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Allen Chun and Jia-lu Cheng
(Institute of Ethnology, Academia Sinica)
achun@gate.sinica.edu.tw

國立交通大學文化研究國際中心
International Center for Cultural Studies
National Chiao Tung University
R212 HA Building 2, 1001 University Road
Hsinchu, Taiwan
Tel: +886-3-5712121 Ext.58274, 58272
Fax: +886-3-5734450
Website: http://iccs.nctu.edu.tw/en/wps.php
Email: iccs.wps@gmail.com

From Societies of Control to the Political Economy of Protocol: Modulation and Dividualization as Algorithmic Regulatory Processes

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Abstract: The essay begins with an exploration of Deleuze's notion of society of control and its relevance to the regulation of digital media. Needless to say, there are many approaches to network society and its cognate notions, just as there are overlapping aspects of internet per se that are attributable to both its open and closed nature. Deleuze's note on societies of control was at first an extension to Foucault's discussion of disciplinary societies, but in the later emergence of internet and other technologies it can be seen to shed salient light on the regulative nature of protocol that serves a seminal role in maintaining the ongoing appearance and functioning of "smooth societies." To what extent is internet the product of the above?

> Information is precisely the system of control.
>
> Gilles Deleuze, *A Thousand Plateaus: Capitalism and Schizophrenia*

> Shared protocols are what defines the landscape of the network.
>
> Alexander Galloway, *Protocol: How Control Exists after Decentralization*

One of the shortest but most popular and inspirational texts Deleuze wrote was probably his "Postscript on Control Societies." It was written originally in French and published in 1990. Moreover, as far as we know, there are at least two different English translations, which were officially published by various publishers from 1992 to 2002.[1] Nonetheless, there has been an abundance of writings on Deleuze's "postscript." Macgregor Wise (2002: 30) noted that the reason for its popularity was that it "can easily be read as commenting on the cyberspace and the internet." He added that it was not about the cyberspace or internet per se but rather that "the notion of a society of control is in danger of being oversimplified."

Deleuze's notion of "control society" is far more profound. Much of what we do today already embodies the logic and operation of "control society." It is not because we use the internet to do searches but because of the method by which the search was performed. Prior to the era of database searches, one could only perform searches of books or papers by going through page by page, sometimes with in-page bookmarks for later references. Today, with the help of database or internet searches, authors' names are drawn away from the context of certain works. In a Google search, one must first of all transfer the individual, i.e. Deleuze, into an appropriated "*dividual"* as a keyword then transfer the literature machine, "control society," into the other appropriated "*dividual*" as the other keyword. The aggregation of literature machines composed as a result by all these writing materials becomes samples or databanks. Google thus serves as a programmable interface that allows one to combine any "keyword" to execute searches as long as the prior two conditions (dividual/databanks) are met. We are not simplifying the internet as a means; on the contrary, the internet itself is a complicated control mechanism. The point is, the logic of the "control societies" is already "integrated into the productive efficiency of the apparatus from within, into the growth of its efficacy and into the use of what it produces," as Foucault (1977: 219) put it, much like what has already taken place

in disciplinary societies. Deleuze (1998: 16) cites the example of a highway, where people can drive infinitely and freely without being at all confined yet "while still being perfectly controlled." Deleuze (1995: 174) noted that control societies "no longer operate by confining people but through continuous control and instant communication."

Nikolas Rose (1999: 234-35) argued that Deleuze's metaphor-like arguments are "more as hypotheses than conclusions" and that "Deleuze's control societies should not be understood sociologically but in terms of the emergence of new possibilities and the complexification of the old." Hui Kyon Chun (2006: 9) has also commented that, although Deleuze's reading of control societies is "arguably paranoid, because it accepts propaganda as technological reality, and conflates possibility with probability." Nonetheless, Deleuze's reading is persuasive.

Since Deleuze's "control societies" represent "the emergence of new possibilities", we will focus on a description of what "control societies" are then position "control societies" in the context of capitalism. Starting from Deleuze's definition of "control," we will discuss in turn the relationship between disciplinary societies and "control societies" within capitalism, which can then serve as the framework for a discussion of contemporary communication.

Societies of Control in the Evolution of Political Constitution

Just as "control society" was not Deleuze's depiction of the internet, it was never intended to invoke social control in a typical sociological sense.[2] Foucault's notions of surveillance and power provided a fresh perspective on the issue of social control, viewed as the sociology of punishment, which focused on negative sanction and the advent of "Big Brother," contrasting typically with Marxist theories in particular.[3] The poverty of the concept of social control is similar to Michalis Lianos' (2003: 412) remark: "Whilst one cannot pretend that the question of social control has been completely forgotten, it is in many respects stagnant."

As Rose (1999: 234) notes, "Foucault's disciplinary societies were not about 'disciplined society,' but societies where strategies and tactics of discipline were active." The same applies to control societies: it is in short the way that "*socius*" organizes itself. Like power, control is omnipresent, as Foucault (1998: 93) has noted, "not because it embraces everything, but because it comes from everywhere."[4] Deleuze (1995: 178) added that control is a "name proposed by Burroughs to characterize the new monster." Society became the monster, with control as its name. As features of societies of control, Deleuze included their operation, corresponded machine, economic activities, human situation, and geographic configurations.

After WWII, disciplinary societies began to breakdown. We no longer live in an age of disciplinary societies but rather an age of control societies. Deleuze (1998: 17) argued that Foucault was actually one of the first to say that we were moving away from the disciplinary and "entering a new type of society." Hardt (1998: 139) added, "I must admit it is difficult to find anywhere in Foucault's opus (the books, essays, or interviews) a clear expression of passage from disciplinary society to the society of control." But Foucault once remarked:

> In the last few years society has changed and individuals have changed too; they are more and more diverse, different, and independent. There are ever more categories of people who are not compelled by discipline *(qui ne sont pas astreints a la discipline),* so that we are obliged to imagine the development of society without discipline. The ruling class is still impregnated with the old technique. But it is clear that in the future we must separate

> ourselves from the society of discipline of today. (cited in Hardt (1995: 41))

In "The Withering of Civil Society" and "The Global Society of Control," Hardt (1995, 1998) showed how rise of control societies has influenced our political constitution. In *Empire*, Hardt and Negri (2000) extended Hardt's earlier argument by proposing a new model of control societies on a global scale in order to advance a strategy for resistance (multitude). With the rise of control society, the overall social conditions (social enclosures, institution, striated space, wage labor etc.) necessary for civil society no longer exist. Not only has civil society withered away, but the desire of civil society has become impossible. In the passage from disciplinary society to control society, the distinction between inside and outside boundaries declined. The world became a smooth space under a global market, in which a new world order, *empire*, emerged, where, as Hardt (1998: 143) noted, "there is no place of power—it is both everywhere and nowhere. The Empire is an *u-topos*, or rather a non-place."

In the transition from disciplinary societies to control societies, parallel lines of flight emerge in every dimension of society. The emergence of Empire is a result of new lines of flight, but there is no change in its underlying economic system, namely capitalism. There can be late, neo- or post-capitalism, but the essential system remains largely unchanged, despite changes in the political system. What might account for capitalism's staying power?

Relationship to Capitalism

For Deleuze and Guattari (1984, 1988), machines are a starting point; they are closely linked to the development of capitalism. Old sovereign societies worked with simple machines (levers, pulleys, clocks); disciplinary societies were equipped with thermodynamic machines; control societies functioned with third generation machines (information technology and computers). Social forms made possible the corresponding use of machines (Deleuze 1995: 180): "this technological development is more deeply rooted in the mutation of capitalism."

The first point is, "the social forms are capable of producing and making use of them." The second point involves "the mutation of capitalism." In other places, Deleuze (1999: 39) said, "there is a human technology which exists before a material technology. No doubt the latter develops its effects within the whole social field; but in order for it to be even possible, the tools or material machines have to be chosen." "To be chosen" means that these social forms not only have the capacity to produce and use them but also the power to accept, reject or put it aside. The logic of choice is profit. Deleuze and Guattari (1984: 233) thus wrote:

> An innovation is adopted only from the perspective of the rate of profit… without this prospect, the capitalist will keep the existing equipment, and stand ready to make a parallel investment in equipment in another area.

Capitalism is not about production but profit; it is about the accumulation of capital, not just goods. This follows Foucault's discipline as a "new economy of power" in societies.[5]

In regard to the second point, "the mutation of capitalism," one finds that "mutation" is a slow but radically dangerous process. According to Deleuze, capitalism experienced two phases of mutation. The secret of capitalism is the axiomatic, key to Deleuze and Guattari's capitalism (Bonta and Proveti (2004: 50)). Capitalism is a historical phenomenon, but it did not evolve from its mode of production; it was conjoined by its labor and capital flows.

> Capitalism is in fact born of the encounter of two sorts of flows: the decoded flows of production in the form of money-capital, and the decoded flow of labor in the form of the "free worker." (Deleuze and Guattari (1984:33))

Deleuze and Guattari (1984: 374) argued that the capitalist machine is incapable of providing a code that will apply to the whole social field, as past social machines have done. But it has created an axiomatic of abstract qualities that moves decoded flows in the direction of the deterritorialization of the socius, which causes them to pass into an apparatus that combines them, producing "pseudo codes and artificial reterritorialization" to capture them. Deleuze and Guattari (1984: 252) argued that this axiomatic is not the invention of capitalism. Instead, capitalism is defined by the axiomatic. Capitalism ensures the regulation of the axiomatic.

Axiomatic is not an isolated formula but instead implies "intuitions" that are linked to resonances and the conjunction of structures.[6] It has several properties: 1) it fulfills its own immanence; 2) it pushes back or enlarges its limits; 3) it adds more axioms while preventing the system from being saturated; 4) it functions only by grinding, sputtering, and starting up again; and 5) a technocracy cannot be reduced to the operation of technical machines.

Hardt and Negri (2000: 326-7) depicted the concept of axiomatic as: 1) a set of equations and relationships that determines and combines variables and coefficients immediately and equally across various terrains without reference to prior, fixed definitions or terms; 2) the primary characteristic of such an axiomatic is that relations are prior to their terms; 3) only when one gives these variables particular values, do the postulates, constituted by sets of equations of indeterminate variables, become propositions, according to constants chosen.

Deleuze and Guattari (1988: 459) said that the axiomatic and the model of realization "constantly cross over into each other and are themselves in communication." Because of the immanent character of axiomatic, by adding more axioms, while preventing the system from being saturated, capitalism in turn makes itself an open and immanent system, saving itself from mutation (Deleuze (1995: 171)). This so-called mutation of capitalism is, in fact, its own reproducing system. How is this related to disciplinary society and control society?

The 20th century witnessed the mutation of an initially bounded capitalism (based on the nation state) into a more open capitalism (based on international trade, shared markets, etc.). Given the correspondence between society and a kind of machine (disciplinary societies with thermodynamic machines, control societies with third generation machines), technological development is deeply rooted in the mutation of capitalism. Finally, this mutation reflected technological development and its societal perspective. Deleuze (1995: 180-81) wrote that 19th century capitalism was concentrative, directed toward production and proprietary control. In this context, the factory was a site of confinement, and markets were won either through specialization, colonization, or lower cost of production. But in a control society, capitalism is no longer directed toward production but rather metaproduction, i.e. sales and markets, and markets are won by taking control rather than by establishing a discipline, by fixing rates than reducing costs, by transforming products than specializing production. In short, marketing now becomes the instrument of social control. There is a further dispersion: with factories giving way to business, families, schools, armies and factories are no longer different and analogous sites converging on an owner, but instead transmutable or transformable coded configurations of a single business, where the only people left are administrations.

With regard to social formation and the mode of realization in capitalism, Deleuze did not mention political variation in control societies, nor did he discuss the role of international organizations. Axiomatic is an abstract machine with pure functions; it must have a mode of realization to realize itself. Deleuze and Guattari (1988: 435) defined social formation by *machinic processes,* not mode of production. Mode of production depends on machinic processes, of which there are five kinds. Primitive societies are defined by mechanisms of prevention-anticipation; state societies by their apparatuses of capture; urban societies by instruments of polarization; nomadic societies by war machines; finally international (or ecumenical) organizations by the encompassment of heterogeneous social formations.

However, historically, states in the West, contrary to other social formations, became the main modes of realization for an axiomatic of decoded flow. Since capitalism is an endless process of deterritorialization and reterritorialization, when the decoded flow reaches its capitalist threshold of decoding and deterritorialization, states appear to constitute obstacles to the further development of capitalism. In this regard, one can see presently that there is an enormous, so-called stateless monetary mass that circulates through foreign exchange and across borders, which in the process eludes control by the state.

States and capitalism are in perpetual crisis. As Deleuze and Guattari (1988: 453) noted, "whatever dimensions or quantities may have assumed today, capitalism has from the outset mobilized a force of deterritorialization infinitely surpassing the deterritorialization proper to the state." Instead of making states decline, Deleuze and Guattari (1988: 454) argued that capitalism caused "a mutation in worldwide or ecumenical organizations, which now take on a consistency of their own: the worldwide axiomatic." States, in capitalism, do not cancel each other out but change their form and take on a new meaning: the mode of realization for a worldwide axiomatic. Deleuze (1995: 172) concluded: "there is no universal state, precisely because there is a universal market of which states are the centers, the trading floors."

Under the threat of contemporary transnational decoded flows, instead of producing a new mode of realization, capitalism itself mutates as a worldwide axiomatic, and the state keeps its role as the mode of realization for a worldwide axiomatic. From this point of view, neither disciplinary societies nor control societies are the mode of realization of capitalism but are part of the phenomena that results from the mutation of capitalism.

Distinctive Features

The evolution from disciplinary societies to control societies can be summarized as follows.

Summary of the Characteristics of Control Societies vis-à-vis Disciplinary Societies

Aspects	**Disciplinary Societies**	**Control Societies**
Historical Periodicity	From 18th century to the beginning of 20th century	Consequences of various advances after WWII
Human Situation	A man confined	A man in debt
Technology	Confinement (panopticon)	Continuous control and instant communication in open sites
Operation	Ruled by precepts	Password
	Signatures standing for	Code

	individuals; numbers or places for their position in the mass	
Corresponding Machine	Thermodynamic machines	Cybernetic machines and computers
Economic Activities	Production	Metaproduction (sale and market)
	Factory (a body of men)	Business (a soul, a gas)
Market	Won either through specialization, colonization or through reducing the costs of production	Won by taking control rather than by establishing a discipline, by fixing exchange rates than by reducing costs, by transforming products than by specializing production
Finance	Gold standard	Floating exchange
Legal System	Apparent acquittal	Endless postponement
Language	Analogical	Digital
Logic	Independent variables	Inseparable variations
	Mold	Modulation
	Discontinuous	Continuous
	Starting all over again	Never finishing anything
	Individuals / Mass	Dividuals / Sample, data, "banks"
Geographic Configuration	Fixed placement, confined sites	Varying geometry, surfing among a continuous range of different orbits
Time Duration	Long-term durability	Short-term, rapidly changing
Animal Metaphor	Mole	Snake
Resistance	Delinquency, strikes, sabotage	Computer piracy and viruses, vacuoles of non-communication, circuit breakers

Three characteristics therein, i.e. business, modulation, and dividuals, are the most important principles of operation in control societies. They operate on two different levels. Business deals more with economic matters, while modulation and dividuals are involved more with technical matters. These two levels are not totally separate. On the contrary, they work together, such as by dividing employees' wages into base pay and incentive pay (operation of modulation) as well as via marketing surveys (operation of dividuals) in the business sector.

When societies evolved from disciplinary to control ones, in the domain of economic activities, businesses took over from factories. Deleuze (1995: 179) described it thus: "the factory was a body of men… but in a control society businesses take over from factories, and business is a soul, a gas." While the factory is a tangible assemblage of men and machines with a concrete figuration in a confined site, business is an abstract entity without fixed figuration, pervading everywhere and intertwining with all social aspects. The old proverb "business is business" now shifts to "everything is business" in contemporary capitalism. So we can see not only factories being replaced by business, but also schools being replaced by continuing education and exams through ongoing assessment. Originally different but analogous sites,

such as families, schools, armies and factories, converge into a transmutable or transformable coded configuration of a single business. Art begins infiltrating circuits of banking. Man is no longer a man confined but a man in debt. As Nicholas Thoburn stated, "the business (and control more generally), while subsuming discipline's sites of enclosure, is still only one diagram of governance and accumulation, integrated with those of, say, the debt economy, the camp and war." In essence, when societies transition from disciplinary ones to control ones, business, instead of declining along with factories, blossoms everywhere and gets invigorated through the mutation of capitalism, which makes it become a real monster.

In regard to modulation, in disciplinary societies, placement is the essential technique to execute disciplinary power; at the same time physical bodies are direct targets of disciplinary power. Although each confined site is an independent variable, they are actually analogous to each other. In comparison to disciplinary societies, control power is not executed through placement but through variable forms, and physical bodies are no longer necessary as a direct target. Moreover, these forms of control become inseparable variations, forming a system of varying geometry whose language is digital. Deleuze (1995: 178-79) stated, "confinements are *molds*… while controls are a *modulation*, like a self-transmuting molding continually changing from one moment to the next, or like a sieve whose mesh varies from one point to another." He gave two examples illustrating how modulation works. Instead of a modern bonus system of wages, an incentive pay system is introduced in control societies, causing wages into a cycle of metastability, punctuated by challenges, competitions, and seminars.

The other example given by Deleuze is Guattari's town in imagination. In that town, everyone owns an electronic card to open barriers for leaving or entering a place. However, that card can be rejected on a particular time or day: "it doesn't depend on the barrier but on the computer that is making sure everyone is in a permissible place, and effecting a universal modulation" (Deleuze (1995: 182)). Yet for people today, Guattari's imagination is a reality of everyday life. The differences between imagination and real life are of scale, not quality.

Aside from wages and Guattari's verifying system, there are other different modulations operating everywhere. Programmable and upgradeable are synonyms for modulation today. Owners of computers without doubt have experiences of upgrading new operating systems or anti-virus programs in order to modulate the computer to adapt to new situations. Because of the frequency of the need to upgrade, some operating systems or programs provide options for users to upgrade automatically. The ability to upgrade has become a commodity; users are asked to pay to obtain or continue the right to upgrade. Moreover, upgrading itself is becoming a means to defeat firmware hacks or software piracy.[7] However, while the ability to upgrade provides users with convenience and producers of products with possession, there is a more alarming danger, namely a reality, marked by the function of modulation that one is within the system. The control society is "a regime of social subjection" besides its original "machinic enslavement."[8] Deleuze and Guattari (1988: 456-57) distinguished between social subjection and machinic enslavement as two separate concepts in the following way:

> There is enslavement when human beings themselves are constituent pieces of a machine that they compose among themselves and with other things (animal, tools), under the control and direction of a higher unity. But there is subjection when the higher unity constitutes the human being as a subject linked to a now exterior object, which can be an animal, a tool, or even a machine. The human being is no longer a component of the

machine, but a work, a user.

However, one can see that this kind of subjection is further developed under control societies' logic of *dividuals*.[9] Deleuze (1995: 180) argued that, in control societies, "we're no longer dealing with a duality of mass and individual. Individuals become "*dividuals*", and masses become samples, data, markets or banks. He did not offer further descriptions or examples of what he meant by "dividuals." Colwell (1996: 211) viewed it as a process to constantly defer the formation of identity, stating that "while disciplinary power operates through the construction of an individual out of the personal component of individual, control operates through the pre-personal itself." Although Colwell provided a useful view of the operation of control societies as well as a strategy to escape from the trap of binary opposition between individuality and dividuality, we understand "dividuals" from a different perspective.

Deleuze's previous statement begins from the "duality of mass and individual" then ends with the pair of "*dividuals*," and "samples, data, markets or "banks." This implies first of all, that the concept of dividuals is inseparable from the concept of "samples, data, markets or "banks." Secondly, although there has been a long recognition that the "individual" was the smallest possible socio-political unit, which could not be subdivided any further, however, from Deleuze's description, one can sense that there is the advent of a new technique, which further divides individuals (as a whole) into smaller pieces (information) in control societies. We call this new technique coding for decoding, and we use social surveys as examples to describe its operation. In a typical social survey, for example, with 2000 respondents, each variable (information) is a "dividual" taken from a single individual. This new coding for decoding technique is different from coding operations in previous territorial social machines (codifying) or despotic social machines (overcoding) in two ways. First, the characteristics of code in previous social formations are "indirect, qualitative, and limited," but in societies of control, they are direct, numeral, and unlimited.[10] Secondly, this new coding is purely operational; its goal is to decode the information from the individual without interposing any other factors, such as norms, rules and relations, upon the individual, while creating a pseudo relationship between the information and the individual. In the case of Google, it is like a programmable interface that allows one to combine any keyword to execute searching as long as the prior two conditions (dividual/databanks) are met. Moreover the coding and decoding happen spontaneously. Its operation on an individual is contingent, not intentional.

However, any single piece of information ("dividual") is meaningless; its meaning must come from the aggregation of similar pieces of information (the "samples, data, markets or "banks"). When the aggregation of similar information on different people reaches a certain amount, it becomes obvious that some kind of knowledge/discourse is formed. Moreover, this knowledge/discourse can often be empowered by other knowledge/discourses, scholarly research, and the power of government. As a result, not only is a kind of coercive force formed, people who fit the sample also become biological suspects (Ortiz and Brigg (2003)). Under the operation of "dividual," we are "subjected" in three senses. First of all, we are subjected to "dividuals" as a form of information. Secondly, we are subjected to "samples, data, markets or "banks" as a part of an aggregation of "dividuals." Finally, we are subjected to those who utilize this knowledge from the "samples, data, markets or banks."

Deleuze referred to disciplined society as a mole and to control society as a snake.

Although moles construct tunnels underground, which seem invisible and secluded, both moles' tunnels and burrows are still confined sites, and moles' movements follow the existing tunnels. On the contrary, even snakes coil and move under the open ground, and it seems that we can watch their movements. However, in fact, the snakes' movement preparation is already done before we even see it. When snakes prepare to move, the scales on their belly are pulled forward and backwards as the scales are aligned much like a ratchet. Then, all of a sudden, in preparation, snakes can swiftly make their move in any direction before people anticipate it. From this point of view, snakes are more complicated and cunning than moles.

The Problem of Communication

Deleuze (1995:175) stated that "the quest for 'universals of communication' ought to make us shudder." In order to escape from control societies, he hypothesized that "the key thing may be to create vacuoles of noncommunication, circuit breakers, so we can elude control." But why does communication make Deleuze shudder? In addition to his advice that control of communication is on the way to becoming hegemonic, Deleuze (1995:175) has given us two aspects to illustrate the contemporary situation of communication. The first is the practical one that communication has been corrupted. He argued that communication is thoroughly permeated by money. According to conventional wisdom, communication primarily works under the sway of debate in order to create "consensus," thereby functioning as a machine for constituting universals (Deleuze and Guattari (1994: 6)). When communication exhausts itself in its search for universal consensus, only "the cynical perceptions and affections of the capitalist" remain, and the only universal in capitalism is the market (Deleuze and Guattari (1994: 146)). Deleuze's (1998: 17) position on communication follows from the fact that "communication is the transmission and the propagation of a piece of information." In this regard, information, as a grouping of order-words, is the system of control per se. Deleuze's (1998: 76) view of information derives from his understanding of language:

> The elementary unit of language—the statement—is the order-word. Rather than common sense, a faculty for the centralization of information, we must define an abominable faculty consisting in emitting, receiving, and transmitting order-words. Language is made not to believe but to be obeyed, and to complement obedience.

He (1998: 79) argued that "order-words do not concern commands only, but every act that is linked to statements by a 'social obligation.'" The narrative forms of communication are in turn themselves implicated in a specific mode of human subjectification.

What is the connection here to contemporary communication? McLuhan (1965: 23) has distinguished media, not according to the content of the forms transmitted but rather by the degree of participation of the participants. Thus, the difference between theater and television is not due to stage, art forms or lighting but due rather to the degree of participation by the audience. The higher the participation, the cooler media becomes and vice versa. Deleuze wrote that "information is communicated to us." We are all participants whether we are aware of it or not.[11] Connection in communication is not only like a line between the transmitter and the receiver but also like a web trapping us within. To connect is to plug in.

Since information or communication must have a transmitter as a starting point and the

receiver as an end, the only movement one can achieve is migration, not nomadism, and the only space one can create is striated space, not smooth space, in Deleuzian terms.[12] Scott Lash (2002: 112) has shown how "the logic of flows is the logic of communication" today. Just as the logic of flows is the logic of communication, all flows get their *telos*. There is no way for any free flow to exist, and at that point of juncture, control societies infiltrate our life.

In this era of real time technology and maximally mobile communication, we ironically have become increasingly subjected to control societies. In a disciplinary society, we lived or stayed in its confined sites. Now, it is not a problem of confinement but where to hide.

With the advent of internet or cyberspace, one can see co-existence of open (democratic) and closed (regulatory) aspects in the system. On the one hand, its expansion thrives on the maximization of open, participatory access, yet on the other hand it is also conditional on the cumulative exploitation of data knowledge. The literature on Web 1.0, 2.0, and beyond tends to depict the evolution of internet just as a series of seamless technological upgrades. How is one so sure that this is not instead the end product of a deeper transformation of "control?"

"Social" Media as a Function of Protocol

Despite the brevity of Deleuze's "Postscript," much of the discussion generated around it was in relation to the internet and cyberspace, even though there was no direct reference to the latter in the essay. The institutional history of the internet has much to do with control in a literal sense, insofar as it has clearly been the product of a top down evolution. In fact, the internet is not, in strict terms, a network but rather a common protocol (TCP/IP) that formed the gateway for linking separate networks. The protocol was written first in 1969 by the US Department of Defense and set up in 1982 to link its ARPANET (Advanced Research Project Agency) computers. Its success enabled TCP/IP to link different networks such as CSNET, USENET, BITNET and NSFNET, thus forming in 1986 the backbone tying major university computing centers. By the time ARPANET ceased in 1990, its protocol lived on to become the standard for linking networks, as though they operated seamlessly as part of one system. Lawrence Lessig and Tim Wu have in different ways argued that the regulative nature of the internet has intensified control, in legal and political terms. Goldsmith and Wu (2006) have shown the extent to which territorial governments have regulated the internet in ways that can transcend national boundaries, ultimately invoking the omnipresence of surveillance societies. One can, of course, add to this CCTV, RFIDs and smart card technology (see Newman 2009). Lessig (1999) has especially underscored the regulative nature of code. Under the influence of commerce, cyberspace has become a highly regulable space, where behavior is much more tightly controlled than in real space. In this realm, code is the most significant form of law.

Guins (2009) presented perhaps the most systemic description of "control technologies," which he classified according to its active techniques or procedures of "blocking," "filtering," "sanitizing," "cleaning," and "patching." Censorial practices and procedures are generalized and multiplied at innumerable sites and experiences with the management of culture. These technologies represent instrumentalized protocols that delimit a social relation to devices of control. Being designed into its media, control thus enables choice for disciplined freedoms. Elmer's (2004) analysis of "profiling machines" in the mapping of the personal informational economy is perhaps most relevant to the way in which digital commerce and social media on

the Net rely on accumulation of data banks to monitor consumer preferences and behavioral tendencies. Like Guins' "control technologies," profiling is a practice or procedure that is built into processes of data collection through its use of "cookies" and various cross-reference techniques that not only facilitate surveillance but also regulate consumer choice and desire. Personal profiles are ultimately the basis on which market preference or consumer trends can be spatially or diagrammatically mapped out, which reiterates Deleuze's machinic metaphor.

Poster and Savat's (2009) volume of essays was an early attempt to elaborate on the ramifications of Deleuze's thoughts on new technology. As Bogard (2009) and others pointed out, Deleuze is less interested in questioning technology (hence media also) than articulating a problem about machines and its enunciative elements, namely assemblage. Assemblages have a territorialized side that faces fixed norms and contents and a deterritorialized side that faces the outside. The control society's outside is its network. Networks expand by adding nodes or increasing connections to each node. But the expansion of network connections is selective; some nodes are confined to specific networks and cannot access others without the proper passwords. As Savat (2009) explicated it, modulation is in effect an amplification of discipline, in Foucault's sense. The use of digital technologies of control through collection and cross-referencing to automatically accumulate data enables the expansion and detailing of a person's disposition and desires (profiling) to an unprecedented degree. Modulation in this regard attempts, by way of calculation, to recognize and anticipate patterns. It is fluid and flowing by nature, similar to Deleuze's (1992: 4) characterization of the corporation as "gaseous," different from the logic of containment representative of Foucault's discipline.

The most nuanced treatment of the political economy of internet is Galloway's *Protocol* (2004). As he (2004: 3) aptly stated it, the diagram is the distributed network (in Deleuze's terms), the technology is the digital computer (abstract machine), and its management style is protocol, the principle of organization native to computers in distributed networks. They all coalesce to constitute a new apparatus of control in society. In terms of protocol, TCP/IP, which enables internet to create horizontal distributions between computers, contrasts with DNS (domain name system), which vertically stratifies that horizontal logic through a set of regulatory bodies that manages physical names and addresses. Power relations are resonant with the flexibility and constraints of informational technology. Information flows but in a highly regulated manner. More than simply codes, protocols in the age of digital computing refer specifically to standards that govern the implementation of specific technologies. As Galloway (2004: 74) phrased it, "protocol is a language that regulates flow, directs netspace, codes relationships and connects life-forms." It is a second-order process; it governs the architecture of the architecture of objects. It is how control exists after distribution achieves hegemony as a formal diagram. Perhaps contrary to the way Wu and Lessig view the role of the government and law in regulating internet through codes, Galloway (2004: 122) says that "protocol is a controlling logic that operates outside institutional, governmental and corporate power, although it has important ties to all three." It gains its authority from elsewhere, that is, from technology itself and how people program it. In other words, it is embedded into the software management, defining the architecture of the system; it is the essence of control.

In the context of internet, one should transcend the literal aspects of digital media to ask, as Galloway puts it, how control exists after decentralization and how protocol itself creates a political economy. In the same way, while free access can be seen as an explicit aspect of its

media democracy online, it also disguises the hierarchical and regulative aspects of protocol. Berger (2013) argues that societies of control, especially in Hardt and Negri's extreme form as Empire, require a transnational information structure, i.e. internet. In Deleuze's broader conceptualization of rhizomes and smooth society, he visualized the creation of free, anarchic spaces and alternative methodologies for thought and action. But under militarization, they have been wrangled into control. Protocol refers here to a method of correct behavior under a given chain of command. Not coincidentally, Turing's computation machine and Wiener's cybernetics both have origins in warfare and in their use of algorithms for code breaking.

In the realm of protocol, modulation marks a continuous control over society that in the coding of data fragments dividuals. The continual updating of profiles compiled from user interactions creates a constant feedback loop that generates new categorization practices. In essence, modulation regulates in a positive, cumulative mode that contrasts with disciplinary containment. Nonetheless as an ongoing process of category identification, Cheney-Lippold (2011) argues that one can also legitimately characterize it as a "soft" biopolitics or biopower.

Algorithms work at the level of the network and produce difference; they order, through control of access (such as in passwords), the way users gain information and entities regulate the flow of data. Snake-Beings (2013) notes that algorithms have served as a more effective method of intellectual oppression than the ideology of the mass media technologies. In Web 2.0, the screen becomes an interactive distribution network, enabling users to interact "freely" with the system. But behind this interaction, opaque mechanisms operate at the back-end to divert and coordinate the flow of data for its own ends. Algorithms that match categories of things with user profiles determined from search results can generate ads catering specifically to the users' perceived interests. Data becomes ghettoized in the same way that we become dividualized. The subject of the algorithm's control becomes also the object of domination. In the financial markets, Karppi and Crawford (2016) argue that social media has connected communicative spaces to computational ones in ways that are highly contagious and volatile.

The telecom industry's attempt to block certain internet services, such as Voice over IP, represents a challenge at the level of protocols that allows providers to discriminate data, thus prioritizing access. Netjes (2011) describes the effort by Dutch telecoms providers to alter protocols at the link layer to provide privileged access through structured fee paying services. Such challenges, which mirror efforts by Ethernet providers elsewhere, threaten the principle of netneutrality but are at the same time a product of control built into the design of protocols.

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[1] The original title, "Post-scriptum sur les sociétés de contrôle", was published in *L'autre journal*, 1990. Both English versions were translated by Martin Joughin as "Postscript on societies of control," appearing in *October* 1992, 50: 3-7, T *Negotiations*, New York: Columbia University Press 1995, 177-82, N. Leach ed., *Rethinking Architecture: A Reader in Cultural Theory*, London: Routledge 1997, 309–13, and Thomas Levin et al., eds., *Ctrl Space: Rhetorics of Surveillance from Bentham to Big Brother*, Cambridge: MIT Press 2002, 317-21.

[2] For example, Jones (2000) applied Deleuze's notion of "control societies" to develop his concept of "digital rule" in social control. Walters (2006) noticed that borders were no longer a symbol of the integration between sovereignty and territory of the state and used Deleuze's concept of "control societies" to elucidate rebordering.

[3] Jones (2000: 7). Cohen (1985: 2) noted that in Marxism social control became "a Mickey Mouse concept."

[4] Bratich (2006), who discusses the formation of subjects in reality TV, Nealon (2006), who explores gambling as a new kind of pastime in the U.S., and Wise (2002), who describes possible everyday life in Deleuze's "control society" in *The Truman Show*, all view Deleuze's "control society" as a kind of cultural logic form.

[5] Foucault (1977: 303-4). The main focus in Foucault is not capitalism itself. Nonetheless, they operate under the same principle, namely profit. The only difference is between economic activity and negative sanction.

[6] Deleuze and Guattari (1984: 251) recognized two kinds of axiomatic. One is scientific axiomatic; the other is social axiomatic. However, they thought that many of the characteristics of scientific axiomatic are "even truer of the social axiomatic." When they used the term, axiomatic, they referred mostly to social axiomatic.

[7] In the case of upgrading iPhone firmware, third party software will be disabled. If the iPhone is hacked by third party software, its communication abilities will be disabled, or it will be locked to default system settings.

[8] Deleuze and Guattari (1988: 451). Regarding regimes of social subjection, Deleuze and Guattari (1988: 451) wrote, "cybernetic machines and informational machine form a third age that reconstructs a generalized regime of subjection: recurrent and reversible 'humans-machines system' replace the nonrecurrent and nonreversible relations of subjection between the two elements; the relation between human and machine is based on internal, mutual communication, and no longer on usage or action."

[9] Machinic enslavement and social subjection operate simultaneously in relation to the same thing and event.

[10] Regarding the characteristics of code in previous social formations, see Deleuze and Guattari (1984: 247-48).

[11] Whether or not a computer is connected, it continues to communicate with its router or gateway; at the same time records continue to be created. Records, such as operation logs, thus have a potential for surveillance use.

[12] Deleuze and Guattari (1988: 380) said, "the nomad is not at all the same as the migrant; for the migrant goes principally from one point to another, even if the second point is uncertain, unforeseen, or not well localized. But 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." For striated and smooth space, Deleuze and Guattari (1988: 480) stated, "in the case of striated, the line is between two points, while in the case of smooth, the point is between two lines."