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Web of resistance: Deleuzian digital space and hacktivism

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This article argues that the Internet possesses the potential to challenge corporate and Statist domination of digital space. Mapping Gilles Deleuze and Felix Guattari's concepts of the rhizome, smooth/striated space, and the nomad onto the idea of digital connectivity, I show how hacktivism can initiate change both online and off. In the first section, I argue that the Internet is characteristic of a rhizome. As a rhizome, the Internet's structure affords it a flexible, morphological, and ultimately a vibrantly powerful configuration. As a result of its connective and generative power, corporate and State entities seek to control digital space. These controlling institutions stratify, segment, and claim ownership over the flat, smooth space. The second section, then, shows how the Internet becomes striated through corporate and State interests. As a remedy, the third section advocates for hacktivism as a form of nomadic action. In this section, I focus on the Distributed Denial of Service attack as a form of deterritorialization that redistributes the flow of information. Acting as a digital *machine de guerre* engaging in online direct action, and against the legal apparatus of the State, hacktivists create a rupture in the rhizomatic structure and form smooth spaces within a striated network. In the final section, I advocate for sustained smooth digital spaces that allow for new modes of association that radiate outward from the digital to the physical world.

Keywords: rhizome; Internet; *machine de guerre*; hacktivism; digital space; DDoS; resistance

> There is no need to fear or hope, but only to look for new weapons.
>
> Gilles Deleuze, "A Postscript on the Societies of Control"

The Internet has led to unprecedented levels of connectivity around the world. People are able to maintain contact with distant friends and family, read news from disparate parts of the world, and access vast amounts of information and knowledge with minimal effort. Through its profound level of connectivity, the digital spaces of the Internet possess the capability to unite large groups of people around a single cause or help rally support for protests and other forms of resistance. However, the effectiveness of online organization and protest, and the trend of online social justice more generally is a hotly contested issue (Berlatsky, 2015; Carr, 2012). While connectivity can generate empowerment through a multiplicity of voices and so-called "hashtag activism" can bring social justice issues into daily discourse, the power of the Internet to develop organically and to create new forms of knowledge and associations across the arts,

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sciences, and various modes of existence is suppressed by the corporate and state control of digital space.

Corporations rely upon the Internet for sales, marketing, branding, communication, and interfacing with the consuming public. Similarly, governments maintain a large online presence and devote large amounts of money for online surveillance and "national security." Corporations and States utilize various mechanisms as a means to dominate digital space and control online traffic. These elements of control function both invisibly and in plain sight and affect the structure of the Internet, consequently mitigating users' freedom to control their online destinations and paths. Nevertheless, the Internet can be a space that challenges these controlling institutions and ultimately changes perceptions in the physical world. Due to the deep connectivity that the Internet offers, coupled with the important role it plays in everyday operations, there is a growing necessity to create digital spaces that are free from controlling institutional powers. As such, there is an urgency to mount resistance against the ever-increasing corporate/State regulation, striation, and surveillance of space both digital and physical. In the following analysis, I look at the ways in which the Internet functions as a space of challenge through hacktivism, or direct digital action. Using Gilles Deleuze and Felix Guattari's concepts of the rhizome, smooth and striated space, and the nomad, I argue that through its spatial construction and connectivity, the Internet possesses the ability to openly challenge oppressive institutions through establishing smooth digital spaces and deterritorializing controlled corporate-Statist striated spaces.

The rhizomatic Internet

The earliest iterations of the now ubiquitous "Internet" began with ARPANET, which was only accessible at various hubs, often located at military bases, large tech companies, and universities. As personal computing gained popularity in the late 1970s, more people began developing software and sought to connect with each other. The 1980s saw non-programmers buying computers for their home (i.e. the Apple IIe). By the early 1990s, computers had become standard in schools and in the homes of many middle-class Americans. With the rapid rise of personal computing, the desire to connect grew; initial iterations of online connectivity brought Internet Relay Channels (IRCs) and Bulletin Board Systems (BBSs). However, early web pages were static and only provided standard information on a topic with little user interaction. Until the introduction of hypertext, pages did not connect to other content directly but might reference different domain names that had to be entered directly into the browser. In this early manifestation of the Internet, users were primarily consumers of content and could not directly interact with each other or the content on the page (with the obvious exceptions of the IRCs and BBSs). As developers began devising new technologies, web development quickly increased connectivity not just from person to person via IRCs and BBSs, but through hypertext, interconnected web pages, social media, and live chat. With the introduction of hypertext, developers and critics began to see the Internet as structurally different: a digital rhizome. A term borrowed from organic, underground plant structures, Deleuze and Guattari's (1987) rhizome is a concept of spatial interconnectivity. The rhizome is a radical departure from traditional ways of thinking, writing, and ultimately understanding the world; the conceptual rhizome is premised on the existence of broad but relatable connections among seemingly disparate concepts, objects, or entities as opposed to isolated singular constructions that arose completely independently, disassociated from anything previous. As early as 1993, Kathleen

Burnett theorized that hypertext exemplifies the rhizome by embedding and linking ideas, concepts, and related web content together. More recently, Leandro Viera and Marcos Ferasso made the case for the Internet's rhizomatic structure, concluding that the Internet is:

> full of lines and points that connect to each other continuously, links, multiple entryways and exits, aggregating structures that sometimes accrete into *bulbs* and sometimes into *tubercles*; sometimes they break and form new lines, new pathways and may reappear in other coordinates of the virtual universe. (2010, p. 557)

Like the organic rhizome, the Internet is malleable and ever changing.

The Internet's pliability powers its connectivity. Deleuze and Guattari write: "A rhizome ceaselessly establishes connections between semiotic chains, organizations of power, and circumstances relative to the arts, sciences, and social struggles" (1987, p. 7). Computer code serves as a semiotic chain acting as an entryway to various organizations of power, brought together through the connective structure of the Internet. Because of this complex, morphing structure of the Internet, there is no singular "center" of the Internet but rather multiple strategically interconnected network and router centers – hosted by commercial, government, and academic institutions – that support the majority of Internet traffic, referred to as the Internet backbone. As Tim Jordan and Paul Taylor explain:

> The Internet is centralised because it uses a translation between numbers and letters to define the location of Internet resources. When someone types www.open.ac.uk into their browser then these letters are automatically translated into numbers such as 192.177.02.5, which the Internet's routers and computers then use to identify the resource being requested. This allows people to work mainly with letters and computers with numbers, each playing to their respective strengths. However, a central database is also needed to ensure numbers and letters match each other. (2004, p. 101)

Again, this "central database" is not an absolute center with a singular location from which all things digital emanate, but rather consists of 13 interconnected primary root Domain Name Systems (DNS) scattered throughout the world. While Internet traffic must, to some degree, pass through a DNS, this is not a singular route – there are many avenues available. From these DNSs, new smaller centers may arise creating longer interconnected branches that envelope and embrace each other, forming a large interconnected network.

Deleuze and Guattari further state that the rhizome possesses the principles of multiplicity and asignifying rupture. Multiplicities, they argue, are "flat," like a geometrical plane, and are only defined by "the abstract line, the line of flight or deterritorialization according to which they change in nature and connect with other multiplicities" (1987, p. 9). A rhizome is not a singular entity with only one use, rather it has multiple functions that are constantly changing, fluctuating, redefining, and morphing based on need, desire, and participation. We use the terms "Internet," "Web," and to a lesser degree, but with important lexical attributes, "cyberspace," to attempt to unify the multiplicity that is online content and connectivity. Due to the deep connectivity of online content, the multiplicity changes with the addition and subtraction of content. The shifting of the multiplicity occurs, in part, through the related principle of asignifying rupture. This principle states that the rhizome may be broken up, split or "shattered at a given spot, but it will start up again on one of its old lines, or on new lines" (1987, p. 9). The rhizome may rupture, or a facet of the rhizome may rupture, but this only gives birth to a new aspect of the rhizome, producing new potentialities previously not realized, or

what Deleuze and Guattari call "lines of flight." Through the connectedness of the Internet, new websites, links, videos, files, and content are created by the very nature of interaction with previous content; one website may cease to exist, but a new one with similar content may appear. Or more radically, a new site begins through an expansion of previous ideas or concepts (consider how a site like Buzzfeed exists because a social media site like Facebook exists). Both of these principles of multiplicity and asignification posit a necessary spatialization contained in the conceptual and practical "Internet."

The principle of mapping further refines the spatiality of the Internet. Deleuze and Guattari contrast mapping with tracing. Cartography, they argue, allows for a new vision of something known, for new connections between entities that are revealed through novel exploration. They write:

> What distinguishes the map from the tracing is that it is entirely oriented toward an experimentation in contact with the real … The map is open and connectable in all of its dimensions; it is detachable, reversible, susceptible to constant modification. It can be torn, reversed, adapted to any kind of mounting, reworked by an individual, group, or social formation. It can be drawn on a wall, conceived of as a work of art, constructed as a political action or as a meditation. (1987, p. 12)

The malleability of the map affords the rhizome its power. The cartographic nature of the rhizomatic Internet is twofold. First, as noted, the terms "Net" and "Web" not only lend themselves to the connectivity of online content, but they also suggest cartography: a mapping of online content that can be followed and/or plotted. The mapping of online content on a small scale, such as a website, serves as "experimentation in contact with the real." Something as simple as checking the hours of a business online leads to a material effect. In this case, the website performs as a map plotting movements and connecting both digital and physical entities: the content (i.e. hours of operation) helps determine movement in physical space. On a larger scale, the Internet maps various ideas, places, businesses, videos, blogs, and information through links. As Martin Speer notes:

> The possibility to connect every linking point with another one inside a closed web production is enhanced by interlinking it with archived material (that is, *enhancing spatial depth* and compressing historic time) … The number of possible *paths* increases and becomes nearly incalculable as hyperlinks interconnect sentences or words or images with different net archives or web productions *across the whole globe.* (2014, p. 52, my emphasis)

Not only does Speer posit the cartography of the Internet ("enhancing spatial depth" through newly developed "paths"), but also the ways in which the Internet maps global points through informational nodes. In other words, a place on the Internet (say the *Journal for Cultural Research* website) unifies people from various points in the world, thus creating a new map based on information and knowledge acquisition. In a more radical sense, digital content is mapped onto the physical world where the flow between the digital and the physical feed each other by creating new ways of thinking and acting, changing the way the world functions through experimentation. This type of cartography can create new lines of flight that could change the rhizomatic structure of the Internet, as well as create new immanent affects. Mapping in this sense touches on the second aspect of the cartographic nature of the Internet.

The Internet can be a map of an individual's interests, behavior, desires, politics, and ethics. More than simply viewing someone's search history, the networking

functions of the Internet allow for individuals to be tracked, traced, and watched. The Internet Protocol (IP) address of every computer can be attained with relative ease and monitored to reveal online behaviors and interests. Through mapping a person's online browsing habits, a map can be drawn to create a more full picture of an individual's cognitive/libidinal landscape. The rhizomatic Internet does not just connect digital places but also connects individuals to those places: we are part of the rhizome. As part of the rhizome, we bridge the digital and the physical or what Deleuze and Guattari call "intensities." Intensities are spatio-temporal events actualized in states of affairs. Even when we are not online, digital content affects our thoughts, communication, and interactions. Bernd Frohmann notes the importance of these affects:

> From the perspective of affects, the question is not, for example, about the effects of the Internet on a person, group, institution, or place (locality), but about the intensities generated by digitally mediated connections between bodies that make it possible for bodies to change, mutate, and become capable of new actions in new assemblages. (2007, p. 62)

The virtual (in both the Deleuzian and colloquial senses) and the immanent are intimately tied together, allowing the rhizome to spread beyond its digital manifestation in new forms of becoming and possibility.

Herein lies the power and importance of the rhizomatic Internet. With its decentered, morphological, and cartographic configuration, the Internet possesses the ability to connect people in novel ways, enhance new ways of approaching the lived world, and be a site of radical possibility. Due to the productive power of the rhizome, desire to control the power, and therefore the structure of the Internet, makes it a contested space. The Internet's spatiality goes beyond the idea of "cyberspace" and directly affects digital activism's ability to be productive, useful, and coherent.

The spatial Internet

Deleuze and Guattari discuss space in two ways: smooth space and striated space. They describe smooth space as "space that is occupied without being counted" and striated space as space that is "counted in order to be occupied" (1987, p. 362). They continue:

> Smooth space is a field without conduits or channels. A field, a heterogeneous smooth space, is wedded to a very particular type of multiplicity: nonmetric, acentered, rhizomatic multiplicities that occupy space without "counting" it and can "be explored only by legwork". (1987, p. 371)

Striated space is segmented, partitioned, and stratified as a means to utilize the space to a desired end. Smooth space, on the other hand, remains open, accessible, and malleable.

Mark Nunes attempted to read the digital space of Internet in terms of smooth and striated space:

> "The variability, the polyvocality of directions" that Deleuze and Guattari associate with the rhizome and smooth space equally describes the topography of hypertext: a "localized and not delimited" variable cartography (382). In place of the "relative global" of the cybernetic city, the World Wide Web's hypertextual links create a nomadic "local absolute" (382). (1999, p. 70)

To Nunes' credit, he was writing at the time when so-called Web 2.0 was emerging, bringing increased connectivity via hypertext, social networking sites more advanced than the BBSs, and new scripts that allowed for video. Nunes saw the potential for a

hyperlinked web but overestimated its smoothness. Nunes importantly identifies that hypertext can expose "a nomadic information space by providing an interface that allows users to "move" in a non-linear or multilinear fashion" (1999, p. 69). However, non- or multilinear navigation occurs where links are provided by the website designer who controls where the links direct the user; thus, this movement is not without some direction or channeling.[1] Online movement may also be mediated through a corporate entity, which makes determinations based on a proprietary algorithm or commercial interest. Furthermore, the construction of the sites themselves is not necessarily designed to optimize the user's experience but to include advertising, via corporately sponsored links. Most importantly, simply moving non-linearly does not necessarily make movement nomadic or create smooth space. The rhizomatic structure of the Internet allows for, if not requires, non-linear movement. However, this type of navigation is possible within striated space without changing or disrupting the configuration of that space. An analysis of Nunes' claim makes visible the perceived freedom the Internet offers: non-linear movement and connection based on a user's desires, but desires suggested, channeled, and facilitated by corporate entities.

While Nunes (1999) sees the potential of a smooth digital space, Ian Buchanan (2007) views the Internet as solely a means for consumers to satisfy commercial or material desires:

> In its first flush, the Internet seemed to be about connectedness, but that idea has since been exposed as a perhaps necessary but nonetheless impossible ideal.… [The internet] is predominantly used to search for objects, i.e. commodities, and in the case of pornography and celebrity gossip one may well say it is searching for people in their guise as commodities. A lot of quiet utopian claims have been made on behalf of the Internet, the strongest being that it has so changed the way people interact it has created a new mode of politics. But it now seems clear that it is just another "model of realisation", Deleuze and Guattari's term for the institutions capitalism relies on to extract surplus value from a given economy. (2007, para. 25)

Buchanan views the Internet as a means to satisfy cultural commodity-fetishism. He sees the web as a means of perpetuating the desire for commodities but does not value the Internet as a means of social organization or a site of protest. I will not disagree that corporations, commodities, and consumerism largely populate the Internet. In fact, I believe Buchanan makes an important point about the role of capitalism on the Internet. An overt corporate presence, an unending flow of products, and a barrage of marketing striate digital space. Furthermore, most of our interactions online are somehow mediated through corporate interests. Even if what we are doing online is not directly related to a corporation through consumerism, we use sites like Facebook to connect to friends and use Google to help navigate the digital space and find information across the vast web of "cyberspace."

The term "cyberspace," while dated, touches on an important element of not just the development of the Internet (as historical), but also the continued immanent effects of web development (as political). "Cyberspace" was first used in William Gibson's 1984 science fiction novel, *Neuromancer*. In Gibson's novel, individuals connect to "cyberspace" by linking their consciousness directly into digital networks. These people are able to navigate this space through thought without ever leaving the comfort of their chairs. While we are not traversing the Internet with solely our minds, connecting to and navigating digital networks is something quite familiar to us. The mind is capable of occupying digital spaces that are as real as the physical environment. Accessing sites such as Facebook, Twitter, or playing online role-playing games is akin to going

to a place (i.e. a bar) to meet friends, discuss issues, engage with new people, and share information. For instance, you may have an authentic interaction with a "Friend" on Facebook in which you plan to meet each other after not seeing one another for years. While this digital connection is generative and actualizes material effects, the space of this interaction is still mediated by a corporate entity. From the perspective of affects and intensities that make possible new assemblages (Frohmann, 2007), corporate social media becomes an invisible actor in communications, connections, and various types of digital interaction. In time, we will not be able to imagine digital communication without corporate mediation. Furthermore, these entities often dictate the type of communication that takes place in a designated space: they are mechanisms of control that are passively consumed and obeyed. The strictures imposed by these spaces are indicative of striated spaces, if not inherent to them. The freedom to navigate, interact, and learn online is a freedom determined, constructed, and profited on by corporations. This is precisely the corporate environment that allows Deleuze to proclaim that we "no longer pass through the old factory form" and we have entered a "society of control" (1992, p. 7). However, as I will show shortly, the Internet is not entirely reducible to Buchanan's (2007) commodity fetishism or corporately controlled striated space.

As is now common knowledge, the US government (as well as many other national and local governments) has a vast surveillance network. Tracking online behaviors is a part of the new society of control. Deleuze writes that Felix Guattari:

> imagined a city where one would be able to leave one's apartment, one's street, one's neighborhood, thanks to one's (dividual) electronic card that raises a given barrier; but the card could just as easily be rejected on a given day or between certain hours; *what counts is not the barrier but the computer that tracks each person's position – licit or illicit – and effects a universal modulation.* (1992, p. 7, my emphasis)

While Guattari's city seems dystopian, a recent article has noted,

> In the early moments of the uprising in Baltimore after police killed Freddie Gray, Baltimore city officials monitored social media. The officials labeled activists and other users, who were posting about reported rioting, protest activity, and police action, as "threats". (Gosztola, 2015)

On a global scale, the persistent threat of terrorism has grown large-scale digital surveillance of the Internet exponentially. Edward Snowden's release of NSA documents outlining PRISM brought to light the complicity of nine large Internet companies in the surveillance program (Gellman & Poitras, 2013). This revelation put to rest any doubt of intertwined corporate and State interests. This is to say, State surveillance and corporate complicity explicitly attempts to striate digital space. While we navigate through a seemingly smooth space with perceived freedom, the striations of capitalism and State surveillance remain persistently present by directing, monitoring, and redirecting the flow of Internet traffic and content. This kind of surveillance and State action certainly "effects a universal modulation" (Deleuze, 1992, p. 7). The corporate-State puts this once promising smooth space "in the service of striated space" (Deleuze & Guattari, 1987, p. 385).

Molly Sauter notes that:

> the online space is being or has already been abdicated to a capitalist-commercial governance structure, which happily merges the interests of corporate capitalism with those of the post-9/11 security State while eliding democratic values of political participation and protest, all in the name of "stability". (2014, p. 150)

Deleuze and Guattari note the restriction or barring of potentially smooth space is a probable outcome of new untested and uncontrollable knowledges produced within the smooth spaces. They write that the State may appropriate the fluid and flowing attributes of smooth space, such as non- or multilinear online navigation, as a means to assure predictable and tested outcomes (1987, p. 363). The State does this to bring the radical or revolutionary possibilities offered by smooth space under control, to "prevent turbulence" and "constrain movement," while at the same time allowing for a sense of freedom and choice (1987, p. 363). The fluidity and unrestricted movement that are inherent in smooth space, on the other hand, are developed by "turbulence across a smooth space, in producing movement that holds space and simultaneously affects all of its points, instead of being held by space in a local movement from one specified point to another" (1987, p. 363). Statist and corporate interests want to "prevent turbulence" by tracking threats and sharing information. For example, on Tuesday, 27 October 2015, the "Cybersecurity Information Sharing Act" (CISA) passed the US Senate. CISA is ostensibly designed to:

> stem the rising tide of corporate data breaches by allowing companies to share cybersecurity threat data with the Department of Homeland Security, who could then pass it on to other agencies like the FBI and NSA, who would in theory use it to defend the target company and others facing similar attacks. (Greenberg & Grauer, 2015)

However, as Andy Greenberg and Yael Grauer (2015) note, many see "CISA as a free pass that allows companies to monitor users and share their information with the government without a warrant, while offering a backdoor that circumvents any laws that might protect users' privacy." Without impeding the sense of freedom individuals have online, corporate and State complicity have striated the fluidity of the smooth rhizomatic Internet as a means to measure the threat of an individual. Or as Bernd Frohmann puts it, "Information processing capabilities permit cybernetic capitalism to manipulate electronic consumer, legal, and medical records to rationalized corporate strategies. Digital networks are thoroughly stratified by the great "molar" determinations analyzed by Deleuze" (2007, p. 69). However, these "molar determination" do not make up the entirety of the Internet. There are "molecular" spaces that go unperceived, where micro-politics attempt to deterritorialize the striated Internet of the corporate-State, and where the *machine de guerre* assembles in its heterogeneity and anonymity.

The nomadic Internet

While the Internet is dominated by large corporations, it is not a "utopian claim" to say that there are spaces on the Internet where people connect and organize to fight corporate and State hegemony. Activists of all types gather together to exchange ideas and tactics; anarchists and others with radical politics find one another to organize and speak out against States and corporations. In the recesses of the digital world (both in the Clearnet and the Darknet[2]), there are vibrant communities utilizing non-corporate modes of connecting to one another and mounting resistance to hegemonic powers. From the early days of the Internet – the World Wide Web only became widely accessible in 1993 – groups like *the electrohippies*, Cult of the Dead Cow, the Electronic Disturbance Theatre, and the Critical Arts Ensemble (CAE) engaged in various forms of online protest, direct action, and what has now become known as "hacktivism." Highly attuned to the potential effects the Internet will have on society,

the CAE commented that "[t]he new geography is a virtual geography, and the core of political and cultural resistance must assert itself in this electronic space" (1994, p. 3). While this new geography perpetually maps itself onto our lives, the digital space must also become a site of resistance: a space where the "overwhelmingly privatized nature of the internet" can be challenged and changed, a space that is not striated by corporate-Statist interests (Sauter, 2014; p. 3). Rather than tracing the geography of the Internet – a mindless navigation of websites – an overt and conscious mapping must occur. A new map may be "torn, reversed, adapted to any kind of mounting, reworked by an individual, group, or social formation" (Deleuze & Guattari, 1987, p. 12). By participating in online civil disobedience, hacktivists create a new map of the Internet by becoming nomads, deterritorializing digital space, and making striated space smooth.

Deleuze and Guattari connect their concept of the nomad, also known as the *machine de guerre*, and the State apparatus to smooth and striated space, respectively. The nomad exists in the world differently than a "citizen" of a State. The nomad's presence strips striated space of its meaning, ideology, and cultural practices, and undoes any inherent claim to ownership of the space – this is the process of *deterritorialization*. Put simply, the nomad creates smooth space through deterritorializing the Statist striated space. In response to the controlling mechanisms of the State and the State's perpetual desire to striate space, the *machine de guerre* is created or "revived":

> One of the fundamental tasks of the State is to striate the space over which it reigns, *or to utilize smooth spaces as a means of communication in the service of striated space*. It is a vital concern of every State not only to vanquish nomadism but to control migrations and, more generally, to establish a zone of rights over an entire "exterior," over all of the flows traversing the ecumenon. If it can help it, the State does not dissociate itself from a process of capture of flows of all kinds, populations, commodities or commerce, money or capital, etc.… And each time there is an operation against the State – insubordination, rioting, guerrilla warfare, or revolution as act – it can be said that a war machine has revived, that *a new nomadic potential has appeared, accompanied by the reconstitution of a smooth space or manner of being in space as though it were smooth* … It is in this sense that the response of the State against all that threatens to move beyond it is to striate space. (Deleuze & Guattari, 1987, p. 385–386, my emphasis)

There is a tension between the nomad and the State, to say the least. At a fundamental level, the nomad and the State approach space as functionally different. The nomad enjoys unfettered movement and freedom to pursue his/her interests, creating new relationships between and among undifferentiated areas. Within the striated space of the corporate-State, however, movement is policed and restricted; to enter a new space, authorization is required. However, the relationship between the nomad/State and smooth/striated space is not a simple binary alignment. The State may "utilize smooth spaces as a means of communication in the service of striated space" and the nomad introduces into striated space a "manner of being in space as though it were smooth." The State and the nomad may tread on the same space, but the uses of the space differ. The nomad's deterritorialization of striated space maps neatly onto hacktivist actions, as does the State's destructive response to nomadic hacktivism.

Early in the days of hacktivism, there was a discussion about what constitutes ethical Electronic Civil Disobedience (ECD) and hacktivist action. Abby Goodrum and Mark Manion argue that while civil disobedience is necessarily non-violent and is used to expose unethical actions by institutions, groups, or individuals, "the purpose of ECD is to disrupt the flow of information into and out of institutional computer systems" (2000, p. 51–52). To this end, they argue, hacktivism "must be shown to be politically,

i.e. ethically motivated" (2000, p. 53). Similarly, Brian Huschle argued that online civil disobedience must maintain a delicate balance between activism and revolution, in which "the agent simultaneously shows both respect for the system of law and a willingness to work within that system to bring about the desired change" (2002, p. 73). Huschle takes this a step further by emphasizing the visibility of online civil disobedience:

> We must … allow that electronic disobedience does not require the physical presence of the individual agent. We cannot, I urge, go so far as to allow the anonymity of the disobedient person. This means that those who use electronic disobedience must either operate under a real name, or if using an alias, that alias must be traceable to her. (2002, p. 78)

These discussions of hacktivism, however, came before significant changes in laws and corporate influence on federal governments designed to minimize disruption of flows and ultimately attempt to silence any form of dissent.

Currently, the Computer Fraud and Abuse Act (CFAA) of 1986 is used to prosecute instances of "hacking," in which information was stolen from a computer or a computer was damaged. The amendments of 2008, however, gave more scope to the prosecution of "hacking." Specifically, the amendments eliminated the requirements that information must have been stolen and that the action must have resulted in a loss exceeding $5,000 (Jarrett & Bailie, 2010, p. 2). These eliminations allow for a new means of counting and measuring what constitutes "hacking" and subsequently the prosecution of a wider range of actions, including DDoS attacks (discussed in more detail below). In 2010, a group of 14 people associated with the hacktivist group Anonymous were arrested for disrupting the online payment site PayPal. The website was merely made inaccessible. Nothing was stolen from PayPal servers, nor was any software or hardware damaged. PayPal merely lost revenue while the site was inaccessible. The 14 participants were found guilty of one misdemeanor count of "damaging" a protected computer (i.e. overwhelming the server) and one felony count of conspiracy; they were sentenced to pay a fine and probation after a plea agreement (Lucas, 2014). These legal changes and prosecutions exemplify "that the response of the State against all that threatens to move beyond it is to striate space" (Deleuze & Guattari, 1987, p. 386). Furthermore, in a recent article discussing hacktivism, Ashleigh Greene Wade (2015) writes:

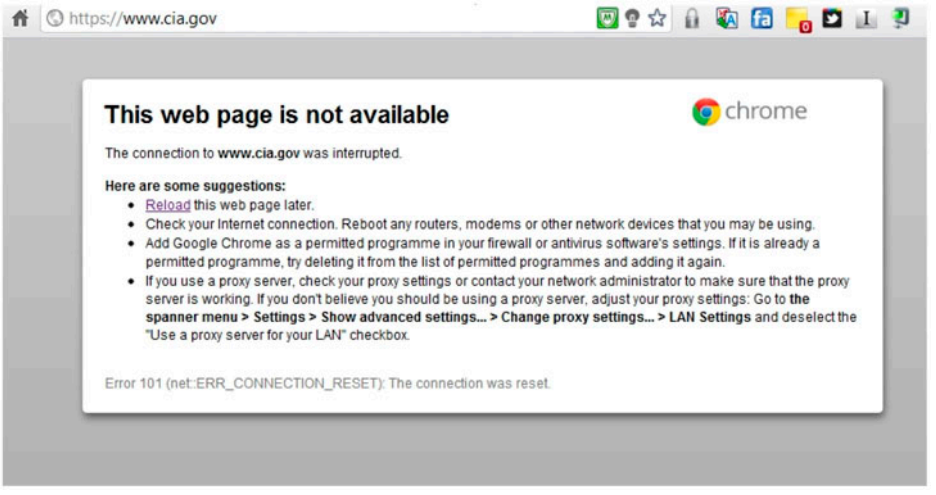
> Security discourses often conflate hacktivism and cyberterrorism, and the distinctions between the two tend to depend on one's relationship to government agencies … Though still political in nature, hacktivism, as opposed to cyberterrorism, often relies on freedom of speech and expression frameworks that empower the masses. This emphasis on power displacement provides some insight into why governments tend to place hacktivism and cyberterrorism in the same category[,] as hacktivism threatens hegemonic power.

Because of the threat they pose to hegemonic power, compounded by the ubiquity of NSA surveillance and laws that make prosecution easier, hacktivists have openly embraced anonymity on the Internet. In fact, the group Anonymous suggests that individuals use both a VPN for privacy and TOR for anonymity while online for any reason. More to the point, there needs to be a radically different Internet denizen in order to smooth the corporate-Statist digital spaces: a digital nomad that deterritorializes space as he/she passes through the increasingly policed striated space. However, for safety from laws seeking to protect corporations and mitigate dissent, these actors must be granted anonymity in order to challenge these spaces. There is, in my view, no reason to show "respect for the system of law" or a "willingness to

work within that system" when the lawmakers are not interested in protecting the rights of people (Huschle, 2002, p. 73). These laws are meant to restrict the nomadic actions of the hacktivist, by further striating digital space and prevent the nomad/hacktivist from deterritorializing the previously striated, policed spaces of the Internet. Consequently, anonymity becomes a necessary condition of the digital *machine de guerre*.

The strength of hacktivist groups like Cult of the Dead Cow, CAE, and Anonymous is that they often have no leader, no official spokesperson, and a constantly moving membership working on different projects. Due to rotating membership, a decentralized model, and a lack of corporate or State affiliation, these groups and their members function as a hoard targeting various online spaces. The group's structure, much like that of the Internet itself, is rhizomatic: they are non-hierarchical and interconnected, yet they may morph, rupture, and grow. When an operation begins, the group chooses which digital spaces, or targets to attack based on an act of maleficence. The group does not predetermine its targets: the nomad is "revived" and goes where he/she is needed. Deleuze and Guattari put a finer point on this, "the nomad goes from point to point only as a consequence and as a factual necessity; in principle, points for him are relays along a trajectory" (1987, p. 380). The trajectories for these digital nomads include the eradication of oppressive institutions, large-scale surveillance, and governmental invasion of privacy – actions undertaken as a form of social justice. When an entity commits an act deemed to infringe upon individual liberty and/or equality, hacktivists, bound by an acute sense of solidarity, are drawn to the entity's online presence. The subsequent digital attack is a point on nomadic hacktivists' trajectory. The hacktivists' presence in this digital space is a consequence, a "factual necessity" of an oppressive act. Hacktivists, through their structural organization and their guiding principles, embody the digital nomad. They are nomads who arrive at (web)sites to challenge socially damaging institutions and affect both digital and physical change.

The most common hacktivist action that requires little technological knowledge and skill, and the one I will focus on here, is the Distributed Denial of Service attack (DDoS).[3] A DDoS attack employs a large number of computers that simultaneously access one particular website over a long period of time. The effect of this type of action makes the website unavailable by overwhelming the server or, in some cases, completely shutting the server down. An individual or group can easily engage in this type of action – Anonymous frequently uses this technique to disrupt the flow of information as a form of protest or take websites offline that are viewed as threats or oppressive. As a means to create change, hacktivists will isolate a particular target and begin a DDoS attack against the target. Through DDoS attacks hacktivists very literally strip the digital space of its meaning and ideology without destroying that space. The digital space striated by a corporate or State entity is made smooth by shutting down the website, if only temporarily, and diverting Internet traffic away from the site. The website has been deterritorialized not through its absence (the site's domain name still exists, yet the content cannot be accessed), but through its changed appearance and function (see the image below from a DDoS attack on the CIA in 2012).



(Russell, 2012)

A DDoS attack can be viewed as similar to graffiti. As David Fieni points out:

> Graffiti is a fugitive set of illegal operations performed by semi-anonymous interacting bodies in motion … [T]he graffitist positions him or herself outside the law, while also writing *on* the very material surfaces of the law (property, the walls built by the state); graffiti does not simply stand outside or against the state, but always links up with the state, disfigures the representatives of the state and becomes barred by state science. (2012, p. 75)

Rather than physical bodies with cans of spray paint changing the appearance of a wall, a DDoS attack uses digital avatars and lines of code to disfigure visible websites – an action, like graffiti, barred by the State. A DDoS action attempts to occupy and hold the corporate/State striated digital space and render it smooth. The site is inhabited by something other than the State or corporate entity as a result of movement toward the site by hacktivists and produces movement away from the site by holding the space and forcing users to go elsewhere. Deleuze and Guattari point out that the nomadic trajectory "*distributes people … in an open space*, one that is indefinite and noncommunicating" (2012, p. 380). The DDoS attack redirects traffic away from the target into new spaces that are indeterminate and not obviously connected or linked. The DDoS attack creates a new map of the Internet through (re)distributed movement. This map is "constructed as a political action" that disrupts "tracing" and, in accordance with the trajectory of the nomad, creates new lines of flight (Deleuze & Guattari, 1987, p. 12). The DDoS attack is an act of deterritorialization that creates new relations, both digital and physical.

Part of the power of a DDoS attack does not solely come from the act of deterritorialization, but from the cascading effects of the website being taken offline. Because the websites content cannot be accessed – or the target attracts substantial media coverage – a larger audience of activists and non-activists come in contact with the issues hacktivists are trying to make known. While people in this larger audience might not engage in a DDoS attack, they may integrate this knowledge into their behaviors through boycotts, physical protest, petitions, or simply discussions with friends – these effects are ruptures or extensions that the attack produces due to the rhizomatic structure of the Internet. The power of DDoS attack performed by the digital *machine*

de guerre is directly related to, if not dependent upon the Internet as a rhizome. Furthermore, as Sauter notes,

> When used by political activists, disruptive tactics like DDoS actions can act as power levelers: they enable activists to funnel media and public attention to unnoticed causes and events, and as direct action tactics DDoS actions allow activists to translate their political speech into an action which demands a response. (2014, p. 147)

The threat and result of an attack shows the vulnerability of the digital space and marks both the online and physical entity as a site of resistance. Moreover, the deterritorialization of the digital geography of the Internet not only results in a reterritorialization of the digital space but creates new rhizomatic relations between the target, the physical world, and social geography more generally. For example, Anonymous disrupted PayPal's service for its refusal to provide its services to the website WikiLeaks (a position that changed after a DDoS attack). The group disabled numerous Saudi Arabian state sites to help stay the crucifixion of pro-democracy protestor Ali Mohammed Baqir al-Nimr (though this campaign is ongoing). Anonymous also helped bring the Westboro Baptist Church's antics into the national spotlight and more recently engaged in taking down websites of the so-called Islamic State. All of these actions changed belief structures, produced new knowledge, spawned physical protests, and made local oppressive actions visible globally.

In conjunction with a DDoS attack, Wikipedia pages may briefly be changed or created to address the problematic issues that caused the DDoS attack. In other words, as a result of the rupture, all traffic to the site is diverted to or distributed among secondary sites that directly inform the targeted website, its content, and the company, State, or organization as a whole. Even once the website is restored, the diverted traffic returns to the site with new or supplemental information about the target. The subsequent reterritorialization of the website cannot dissolve or completely supplant the nomadic digital deterritorialization. In short, the deterritorialization changes the rhizomatic structure by creating new lines of flight and/or flows of information that otherwise might not have occurred without the DDoS attack. Whatever the outcome, the deterritorialization of a digital presence, a redistribution of people in digital space, and subsequent reterritorialization of digital and physical space openly challenges corporate-statist oppressive actions online and in the physical world.

The smooth Internet

The rhizomatic Internet is primarily a striated space determined by corporate and State interests. Growing dissatisfaction with State governance and the increasing commercialization of culture will continue to fuel resistances to State and corporate institutions. As opposed to street demonstrations, or in conjunction with them, online protests in the form of DDoS attacks will hold an important place in the coming struggles against hegemonic State and corporate power. Those who execute and participate in these actions are not only activists looking for their voices to be heard, these are interconnected people seeking to disrupt the identified, counted, and assessed digital space. These actors are compelled and propelled by the immanence of emotion, by *affect*. As Deleuze and Guattari claim,

> the regime of the war machine is … that of *affects*, which relate only to the moving body in itself, to speeds and compositions of speed among elements. Affect is the active discharge of emotion, the counterattack … Affects are projectiles just like weapons … Weapons are affects and affects weapons. (1987, p. 400)

The connectivity of the Internet does not come solely from interconnected computers but from the rhizomatic structure creating affective relationships between actors on a digital network, actors that become "the moving body itself." From these relationships, new smooth spaces are forged between the corporate-statist striated spaces. From this vantage point, the weaponized affects are utilized in the form of DDoS attacks or other forms of digital direct action.

There are already places on the Internet that could be considered persistently smooth. For example, some IRCs utilized by activist groups are channels of smooth spaces lying between two striated spaces (Deleuze & Guattari, 1987) and areas of the so-called Darknet or Deepweb allow for unfettered interaction between peoples and groups without the watchful eye of the National Security Agency or other government/corporate entities. However, like the *machine de guerre*, knowledge of a different form of movement, space, nodes, and language is necessary to navigate this space with ease. Google searches per se do not exist on this smooth Internet – there is freedom from corporate mediation between users and content. Simply put, this is the place where people go not to be found, watched, categorized, and forced into a striated space by a corporation or State. I do not mean to romanticize the Darknet – indeed, there are plenty of unsavory things in this space – but I want to posit the possibility of a sustained, though not sedentary, smooth digital space (Deleuze & Guattari, 1987, p. 381). From a sustained smooth space, affective relations can blossom, new forms of association can develop, new insurgent actions can advance, and, as Deleuze states, new weapons can be sought.

The Internet is, no doubt, a powerful tool. Left in the hands of corporate and State entities, the Internet and its powerful rhizomatic structure is a mechanism of control. In the hands of hacktivists, this tool has the ability not just to challenge the digital presence of oppressive institutions, but also functionally change both our digital and physical world. As web technologies become more advanced and more aspects of our lives interface with a digital environment, the necessity for tools to smooth space and free us from the constraints of corporate and State determination rapidly increases. Understanding the rhizomatic possibilities of the Internet and its spatial attributes marks an important transitional moment for advocacy of liberty, equality, and solidarity. To achieve these ends, however, actions such as DDoS attacks are necessary to challenge and change the strictures of corporate and statist oppressive regimes. DDoS attacks and other actions performed by hacktivists are "a new nomadic potential" and with these acts come "the reconstitution of a smooth space or manner of being in space as though it were smooth" (Deleuze & Guattari, 1987, p. 386). Like any generative space, the Internet is and can be continually deterritorialized and reterritorialized by the nomad and the State. Our goal should be to render the Internet as smooth as possible through normalizing digital direct action, hacktivism, and various forms of digital insurgency as a means to create a better, more equitable, and free physical world.

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No potential conflict of interest was reported by the author.

Notes

1. Even on sites such as Wikipedia, where anyone can include a link to other information, these links are reviewed and often remain internal to Wikipedia itself – only through the citations

does the site include "external sources." Even though Wikipedia remains a free site run by donations, it remains an outlier in a majority of popular websites; other sites, such as CommonDreams.org or Truthout.org, run on donations but do not carry nearly the amount of traffic as Wikipedia.

2. "Clearnet" is the term used to describe openly accessible websites, usually found through a simple Google search. "Darknet" is the moniker for websites that are only accessible through a Virtual Private Network (VPN) or software that gives exclusive access to a network such as The Onion Router (TOR).
3. Molly Sauter (2014) writes, "by referring to all DDoS actions, regardless of motivation as "attacks," the public, law enforcement, and even practitioners are primed to think of DDoS actions in terms of violence, malice, and damage" (p. 7). Sauter chooses not to use the term "DDoS attack" to avoid a "bias toward an interpretation of violence and harm" (p. 7). I want to maintain the subversive "criminality" of the action and allow DDoS to be an "attack." Much like the *machine de guerre*, change must come as an immanent challenge, actively deterritorializing spaces. Similarly, the *machine de guerre* is a creation and response to the State and a DDoS attack is a response to perceived problematic actions by a group, state, or corporation. Consequently, I will use both the terms "attack" and "action."

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