas to become a part of it. If you want to change what you believe, then change what you do, or the situations in which you put yourself, and belief will generally follow. If it does not, this indicates you did not actually want to change what you believe in the first place, and that you would need to understand this first, and potentially alter your relation to this resistance if any additional change in this direction is likely to occur.85 Change ultimately comes about not because of what people say they desire, value, or believe, but what they do, as well as the values and beliefs which arise because of this, and the power which shifts in regard to the perception of what this means. While political change describes the way societies manage their more directly extreme forms of violence, such as wars and imprisonment, political structures are always ever one set of networks in regard to those of the economy and culture at large, and change in one network is likely to lead

to change in another, even if in a "non-linear" manner which is difficult to predict due to all the factors involved.

While the networkological project advocates radical democratic socialism, it does not believe this could ever be imposed, but merely grown, from the bottom up, refractively. We need to enhance those aspects of society which could make such a distributed, diverse, meta-stable form of feedback and sync possible, and ultimately, this change is more likely to come first in the realm of culture than from those more obdurate forms of political structure, such as governments, themselves. Rather, we should expect these to change last.

Nevertheless, there are moments in which the fitness landscapes converge, and small 'changes can have oversized impacts for generations to come. Ref. Various forms of political organization can help take advantage at such times to help bring about the potential for a better world. However, such change will only ultimately last if the cultural ground is properly prepared for it, and resorting to force to sustain such an organization is always only a self-defeating tactic. As small world networks show us, the real battle for a better world is always within oneself first, one's immediate contexts next, and more distant contexts last, and if we all made the world better in our immediate environments like this, radical democratic socialism would ultimately emerge on its own.

Networks are transvidual. Society is, and always has been, more than individuals and collectives, but this tendency is increasing. We are networks of living processes intertwined with wideware plexes of various sorts, making each of us repositories of images, words, affects, ideas, actions, algorithms, and so much more, and at many, many levels of scale. Each of these is individual, and each is collective. What is more, our world is increasingly one in which new collective intelligences are forming, a result of our newly networked digital computing technologies. We process

affects on a collective level by means of social networking software, we think collectively by evolving new visual and verbal memes, and we act collectively by means of various distributed agencies. We live in times of decentralized ideological cells and new modes of organization which can swarm and disperse seemingly at will.

We need to think of new ways of interacting which take these into account. The human microphone from the "Occupy" protests is one new such formation, a mode of collective amplification which can emerge and collapse like that of complex systems in the world, between traditional notions of collective and individual.87 In an age of faceless corporations and aleatory resistance modalities, of what Michael Hardt and Antonio Negri have called "empire" and "multitude," we need to think beyond the individual and collective, at the level of what Félix Guattari, Gilbert Simondon, and Gilles Deleuze have, in varying forms, referred to as the transvidual.88 While these new formations are potentially liberatory, they have so far generally led to new atomizations, increased ethnocentric hatreds, more policing of borders, and overall paranoid responses to change. Understanding why this is and what we can do about this, despite and through ourselves, remains the challenge of our networked times. And if, barring collapse, the long arc of history truly is towards justice, for it evolves in the crucible of the evolution of complexity, the question then is, how much pain and suffering must occur along the way, and at what risk of collapse, with no guarantees for success?

Networks are radically democratic, socialist, consensivist, and post-anarchist political practice. Democracy is the manner in which distributedness manifests in systems in regard to power, and socialism in regard to potential, such that ultimately, these are varying sides of the same. Working to promote democracy and socialism in all their forms is then to work to promote condi-

tions which potentiate robustness. For these reasons, the networkological project takes an experimental, pragmatic, and postevolutionary approach to political and social theorizing and organizing, with a goal of helping produce the conditions which could help foster the emergence of radical democratic socialism. Surveying the landscape of contemporary social theory and practice, the networkological project finds it has much in common with contemporary "post-anarchist" modes of theorizing and organizing, those which emphasize democracy and socialism not only as goals, but as guidelines for theorizing, organizing, and action as well.

The term "anarchist," often used provocatively, and widely misunderstood even by those who might find many of its ideas amenable, is simply a call for a radicalization of contemporary notions of social democracy, and hardly an espousal of chaos. Even classical "anarchist" theorists were generally not against order, but merely the attempt to monopolize the decision on which forms of order were best by a powerful few, whether in government, corporate offices, or even a tyranny of the majority. Contemporary post-anarchists question many of the assumptions of traditional anarchists, often combining their insights with those from contemporary post-structuralist and postmodern philosophy and theory. Many post-anarchist groups, from the Zapatistas to the anti-globalization and "Occupy" movements of the recent past, have drawn upon Quaker meeting practices to form new consensus-based modes of organizing to produce experiments in collective liberation. All of these take a commitment to the twin principles of radical democracy, namely, opposition to the tyranny of the majority, and advocacy of social and economic justice for all, as the foundation of their worldview.

Working to promote bottom-up, horizontal, experimental practices to find new modes of social organization, the networkological project therefore looks to inspiration in various

forms of cooperatives, communes, spokescouncils, affinity groups, alternative currencies and markets, and many other experiments in social organizing which seek to operate alongside or outside contemporary forms of dominant social organization. Many of these forms of social organization are organized emergently, value robustness in all but terminology, are refractive in structure, and are networked to the core. This is in contrast to hierarchical, centralized, and reifying structures of contemporary governments and multinational institutions, or even revolutionary political parties which tend to sediment into reification and control so as to gain the benefits mostly for themselves, thereby limiting robust emergence of the whole.

Network socialism and radical "consensivist" democracy are varying aspects of the same, and the anarchist critique of modern forms of government, as well as post-anarchist anarcho-socialist democratic methods, provide potential roadmaps to more robust forms of social organization. Inspired by the classical "anarchist" theorists such as William Godwin and Emma Goldman, contemporary post-anarchist theorists such as David Graeber, Hakim Bey, and Saul Newman, <sup>89</sup> and working cooperatives, communes, and experimental social formations new and old, the networkological project works to learn from these and continuing experiments to bring about a more just, equitable, less violent, and more emergent future in all its proliferating forms.

Networks are pantheistic. While there is a history of radical political formations and religions being at odds with each other, this is because both of these, as well as contemporary philosophical and scientific discourses, tend to have a rather restricted and reifying notion of what it might mean to speak of the divine. Rather than dispense with transcendence completely, the networkological project views radical immanence as a pathway towards rethinking this notion in relation to the divine. In opposition to not only those who see any notion of God as

dangerous and irrational superstition, but also fundamentalists or orthodox dogmatists who try to monopolize conceptions of God to promote rigid exclusionary ideologies, the networkological project refuses to cede the notion of the divine to those who show a lack of breadth and imagination in regard to what the divine could mean.

Beyond vague deism and rigid atheism is the radical potential which comes about when God is conceived in terms which are theophanic, which believe that God takes many forms and appearances, as well as pantheist, which believe that God is in all, is all, but is most intensely in the best within all. On Such an approach to God differs from anthropomorphic images of the divine, even as it views all faces of God which promote robustness, anthropomorphic or otherwise, as beneficial to our world, for there is no otherworldly ground upon which to judge the truth or certainty of the appearances of God. Rather, there are only appearances which promote robustness more than others, a conception of the world which views God as fundamentally heterodox, appearing differently to each aspect of the world as that which draws it on to emerge more robustly than it already is, a God with many faces and forms indeed.

From such a perspective, any and all who go forth and present new visions of the divine should be encouraged to do so to the extent that these help foster robustness in the world, for that which reveals pathways towards greater robustness is a more powerful face of a fundamentally multiplicitous divine, and we can all learn from and be inspired in turn by these. Drawing inspiration from perennialist theorists such as Aldous Huxley, Frithjof Schuon, and Henry Corbin, radically pluralized versions of Islamic Sufism, Vedantic Hinduism, and Mahayana and Vajrayana Buddhism, as well as the work of philosophers such as Aristotle, Ibn 'Arabi, Baruch Spinoza, Ju Mipham, A.N. Whitehead, Emmanuel Lévinas, and, Jean-Luc Marion, and with many affinities with the works of Pierre Hadot, Sri Aurobindo,

Pierre Teilhard de Chardin, Seyyed Hossein Nasr, Robert Wright, Jiddu Krishnamurti, and various process and liberation theologies, the networkological project is a radical materialism which is also a non-dual post-theological pantheism of the divine flesh of the world. While this may sound radically different from the concerns of contemporary science described earlier, not only does it not conflict with the findings of science, it is in many ways simply an extrapolation of the logics inherent in contemporary sciences of complexity themselves when applied to different concerns. Overcoming the need to separate philosophy, theology, and science, the networkological project works to reimagine what the stakes of these terms could be.

Networks are a theophanic post-theology. As a theophanic pantheism, the networkological project believes that every aspect of the world, down to its fabric, is an aspect of God. As such, all is divine, sacred, and holy, even if those aspects of the world which are the most robustly emergent in relation to their contexts are more godlike, divine, sacred, and holy than others, and hence, manifest God's face more intensely. For God's face is the face of love, it is the manner in which the world loves us, and calls to us to liberate ourselves from our self-created chains. 92 The face of God in its many forms shines throughout the world, but most clearly in those aspects of the world which are the most robustly emergent, for the more an aspect of the world develops its potentials by developing those around them, the more it provides a model for others which can refract their own potentials back at them. These are those aspects of the world which are more loving and cooperative, transcending the distinction between self and other, freedom and necessity, and in this sense, the more Godlike aspects of the world. And while these differ radically from those which destroy, constrict, create unnecessary pain or violence, or otherwise reduce the robustness of the world, all these are ultimately also aspects of God, which need to be

loved and learned from as well. Good and evil in our world, that which promotes and that which destroys robustness, both can show us ways to be more robustly emergent, even if they do so differently. It is ultimately only by loving each and all can we grow, even by helping the most damaged and evil aspects of our world to heal and work towards the robustness of all, for in doing so, we teach ourselves and our world how to be more robustly emergent in the process.

In these senses, all pathways lead back to God, but some are more painful and destructive than others. For if God is the emergence of robustness, and an aspect of God is more godlike as it emerges more robustly, then pain is evidence of the destruction of complexity, and only pain which ultimately serves the emergence of robustness can be something other than sin. Those who endure pain for the sake of robustness are then saints in this world. And redeeming sin by learning from pain to foster robustness is our task, and in this sense, all aspects of God have the potential to reveal a face of God, for all can teach us how to better foster robustness, and even those idols of pain can become icons of the holy, even as they try to lead us astray. Redemption, the transformation of idols to icons, 93 of sin to robustness, is an endless task which must be renewed at each moment, and it does not do away with the pain and violence of the present or the past. And yet, this must spur us to greater robustness still, for the complexity which has been given to us came at great cost. We must have righteous anger at the pain we have caused ourselves in our emergence, and channel this to the creation of a better world by the healing of any and all of the pain we have caused.

We owe the world an infinite debt, for all who suffered and died due to violence in the past, which made our emergence possible, and only an infinite effort to promote robustness and reduce the pain and suffering involved in this process in the future begins to show the gratitude we owe for the infinite gift of our emergence. We owe it to the pain and suffering of present,

past, and future to work to redeem the present and future to whatever sense possible by learning from the past, and working to reduce pain and suffering in the present and future. The tortures and genocides can never be made right, the cries of pain will endure, the horrors will continue to exist as scars in our collective past, wrongs which can never be made right, pits of evil which cannot ever be erased. But if we learn from them, learn their terrible lessons, as individuals and groups, forever more, then this prevents anything like them from happening again, and in this manner, they will not have been in vain. We owe those saints who suffered pain to make their suffering our teacher, and we can only hope that each death and moment of pain will one day teach us this terrible lesson deeply enough so they will never occur again, a task of remembering and learning to which we must perpetually dedicate ourselves.

But we need not only learn by transforming idols into icons, we can learn by more divine icons of the holy, those aspects of God which inspire us not by the horror they present to us, but by hope. These are the guides which help us imagine how a better world might be possible. Of these, the most powerful are the quantum singularity at the start of our universe and the human brain, one a potential which produced matter, and the other the most robust evolution of the freedoms of this potential within actual matter. These are two of the most holy faces of God which we know, for they teach us how to emerge robustly by evolving towards life, cooperation, and liberation, towards greater power and freedom in regard to the limitations at work in the world of which we are a part.

We are all aspects of the singularity as it explores its ability to actualize all its potentials in matter, just as space, time, matter, mind, and the world are so many aspects of this.

The singularity is the radically non-dual, multiplicatous face of God which shines through all else, such that the world is simply God's love of itself, and the human brain its most

powerful gift to the world we have yet known, even as all these are aspects of God as it liberates itself from itself, a process of which we are a part. While the human brain, the most robustly complex emergent yet known, has given rise to the most robust forms of love and cooperation, complexification and sync yet known, it has also given rise to forms of violence and cruelty unknown in the animal world, something which evolution needed to understand if it is to evolve beyond it. In the forms of potential for love evolution has given us, we have the potential to overcome these, to self-consciously work to learn to evolve the need for these out of our own self-evolution. Learning what this could mean is the task we have before us. For we are most in sync with ourselves and the world when we liberate our flesh, our intertwining with our worlds, to emerge with greater robustness, to love the flesh of the world as it loves us, and we owe the gift of the world to us to learn from it how to produce the maximum robustness with the minimum pain to the world, of which we are a part.

Networks are an erotics. If all aspects of the world are divine, and the most robust are the most holy, then the human body, of which the brain is merely a part, is one of the most holy aspects of the world there is. Its pains are its sins, and its pleasures its potentials for redemption, even if there are pains and pleasures which have more potential for robustness, and hence, are more holy, than others, for those pleasures which can foster more in the future are more robust than those which are intense yet fleeting. In this sense, the evolution of robustness can be seen as a form of radically intelligent hedonism which works to maximize the evolution of the pleasures of the flesh of the world.

We do not yet know what pleasures a body can feel,<sup>94</sup> but we know that for too long bodies have been denigrated by varying attempts to reify and control them. The flesh is holy, the body is holy, and pleasure, in all its forms, is how we have been evolved

to know when something is likely to provide us with potential complexity, even if not potential robustness. And so, while some pleasures lead us to harm, the networkological project views any pleasure as beneficial unless it somehow hinders robustness. This project therefore views queer, kink, transgender, intersex, asexual, and other erotic and interpersonal modalities, so long as they do not also do harm, as new explorations of the flesh which can teach us more about ourselves, each other, and how we can better emerge with each other.

The networkological project is committed to an experimental erotics of which the valuation of robustness, and a consensivist socialist democratization of pleasures and feedback, is the only general limitation of this. None of which is to endorse a form of hedonism which is simple, however, for there are pleasures which are intellectual and emotional, which rival and potentially surpass those of the more physical side of our bodies, and ultimately, to neglect any of these would be to limit not only our pleasure, but our power and potential as well.

Networks are a praxis. Discourses are practices which produce descriptions to help us model the world around us and to orient our actions in the world in regard to projects which sync with our values and systems of valuation. Science is a discourse which aims to describe our physical world and produce experimental practices and new technologies, just as cultural discourses aim to do the same in regard to society and culture, with mathematics being the particular discourse which straddles these by limiting itself to pure quantity. Theorizing is the practice of reflecting upon practices to transform themselves into praxes, and philosophizing is the practice of the theorizing of theorizing itself in relation to our praxes. All of these practices intertwine with institutions, objects, and agents and their attempts to make sense of their world and transform it in line with their values. The networkological project is itself a praxis, one which works to

emerge from itself and the world, in and through praxes of scientific, cultural, and philosophical discourses, practices, and praxes, all of which can learn to grow more robustly in relation to the potential to imagine new worlds revealed by artistic praxes.

Networks are an aesthetics. Art is the practice which abstracts aspects of the world and reforms them, without immediately subsuming these to concerns of action, description, or reflection, but with the aim of exploration, the attempt to see the limits of what can be created and experienced. Art helps us imagine new potential aspects of any or all of the rest of the world, providing raw materials for the production of new potential worlds and world-aspects in the process. Only when art is liberated to explore is it generally able to do so, but only when art is in discourse with its surroundings, that which is not restricted to being art, does it do this well. Like science, mathematics, discourse, philosophy, practice, reflection, and praxis of many sorts, art is never pure, it always mixes abstract and concrete, actual and potential, meaning and value, ethics and politics. When art intertwines with these, it helps potentiate robustness, and it is here that it ultimately finds its value.

As products of robust emergence ourselves, we tend to find resonance with that which intertwines order and chaos in complexity in creations, which is generally known as beauty, even as we also resonate with the limitations of our relative reifications in regard to the sheer potential of emergence, which is sublimity. When we experience art which creates new aspects of its medium, we not only take pleasure in the new creations to which it gives rise, but to the manner in which art resonates with our own forms of ourselves and the world around us, and in ways which inspire us to be analogously productive in relation to our worlds as well. In this sense, art is that which intertwines beauty and sublimity in ways which can potentiate the

emergence of robustness. It is those artworks which help us to emerge in new and robust ways in relation to them and the wider world which, like the most complex forms of thinking, are the most robust manifestations of art in our world, and are hence able to spur us to create ourselves and our worlds anew.

Networks are a theory of nothing. If networks describe everything as networks of relation, and any particular thing is simply a network of others, then there is clearly something paradoxical about networks themselves, something that slips away any time an attempt is made to grasp a network, refracting the attempt to reify any given network to the contexts and processes of which it is an aspect. This is precisely what a worldview which views emergence as the fundamental stuff of the world sees as the manner in which the emergence of emergence from itself gives rise to the distinction between something and nothing which complexifies in relation to itself by refracting fractally, holographically, and emergently to give rise to the world we see.

This position, while paradoxical in many ways, is not necessarily new. Scientists have come to realize that the quantum materials of which our world is composed seem fractal in nature, down to quantum foam and potentially beyond. Atoms are composed mostly of empty space, and some theorists have even argued that the multiplicity of particles we see in our world could all ultimately be refractions of the same, a notion which makes sense in light of the way quantum particles are able to, in a sense, fold and network spacetime within them, rather than vice-versa, when they are in an entangled, superposed state. In regard to all these issues, if our universe emerged from something, that something has more in common with nothing than anything we have ever experienced, even as all our somethings seem more like nothings the more closely we examine them.95 In regard to mathematics, few disciplines are more fundamentally about nothing, from the infinitessimals of calculus, to Frege's number

theory and Cantor's set theory, such that all number and form can be seen as simply a play between a void and the parentheses which refract this voiding in a variety of ways, from numbers to spacetime, sets, groups, categories, and beyond. Many approaches to semiotics have argued the same, from Jacques Derrida's notions of originary repetition, spacing, and deferral to Jacques Lacan's purloined cybernetic semiotics. <sup>96</sup>

These notions have a long history in varied forms of philosophy as well, from F.W.J. Schelling's notions of the unconditioned, G.W.F. Hegel's notions of the concept as the manner in which the world grasps itself in and through ever more complex forms of negation, A.N. Whitehead's notion of spacetime as extension within the creative advance of the universe, or Gilles Deleuze's notion of disjunctive synthesis of the repetition of pure difference as that which produces the differentiations of repetition and vice-versa. Economists have long argued that banks "create money" by sleight of hand, and we have long seen the ways in which fictitious capital powers economies. In more devotional contexts, Vedantic conceptions of brahman speaking itself into being as atman, Mahayana Buddhist notions of nothingness (shunyata) and the Buddha-embryo/matrix (tathagatagarbha), or voiding in Isaac Luria's version of Kaballah all present notions which are similar in many ways to what is advocated here. From such a perspective, perhaps it is not so strange to see networks as composed of more networks, which are themselves ultimately the self-differing and renetworking stuff of the world emerging in relation to itself, at potentially infinite levels of scale and complexity, nothing and something emerging from themselves and each other, and refracting in complexity in ways which give rise to the world we experience. 97

Networks are a philosophy. The networkological project does not play many of the traditional philosophical games, and as such, it recasts ontology as so many logics of experience, fractalizes epistemology by extending Jakob von Uexküll's notions of worlds of experiencing in relation to C.S. Peirce's notions of a universal semiotics of interpretation, and intertwines metaphysics and physics in a radically self-differing emergentism, all with the crystalline seed of the network diagram to organize it. This diagram, a conceptualization of the process of refractive diagramming at work in networkological texts, has several aspects which can be abstracted and conceptualized.

The network diagram is composed of three primary elements, or sub-concepts, of the node, link, and ground, along with the paradoxical element of the level, which opens on to process and emergence. Each of these elements describes a way of relating to the world and its aspects, which this project will call logics, each of which opens on to the next until the final logic opens on to the infinite of emergence itself. The logic of the node describes reification, while the logic of the link describes the relation of nodes within meaningful contexts. The logic of the ground describes how systems produce, evaluate, and transform meaningful contexts in regard to their potentials for emergence, all in ways which echo that described by Gilles Deleuze with the notion of "disjunctive synthesis" and semiotics as "double articulation," that which can give rise to the new within existing structures by producing meaning and value from potential.<sup>99</sup> And the logic of emergence describes the manner in which each of these manifests an aspect of the emergence of emergence from itself by means of these logics.

Between finite and infinite, reification and emergence, from noding to linking to grounding and leveling and emerging, from one to the radical "-and," between all these elements and logics, and bringing them together, is the tendency of the -and of emergence itself. This manifests differentially as the "four-andic" structure of "the fourand" of the network diagram, as well as emergently within and beyond each of its elements and logics as

"the oneand" of emergence. In this sense, the fourand of the network diagram manifests the oneand, that which is always beyond any particular one yet also always within it, the flesh of the world and the matrix of all experience, by means of the one(and) of the node, the two(and) of the link, the three(and) of the ground, and the four(and) of networks within networks and the leveling which opens onto the fourand of the oneand of emergence.

In this sense, if "the one" is the dominant logic in traditional notions of experience, with its emphasis upon the reification of experience, the networkological project works to open this onto the one(and) of refractive experience. Likewise, "the two" is the dominant logic of traditional notions of meaning, of the one-toone correspondence of signifier and signified, and this project works to open this to the two(and) of the multiplicities of interpretations. Value in its traditional form manifests in regard to the three of exchange, which this project works to open to the three(and) of process. Thought as traditionally conceived, in the mode of dialectics, takes the structure of a synthesis and a remainder which keeps it going as a process of development, and yet, emergence exceeds this by thinking the manner in which thought evolves beyond its own reifications, meanings, values, and processes to potentiate the radically new in and beyond itself in relation to emergence as robustness itself. In this sense, this project will work to liberate the one and from the one (and), the twoand from the two(and), the threeand from the three(and), the fourand from the four(and), and the -andic from the onetofour, thereby manifesting the oneand by means of the fourand of the network diagram.

Building upon this, the networkological project is also a theory of graspings. Any reification of emergence is a symmetry, stability, and event which is also a working together, a sync, a commons which is also a capture, a stasis, and limitation, yet also a new potential, a starting point for new growth and new networking. The most extreme form of reification in this sense, that which is most stable, static, contractive, and recalcitrant to change, is a node, that of which the differences and samenesses, displacements and repetitions, describe any notion of space or time relevant to these.

Links and grounds are that which connect these, links as extended nodes and nodes as contracted links, 100 and grounds as what remains, subsists, and emerges between these, the fields from which either and all are drawn, from which they emerge and return. These processes, these emergences and intertwinings, absorptions and differentiations, are those from which graspings emerge and transform, dissipate and grow, and are all aspects, as are the graspings, of that which necessarily has many names. Emergence, the oneand, experience, the matrix of appearances, these are so many words for that which has emerged, emerges, and has the potential to emerge, and all of these, robustly, in these and infinitely other potential forms, if only relatively so in regard to any of its particular aspects.

These notions, abstracted from the refractive redescriptions this project produces from whatever it touches, and complexly intertwined as the network diagram, guide the formation of new refractions in this project as its principle core, one which reimagines the world as refractive diagramming which always works to emerge more robustly from itself. Logic is the work of abstracting these models from the world, ethics the attempt to come into sync with this, and practics the work of applying this back to the world, bringing together induction, deduction, abduction,101 and action in a work of radically emergent creativity, a philosophically refractive networkological praxis. Our modeling of the world, whether via the equations of mathematics, the theories of science or philosophy, or the dreams of art, are always a sort of virtual reality wrestling with the world, all of which attempt to understand the world and learn how to interact with it better. Developing the potentials of the network diagram

in relation to the world is what the networkological project is all about.

Networks are a meta-philosophy. The networkological project is a philosophy of description. This is opposed to philosophies of certainty, which view their descriptions of the world as somehow true, proven, certain, or beyond the impact of their conditions, such as the material, biological, and cultural contexts of their production. On the contrary, a philosophy of description views all philosophies as composed of descriptions produced by some aspects of the world to help them navigate the challenges their world presents to them in better line with their values. In this sense, all descriptions which a discourse, model, worldview, or philosophy produce are only ever also descriptions of the contexts of their production, with any attempts at proof, justification, or grounding as yet more descriptions in turn, meaningful modelings produced by the values of the systems which evolved them.

For this reason, the networkological project sees all models as composed of differing types of descriptions, some of which ground others. Primary descriptions are the most deeply held descriptions in a model of the world, and are often implicit, for these describe the contexts and processes which gave rise to the very descriptions which attempt to grasp them, which is often quite difficult and requires enormous complexity on the part of the system in question. Secondary descriptions are the general descriptions of the world and its aspects based upon the perspective described by primary descriptions, while tertiary descriptions are those descriptions which comes about when secondary descriptions are applied to singular aspects of the world to describe them in particular ways. For example, when this project describes an economy as a network, it uses network notions, which are secondary descriptions, to produce a tertiary description of a network, while it does this in relation to the primary descriptions which are the convictions about the world which ground the production of the theories of networks in the first place. 102

Philosophies of certainty tend to describe their primary descriptions as more than simply descriptions, and instead, frame these as the most true or proven thing which can be known in regard to a given context, and the result tends to be paradox in the form of incoherence, incompletion, or inconsistency. Philosophies of description, on the contrary, tend to describe their primary descriptions as the notion that all descriptions are merely descriptions, and that even this description cannot be proven, but it is the description of the world in which there should be, for a variety of reasons, the most confidence, for it tends to avoid the crises which more extreme manifestations of incoherence, incompletion, and inconsistency tend to bring when philosophies of certainty are rigidly employed. While philosophies of certainty are reflectively organized, with central core beliefs from which others are produced, philosophies of description are refractively organized. Descriptive philosophies believe most certainly in the rejection of reflective organization around reflective modes of certain belief, with all other local descriptions produced by means of the refractions of this refusal of certainty, with the embrace of refraction this brings, in regard to particular situations. While philosophies of certainty have their uses, they tend to resonate with conservative or cancerous modes of organization, with philosophies of description having more in common with distributed modalities.

Building on the meta-philosophical works of theorists such as Hegel, Friedrich Nietzsche, the American Pragmatists, and Wittgenstein, the networkological project views philosophical production as not only discovering the logics of our modes of relation to ourselves and our worlds, but as creating these as well. Philosophy is then as much a product of what is as it is a product of what can or should be, and is as much intertwined

with issues of invariance in our world as with desire, hope, and potential. History is full of stories and dreams that changed the world, and philosophy is as much a dream as science, which acts on the faith that our senses are to be trusted, and the social contract of a community of experimenters, just as much as religion and philosophy are the products of faiths and communities in their own ways. Even mathematics only makes sense in a world in which there are communities willing to agree on counting and measuring, assuming and proving. World-modeling is always description of what is and can be, and it is at the cusp between these that we can imagine better ways of describing our worlds which can help contribute to making them not only technically more proficient, but more robust, in all potential senses of this word.

Networks are a new history of philosophy. Working to displace the tradition of philosophies of the individual produced by Descartes and Kant, the networkological project works to show how relational philosophies of the past, from Plotinus to Mulla Sadra, Maimonides and Spinoza in the Jewish tradition, and Aguinas and Ockham in the Christian tradition, as well as in non-Western traditions, are the rule rather than exception in the history of philosophy, even if only a minor tradition in the West from Descartes forward. These relational philosophies, often overlooked, nevertheless provide crucial resources for constructing relational philosophies in the present. Some of these relational philosophies are even networked in form, as seen in the work of Leibniz, even if they are rarely also philosophies of emergence in both form and content. There are, however, some notable exceptions, such as seen in the work of Spinoza, Ibn 'Arabi, Mipham,

Bergson, and Deleuze. All these thinkers attempted to develop an immanent, relational, refractive, and emergent philosophy in regard to the situations in which they found themselves, and hence can serve as crucial sources of potential inspiration.

Networks are only a beginning. As a philosophy of emergence. the networkological project hardly sees itself as final. Networks are only one way of articulating immanence, relation, refraction, emergence, and robustness. These practical, logical, ethical, and reflective principles exist throughout the history of thought, and will hardly stop here, giving rise to the potentials for new and different robust and refractive models which speak to our worlds in the future. This project is only the attempt to describe how the whole appears from the here and now of its articulation, and should only be seen as a refraction of the physical, biological, and cultural contexts of its production. That is, while this project shows how everything in the world can be seen as a network of experiences, a language of meanings, an economy of values, and a process of thinking, this is all ultimately little more than the manner in which the world refracts through the networks which gave rise to it. In this sense, this project is as much the autobiography of these as anything else, <sup>104</sup> and the only merits it has beyond these should be seen in the potential it has to resonate with the those of others in ways which can bring about more robust emergence.

And so, if this project inspires others to articulate new worldviews in ways which promote the emergence of robustness, giving rise to new and sustainable complex emergences, in and beyond new networkologies, then this project is in the process of what it hopes it can become, which is to say, fuel for ever more emergences which will decompose and recompose its aspects according to their needs.

Networks dream. Such a provocative networking of concerns from so many domains, from science and mathematics to philosophy, theology, pedagogy, ethics, erotics, politics and

beyond, is bound to be controversial, and this is the intent. Networks think differently, they force and help us to find new connections, they intertwine what seemed distinct, mutate what seemed fixed, push us to reimagine the way the world has been, and to rethink how it could be. By means of describing networked lenses, which allow for redescriptions of notions of experience, meaning, value, emergence, and beyond, this project works to show how it might be possible to describe the world in a manner that works to emerge in and through thinking it, potentiating its further robust emergence.

The rest of this project will work to describe why and how all that was briefly sketched above hangs together, which is to say, why and how networks bring together these varied concerns in this particular way. However, as a non-binary approach to the world, this project sees the difference between reality and fantasy as one of degree, and views its own production as a worldview as not only a refraction of the way the world may be, but also what it could become. Many dreams have influenced this world more than its so-called realities, and most realities are not what they seem.

Networks are a reality which are also a dream, one which – if enough believe in them and create their own networkologies, which is to say, create their own differing refractive philosophies and practices of emergent robustness – could become ever more intensely and creatively our reality. At the cusp of dream and reality, networks are a potentiality in the world for a world that yet could be.