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CONTAGION THEORY BEYOND THE MICROBE

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INTRODUCTION: FOUR INTERVENTIONS

> Log on to the internet or visit a militant Islamic bookshop and within a few minutes you will find enough inspiration in CDs, ranting sermons, DVDs, for a hundred suicide bombs. It swirls across the Islamic world as an expression of rage against the West for the invasion of Iraq, support for Israel, and for Western dominance of the world economy… It is only when the vast majority of law-abiding Muslim societies reject the cultural virus of suicide bombing and cease to glorify it that this plague will burn itself out.[1]

In this so-called age of networks human communication is, it seems, increasingly redefined as a media virus. In the military rhetoric of former CIA operative, Robert Baer (above) it is indeed difficult to tell apart the medium from the virus. The greatest information network of all, the internet, has become, as Baer tells us, part of a "deadly virus" that spreads radicalization far and wide by way of a somewhat mysterious, "inspirational" connection with the societies it infects. Even old ways of doing communication are becoming part and parcel of this swirling viral media ecology. The fearsome biological analogies and medical metaphors Baer, and other propagators of the *War on Terror*, readily exploit are nonetheless part of a far wider and potentially divisive epidemiological social paradigm. In computer network security, for example,

there is a comparable (and interwoven) *War on Viruses* which has transformed the internet into an immunological network infrastructure that defines to a great extent what you can and can't do online. [2]

Significantly though, not all media viruses are dependent on fear and anxiety. In marketing circles, specifically those dedicated to digital networks, virals and memes are the buzzwords of choice. The success of *YouTube* videos and social gaming on *Facebook* are, for example, measured in terms of a virality based on joyful encounters, sometimes verging on obsessive and compulsive engagement. Indeed, network scientists and marketers claim to have learnt lessons from observing biological and digital viruses: lessons that some claim exceed mere analogical or metaphorical relations and point toward new universal models of contagious social influence and infectable consumer mood. [3] Evidently, the problem for communication theory is how to approach the many dimensions of the universal media virus. Intuitive as it may seem, its virality lacks substance. It is like a noise that contaminates the binary opposites of the established communication model without prejudice. In the age of networks senders and receivers and information and meaning are all susceptible to contagion.

Recently however, in network theory, the notion of *microbial contagion* has offered a refreshing alternative to established communication theory insofar as the non-human microbe is reckoned to be synonymous with the network humans connect to. To be sure, it is the microbe that links up the individual nodes of the network transforming them into a collective social body. [4] Yet, problematically the microbe may not go far enough in terms of grasping the virality of communication. It certainly shares a lot in

common with Baer's deadly virus in as much as it relies on an indistinct and divisive biological analogy to explain how nonhuman virality connects to an intensely human social medium.

This essay presents four interventions intended to redirect theoretical attention away from the medical discourses that underpin microbial contagion theory. [5] Although ostensibly discrete, each intervention is intended to probe the analogical artifice between the human and nonhuman by way of a Tardean monadological understanding of "social form" composed of emotional vectors and affective contagious encounters. The first intervention concerns what it is that spreads through infectable social media. Here both Gabriel Tarde's refusal to analytically separate psychological and biological realms from the wider social-physical world (of which they are both a part), and a more recent neurological understanding of the political unconscious, come together to foreground the importance of shared feelings in determining social influence. Yet, although *feeling fear* seems to be endemic to recent politically motivated contaminations of a population, there are other much-overlooked affects, like love, which are equally catching. Secondly, the essay confronts the deterministic thinking which seems to underline decidedly mechanistic interpretations of what spreads. This is equally evident in the analogical focus on microbes and memes as it is in a tendency in network theory to award agency to an emergent collective social consciousness.

The third intervention questions the validity of the network as an appropriate epidemiological diagram when evidently its standardization of space through nodes and edges tends to freeze out the temporality of epidemic events and accidents. This is, I

contend, a "diagrammatic" problem at the center of contagion theory which can be interestingly re-approached via Tarde's insights into economic crisis and celebrity culture. Lastly then, the essay focuses on a distinctive Tardean trajectory evident in contemporary capitalist business enterprise which looks set to exploit consumer mood and guide intention by targeting the mostly unconscious neurological absorption of human and non-human affective contagions.

These four interventions draw upon a resuscitation of crowd contagion theories dating back to the late nineteenth century. Such a revival is not without its problems, not least because of the negative notions it attaches to social collectivity, conformity, obedience and vulnerability. However, unlike the extreme conservatism of his contemporary Gustave Le Bon, in a series of publications Tarde forwarded an epidemiological diagram which arguably provides a much clearer understanding of social relation outside of the reductive limitations of organic social category, and at the same time probes between the artifice that divides biological and psychological phenomena from social theory. [6] In these texts Tarde sets out an approach that would go on to greatly influence Gilles Deleuze and Bruno Latour (among others). But as I aim to show in my work, he is much more than a mere footnote to assemblage and actor network theory.

1. WHAT SPREADS?

Feeling Fear

Although positioning microbial contagion as a distinctly non-human affair Eugene Thacker suggests an intriguing and perhaps purposefully indistinct human relation to it insofar as he draws our attention to how "we humans" *feel* about becoming infected.

[6] The most apparent of these feelings is triggered by our contagious encounter with the microbe, which tends to "elicit" the negative emotions of "fear" and "anxiety". [8] As Thacker seems to infer, contagion is generally grasped within a medical discursive frame as a horrendous conflict between human and nonhuman agencies.

> Contagion and infection are more than mechanisms of antigen recognition and antibody response; they are, as our textbooks tell us, entire 'wars' and 'invasions' continuously fought on the battle lines of the human body. [9]

These are, it would appear, fears and anxieties induced by a sense of invasiveness of what spreads beyond the battle lines into non-biological contexts. Reminiscent perhaps of Michel Foucault's earlier observations on how the space of plagues and epidemics (like leprosy) opened up new disciplinary territories that would further exclude the nonhuman from the human world,[10] this current exercise of biopower seems to carry forward discursive epidemiological power into new and as yet uncharted corners of social cartography. To be sure, the emotional responses to these unwelcome incursions by the microbe are increasingly exploited by the defenders of network sovereignty - particularly in the rhetorical terms used to describe the threat posed by the cultural and biological viruses of the terrorist cell.

There is, as Thacker argues elsewhere, an Agambenian "zone of indistinction", or biopolitical continuum, at play in the rhetoric of the *War on Terror*, which exceptionally merges the language used to describe the terrorist with that used to describe the microbial virus. [11] But there is perhaps nothing new in such myth making. It is

certainly a central plank of a much older ideological critique that recognizes how culture is often strategically turned into nature. [12] Nonetheless, are these transmissions of fear and anxiety adequately explained by a semiotic model of communication, based as it is on the spreading of false beliefs conjured up by images, words and ideas? How does this old approach, which in effect divides up culture and nature, account for an inherent social vulnerability to suggestion beyond resorting to a fuzzy state of false consciousness? It would seem that the emotional openness to repetitive and ever converging transmissions of statements of this kind exceed mere ideological productions of myth. Indeed, would not belief (and how it can spread) need to be reconsidered, *ahead of ideas*, as the bringing on of mostly insensible and unconscious responses intended to trigger deep seated fears, anxieties, panic, and insecurity? Is this not a neurological contamination that exposes the mind to an entire valence (fearsome and joyful) of affective encounters that herald the idea?

So as to further deliberate on the affective and contagious qualities of what spreads I want to briefly introduce three thinkers who help frame an alternative to ideological models of transmission. The first (a cognitive scientist) focuses attention on a neurological understanding of how the political mind can be tapped into and activated. The second presents a theory of affective transmission that rethinks the relation between culture and nature by removing the pretence of the divide that separates them, and focuses instead on an *intersection point* wherein what is socially encountered, and biologically responded to, meet. Finally, I turn to Tarde's late nineteenth-century social contagion theory which similarly locates the human condition

somewhere in between deliberate volition, biologically motivated mechanical habits and the self-spreading of desires and social invention. Importantly, all three are advocates of a concept of social subjectivity that is not closed or self-contained, but is instead open to contagious suggestibility of others.

A Neurological Unconscious

To begin with, I want to acknowledge George Lakoff's neurological understanding of a mostly unconscious political mind. Lakoff describes a mind made vulnerable to outside political manipulation through appeals to emotional markers, which can trigger feelings (including those related to infection) already contained in neurological bindings, or what he calls the *metaphorical frames* of the mind. [13] Following the prominent work of neuroscientist Antonio Damasio in the mid 1990s, as well as "accepting" the fairly recent mirror (or empathy) neuron hypothesis, [14] Lakoff points to the absorbency of *somatic markers*, which can be persistently activated so as to provoke the "right" feelings and emotions, almost to order. [15] So, for example, following 9/11, the much repeated video images of *The Twin Towers* falling played alongside rhythmic utterances of "Islam" and "extremism" evokes fear in the neural circuits of a mind that *empathizes* (shares in the feeling) with what it encounters via its sensory system. [16]

To fully grasp how the neurological unconscious might work, we need to firstly register Damasio's contra-Kantian (and Cartesian) argument that our reasoning and decision-making processes are not as purely cognitive as we may think they are. In fact, Damasio's somatic marker hypothesis persuasively argues that "emotions and feelings may not be intruders in the bastion of reason at all; they may be enmeshed in its

networks." [17] Secondly, according to neuroscience, our understanding of how feelings get passed on need no longer to be informed by an unknowable empathic transmission. The location of so-called mirror neurons supposedly points to the brain processes behind the sharing of feelings and mood. Mirror neurons are said to be the equivalent of human-to-human "wireless communication," and have been linked to innate imitative human relations occurring between infants and adults. [18]

It is the porous volatility of the political mind to the feelings and suggestions of others (up close and mediated over distance) that leads to an important question for contagion theory: *is it not what "we feel" about what spreads that becomes the most effectual contagion of all?* If this is indeed the case then the contagious encounter is not exclusively explained by the unique merging of linguistic terms strategically relating human to invasive nonhuman worlds, but instead reveals a multisensory intersection point *in-between* what have traditionally been regarded by much of academia as separate social and biological domains. Arguably, unlike the horrors of the microbial metaphor this force of contagious encounter is not at all biologically determined. The spreading of fear is instead an intermingling of affective social phenomena and hardwired biological responses that activate and adapt each other.

At very least this appeal to cognitive neuroscience may help to provide a more graspable process by which *infectable* humans encounter the "living" horrors of the microbial world. Communication theory should, in any case, pay close attention to a similar neurological concentration apparent in political psychology, marketing, and product design where the affective priming of experience is fast becoming endemic to the study

of social influence and methods of persuasion. [19] Accordingly, what spreads is understood to pass unconsciously through the skin into the viscerality of human experience, guiding automatic behavior, before it moves *upstream* to the conscious reflective mind and sense of volition. Although the strategic convergence of the epidemic and suicide bomber can still be grasped as Thacker puts it, in the "innovative ways" human beings have developed by which to "live through microbes", [20] here we have a process no less that begins for the most part with a contaminating encounter with an event. It is the manifestation of affects in this encounter which move upstream, activating mostly unconscious feelings of horror, before they intersect with the *downstream* flows of a neural circuitry loaded with manipulable and biographical emotional content.

It is this seemingly ready-made, yet highly absorbent and adaptable circuitry that is, Lakoff claims, tapped into by political strategists, so that, for example, the repetition of the images and the utterances of the *War on Terror* reinforces and activates negative conservative neurological bindings rather than acting to challenge and change the way people think. [21] Significantly, for Lakoff, the idea that the political mind is openly vulnerable to suggestion in this way (and potentially prone to passing on such suggestions via neuronal transfers) confronts the unyielding artifice erected and maintained by the same Enlightenment aficionados Damasio identifies. That is, an abrupt separation between somatic experiences and the evolutionary hardwiring of a self-contained and rational mind. But as the subtitle of Lakoff's political mind thesis argues, "you can't understand 21st-Century American politics with an 18th-Century

brain." It would seem that the Enlightenment artifice between contaminating emotion and pure reason disintegrates at the point where what is socially suggested, and biologically responded to, intersects: *an encounter between upstream flows of affect and downstream biological responses.*

The Transmission of Affective Contagion

In her analysis of the decline of nineteenth century crowd theory, Teresa Brennan notes the ominous implications of what replaced it. The cognitive turn in the twentieth century not only re-concentrated enquiry on the rational minds of a self-contained individual, but also bisected biological and sociological explanations of collective social interaction. [22] The theory of the self-contained individual stresses, as such, that it is an evolutionary hardwired and conscious cognition that determines human agency rather than natural phenomena, like emotions, feelings and affect. For Brennan however, what spreads (affect) turns such a crude dichotomy on its head by significantly placing social encounter ahead of biological adaptation. Despite the prevalent "prejudice concerning the biological and the social" and the "belief in [a subject's] self-containment" that obsessed early social scientists' interest in how collectives respond to each other, Brennan argues that the biological and the social are irrevocably blended together. [23] Contagion is, like this, "a simple affective transfer" discerned by permeable individuals in rooms and other affective atmospheres of encounter. [24] She compares it to entrainment whereby a person's affects can contaminate another, pulling or pushing them along in rhythmic synchronization. Importantly, affective transmission does not originate in the biologically hardwired drives of the individual. To be sure, the porous

self is nothing like the inward looking ego (only thinking of its self). [25] On the contrary, the affective transfer is always, from the outset, *social*. But this encounter is not social in the sense of the term accepted in mainstream sociological categorizations. The encounter comes from out there in the affective atmosphere, and can as such, spread from person-to-person, entering into the skin and *hacking* into the evolutionary drives.

Viral Love

Importantly then, the biopolitical intensity of what spreads through affective atmospheres should not be limited to negative transmissions of fear. There is a need to consider a far wider valence of virality contaminating the social mood. [26] Love, or viral love as I call it, might even be regarded as more contagious than fear. As Brennan contends, love as an affect is very different to negative affects which require an independent medium of transmission. Love, in contrast, is both affect and the medium through which the affect travels. [27] Viral love is in this sense both virus and viral environment enfolded into one communicable space.

Whether or not viral love is in fact a more powerful contaminator than fear is not really the focus here, but as a concept it usefully brings together the notions of neurological unconsciousness and affective contagion with the seminal contagion theory set out by Tarde in the late 1800s. As Tarde claimed, the most ingenious and potent of political strategies appeals not to fear alone, but also the desire to love and be loved in return, and the potential to contagiously pass on those loving feelings to others to imitate. According to Tarde, it is the "power of belief and desire…" of the "love and faith" of the social somnambulist (a neurologically unconscious social subject by any other name)

that produces "obedience and imitation." [28] In other words, the somnambulist succumbs to emotional appeals to his sense of fascination, attraction, allure and absorption, and a tendency to become distracted by the animations of his environment. Viral love may well be compared, as such, to a contagious social neurosis, or mass attention deficit disorder, but it is not feared like a microbial disease. Despite being mostly unconscious of its affects, the somnambulist is not controlled or panicked into submission by epidemics of fear, but willingly engages with the faith and hope inspired by his joyful and mesmeric encounter with love. [29] Social obedience is partially guided then by "unheard-of expenditures of love and of unsatisfied love at that." [30] Significantly, these investments in love made by religious and political institutions of power, Tarde claims, satisfy a "persistent need of loving and admiring," requiring the raising up of "new idols… from time to time." [31]

So who are the new idols of viral love on the contemporary political scene? Well, in contrast to the microbial contagions of the GW Bush administration and its appeal to the political unconscious through the cold emotionless channels of advisors like Cheney and the fear mongering of Rumsfeld, Lakoff notes how Obama's campaign of hope and change managed to empathically tap into the infectable emotions of many US voters. This was a certainly a contagion befitting the age of networks. From the outset, Obama's election campaign team made the best possible use of the intimate features of Web 2.0 applications to spread activism through joyful encounters experienced predominantly *at-a-distance*. On *Facebook* you can become Obama's friend (one of nearly 9.5 million to date). You can find out that he enjoys "basketball, writing, spending time w/ kids" and

what his favorite music, books and TV shows are. Yet, it is the Obama team's pre-election use of *Flickr* that best illustrates the empathic virality of political love. [32] For it signalled the new president's intention to sidestep the formality and distance of Cheney and Rumsfeld, and instead intercept, through these networks, the affective flows of those voters disillusioned by GW Bush. Of course, Obama is a powerful orator, using rhetorical skills as old as Aristotle, and that should never be underestimated, but the emotionally charged and intimate pictures of his family on the eve of his election spread through global media networks like a firestorm, painting a mood and stirring up a worldwide love contagion. What is important to stress here is not necessarily a dualistic relation between fear and love, but a political element of communication that exceeds the semiotic realm of effect. These are haptic images that quite literally *touch* the eye. As one *Flickr* user's comments perfectly capture the empathic transmission flowing from these images: "I love this shot. You can feel the butterflies in their stomachs as they are watching the returns." [33]

The events leading to the election of the first black US President were certainly marked by a global outpouring of love. In this sense, Obama's love contagion seemed to attune itself to a positive flow of the love of difference. As Tony Negri suggested shortly after Obama's election, behind this great victory may well be traces of the great struggle of the multitude, certainly in terms of its positive role in the globalization of the issue of race. [34] Yet, viral love can be capricious too. Whether or not Obama can truly live up to the expectations of the multitude project, and deliver the spontaneous democracy it desires, is of course highly questionable. Perhaps the short lived virality of this example

of a *love of difference* has already been subsumed into what Michael Hardt has identified as the dictatorial counter forces of a *love of the same*. [35] Certainly, as I write, Obama's contagion is already oscillating uncontrollably between unrequited love and a love gone bad.

To conclude this section, what spreads might be considered using a term Nigel Thrift adapts from both Brennan's theory of affect and Tarde's original thesis. *Affective contagion* re-stresses the 'involuntary precognitive nature' of what is passed-on. [36] What spreads enters into the porous neural network of outlier relations that connect the self to the other (and other things) via the communicable media of the skin, as well as the intimacy of social networks. Again, this is not an exclusively biological or social contagion, as traditionally understood. What spreads, as both Brennan and Thrift point out, is what passes through an intersection point or artifice. [37] Significantly, what spreads is passed on, not just through fear and anxiety, but via passions, obsessions, and other empathic transfers that are equally catching. What spreads certainly has the capacity to capriciously affect (and become affected) across the valence of positive and negative feelings. What spreads can be, in other words, a fearful or joyful mesmeric encounter between indistinct social and biological worlds. It is an encounter that triggers empathic contagions that spread through adaptive atmospheres of affect and imitative entrainment. As Brennan elegantly puts it, "[m]y affect, if it comes across to you, alters your anatomical makeup for good or ill." [38]

2. THE MECHANISM INDEPENDENCE OF CONTAGIOUS SOCIAL ENCOUNTER

The idea that social encounter is interwoven with biological adaptation is of course controversial. Before venturing further into Tarde's contagion theory it is therefore necessary to grasp the importance of the intersection point he sets up between social and biological contexts and clearly distinguish it from deterministic thinking.

Using Tarde to Avoid Biological and Social Determinism

While it is noteworthy that Thacker has cautiously approached how the abstraction of contagion is transformed into non-biological contexts, such as the meme, viral marketing and computer viruses, [39] microbial contagion is still at risk of falling into a similar deterministic trap. Indeed, it is perhaps too often the case that social and cultural contagion theorists look to biological and medical discourses for their sole inspiration. The problem being that the analogies and metaphors made between the virality of genetic code inheritance, cultural imitation and digital replication inform a markedly biologically determined mechanism of infection. Like this, memetics is exemplary. It plays fast and loose with a universal biological referent and attempts by its advocates to claim Tarde as a forefather of the meme are deeply misleading. [40] To be sure, a Tardean "epidemiological" diagram can be clearly differentiated from the deterministic logic of the neo-Darwinian meme/gene analogy, and its claim to be the definitive biological force shaping social and cultural fields. [41]

Since being fleetingly introduced in the closing chapter of Richard Dawkins' bestseller *The Selfish Gene* in 1976, the genocentric evolutionism of the meme/gene analogy has gone on to be a highly influential, albeit controversial explanation of how culture spreads through a population. Accordingly, the meme virus is a unit of imitation which

determines the evolutionary invariance and survival of the ideas that spread through a population of minds. It follows that a population of minds will passively absorb the evolutionary mutations directed by the meme in order to both survive and provide a better medium of propagation for the future survival of evolved memes. It is, at its extreme, part of a claim that everything from the mind to communication technologies like the internet are the outcome of memetic units constructing a more efficient communicable environment in which to self-spread.[42]

This is not to say that memetics does not begin with an interesting premise. Like Tarde, to some extent, it points to the often unconscious transmission of what spreads through infectable populations. Nonetheless, what is considered to spread becomes a wholly mechanistic and self-contained evolutionary unit of imitation. [43] As Brennan convincingly argues below, the neo-Darwinist adopts an essentialist position that neglects to engage at all with the capacity of affects to occur outside of the genetically formed individual.

> [According to neo-Darwinism] [t]he individual organism is born with the urges and affects that will determine its fate. Its predisposition to certain behaviors is part of its individual genetic package, and, of course, these behaviors are intrinsically affective. Such behaviors and affects may be modified by the environment, or they may not survive because they are not adaptive. But the point is that no other source or origin for the affects is acknowledged outside of the individual one. The dominant model for transmission in neo-Darwinism is genetic transmission. [44]

To be sure, in both biological and non-biological contexts, the neo-Darwinian paradigm negates the creative potential of chance encounters by grossly inflating the status a deterministic code mechanism. By analogy it attributes the same high level of agency to the fidelity, fecundity and longevity of the genetic package as it does to the passive passing on of a competing idea. Memetics crudely consigns, as such, the by and large capricious, unconscious and imitative transmission of desire and social invention through a population to an insentient surrender to a self-serving code. [45] As Brennan continues, "the critical thing about it here is that its proponents ignore the claims of social and historical context when it comes to accounting for causation." [46]

While Tarde's epidemiological diagram and the biological determinism of memetics are demonstrably incompatible, it is equally important to distance him from social determinism. What composes the historical forces of the social is all too often accepted as a given. So, before thinking through the social context of contagion theory, it is useful to stress the discernible differences between Tarde and the intrinsic determinism of the Durkheimian social paradigm apparent in notions of social epidemiology. [46] What concretely distinguishes Tarde from Durkheim is the latter's attempt to render all things psychological, biological, and neurological categorically distinct from the social, while the former marks their inseparability. For example, in their "momentous debate" at the Ecole des Hautes Etudes Sociales in 1903, Durkheim reportedly made a particular issue of how the social sciences needed to make its subject matter separate from these other phenomena. As he puts it elsewhere:

> [T]here is between psychology and sociology the same break in continuity as there is between biology and the physical and chemical sciences. Consequently, every time a social phenomenon is directly explained by a psychological phenomenon, we may rest assured that the explanation is false. [48]

So how did Durkheim consider social emergence? To begin with, his notion of "dynamic density" aligns him to particular theories of social complexity and collective emergence very much at odds with a contemporary reading of Tardean microsociology. In short, dynamic density is a process of social emergence that increases by way of the growing number and frequency of individual connectivities. By way of his influence on Talcott Parsons' functionalism, Durkheim has subsequently been claimed by a number of other authors as an early pioneer of systems theory and cybernetic approaches to the social, including notions of swarm, collective, and distributed intelligence. [49] So while Durkheim's social theory points to the downward causation awarded to social facts and collective representations, both of these concepts are considered "*sui generic*." That is, they emerge from out of a relation with their own social kind. Social emergence is thus independent of psychological and biological factors and derived instead from a social consciousness emerging from the dynamic densities (connectivities) made between individuals. [50]

Dynamic density is, incidentally, an account of social agency that can be linked to current network theory where there is also a heavy emphasis placed on the agency of collective behavior emerging from a network of individuals. [51] The synergy here is not

precise, but worthy of note nonetheless. For Durkheim society is "not at all the illogical or a-logical, incoherent and fantastic being" others consider it to be. On the contrary "the collective consciousness… is the consciousness of the consciousnesses." [52] The organic glue that brings social collectives together (makes it conscious, as such) is founded in the collective consensus of individuals. Similarly, in network theory, individuals become "individuals of a different sort." It is, as such, the localized level of "consensus-building" that links the individual "to the swarm as a whole." [53]

In lieu of Durkheim's concentration on a conscious social category arising from out of associative individual densities, devoid of biological or psychological content, Tarde's diagram comprises of mostly unconscious flows of desire, passion, and imitative radiations of muscular, as well as cerebral activities. In sharp contrast then, Tarde's society of imitation does not fall back on collective or individual representations. It is not at all about pure association as it concerns the disassociated connectivity (unconscious association) of a social somnambulist. Like this, Tarde's social becomes an assemblage of relationality composed of self-spreading and mesmeric imitative waves or flows. [54]

What comes together does not occur by way of a collective consciousness pushing down on the individual, but is instead the "coherent" outcome of "desires that have been excited or sharpened by certain [social] inventions," which imitatively radiate outward, point-to-point, assembling what appear to be the logical arrangements of social form, like markets, nations and cities.[55] What radiates outwards are neither social facts nor collective representations, but the microrelations of shared passions, thoughts, conversations, beliefs, feelings and affects which pass through porous self/other

relations in all manner of contagious environments, including corporate, economic and political arenas. [56] What comes together "socially" in these Tardean spaces is neither genetically subject-bound nor obligated to the wisdom of collective consensus, but is rather the outcome of an infra-individual relation that spreads below consciousness. The social, according to Tarde, is a vital force that self-spreads, radiates and vibrates out from capricious mechanism-independent social encounters with events and accidents.

3. WHAT DIAGRAM?

Networks?

So beyond deterministic thinking what kind of diagram can be used to study the force of these encounters in contemporary contagious environments? Is it, as Galloway and Thacker propose, the nodes and the edges of the technical network? [57] Well, in part yes. Network fever is indeed all-pervasive. Nevertheless, in ontological terms, the network diagram has certain explanatory limitations that need to be considered. Galloway and Thacker's own dissatisfaction with the graph theories of network science, for example, point to a tendency to attribute unfettered and apolitical naturalness to what are in effect asymmetrical topological spaces. [58] Yet, these limitations seem to be further heightened by the spatial homogeneity of temporal considerations. Although Galloway goes on to interestingly locate the event in the "emergence of the networked form of mediation" in itself, [59] we should perhaps not altogether ignore the opinions expressed in network science which openly acknowledge that these topological spaces, standardized by nodes and edges, tend to freeze out the temporality of what just occurred (the event). [60]

This solidifying effect is not only a problem in the nodes and edges of network science, but in other theories of the network too. Despite drawing on Tarde as a "thinker of networks" [61] to support the agency to objects, a distributed personhood, and emphasize invention over cognitive reflection, actor network theory (ANT) is weakened, Thrift contends, by a tendency to sustain "effectivity."[62] The problem with ANT is that it neutralizes the intensity of events, giving precedence to "steely accumulation" over "lightening strikes," and "sustained strategies" over "sharp movements."[63] In fact, being able to map *what just occurred* - the shock events and accidents of present-day contagious spaces, like those recently experienced in the economy or fame obsessed cultural milieus introduced below - is of central concern to contagion theory. One important challenge then is to find an appropriate abstract diagram that better assimilates these temporal considerations. [64] Indeed, what Tarde provides (and here the influence on Deleuze is made clear) is an epidemiological diagram that exceeds a mere network of relations (technical or otherwise) and points instead toward a far more complex array of events and contagious assemblages of desire and social invention.

The Events of Financial Contagion

There are, it seems, legitimate reasons to suggest that the spreading of the recent financial crisis is linked to the growth of automated networks and so-called algotrading. [65] However, beyond the technological diagram there is another way to approach financial contagion. That is to utilize what Massumi calls the *networkability of events.* Like this, the temporal movement of the event is not simply limited to network connectivity and distribution, [66] but is instead inextricably coupled to the manifold

components of assemblages such as those that compose the current turmoil in the economic system. The passing-on of financial contagion through these economic assemblages, for example, is of course greatly influenced by the digitalization and networking of financial information. Post-big bang electronic circuits have played a major role in speeding up and automating economic events and contagious spillovers. However, as Massumi proposes, the "medium of communication" of events and their subsequent contagions, is not the technology. [67] It is rather the events *movability*: its displacement, communicability and relationality.

It is useful at this point to refer to Tarde's much earlier account of times of boom and bust so as to more concretely stress the significant role of the event in emergent economic relations. Tarde presents an economy assembled around the repetition of periodic events, but always prone to the occasional monstrous aperiodic shock event or accident. So as to explicate how these events affect the economy, he makes a clear distinction between two kinds of contagious desire. [68] The first are "periodically linked desires." Organic life, Tarde noted, "need[s] to drink or eat," clothe itself to ward off the cold, and so on. [69] These necessary desires related to survival become interwoven into the repetitious and mechanical habits of day-to-day events. However, when such desires become economically appropriated by social invention, they become "special" desire-events, and can as such, take on an imitative and spontaneous "life" of their own. According to Tarde, these are "capricious, non-periodic, desires" [70] for things like fashion and fame that organic life seems to passionately aspire toward, and imitate, mostly unaware of the mesmeric and magnetic attraction they generate. On occasions,

the intensity of these passions build anomalous financial bubbles, which continue to contagiously grow until they inevitably burst, spilling over into the wider economy. [71] Along these lines, Thrift, and more recently Latour and Lépinay, have pointed to a revival of a Tardean political economy founded on the eventful passing-on of contagious desires, passions, glories, and intoxications. [72]. Like this, the current financial crisis demonstrates how the "reach and complexity [of imitative radiations] has expanded inordinately since Tarde's time, allowing them undreamt of generative powers." [73] The expansion of these flows of desire and imitative social invention is accordingly linked to the growth of an economy driven by "new socio-technical platforms," including vast electronic networks and automated modes of trading, which not only increase the fluidity and rapidity of financial information, but also "power up" the communication of desire via "conversations" and "hormonal splashes" spreading through the imitative meshwork of financial media. [74] Nonetheless, the networkability (and unpredictability) of the present-day economy, and its intimate coupling to fluctuations in the market mood, is a distinctly social phenomenon of a Tardean order. Although the economy can appear to be a "logical arrangement" of events organized around predictable network distributions, the backdrop by which desire becomes appropriated by social invention is merely "capricious and accidental." [75]

The Accidents of Contagious Fame

Another way by which to effectively trace the accidents of contagion in Tarde's diagram is to consider how it accounts for the spreading of fame for those individuals "fortunate" enough to encounter ingenious ideas. Tarde's study of the nineteenth-

century equivalent of celebrity worship argues that fame is seemingly generated by small deferential social groups, before it becomes more widely dispersed into a public that "does not know its hero personally," but nevertheless feels the same "fanatical, impassioned and devoted admiration." [76] Yet, this jump from the respect of the few to the emotionally charged adulation of the many (again, mostly *at-a-distance*) is explicitly linked by Tarde to the spontaneity of encounter with complex "currents of imitation." One person's fame is, it would appear, an accidental unfolding of the events of their eventual glory. A point Tarde reinforces in *Economic Psychology* when he argues:

> One can see… what is accidental about glory. Given equal natural genius, a man will or will not encounter ingenious ideas, depending on whether the elements of these ideas are or are not brought to him by the intersecting currents of imitation. And, given an equal ingeniousness of discovered ideas, they will make him illustrious or obscure depending on whether they do or do not encounter a public which desires them and is disposed to welcome. [77]

Although this account ingeniously points of an infectable desiring population as a necessary precondition for an epidemic of influence, it also draws attention to a particular criticism of how Tarde contends with the accidentality of what spreads. As Thrift points out, Tarde may well have overestimated the accidentalness of contagion, and negated, as such, the capacity for increasingly mediated encounters of imitation-suggestibility to be "consciously and carefully steered." [78] While Tarde successfully

grasps "the power of imitative processes in the mediated environments" of his time, [79] he tended to…

> See these mediated processes as spreading like wildfire, like mobs all but out of control, or as currents pushing up against each other in a fluid dynamics in which ascendancy could be all but accidental. [80]

What Tarde seems not to have anticipated is the capacity of current corporate and political agencies, working with PR strategists, media experts, technologists, network scientists and so-called neuromarketers, to produce the necessary mood environments ripe for capturing the accidents of desire in social inventiveness, and making populations readily infectious. In present-day spaces of consumption there is, Thrift argues, "an ever-growing multiplicity and difference of celebrities and notorieties buoyed up by persistent media attention." [81] Celebrity is endemic to a media engineered desiring machine marketers and politicians compete with each other to plug into. This is a Tardean machinic diagram defined by "a potent combination of technology and genre, imitation and hormone," [82] and the reproduction of infra-individuals readily primed to desire and pass on the inventions of celebrity hype to others.

To conclude this section there seems to be at least two diagrammatic alternatives to choose from. The first regards the diagram as Tarde seemed to, as all but accidental. The social somnambulist is merely an unconscious conduit through which the capricious currents of imitation flow. What spreads either catches on or simply dies, depending on the chance encounter with the logical contests and oppositions of imitative radiation. The second option is not however as straightforwardly non-accidental as it is perhaps

inferred above. On the contrary, it stresses how spontaneous events can be captured, measured, primed and organized, even made to look like an accident or chance encounter, so as to dip below conscious awareness and become more readily absorbed into the neurological unconsciousness. This last option has weighty implications for the future of human agency.

4. VIRAL AGENCY: IN BETWEEN SPONTANEITY AND DICTATORSHIP

The Tardean Social

The problem of human agency appropriately comes to the fore in Thacker's microbial contagion theory. Again though, careful attention needs to be paid to such questions concerning viral "life" and its seemingly counter relation to human life. These two vital forces are, it must be said, too often located on either side of the aforementioned artifice that divides social and biological domains. This artificial separation certainly reinforces the idea that there are "unknown" biological mechanisms functioning outside of, and independent of, the social field. Yes "we humans" do encounter a whole host of nonhuman and human biological agencies mostly unawares (viruses, pheromones, hormones, feelings, affects etc.). But that does not make such agency-free infectious encounters discrete from the social. As Tarde prophetically argues, the social is, for the most part, an involuntary association with all manner of affecting agencies that drift in and out of a somnambulistic disposition. Indeed, *everything is a society*. The agency of others, and the agency of other things, intertwines, as such, with an impression of our own volition countered by an insensibility to the way our desires are excited and appropriated into social inventions, and how we become part of a repetitious and

imitative rhythm of life. Importantly, human freewill and biological inclinations are regarded by Tarde as inseparable. As he puts it:

> Nothing… is less scientific than the establishment of this absolute separation, of this abrupt break, between the voluntary and the involuntary, between the conscious and unconscious. Do we not pass by insensible degrees from deliberate volition to almost mechanical habit? [83]

Neuromarketing

Over a hundred years later and Tarde's notion of the inseparability of voluntary and involuntary behavior is becoming central to biopolitical endeavors to organize consumptive labor. Just as Thrift argues that the contemporary exercise of biopower evident in network science closely follows a Tardean trajectory, [84] the so-called neuromarketing expert claims to be able to measure the inseparable and anesthetized degrees between conscious and unconscious consumption. Drawing on recent inventions in neuroscience to inform such business enterprises, the neuromarketing expert claims to be able to gauge the spontaneous flows of consumer passion for services, brands and products. With ready access to advanced emotional recognition software and affective dataflows collected from the "user testing" of consumption experiences increasingly delivered online and through mobile devices, these highly qualified experts endeavor to prime environments for future purchase intent. Blending eye tracking software with electroencephalography (EEG) and galvanic skin response (GSR), companies like Berkley based *NeuroFocus* not only measure a consumer's

cognitive attention and memory retention, but claim to directly tap into what a consumer "feels about a product." [85] The combination of eye movement with the measurement of electrical activity in the brain, heart rate, and skin temperature to effectively record a user's emotional arousal during consumption, supplants the subjective inaccuracies of older marketing techniques of self-reporting, like questionnaires, surveys and focus groups.

Another innovation from the Danish company *iMotions* flags a distinct Tardean turn in market research technology. Distinct from slightly older methods that tended to measure either *voluntary attention* (bodily gestures, orientation, voice intonation, eye contact and evasion, and nervous responses) or *involuntary inattention* (increases in heart, pulse and breathing rates, and body temperature and sweating) the *Emotion Tool* claims to tap into the relation between the two. It targets, as such, the space in between the *implicit*, unconscious part of the brain (the limbic system), which is widely recognized as being hardwired to the nervous system and physical reactions, and the *explicit*, conscious system (the frontal cortex) associated with cognitive attention. It is the somatic memory, physical responses and emotions of the implicit system that are supposed to prime or guide the explicit system. [86] As the developer of the *Emotion Tool* claims:

> It is now generally accepted that emotions dominate cognition, the mental process of the ability to think, reason and remember. Therefore, there is a rapidly increasing interest in methods that can tap into these

> mostly subconscious emotional processes, in order to gain knowledge and understanding of consumer behavior. [87]

The *Emotion Tool* tracks facial expressions, particularly those that occur around the eyes, the amount of blinking, the duration of the gaze, along with pupil dilation to measure emotional engagement. It further incorporates an algorithmic assessment of two dimensions of the emotional responses captured by the technology: *emotional strength* and *affective valence*. The first gauges the level of excitement an external stimulus provokes in the consumer, the second, measures the feelings that follow the stimulus - the degree of attraction or aversion that an individual feels toward a specific object or event. Scores are calculated from a range of pleasant, unpleasant, or neither pleasant nor unpleasant. High scores are defined as "affective," low scores "unaffective."

Neuromarketing ushers in new methods of persuasion designed to sidestep the cognitive realm of visual representation and tap into the implicit, unconscious affective systems of consumption. Over and above focusing on what a consumer cognitively consumes in terms of visual attention (assumed to be atop of the Kantian hierarchy of the senses), neuromarketers measure the streams of affect the user somatically absorbs in the atmosphere. As the enthusiastic CEO of *NeuroFocus* puts it, a combination of techniques helps the marketer to go beyond conscious consumer engagement with a product and actively seek out what unconsciously attracts them.

> Absorption is the ideal because it signifies that the consumer's brain has not only registered your marketing message or your creative content, but

> that the other centers of the brain that are involved with emotions and memory have been activated as well. The latest advances in neuroscience have revealed that all three of these key elements - attention, emotion and memory retention - are essential to the formation of what we call "persuasion"- which in turn means purchase intent. [88]

This inherently Tardean appeal to the indivisible neurological space between volition and mechanical habit suggests that "subliminal advertising," as Thrift notes, "does work." [89]

Resistance to Imitation?

Indeed, the biopolitical and biophilosophical implications of these many attempts to contaminate mood by appealing to the intersection point at which social encounter and biological hardwiring meet are far reaching. With a similar focus on contagious empathic transfers, particularity those established in echoic relations with objects of art, Barbara Maria Stafford makes, as such, a radical intervention into the old dichotomy between rational freewill and ideological false consciousness. [90] By noting how the imitative relation with the other begins entirely with the involuntary encounter, she combines the mirror neuron hypothesis with an implicit Tardean perspective. This is perhaps how humans co-exist with nonhuman agents. Not so much by way of the battle lines of microbial warfare, but through the contamination of mood. Markets, marketers and politicians are, it seems, beginning to fathom out how to more effectively recognize and reproduce affective atmospheres able to ripen the social mood and make it ready for capricious contagious overspills. Horrendous as these neurological contagions may seem

to be, the potential to discern spontaneous epidemic flows of affect, to educate the senses, and become decontaminated from empathic and mesmeric transfers, at least provides a possible path of resistance to the horrors of such a dictatorship. There are indeed a number of authors who have approached the subject of counter-contagion and by way of concluding this essay I will briefly refer to the various ideas put forward.

The question of how to resist imitation-suggestibility is of course complicated by Tarde's insistence that what spreads contaminates the entire affective valence of the emotional landscape. So while Teresa Brennan and Michael Hardt have forwarded love as a way of learning to feel the sensations of others and discern the negative affect of a love gone bad, [91] the virality of a Tardean love seems to evade the power of loving attention. Viral love can, like a hypnotist, steer unconscious desires and fascinations, guiding attention and influencing beliefs and decision-making processes by way of visceral contamination.

Nonetheless, Thrift points to a potential resistance movement actualized from within the biopolitics of imitation: a social invention organized around the very "speed and imitative capacities" of the networks that function otherwise to denigrate democracy.[92] What this infers is a counter politics of imitation that spreads not by way of love, but similarly through sympathy.[93] We might consider here attempts to trigger counter-contagions in the shape of vigils, gathering protests, online petitions, and campaigns and fund raising. Yet, once again, Tarde's skepticism concerning counter-imitation needs to be noted.

> In counter-imitating one another, that is to say, in doing or saying the exact opposite of what they observe being done or said, they are becoming more and more assimilated, just as much assimilated as if they did or said precisely what was being done or said around them… there is nothing more imitative than fighting against one's natural inclination to follow the current of these things, or than pretending to go against it. [94]

In short then, in becoming an adversary, one simply becomes more associated in the assemblage of imitation. This is how, Tarde contends, in the process of nonverbal communication, opposing facial expressions do not simply oppose people, but unconsciously associate them in an assemblage of imitation and counter-imitation. One way in which we might become disconnected from this associative chain is through the suppression of empathy and refusal to engage in the transmission of affects, emotions and feelings of others. But of course Tarde does not accept the Kantian proposition of apathy. Such a break in communication with the outside word is regarded as impossible. On the contrary, in order to break from these associative chains he makes a crucial distinction between counter-imitation and non-imitation. [95] In sharp contrast to sympathy, empathy, and indeed apathy, Tarde's non-imitation is achieved through pure antipathy. This is not therefore a disconnection or non-social relation, but it non-imitation of, and thus anti-social relation with a "neighbor who is in touch."[96]

What Tarde proposes as an alternative seems to counter intuitively reject Hardt's love of difference as way to achieve spontaneous democracy insofar as he offers a distinctly

cognizant "refusal . . . to copy the dress, customs, language, industry, and arts which make up the civilization of [this or that] neighborhood."[97] Non-imitation requires a constant assertion of antagonism, "obstinacy," "pride," and "indelible feelings of superiority," that empowers and produces a "rupture of the umbilical cord between the old and the new society."[98] It involves a declaration that all other societies are "absolutely and forever alien," and an undertaking to never reproduce the rights, usages, and ideas of any other society. It is indeed non-imitation that Tarde contends purges the social of the contagions of the other. It is only after this purge that old customs can be replaced by truly new fashions. For Tarde then, it is the long term maintenance of non-imitation which ensures that those who wish to resist the contagions of the present political climate will in a moment of spontaneous revolution "no longer find any hindrance in the way of [their own] conquering activity."[99]

To be continued…

Endnotes

[1] Robert Baer, "This Deadly Virus: in a searing analysis of the wave of suicide bombings, former CIA agent Robert Baer warns Britain of the grave dangers ahead," *The Observer*, August 7th, 2005.

[2] Jussi Parikka, *Digital Contagions. A Media Archaeology of Computer Viruses*, (New York, Peter Lang, 2007), 93-96.

[3] Clive Thompson, "Is the Tipping Point Toast?" *Fast Company Magazine,* February 1st, 2008 http://www.fastcompany.com/magazine/122/is-the-tipping-point-toast.html (accessed 13th July, 2010).

[4] Eugene Thacker, "Cryptobiologies," *ArtNodes: E-Journal on Art, Science and Technology*, 6 Nov, 2006 http://www.uoc.edu/artnodes/6/dt/eng/thacker.html (accessed on 29th June, 2010).

[5] This article is based on an earlier response to Eugene Thacker's position paper forwarded to the *Exploring New Configurations of Network Politics* conference held in Cambridge in March 2010. See Eugene Thacker, "On the Horror of Living Networks," posted to the *conference* website, http://www.networkpolitics.org/request-for-comments/dr-thackers-position-paper (accessed on 29th June, 2010).

[6] Gustave Le Bon, *The Crowd: A Study of the Popular Mind* (New York, Dover, 2002); Gabriel Tarde, *Social Laws: An Outline of Sociology*, trans. H.C. Warren (New York, London, Macmillan, 1899), Gabriel Tarde, *The Laws of Imitation*, trans. E.C. Parsons (New York, Henry Holt and Company, 1903); and Gabriel Tarde, *Psychologie Économique*, (Paris, Bibliothèque de Philosophie Contemporaine, 1903). Part of *Psychologie Économique* is translated by Alberto Toscano in *Economy and Society*, issue 36 no. 4, November, 2007.

[7] Eugene Thacker, *Exploring New Configurations of Network Politics***.**

[8] Ibid.

[9] Ibid.

[10] Michel Foucault, *Madness and Civilization: A History of Sanity in the Age of Reason* (London, Routledge, 1989), 3.

[11] As Thacker argues, "[i]n this regard nothing is more exceptional than the inability to distinguish between epidemic and war, between emerging infectious disease and bioterrorism." Eugene Thacker, "Living Dead Networks," *Fibreculture: Internet Theory, Criticism, Research* 4 (2005). http://journal.fibreculture.org/issue4/issue4_thacker.html (accessed on 29th June, 2010).

[12] Roland Barthes, *S/Z* (London, Cape, 1974).

[13] George Lakoff, *The Political Mind: Why You Can't Understand 21st-Century American Politics with an 18th-Century Brain* (New York, Viking, 2008).

[14] Ibid., 39-40.

[15] Ibid., 28.

[16] Ibid., 41.

[17] Antonio Damasio, *Descartes' Error: Emotion, Reason, and the Human Brain*, (London, Vintage, 2006), xxii.

[18] Mirror neurons are located in the area of the brain called f5 which fires in response to the affects of others. Mirror neurons fire more effectively in face-to-face encounters, when there is a need to comprehend, or "mind read" the "intentions of others," but they amount to more than simply recognizing a face. On the one hand, they lead to the automated copying of emotions, like joy, sadness or distress. On the other hand, they fire following the avoidance of face-to-face contact, as people tend to do when lying, or following the interruption of stable emotional signals through

surprise, shock and a failure to predict. See Barbara Maria Stafford, *Echo Objects: The Cognitive Work of Images* (Chicago, University of Chicago Press), 75-81.

[19] David Patrick Houghton, *Political Psychology: Situations, Individuals, and Cases* (London, Routledge), 143-154. Dr. A. K. Pradeep, "Persuasion: The Science and Methods of Neuromarketing," industry whitepaper published on *NeuroFocus* website (September, 2007) http://www.neurofocus.com/pdfs/NeuroFocusWhitePaper_Persuasion.pdf (accessed 29th June, 2010).

[20] Eugene Thacker, "On the Horror of Living Networks."

[21] Lakoff, 56.

[22] Teresa Brennan, *The Transmission of Affect* (Ithaca, London, Cornell University Press, 2004), 62-63.

[23] Ibid., 49.

[24] Ibid.

[25] As Deleuze infers, it is best not to confuse affect with such phantasy. Gilles Deleuze, *Two Regimes of Madness: Texts and Interviews 1975-1995*, (New York, Semiotext(e)), 102.

[26] See Tony D Sampson, *Virality: Contagion Theory in the Age of Networks* (Minneapolis, University of Minnesota Press, due 2012).

[27] Teresa Brennan, 32.

[28] Gabriel Tarde, *The Laws of Imitation*, trans. E.C. Parsons (New York, Henry Holt and Company, 1903), 80.

[29] As Tarde puts it: "[i]t is a great mistake to say that populations are controlled by fear alone… [I]n spite of frequent epidemics of panic, hope is certainly more catching than terror." Ibid., 196.

[30] Ibid., 202.

[31] Ibid.

[32] Obama images archived at: http://flickr.com/photos/barackobamadotcom/sets/72157608716313371/ (accessed on 29th June, 2010).

[33] Specific Obama image and flickr user comment archived at: http://www.flickr.com/photos/barackobamadotcom/3008254887/ (accessed on 29th June, 2010).

[34] Global Project, "Behind this victory, the great multitudinarian struggle," an interview with Antonio Negri, *Global Project* website, http://archive.globalproject.info/art-17685.html, translation archived at: **http://anomalia.blogsome.com/2008/11/06/negri-obamas-victory-the-multitude/** (accessed on 29th June, 2010).

[35] Michael Hardt, "Love as a Political Concept," a lecture for the *European Graduate School*, 2007 http://www.youtube.com/watch?v=ioopkoppabI (accessed 2nd September 2008).

[36] Nigel Thrift, *Nonrepresentational Theory: Space/Politics/Affect* (London, New York: Routledge, 2008), 139.

[37] Nigel Thrift, "Pass it On: Towards a Political Economy of Propensity," paper presented at the *Social Science and Innovation Conference* at the *Royal Society of the Arts* (RSA), London, UK, February 11th, 2009), 8. http://www.aimresearch.org/uploads/File/Presentations/2009/FEB/NIGEL%20THRIFT%20PAPER.pdf (accessed on August 3rd, 2009).

[38] Teresa Brennan, 74.

[39] Eugene Thacker, "Living Dead Networks".

[40] Paul Marsden, "Forefathers of Memetics: Gabriel Tarde and the Laws of Imitation," *Journal of Memetics: Evolutionary Models of Information Transmission*, 4 (2000) http://jomemit.cfpm.org/2000/vol4/ marsden_p.html (accessed on December 10th, 2007).

[41] Richard Dawkins, *The Selfish Gene* (Oxford, Oxford University Press, 1976).

[42] Susan Blackmore, *The Meme Machine* (Oxford, Oxford University Press, 1999).

[43] Ibid.

[44] Teresa Brennan, 74.

[45] This all contrasts starkly with Tarde's critique of the Darwinist emphasis on a biological form of struggle and opposition at the expense of cross-breeding and hybridization. See Bruno Latour and Vincent Antonin Lépinay, The *Science of Passionate Interests: An Introduction to Gabriel Tarde's Economic Anthropology* (Chicago, Prickly Paradigm Press, 2009), 36. Moreover, even critics from within memetics point to a failure to locate an equivalent code mechanism at work in

cultural environments. As Dawkins argues, unlike the gene, the meme has yet to find its Crick and Watson. See Richard Dawkins cited in Susan Blackmore, xii.

[46] Teresa Brennan, 74.

[47] See a similar discussion in Tony D Sampson, "Error-Contagion: Network Hypnosis and Collective Culpability," in Mark Nunes (ed.), *Error: Glitch, Noise, and Jam in New Media Cultures* (New York, London, Continuum, 2010), 239-240.

[48] Émile Durkheim, *The Rules of the Sociological Method* (New York, The Free Press, 1982 [1884, 1895]), trans. W. D. Halls, 129.

[49] Robert Keith Sawyer, *Social Emergence: Societies as Complex Systems* (Cambridge, New York, Cambridge University Press, 2005), 1–9, 63–124; Elias L. Khalil and Kenneth Ewart Boulding (eds.), *Evolution, Order and Complexity* (London, Routledge Taylor & Francis Ltd, 1996); Jennifer M. Lehmann, *Deconstructing Durkheim: A Post-Post-structuralist Critique* (London, New York, Routledge,1993), 129; N. J. Enfield and Stephen C. Levinson (eds.), *Roots of Human Sociality: Culture, Cognition and Interaction* (Oxford, New York, Berg, 2006), 377.

[50] Robert Keith Sawyer, *Social Emergence: Societies as Complex Systems,* 105.

[51] Eugene Thacker, "Networks, Swarms, Multitudes: Part Two," CTheory.net (2004) http://www.ctheory.net/articles.aspx?id=423 (accessed on 29th June, 2010).

[52] Émile Durkheim, *The Elementary Forms of the Religious Life*, trans. Joseph Ward Swain (London, George Allen & Unwin Ltd, 1915), 444.

[53] Eugene Thacker, "Networks, Swarms, Multitudes: Part Two."

[54] As Deleuze and Guattari contend, Tarde's associations had nothing to do with either collective or individual representations, but pertain instead to a flow or a wave. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus* (London, New York, Continuum, 1987), 218-219.

[55] Gabriel Tarde, *The Laws of Imitation*, 109.

[56] Nigel Thrift, *Nonrepresentational Theory: Space/Politics/Affect,* 220-254.

[57] See further discussion in Tony D Sampson and Jussi Parikka, "Learning from Network Dysfunctionality: Accidents, Enterprise and Small Worlds of Infection," Conference Proceedings, *ISEA 2010 RUHR: 16th International Symposium on Electronic Art*.

[58] Alexander R. Galloway and Eugene Thacker, *The Exploit: A Theory of Networks* (Minneapolis, London, University of Minnesota Press, 2007), 27.

[59] Alex Galloway's position paper for the *Exploring New Configurations of Network Politics* conference http://www.networkpolitics.org/request-for-comments/alexander-r-galloways-position-paper (accessed 8th July 2010).

[50] Duncan Watts, *Six Degrees: The Science of a Connected Age* (London, Vintage, 2003), 50.

[61] Bruno Latour, "Gabriel Tarde and the End of the Social," *The Social in Question: New Bearings in History and the Social Sciences*, Patrick Joyce (ed.), (London, Routledge, 2002), 117-132. Version at: http://www.bruno-latour.fr/articles/article/082.html (accessed July 09).

[62] Nigel Thrift, *Nonrepresentational Theory: Space/Politics/Affect*, 110.

[63] Ibid., 110-111.

[64] It is Deleuze who notes the importance of finding the appropriate abstract diagram. A diagram that can both exercise a force (or many forces of relation) on the social field and display these relations between forces that determine features and functions apparent in the field. Gilles Deleuze, *Foucault* (London, Athlone Press, 1988), 36, 34-44.

[65] Sean Dodson, "Was software responsible for the financial crisis?" *The Guardian,* Thursday 16th October, 2008 http://www.guardian.co.uk/technology/2008/oct/16/computing-software-financial-crisis (accessed 12th July, 2010).

[66] Brian Massumi, *Parables of the Virtual: Movement, Affect, Sensation*, (Durham and London, Duke University Press, 2002), 86.

[67] Ibid.

[68] Gabriel Tarde, "Economic Psychology," translated by Alberto Toscano, *Economy and Society*, 36(4), November 2007, 633.

[69] Ibid.

[70] Ibid.

[71] Capitalism has a long history of such bubble building events. See for example Sadie Plant's account of Tulipomania in the 1630s in her Foreword to *The Spam Book: On Viruses, Porn and Other Anomalies From the Dark Side of Digital Culture*, Jussi Parikka and Tony D Sampson (eds.),vii-x.

[72] Bruno Latour and Vincent Antonin Lépinay, *The Science of Passionate Interests: An Introduction to Gabriel Tarde's Economic Anthropology*.

[73] Nigel Thrift, "Pass it On: Towards a Political Economy of Propensity," 3.

[74] Ibid.

[75] As Tarde puts it: We see specific desires that have been excited or sharpened by certain inventions or practical initiatives, each of which appears at a certain point from which, like a luminous body, it shoots out incessant radiations which harmoniously intersect with thousands of analogous vibrations in whose multiplicity there is an entire lack of confusion… The order in which these inventions or discoveries appear and are developed is, in a large measure, merely capricious and accidental; but, at length, through an evitable elimination of those which are contrary to one; another (i. e., of those which more or less contradict one another through some of their implicit propositions), the simultaneous group which they form becomes harmonious and coherent. Viewed thus as an expansion of waves issuing from distinct centers and as a logical arrangement of these centers and of their circles of vibration, a nation, a city, the most humble episode in the so-called poem of history, becomes a living and individual whole. Gabriel Tarde, *The Laws of Imitation*, 109.

[76] Nigel Thrift, "Pass it On: Towards a Political Economy of Propensity," 19.

[77] Gabriel Tarde, "Economic Psychology," 620.

[78] Nigel Thrift, "Pass it On: Towards a Political Economy of Propensity," 18.

[79] Ibid.

[80] Ibid.

[81] Ibid., 18-19.

[82] Ibid., 18.

[83] Gabriel Tarde, *The Laws of Imitation*, xi.

[84] Nigel Thrift, "Pass it On: Towards a Political Economy of Propensity," 24.

[85] Dr. A. K. Pradeep, "Persuasion: The Science and Methods of Neuromarketing."

[86] Jakob de Lemos, "Measuring Emotionally 'Fuelled' Marketing," *Admap Magazine*, Issue 482, April 2007, 40-42.

[87] Gabriel Tarde, "Economic Psychology," 631-632.

[88] Ibid.

[89] Nigel Thrift, "Pass it On: Towards a Political Economy of Propensity," 22.

[90] Barbara Maria Stafford, *Echo Objects: The Cognitive Work of Images*, 76-77.

[91] Teresa Brennan, *The Transmission of Affect,* 23.

[92] Nigel Thrift, *Nonrepresentational Theory: Space/Politics/Affect*, 253.

[93] Ibid.

[94] Gabriel Tarde, *The Laws of Imitation*, preface to Second Edition, xvii

[95] Ibid., xix.

[96] Ibid.

[97] Ibid.

[98] Ibid.

[99] Ibid.

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