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Digital communication and agency: Unseen infrastructures that influence our communicative capacities online

ABSTRACT

The recent Cambridge Analytica scandal, in which personally distinguishable information was collected without explicit permission from millions of Facebook users, once more brought into focus the potential dangers of our now-pervasive social media use. What the scandal primarily indicates is the unsettling idea that one's personal information and what it reveals is open to an infrastructure capable of manipulating such information to its own ends. Despite such developments, in my experience of lecturing digital communication to students at a South African university, there is a lack of awareness of how the technical infrastructures that makes up digital communication can play a role in potentially negating our agency when using digital forms of communication. And this lack of awareness is echoed in the lax global response to the Cambridge Analytica scandal. In response, this article argues that digital space may well be antithetical to the notion of agency through digital communication. To do so, it turns to a very specific source; the post-structural theorist, Gilles Deleuze, and his conception of digital societies of control, as well as contemporary theoretical works that reflect his concerns over our agency within the virtual spaces we now increasingly inhabit.

INTRODUCTION

In my work with both undergraduate and postgraduate media students at my university, particularly with those encountering research proper for the first time in their Honours year, the most common proposed topic of research is related to social media. While this is perhaps not surprising because students tend to gravitate toward topics and modes of expression that reflect their everyday experience, what often surprises the students is that the information technology that makes possible our ubiquitous digital information flow and communication is comprised of a vast infrastructure of technical features (code, algorithm, website ranking systems, server warehouses, etc.) that cannot be discounted when analysing digital platforms of information flow and communication exchange. And these technical features can certainly sometimes impact negatively on our control over the information we are exposed to and on our control over how we communicate with one another.

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For instance, my undergraduate students are always taken aback when we discuss the idea of "computational journalism", and their surprise is fuelled by the proposed idea that it is information technology, and not journalism, that is in the driver's seat of the relationship between the two. In this regard, Lewis and Usher point out that while "the first U.S. instance of computer-assisted reporting (CAR) was in 1952," and saw further development when "Phillip Meyer … in 1967 used an IBM 360 mainframe to analyse survey data about the Detroit riots," and when "in 1973 … the *New York Times* made public an interactive system with information about New York City police statistics," up until the 1990s, "the computer-assisted reporter was still primarily a *journalist* rather than a technologist; the underlying goal was to produce a better story." Today, however, with the immense processing ability of our information technology, "the programmer-journalist differs from this CAR reporter in seeing the end product not as a story but instead as a 'productive artefact' of 'information filtering'" (Lewis & Usher, 2013:605). As this example ably demonstrates, the informational landscape has changed, and we may no longer have the primary seat in relation to our usage of it. And this should lead to a deep reflection on our agency in relation to the various applications made possible by information technology.

The recent Facebook-Cambridge Analytica data scandal further illustrates that our agency when it comes to communication within the digital sphere may well be compromised by the technical infrastructure that makes up part of that communication. The scandal, which came to light through the whistleblowing of a former employee of the British political consulting firm Cambridge Analytica, exposed how 87 million Facebook accounts were harvested for personal information by an app called "This is Your Digital Life". Without their consent, these 87 million account holders were then sent – based on information gleaned from their personally identifiable data – political messaging which attempted to influence their voting choices in key political battles, most notably, in the 2016 US presidential elections, and in the 2016 Brexit referendum. And this political messaging was not generic fare that made relatively easy assumptions such as whether one was conservative or liberal in inclination, but rather "the personality data [collected] would inform the tone of the language used in ad messages or voter contact scripts" (Kaye, 2016). As such, while the 87 million users targeted (and possibly more according to certain reports) logged onto their Facebook feeds, scanning through information on the aforementioned big political votes in-between scrolling through the daily musings of friends, they would have not been aware that the information being directed at them was extremely selective, designed to crystallise vague perceptions into specific voting choices. In this case, an innocuous 'app' (which posed as a personality quiz) opened up one's personal information for analysis by specific political camps for the refinement of their messaging about the political position they were advocating for. Again, much like with the questions posed of who holds the power in the exchange between information technology and journalistic practice, we could ask how much agency we have as individuals in the formulation of our political ideas and our subsequent participation in standard democratic processes. Furthermore, this potential loss of agency seems not to have generated serious public concern, with the business news site *Quartz* reporting that "the biggest surprise is the growth in Facebook's user base, despite #deleteFacebook, a movement spurring users to leave the social network … recently energized by the Cambridge Analytica scandal." The publication

reported that "monthly active users grew over the last quarter, reaching 2.2 billion worldwide" (Kozlowska, 2018).[1]

What both examples demonstrate – both the surprise of the students, and indeed, the collective public shrug toward the implications of the above data scandal – is perhaps a lack of awareness of how the technical infrastructure behind digital communication can potentially impact negatively on our participation in information exchange. To be sure, the article does not discard the idea that new media technologies can potentially liberate us from the often restrictive frameworks imposed upon us and in doing so, allow us to exercise our agency. It does not discard digital spaces as spaces of exploration, self-realisation, connection, organisation and action. Rather, it argues that while new media technologies have undisputedly altered the way in which we relate to ourselves and others, one needs to be cautious of arguing that new media technologies are necessarily emancipatory – and this becomes evident when examining the technical infrastructure behind our digital communication.

In order to build up an argument which aims to temper enthusiasms for the capacity of information technology for the generation of agency, this article turns first to a perhaps surprising source; the work of the post-structuralist thinker Gilles Deleuze and his response to – and embellishment of – Michel Foucault's concept of Disciplinary Society in his short text 'Postscript on Control Societies.' As will be demonstrated, Deleuze's reservations regarding digitality within the context of control societies find further enunciation in the issues thematised by an array of contemporary theorists. And to be sure, Deleuze's work, and its application by and resonance with contemporary thinkers studying digital communication, is not considered here as the definitive viewpoint to take with regard to digital communication. Rather, it is but one of many intriguing perspectives one could access on the topic. For this paper, and its aim to shed light on the technical infrastructures that potentially impact negatively upon our agency within the digital sphere, it is a particularly useful one. And it is furthermore the assertion of this paper that it would be a particular useful perspective for South African media/communication students to be exposed to, because – in my experience – the technical infrastructure underpinning our communications online is generally the last thing that comes to mind when we debate the impact of digital media as tools of self-expression.

1. THE QUEST FOR AGENCY: A BRIEF OVERVIEW OF DELEUZE'S WORK

Before contending with Deleuze's views on the restrictive capacities of digital technology, it would be worth briefly providing some insight into his philosophical project as a whole – which, in sum, was an attempt at promoting difference in the face of ossified modes of thought.

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[1] A number of journalistic sources were consulted for details on the Facebook-Cambridge Analytica scandal. Beyond the direct citations, these include: David Ingram's "Factbox: Who is Cambridge Analytica and what did it do?" (Reuters, 2018). Alex Hern's "Far more than 87m Facebook users had data compromised, MPs told" (Guardian, 2018). Olivia Solon's "Facebook says Cambridge Analytica may have gained 37m more users' data" (Guardian, 2018). and Rahul Kalvapalle's Facebook app 'This Is Your Digital Life' collected users' direct messages: report" (Global News Canada, 2018).

Deleuze first emerged seriously in the turbulent 1960s as part of the post-structural wave, and it is worth noting the historical and academic context of the time which informed this wave:

In a historical sense, the 1960s, are widely regarded as years of great socio-political and cultural change; a revolutionary period in which Western capitalist societies encountered a time of great destabilisation. While the United States convulsed with crises such as the Cuban missile crisis, the assassinations of Kennedy (1963) and Martin Luther King (1964). as well as an escalation of military involvement in Vietnam, Europe experienced mass social unrest with the Labour party in crisis in the UK, Italy experiencing it's "Hot Autumn", and France succumbing to the mass protests of May–June, 1968. Of course, the West was not the only area affected by a groundswell desire for change. That is, while the focus here will fall on these countries in order to outline the context within which Deleuze and his fellow post-structuralists found themselves, it must be remembered that the 1960s were a turbulent decade for virtually all parts of the globe. The West's nemesis, Communist Eastern Europe heaved with revolt in Stalinist Czechoslovakia, and in Africa, thirty countries won their independence in this decade, including Cameroon, Senegal, Nigeria, Cote d'Ivoire, Uganda and Zambia. Additionally, the decade also saw great turmoil in other countries such as China, Indonesia, Pakistan, and Mexico (Christiansen & Scarlett 2012:3–6).

The Western academy, or more specifically, French academia, observing such turbulence, thus went about arguing for a breaking down of the ossified modes of thought that (for them) had led to such global disenchantment. In this regard, Gutting (2001) points out that by the early 1960s in France, structuralism was the dominant philosophical approach, and he emphasises in particular the contribution of Claude Levi-Strauss. Specifically, he recalls the long theoretical shadow initially cast by his famous work *Tristes tropiques* (1955), which was followed up by his *Structural anthropology* (1958), both of which left an indelible mark on French thought in the 1960s (Gutting, 2001:221–224). In terms of this, Kurzwell explains Levi-Strauss' work as "the systematic attempt to uncover deep universal mental structures", which "manifest themselves in kinship and larger social structures … and in the unconscious psychological patterns that motivate human behaviour" (Kurzwell, 1996:1). And Dosse further suggests that such attempts reflected both a "rejection of traditional Western culture, and … a desire for modernism in search of new models". Accordingly, he defines the emergent structuralism as "an instrument of de-ideologization for many politically committed intellectuals", who embraced it at "a specific political moment characterized by disenchantment" with the established "configuration of knowledge" (Dosse, 1998:xx). To a certain extent, this dovetailed with the historical and socio-cultural issues highlighted above. That is, although Western capitalist societies were experiencing unprecedented economic growth, both popular and academic enthusiasm for this success was in short supply, and the prevailing view instead was that such a society was morally bankrupt and culturally stagnant.

However, while structuralism resonated with this disillusionment with the status quo, the thinkers associated with the ensuing post-structural thought saw a flaw in the structuralist approach to societal relations. Lechte points out how they faulted Saussure – whose contribution constituted the basis for structuralism – for leaving "intact certain (metaphysical) pre-suppositions about subjectivity and language" (2008:128). In this regard, while structuralists argued their case under

the assumption of fixed meaning, post-structuralists emphasised that meaning itself was unstable and protean. Yet importantly, this new approach to thought was not a rejection of its predecessor, but rather a more sophisticated mode of analysis, based partially on the disappointment with the failure of the social discord of the 1960s to result in any meaningful difference.

A further development in the French academy at the time is also important to note. According to Descombes, a suffocatingly "progressive" Hegelianism had permeated Western thinking in general, and French thought in particular, since the nineteenth century, to the point where many experienced aspects of twentieth century French academia as ossified (1980:9, 168). Marks further explains that according to the French version of Hegelianism taught by Kojeve and prevalent at the Sorbonne in the 1940s – where Deleuze studied – "Hegel predicted that human consciousness would proceed, via a dialectical process of negation, towards a state of perfected human consciousness." What this, in effect, meant was "that consciousness will develop by negating the errors of past consciousness, [until] reason and rationality emerge from the tension between the rational and the irrational" (1998:15). Yet this schema, predicated on a belief in a progressive purity of thought, emerged as hopelessly naïve in the 1960s.

As such, thinkers such as Deleuze pushed for a move away from systematic, habitual thinking in favour of finding agency through attempting to formulate oneself outside of ideas that are regarded as truths. And indeed, it was in Deleuze's *Difference and repetition*, that a meticulous indictment of the tendency to privilege and re-produce problematic ideas throughout the canonical history of Western philosophy was performed. The text instead focused on thinking "difference-in-itself" (Deleuze, 1994:28). And this pursuit of difference was both further sought by Deleuze throughout his prolific career, and had a profound effect on a number of fields. Of Deleuze's overall contribution to post-structural thought, Pearson writes:

> Over a period of thirty years, Gilles Deleuze (1925–1995) has had a profound influence on the direction of philosophical and social thought. His presence is felt in contemporary debates in feminism, political theory and continental philosophy, where he has challenged and overturned many theoretical dogmas … [Moreover] his work marked a significant turn toward the poststructuralist movement as a whole and its influence increases as it unfolds (2002:i).

And in this pursuit of agency through the promotion of difference, a number of evocative concepts were developed by Deleuze; from becoming as opposed to being, to minoritarian modes of expression, to the idea of rhizomatic thought as opposed to arboreal thought.

2. A THREAT TO AGENCY: DELEUZE ON DIGITAL SOCIETY

It is thus alarmingly strange that an academic career spent promoting difference and full of affirmative, generative thought took a strange, pessimistic turn with one of his last pieces, seen below:

In his 1990 work, "Postscript on control societies", Deleuze argued that the current information age is impacting very negatively on the generation of difference, through its capacity to normatively infiltrate ever more pervasively all aspects of everyday life, where it renders difference exceedingly difficult to achieve. Accordingly, Deleuze expressed pessimism over the potential implications that the cyber age – and its resultant "societies of control" – held for the production of new thought – and the generation of agency that is inherent in such production.

Before one contends with Deleuze's conception of such digital "societies of control", it is helpful to briefly recount Michel Foucault's description of disciplinary society, because Deleuze uses it as his point of departure. Against the backdrop of growing awareness of totalising forms of power and the 1968 critical response to it, in his *Discipline and punish: The birth of the prison* (1975), Foucault attempted to uncover how power (in Western Europe) has been exercised from the eighteenth century through to the twentieth century. In this regard, he begins his account by examining the French Revolution of 1789, in which monarchic formations of sovereign power were violently removed and replaced with bureaucratic formations of disciplinary power. According to Foucault, the shift from sovereign to disciplinary power had a profound effect on how ordinary people saw themselves. That is, whereas under the monarchy, the masses had remained largely anonymous, with only the aristocracy having a well-established and documented identity, in the bureaucratic period following the French Revolution, this dynamic became inverted. Now the State, functioning via its vast bureaucracies, was protected by anonymity, while each person of the previously anonymous mass became identifiable via technologies of documentation and surveillance. Correlatively, whereas in the past the monarchy had resorted to the brutal spectacle of public torture in order to produce collective fear and thus enforce power, under a disciplinary regime the State exercised power through more discrete means. This occurred, firstly, through the division of space and the regulation of time. In terms of the division of space, we can look at the Foucauldian concept of the art of distributions within a disciplinary society. Here Foucault discusses four inter-related categories, namely enclosure, the use of functional sites, partitioning and the creation of rank. In terms of the first category, "enclosure" entailed "the specification of a place heterogeneous to all others and closed in upon itself," that produced a "protected place of disciplinary monotony" in which only certain activities were permitted. This, in turn, gave rise to the second category of functional sites, or the "coding of a space that architecture [had previously] generally left at the disposal of several different uses." This development brought into existence an entire range of location-orientated divisions of labour, which, in effect, dictated how individuals should regulate themselves and what acts they could perform in the spaces in which they were located. In terms of the third category of partitioning, individuals were further assigned specific places within the new functional sites, insofar as "each individual ha[d] his own place; and each place its individual" (Foucault, 1991:141–143). This functioned to dissolve the possibility of collective resistance forming because, through it, disciplinary power was able to "avoid distributions in groups; break up collective dispositions; [and] analyse confused, massive or transient pluralities" (Foucault, 1991:143). In short:

> Disciplinary space tend[ed] to be divided into as many sections as there are bodies or elements to be distributed. One [had to] eliminate the effects of imprecise distributions, the uncontrolled

> disappearance of individuals, their diffuse circulation, their unusable and dangerous coagulation; it was a tactic of anti-desertion, anti-vagabondage and anti-concentration. Its aim was to establish and to locate individuals, to set up useful communications, to interrupt others, [and] to be able at each moment to supervise the conduct of each individual … It was a procedure, therefore, aimed at knowing, mastering, and using (Foucault, 1991:143).

A further element, rank, also proved essential for this system of operations to function effectively, insofar as it engendered cognisance of "the place one occupies in a classification" (Foucault, 1991:145). Through such a mechanism, discipline individualised bodies not only through situating them in ever more specific actual locations, but also by "distribut[ing] them and circulat[ing] them in a network of [virtual] relations" – a virtual network which ensured further atomisation, competition, and correlative isolation (Foucault, 1991:146). In other words, within such a configuration, people of a higher rank, or those hoping to achieve higher rank, are obliged to perform supervisory or surveillance functions on lower-ranked individuals, who, in turn, cannot identify with those ranked above them. The above was also coupled with an exhaustive regulation of time in disciplinary societies, underpinned by "the principle of a theoretically ever-growing use of time; exhaustion rather than use" that entailed "extracting … from time … ever more available moments and, from each moment, ever more useful forces" (Foucault, 1991:154). Through this, disciplinary individuals were increasingly caught in a rigid, unyielding and unforgiving system of increasingly efficient operations. Moreover, within this restrictive spatio-temporal setting, the related subordination to normative expectations was difficult to resist, because of the technologies of "panopticism" and "the dossier." While the first subjected individuals to surveillance – a gaze which they could not confirm was directed toward them, but which obliged them to act as if it were (Foucault, 1991:200), the second recorded their transgressions and moments of disciplinary achievement, so that the threat of a recalcitrance in the past returning to haunt them in the present, in the form of normative judgement, obliged further compliance (Foucault, 1991:169). In sum, while the regulation of space and time restricted and inhibited the movement and activities of individual bodies, the technologies of observation/surveillance gave these bodies an increasing specificity, or "individuality," that was marked by pronounced docility. In *The will to knowledge: The history of sexuality*, Foucault elaborates further on the later increase of such docility. While disciplinary power was the discursive development that gave birth to a docile individual, the emergence of bio-power in the late eighteenth century extended the parameters of this docility, making the subject even more powerless to the point of infantilisation, most notably through imperatives to confess – to medical practitioners – thoughts, desires, etc., which by definition they were precluded from understanding or being able to interpret themselves (Foucault, 1998:65–67).

As mentioned above, Deleuze begins "Postscript on control societies" by recalling the above parameters and dynamics of disciplinary society, which Foucault associated primarily with the eighteenth and nineteenth centuries. However, he also thematised how Foucault himself suggested that after World War II the disciplinary model was already eroding and being replaced by "an altogether different aim and operation" (Deleuze, 1990:177). In terms of this, Deleuze advances that the contiguous confinement associated with disciplinary societies was being replaced by a continuity of control, with rapid technological advances and economic shifts precipitating such

transformation. And he called societies operating under these new conditions "control societies" (1990:178). As Peters points out, control societies do not completely replace disciplinary structures, but rather extend their reach through "interconnected, flexible and networked architectures," and they do so, on the one hand, in relation to an increasingly rapacious form of capitalism, and on the other hand, through the capacity for surveillance monitoring made possible through information technology (2001:7–98).

With regard to a system of neoliberal economic exchange, Deleuze explicitly pointed to the above digital technology as the set of machines that makes such societal organisation possible. For him, "control societies function with a third generation of machines, with information technology and computers," which are inextricably intertwined with "a mutation of capitalism" (1990:180). Indeed, he makes a distinction between the capitalism which informed and operated within disciplinary societies, and the capitalism associated with control societies. Accordingly, the mutation occurred through a move away from nineteenth century capitalism – which was "concentrative, directed towards production, and proprietorial," and which rendered sites of production into sites of confinement – and toward a capitalist orientation that "is no longer directed toward production." Rather, present-day neoliberal capitalism is orientated toward "meta-production," outsourcing various aspects of production, focusing on abstract notions such as the selling of services, and operating as an assemblage, in which everything is "transmutable or transformable." Thus, in contrast to the contiguity and confinement of disciplinary societies, in control societies, everything becomes "short-term and rapidly shifting, but at the same time continuous and unbounded." Perhaps the best example of this is Deleuze's excellent summation that, within control societies, "a man is no longer a man confined but a man in debt" (1990:180–181). And it is precisely digital technology, according to Deleuze, that makes such continuous control possible. As he warns, "We don't have to stray into science fiction to find a control mechanism that can fix the position of any element at any given moment" (1990:181), before he provides a list of examples of digital technology that allow for such control – from electronic tagging devices to electronic cards that allow or disallow (and record) access to certain areas at specific moments in the day. The major implication of such a form of societal organisation, for Deleuze, is that one is constantly engaging with the features that the State – tied to capitalism – aims to promote. Accordingly, this debilitates populations far beyond the docility engendered through disciplinary societies by effectively disallowing them the time to operate in an autonomous manner outside of its confines. That is, Deleuze suggests that within the disciplinary societies thematised by Foucault, one was always beginning or starting again, as one moved from the school, to the barracks, and from the barracks to the factory, etc.; consequently, interstices existed between disciplinary institutions where the formation of resistance – or the generation of difference – was in principle always possible. In contrast, Deleuze argues that "in control societies, you never finish anything – business [and] training … being coexisting metastable states of a single modulation, a sort of universal transmutation" (1990:179). Moreover, disciplinary societies had "two poles: signatures standing for individuals, and numbers of places in a register standing for their position in a mass," which allowed power to simultaneously amass and individuate. But this is no longer the case; rather, control societies, on the one hand, replace signatures with numbers and codes or "passwords," which one gains and utilises for the purposes of access through compliance with the status quo. On the other

hand, within control societies it is no longer possible to distinguish between the "individual" and the "mass" – as it was in disciplinary societies – but only between "dividuals and … samples" (1990:179–180). In this regard, Williams explains that Deleuze's "notion of the dividual grasps a vital part of the dynamics of modern technology: the intersection of human agency and high-technology in the constitution of selves" (Williams, 2005:1). And from Deleuze's viewpoint, what this entails is the progressive loss of the agency still possible for docile disciplinary subjectivity, through the dissolution of critical individuality and its transformation into coded economic data, dividualised to the point where resistance is not only difficult, but de facto unimaginable.

The pessimism of Deleuze's stance toward digitality in the above text is unmistakable, and his concern over its capacity to canalise thinking and desire in ways that limit thought – and by implication, the generation of agency – stand in marked contrast to his earlier exploration of difference in philosophy, art and literature. And this accordingly raises the question of whether or not the generation of difference is indeed possible in relation to the digital.

3. A THREAT TO AGENCY: CONTEMPORARY REFLECTIONS OF DELEUZE'S PESSIMISM

Deleuze's reservations regarding digitality within the context of control societies find further enunciation in the issues thematised by an array of contemporary theorists:

For instance, Bell points to the coercive effects of digitality on personal relations and desires. For him, societies of control "utilize constant and rapid communications (memos, emails, advertisements, and so on) to inform people where they stand in the constantly shifting field of interpersonal relations." And he argues further that if one does not participate in this field – which is inextricably tied with "inexpiable rivalry and competition" – one risks falling off the grid, as it were, and thus becoming an undesirable "unknown variable," who will undoubtedly begin to "fall behind." As Bell darkly notes, "the net result is that we come to desire the very systems that control and monitor us" (2009:151). The immense popularity of social media sites such as Facebook, where users willingly disclose their personal information, innermost thoughts and anxieties, along with their successes – however arbitrary these might be – under the auspices of a belief that one only *is* insofar as one is digitally articulated in this way, immediately come to mind when considering Bell's argument.

To this, Galloway adds a further insight, when he compares Deleuze's notion of control societies with the ideas advanced by the media theorist Friedrich Kittler in his *Discourse Networks, 1800/1900*. Galloway writes that Kittler's work, "reminiscent of Foucault's genealogies," illustrates "how the store of knowledge changed from a 'kingdom of sense' … based on understanding and meaning, to a 'kingdom of pattern' … based on images and algorithms" through the shift from disciplinary to control society. And that this profound change in societal experience correlates with Deleuze's claim that control societies, based on hyper-speed, digital simulation and replication, leave virtually no space for adversarial reflection, creativity, and indeed, modes of experience different to that of ubiquitous dividuality (2004:22). As a supplementary point, one can consider for instance this disturbing entry from *The Internet Encyclopaedia*, Volume 1: A-F, on the subject of Mass Personalization. It reads:

> In general, personalization refers to making a Web site more responsive to the users' individual needs ... Personalization is usually based on building predictive models of customer behaviour, preferences, and interests. Given its ability to build successful predictive models, data mining is an excellent personalization approach for building customer profiles, providing recommendations to the customers, and delivering personalised Web content. Most of the existing personalization tools make extensive use of different data mining techniques (Internet Encyclopaedia, 2004:401).

Added to such concerns, certain contemporary Deleuzian theorists, such as Ian Buchanan, are critical of the trend – both popular and academic – of appropriating Deleuze and his co-author Felix Guattari's model of the rhizome for understanding the internet and the interactions it facilitates. In his often-cited article "Deleuze and the internet," Buchanan undertakes a five-point analysis of why the internet cannot be seen as rhizomatic – and thus generative in terms of agency. That is, although he concedes that at first glance "there are … excellent grounds for thinking that the internet meets some if not all the basic criteria of the rhizome" (Buchanan, 2007:9), he goes on to consider a range of compelling counter-points for why this is not the case. Accordingly, he considers the internet in the Deleuzian terms of connection, multiplicity, homogeneity, mapping, and the rhizome, and his ideas in this regard are resonant with the concerns of various other theorists.

Buchanan's first consideration relates to the idea of connection, or more specifically, to how people's experience of the internet is not quite as free-flowing and agency-promoting as many people believe. Rather, as he points out, one does not "surf the Internet," but instead moves from "one fixed point in space to another, which is interestingly not at all what surfers do," (2007:10) and which implies that the internet is more schematic than some have suggested. In support of such an assertion, Siegworth and Tiessen emphasise the predetermined parameters of such schematisation. Quoting John Cheney-Lippold, they maintain that "we are entering an online world where our identifications are largely made for us," and that this "'new algorithmic identity' … removed from civil discourse via the proprietorial nature of many algorithms … simultaneously enjoy[s] an unprecedented ubiquity in its reach to surveil and record data about users." They moreover equate this concept directly with Deleuze's concerns, arguing that "these are the continuous algorithmic modulations and open exposures described by Deleuze … in his vision of the control society: an undulating series of actions-upon-actions that often feel so very intimate (even if at a distance)" (Siegworth & Tiessen, 2012:54). Indeed, even more disturbingly, there appears to be a growing public acquiescence to being treated as a data sample. For example, there have been numerous concerns aired against Google's newest browser, Chrome, pointing to it "essentially acting as a key logger, potentially recording users' every keystroke" (Keizer, 2008). Yet, despite such reservations, the browser has a pervasive reach, with users continuing to access it en masse despite it receiving near-constant criticisms with regard to its dissolution of people's privacy.

Buchanan's second criticism functions as an adjunct to the above, and is directed at the "many people [who] think of the Internet as the realisation of the Deleuzian ideal of multiplicity." Against

this type of thinking, Buchanan argues that "the incredible proliferation and constantly expanding number of websites does not by itself mean that the Internet can be classed as a multiplicity in Deleuze's sense" (Buchanan, 2007:10). This is not least because, while according to Deleuze and Guattari's definition of the rhizome, removal of a component alters the whole, in contrast, if one were to remove thousands of websites, the Internet would remain practically unaffected. Similarly, Miller writes that "the internet is fully able to sustain breakages without much effect on its function" (Miller, 2011:27). Allison Cavanagh – for analogous reasons – writes that even though "Deleuze and Guattari's position has a certain resonance for examining the internet, the application of their concepts [to it] is profoundly problematic" (Cavanagh, 2007:47).

Thirdly, and related closely to the above two points, Buchanan argues that if the rhizome "operates by variation, expansion, conquest, capture and offshoots," or by the principle of heterogeneity, then we must acknowledge that the internet, in many ways, acts in a manner contrary to this, as a "homogenising and standardising machine" (2007:11). A good supporting example of online developments that have precipitated such limitation and restriction – rather than space for personal experimentation – can be found in the dispute over the mobile application, Whisper. The aforementioned application, aimed at both the widely used Android and Apple iOS operating systems, was launched in 2012 and was initially met with great excitement, because of how the application purportedly allowed users to send and receive messages anonymously on the most personal of topics. In doing so, it ostensibly offered a "safe space" in which to discuss any range of issues a user might be troubled by, and in an article entitled "The genius of Whisper, the massively popular app you haven't heard of," Alexis Madrigal of *The Atlantic* accordingly gushed about it, even calling the application "ephemeral" (Madrigal, 2013) – although he eventually settled for a more moderate but still positive appraisal of its features. He neatly summed up his understanding of the application as follows:

> Anyone can post an anonymous message to the service in the form of an image macro: text overlaid on a picture. When you open the app, you see six such images. Each one has a "secret" on it. You can respond to a message publicly or privately, choosing a public anonymous post or a private pseudonymous chat. Users don't have a public identity in the app. While they do have persistent handles, there's no way to contact them except [through] the messages they post (Madrigal, 2013).

The popular appeal of such anonymity was clearly evinced in its garnering some "2.5 billion page views a month" (Madrigal, 2013), and Whisper accordingly seemed to comprise a substantial online development. However, on 16 October 2014, the UK paper *The Guardian*, in an article entitled "Revealed: how Whisper app tracks 'anonymous' users," alleged that the application, among other things, not only monitored some users even after they had opted out of "geolocation services," but also "shared information with the US Department of Defense," and even "collated and indefinitely stored … user data … in [a] searchable database" (Lewis & Rushe, 2014). The company behind the application responded to the allegations on 19 October, with CEO Paul Heyward "not [disputing] the accuracy of *The Guardian's* reporting" (Lewis & Rushe, 2014). What this reveals once more is Deleuze's keen foresight that digital space, rather than being

a space of exploration, creativity and possibility, would ultimately come to function as a striated intermediary, through which Capital enterprise and the State would co-operate to extend their collective hold over communication and interpersonal relations. Buchanan also adds to his above argument concerning digital homogenisation by thematising an important related point that applies specifically to such media, when he emphasises how "pre-existing media" are being compelled "to adapt [themselves] to suit the internet environment." Pointing to bloggers and citizen journalists, among others, Buchanan argues that the internet has "set off a massive expansion of media operations into virtually every corner of existence" (2007:11). This seems to confirm the ultimate Deleuzian nightmare in this regard, and a brief consideration of Google helps to illustrate this point. Julian Assange, in an interview with The Huffington Post, discusses some of Google's current infrastructure and its plans at expansion. According to him, "Google controls 80 percent of Android phones now sold, [and] YouTube," a subsidiary of Google's, bought in 2006, "is buying up eight drone companies. It's deploying cars, it's running … Internet service providers," and it even "has a plan to create Google towns." Going on to liken Google to a "high-tech General Electric," Assange proposes that the company represents "a push towards a technocratic imperialism or digital colonialism," in which "Google envisages pulling in everyone, even in the deepest parts of Africa, into its system of interaction" (in Grim and Harvard, 2014). Problematically,

That system of interaction concentrates global power into those people who already have a lot of it, and that means not just companies like Google but a lot of the alliance of interests – organizations like the National Security Agency and contractor … institutions like Google and Facebook, which directly or indirectly are involved in the worldwide collection efforts of those organizations. At a less geopolitical level and at a more personal level, the global erosion of privacy for the average person [will] bring … democratic states socially into a position … where they are more like authoritarian states (in Grim and Harvard, 2014).

Turning to the concept of the map as a fourth point of discussion, Buchanan argues that, in his view, Deleuze and Guattari intended the rhizome to operate as "a therapeutic tool," so to speak, insofar as acknowledgment of rhizomatic relations would "produce the unconscious, and with it new statements [and] different desires." However, with regard to popular ideas of a cyber-rhizome, he argues that the "internet cannot simply be the pre-existing network of connected computers. Rather, we have to conceive it in terms of the set of choices that have been made concerning its use" (2007:12). In relation to this, we can think back to Deleuze's explicit linking of his conception of digital control societies to "a mutation of capitalism," in which people, fixed to "a control mechanism that can fix the position of any element at any given moment," find themselves no longer confined – as in disciplinary society – but rather "in debt." This amounts to an arrangement in which they are no longer individuals in relation to a mass, but "dividuals and … samples" (1990:179–181). By way of example, it can be argued that Google's digital infrastructure, rather than producing a space for therapeutic explorations that are couched in creativity and openness to experimentation, controls according to its interests. In this regard, David Vise in his *Foreign Policy* article "Google", provides a good overview of some of the major questions surrounding the behaviour of the company. Claiming that it has drawn "scepticism from Wall Street and the ire of human rights groups" (2006:20), Vise thematises how Google

has been discredited on a number of counts. Although some of these criticisms are market-orientated, issues concerning Google protecting its approach to business, and the privacy of its users, remain important (2006:22-24). In terms of Google's claims that it is not operating within a standard business mould, Vise highlights how Google functions strongly along the lines of the dominant corporate ethos of today, with a "traditional management team to operate the business [and] traditional mechanisms to measure the company's financial performance" (Vise, 2006:23). and he argues that because of this, despite their declarations to the contrary, the company operates according to the dictates associated with neoliberal capitalism. The consequent issue that emerges, then, is how this private enterprise, in conjunction with government, is less concerned with facilitating free participation and free information exchange, and more focused on trying to find ever more efficient means through which to exercise control within a digital space – as Deleuze feared. Correlatively, in terms of privacy, Vise explains how the company acts in its own interests, protecting information only when disclosure could lead to it "losing its competitive edge," that is, when revealing too much information on how "its users search the Internet, [might allow] its competitors … to decipher secrets of its technology." In relation to this, Vise cites examples of how, in the past, Google has failed to co-operate with the US Justice Department, when this governmental wing requested "a week's worth of searches [related to] a child pornography investigation" (2006:22). Alternatively, as has been suggested by reports on the more recent NSA (National Security Agency) spying scandal, Google, along with the social networking site, Facebook, have indeed co-operated with governmental authorities. Jason Leopold of *Al Jazeera America*, neatly sums up the controversy. He explains that "disclosures by former NSA contractor Edward Snowden about the agency's vast capability for spying on Americans' electronic communications prompted a number of tech executives", such as those from Google and Facebook, "whose firms cooperate … with the government to insist they … do … so only when compelled by a court of law." However, "email exchanges between National Security Agency Director Gen. Keith Alexander and Google executives, Sergey Brin and Eric Schmidt, suggest a far cosier working relationship," further intimating that "not all co-operation was under pressure" (Leopold, 2014).

It is in relation to the above that Buchanan discusses the fifth and final point, namely that of the rhizome. That is, while "the rhizome is acentred, nonsignifying, and acephalous," he argues that the internet, even though it seems this way in its appearance and construction, in terms of "the reality of its day-to-day use still does not live up to this much-vaunted Deleuzian ideal." Citing our behaviour online, Buchanan advances that instead we tend to follow set patterns – for instance, oscillating between three or four different sites consistently – such that we move from point to point on the internet. For him, this suggests that "there is no liberated line of flight in cyberspace," and that we are instead held hostage, in a sense, by infrastructural developments online. One example is, of course, PageRank, or Google's ability to predict what one will search for, and so forth (Buchanan, 2007:10–13). Admittedly, while there may be a distrust of the seemingly impersonal operations of Google, which most users encounter simply as an excellent search engine that fulfils their various search requests, Facebook continues to attract great personal investment on the part of its users. After all, your Facebook profile is you, and so it becomes hard for users of the site to see it for what it is, namely a programmed website running on codes and algorithms that are backed up by servers, cabling, and other material infrastructure.

In relation to this problematic dynamic, Bucher discusses the algorithm EdgeRank, used by Facebook to determine what information users are exposed to in their news feeds (a collection of updates drawn from their pool of 'friends' that is displayed as a single, central page). On the one hand, she explains that, in the EdgeRank system, to become "visible is to be selected by the algorithm," and that, accordingly, "inscribed into the algorithmic logic of the default News Feed is the idea that visibility functions as a reward, rather than as punishment, as is the case with Foucault's notion of Panopticism" (Bucher, 2012:1174). But on the other hand, certain behaviours on the site linked to constant presence and action – such as "posting" information through text or pictures, "liking" items posted by "friends", or "commenting" on these items – guarantee that one's individual profile will be picked up on by the EdgeRank system and placed at a priority spot on one's friends' news feeds. Consequently, such behaviour becomes normalised and indeed promoted as desirable, which does fit well into the Foucauldian framework of disciplinary technologies that inculcate repetitive behaviour. However, it equally serves to demonstrate Deleuze's complementary and cogent point that such behaviour "imposes a particular conduct on a particular human multiplicity" (Deleuze, 2006:29).

After all, Facebook users subordinate themselves to a system of interpersonal relations set out by an algorithm, and in this sense, the social networking site represents one of the greatest threats to the generation of difference and agency. That is, in a continuous pursuit of popularity, manipulated by the aforementioned algorithm, people using Facebook literally begin to lose the time to be different, operating rather in accordance with a set of behaviours set by Facebook's programmers. Indeed, it is hard to imagine how there could be any adversarial reflection within the confines of this continuous narcissistic information flow. And when a concept like "virtual identity suicide" becomes a topic of exploration, as evinced in Stieger, Burger, Bohn and Voracek's "Who commits virtual identity suicide? Differences in privacy concerns, internet addiction, and personality between Facebook users and quitters," then it would seem that Deleuze's worst fears have been realised.

In relation to this, and returning to Siegworth and Tiessen's work on Deleuze and digital spaces, further description is given of how Facebook users operate under the influence of a particular digital infrastructure. Referencing Mark Andrejevic, they discuss the concept of "digital enclosure", or in other words, "the creation of an interactive realm wherein every action and transaction generates information about itself." In such an enclosure, there is no "pre-determined shape or form"; rather, "a digital enclosure is continually produced in and through the volunteered co-ordinates and the subsequent movements of interactions themselves". These interactions have two components to them, insofar as they entail "temporary closure on one side (the participant side)", while they tend to be "leaky or open on the other side (the network side)". It is on the latter side that information becomes available to interested third parties, be they governmental agencies or more commonly "marketshare-seeking corporate entities"(Siegworth & Tiessen, 2012:55-56). Thus, as Andrejevic argues, we become "cybernetic commodities" (2007:7), performing certain actions prompted by the imperatives of a particular code or algorithm, while at the same time having all these actions monitored for their monetary potential. When one considers Facebook in such a critical light – as a digital enclosure producing cybernetic commodities, or in Deleuzian terms, "dividuals" – then its

appeal becomes hard to fathom. However, active Facebook devotees, as alluded to previously, would no doubt tend to reject any claims that they were merely algorithmic identities, whose identifications have been largely made for them (Siegworth & Tiessen, 2012:54), and would no doubt instead argue that Facebook remains a highly user-friendly framework through which they can express their unique personalities.

However, while the engendering of narcissistic behaviour through the site is worth the attention it has garnered, because of the socio-cultural problems that accompany such a disposition.[2]

What is more pertinent for the current argument are the ways in which Facebook users fail to make the distinction between digital (virtual) space and their offline (actual) lives. This is something that Turkle neatly captures in her now-iconic concept of "the robotic moment" (2011:3) – a moment that strongly confirms Deleuze's suspicion of growing 'dividuality'. For Turkle, the robotic moment constitutes "the moment in which we are philosophically ready for technology to replace human interaction" (2011:3), or the process of "remaking human values and human connection," but in a non-affirmative way (Moskowitz, 2013). And Turkle provides a wonderful example that powerfully explicates the features of such a moment. Discussing a visit with her teenage daughter to "the Darwin exhibition at the American Museum of Natural History in New York", she describes "at the exhibit's entrance … two giant tortoises from the Galapagos Islands, the best known inhabitants of the archipelago where Darwin did his most famous investigations." The two tortoises, one hidden from view and the other completely still, failed to impress her young daughter, who, "unmoved by [their] authenticity," noted: "They could have used a robot" (Turkle, 2011:3). If one were to think about this moment in relation to Deleuze's concern over the dissolution of difference through digitality, what the robotic moment illustrates is the triumph of information over the recognition of existence.

Indeed, in this example, a thing is seen only for its informational value, and if one were to apply this to the information flow produced by Facebook users, a similar idea emerges, namely that people are becoming dividuated collections of information, rather than human beings who exist in time and space, and who comprise sites of multiplicities. When everything is already documented, and presented as information that one can access, it would appear that in a pervasive digital culture, we can no longer be "half-secrets, even to ourselves" (Siegworth & Tiessen, 2012:54). And even though Buchanan is not wholly negative about the internet and its impact on society, but rather aims to temper some of the more enthusiastic understandings of the Internet-as-rhizome, the point remains: in many ways, the concept of the internet as a totalising force within our new societies of control is not easily dismissible.

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[2] See also, Mauri et al. "Why Is Facebook So Successful? Psychophysiological Measures Describe a Core Flow State While Using Facebook" (2011). Espinoza and Juvonen's "The Pervasiveness, Connectedness, and Intrusiveness of Social Network Site Use Among Young Adolescents" (2011). Yin Zhang et al. "Gratifications, Collective Self-Esteem, Online Emotional Openness, and Trait like Communication Apprehension as Predictors of Facebook Uses" (2011). Zizi Papacharissi's "Look at us: Collective Narcissism in College Student Facebook Photo Galleries" (2010). and Soraya Mehdizadeh's "Self-Presentation 2.0: Narcissism and Self-Esteem on Facebook" (2010).

4. CONCLUSION

Reflecting on the technical infrastructure behind digital communication through Deleuze's "Postscript" (as well as its re-articulation by contemporary academics) yields a pessimistic conclusion. While it is crucially important to be aware of such critical insights into how the technical infrastructures of the digital spaces we inhabit can potentially inhibit us, it is as important to note that this reading is just one specific take within a broad field of study that houses far more diverse and optimistic interpretations. In a sense, having looked at the darkest reading of how digital architecture affects our communication through digital means, we could turn to any number of scholars who have analysed that same digital architecture and come to less pessimsitic conclusions.

Perhaps the best example in this regard is the work of the (more contemporary) Spanish sociologist Manuel Castells, and his trilogy *Information age: Economy, society and culture*, in which he offers a thorough overview of the multi-faceted socio-cultural and politico-economic features and consequences of the internet. This work has led him to becoming the world's fourth most-cited social media scholar and the foremost-cited communication scholar as per the Social Science Citation Index (CNSC, 2018). It is interesting that while Castells agrees with Deleuze's take on the rise of digital society in his discussion of "the emergence of a new technological paradigm, based in information and communication technologies" (2005:3). and while other theoretical overlaps occur (a shared affinity for the work of Leibniz on time), Castells sees digital architectures as having a multiplicity of effects on communication.

These can be negative – as with a loss of agency, when "global networks of instrumental exchanges selectively switch on and off individuals, groups, regions, and even countries, according to their relevance in fulfilling the goals processed in the network, [leading to] structural schizophrenia" (Castells, 2010:3). Or, they can be more positive – as with certain "Internet social networks [that] are spaces of autonomy largely beyond the control of governments and corporations" (2012:2). Here, Castells praises certain movements for their weariness of mainstream media, their lack of affiliation with orthodox political organisations, and their decentralised means of operation, citing virtual space, or cyberspace, as the means through which physical, actualised protest was galvanised and organised (2012:4).

Indeed, while the warning sounded by Deleuze on the capacities of the technical infrastructure to inhibit information flow and communication should be considered strongly, perhaps the last word should be owed to the thinker just discussed: "The Internet is no longer a free realm, but neither has it fulfilled [an] Orwellian prophecy" (Castells, 2001:171).

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