

Comparative Analysis of *Protocol: How Control Exists after Decentralization*, by Alexander Galloway, and *Control and Freedom: Power and Paranoia in the Age of Fiber-Optics*, by Wendy Hui Kyong Chun

This essay attempts to compare and contrast two books which generally take the Internet as their object of study, namely *Protocol: How Control Exists after Decentralization*, written by Alexander Galloway, and *Control and Freedom: Power and Paranoia in the Age of Fiber-Optics*, by Wendy Hui Kyong Chun. In comparing the two books, I focus on fundamental concepts, the theoretical frameworks from which they originate, and methodological approaches which influenced the shaping of the each book's argument in a defining way. By using this approach I plan to show how using the same theoretical framework and methodologies brings the authors to comparable conclusions, while supplementing her argument with a broader and more diverse methodological and theoretical framework, allows Chun to complicate the argument of Galloway and extend beyond it.

I start by comparatively analyzing fundamental notions in their argument, such as the concepts of *power*, *control*, *freedom*, *paranoia*, and *democracy*, and the theoretical corpuses on which they rely to introduce these notions, in order to follow how the introduction of each of these notions shapes their argument and leads them to different conclusions. Separately, I offered particular attention to a common corpus of theorists on which they both rely, namely *Gilles Deleuze* and *Michel Foucault*. The next point of the comparison is the two books' *methodological approach*, also significant for how the two authors mould their argument. I particularly emphasize one aspect specific to Chun's analysis in this section, which gives complexity to her argument, namely the analysis of *extramedial discourses*. Further I confront their reading of the technical, by comparing their interpretations of *TCP/IP* and *code*. I conclude with a comparison of their *visions for the future* of the internet technology, by discussing the role of *resistance* in changing and improving the system.

Fundamental notions in the argument

Both books explore the relation between the technological, the political and the cultural in terms of the Internet, by focusing on fundamental concepts which have been rightfully or non-rightfully associated to it, such as *power*, *control*, *freedom*, *democracy* or *paranoia*.

Galloway, by resorting to a material understanding of technology, moves from common cultural interpretations of the Internet networks as metaphors, and resulting tropes of connectivity, collectivity and participation, to understanding the network as “a diagram, a technology and a management style.”¹ *Protocol* is introduced by Galloway as the management style, the organization and control force operating in distributed networks. In understanding networks in terms of their protocols, by drawing on Paul Baran, Galloway demonstrates that, unlike common conceptions, the distributed network, the network diagram specific to the Internet, does not remove forms of organization or control, is not anarchic, chaotic, or entirely rhizomatic, but it creates novel structures of organization and control. Protocol coincides with this new *apparatus of control* in the core argument and subtitle of Galloway’s book: “protocol is how technological control exists after decentralization.”²

Galloway defines protocol on several layers. At a basic level, in its positive representation, protocol is “a set of recommendations and rules that outline specific technical standards.”³ But protocol is not only a physical, but also a social and political technology, as Galloway demonstrates. It does not resume to guiding technological networks, but also biological and bioinformatic networks: “It is a totalizing control apparatus that guides both the technical and political formation of computer networks, biological systems, and other media.”⁴ As far as its formal qualities are concerned, protocol has impact at social level, where protocol functions as a set of norms of conduct. Furthermore, protocol becomes a management system of life forms, when life starts to be referred to as code, DNA code, and thus becomes a medium for protocol’s controlling force. By employing Foucault’s concepts of

¹ Galloway, Alexander, *Protocol: How Control Exists After Decentralization*, MIT Press, 2004, p. 3

² *Ibid.*, p. 8

³ *Ibid.*, p. 6

⁴ Galloway Alexander, Thacker, Eugene, *Protocol, Control, and Networks*, p. 7 in Grey Room 17, Fall 2004, pp. 6–29, MIT

biopower and *biopolitics*, defined as “statistical knowledge about populations”⁵, as well as Marx’s theories of *reification* (life becoming matter), *commodity fetishism* (matter becoming life), and the concept of *second nature*, which refers to the tendency of material objects in modernity to be aestheticized thus becoming living entities, Galloway argues that life, through the action of protocological forces such as biopower, has become matter, at the same time as matter has become life by means of aesthetization in the control society, giving birth to non-human and hybrid autonomous life forms, such as cyborgs and artificial life systems. Thus redefined, all of these life forms fall under the regulation of protocol without discrimination, serving its purpose of totality, of accommodating, capturing everything, in a process similar to Chun’s account of users using while being used without their knowledge, thus being objectified.

Focusing on protocol as instantiation of control in the Internet network, Galloway brings a counterpoint to the early utopian views on Internet, which interpreted it as total freedom, “information superhighway”, allowing supreme agency of the human user. Contrarily, he argues that “The founding principle of the net is control, not freedom. Control has existed from the beginning.”⁶ He supports his claim by revealing protocol’s dual nature, which resides in the tension between what he consider to be two opposing technologies, TCP/IP and DNS: “One radically distributes control into autonomous locales [...], and the other focuses control into rigidly defined hierarchies.”⁷ Control is thus the founding principle of an open, flexible yet robust technology. By revealing the bureaucratic institutional framework which supports this open technology, Galloway extends what he considers as dual, paradoxical, contradictory, dialectical nature of protocol, from the technical level, to a general principle, perhaps a philosophy of protocol: “in order to be politically progressive, protocol must be partially reactionary.”⁸ The institutional framework of protocol uses standardization as a reactionary tactic, in order to enable protocol to reach its strategical goal of openness.

⁵ Galloway, *Protocol*, p. 85

⁶ *Ibid.*, p. 142

⁷ *Ibid.*, p. 50

⁸ *Ibid.*, p. 142

While both Galloway and Chun speak of the Internet in terms of control and freedom, they define the relationship between the two concepts and their status within the technology in a different way. By drawing mainly on Deleuze's control society, concurrent with Foucault's notions of biopower and biopolitics, the outcome of Galloway's materialist study of the medium's protocols is the *primacy of control*, as the opposite of freedom, as protocological principle of the distributed Internet network, even if a paradoxical one, "based on openness, inclusion, universalism and flexibility."⁹ On the other hand, Chun's analysis of the relation between control and freedom in terms of the Internet technology, is more nuanced and complex. By employing a more extensive methodology, including an analysis of extramedial narratives concerning the Internet and a wider variety of theoretical sources, she complicates the relationship between the two concepts by introducing notions of *subjectivity*, *human agency* and *paranoia*.

Chun offers an important role in her argument regarding the conflation of freedom and control to the notion of *paranoia*. Her account of paranoia draws mainly on Jacques Lacan and Slavoj Žižek. She argues that the discourse surrounding the promotion of the Internet in its early years, which promoted amnesia, blindness to hide the user's vulnerability in contact with an intrusive medium, epitomizes a paranoid response to technology's vulnerabilities, which corresponds to Jacques Lacan's notion of *paranoid knowledge*. Paranoid knowledge is driven by the *dialectic of jealousy*, also a Lacanian notion, which underlies the assertion: "the object (the Internet) is of interest to us because it is the object of another's desire."¹⁰ Chun interprets the reassessments of the Internet after 9/11, and the increased electronic surveillance measures, as perpetuating paranoia, which sets the conditions of the twinning of freedom with control. She makes an expressive account of the relation between paranoia and *power*, by discussing Paul Schreber's paranoia¹¹, the source of which he declared to be his awareness of the "rottenness" of power. In the age of fiber-optics paranoia stems from the perception of the invisible power in the control society, as lacking or decaying. Drawing on Lacan's definition of the paranoid as unable to move from the imaginary to the symbolic, and Žižek's definition of

⁹ Ibidem.

¹⁰ Ibid., p. 251

¹¹ Schreber, Daniel Paul, *Memoirs of My Nervous Illness*, Cambridge, Harvard University Press, 1988, in Chun, *Control and Freedom, Interlude*, pp. 31-35

paranoia as “the belief in the big Other which exists in the real”¹², in an age of decline of paternal authority, Chun contends that “Paranoia stems from the desire to compensate for a perceived weakness in symbolic authority.”¹³

Chun argues that paranoia is both cause and consequence of the reduction of the political to the technological, and undermines concepts such as freedom and democracy, by conflating them with control and security. Similarly, Galloway too criticizes the tendency to reduce political problems to technological solutions, generative of paranoia in Chun’s view, in one of his articles co-authored with Eugene Thacker: “we identify in the current literature a general willingness to ignore politics by masking it inside the so called black box of technology.”¹⁴

Chun criticizes the current political redefinition of *freedom* to the dream of a security state as being an alibi for control, reductionist, subversive, and after all nonsensical due to its incompatibility with the definition of freedom. In this post Cold War context, the object of study of her book is the *paranoid conflation between freedom and control*, characteristic of power in the age of fiber optic Internet. Rather than speaking of control and freedom as opposite effects resulting from the tension between two different machines, TCP/IP and DNS, she speaks of them in a more nuanced way, as two different sides of the same coin, not as separate but rather as conflated to form the *control-freedom matrix*, with a subversive effect on the promise of freedom, as effect of paranoia. Rather than stating the primacy of control, Chun speaks of them as twinning throughout the book, to declare only in the end, drawing on the French philosopher Jean-Luc Nancy, her belief in the *primacy of freedom*, in a freedom beyond control because freedom is beyond technology.

Chun goes beyond the control narrative or even the control-freedom matrix to assert her belief in the primacy of freedom, by making use of other theoretical corpuses, besides Foucault and Deleuze’s accounts of power and control, namely Nancy’s notion of freedom. Against the current redefinition of freedom through its ideological conflation with control, which reduces freedom to subjectivity, confuses it with

¹² Slavoj Žižek, *The Ticklish Subject: The Absent Centre of Political Ontology*, p. 362, in Chun, *Control and Freedom*, p. 270

¹³ Chun, *Control and Freedom*, p. 267

¹⁴ Galloway, Thacker, *Protocol, Control, and Networks*, p. 6

liberty and thus limits it, Chun argues that freedom exceeds control, because as Nancy states, freedom is much rather *a fact*, a condition of the possibility of being, “an initiality of being”¹⁵, which precedes the being and is independent from human possession. In line with the French philosopher, Chun argues that freedom is something that cannot be controlled, or reduced to the free movement of the commodities in the marketplace. Thus freedom precedes control because freedom is beyond technology, it is what permits technological systems to exist.

Another significant aspect which differs in Chun and Galloway’s accounts of control and freedom enabled by technology, is their relation with *human agency and subjectivity*. Galloway refers to individuals in terms of the effects of their actions in shaping the technology. He mentions different protocological actors whose exploitation of the system’s vulnerabilities works in favour of the system. While Galloway always highlights the consequences of human agency on the system, Chun, on the other hand, focuses on how human agency is being exposed to and shaped by the technological, and discusses vulnerabilities at subjective level. She deconstructs the myth of user control and total agency produced by Internet’s conflation with cyberspace and its commercial promotion, and unveils that the empowerment narrative is driven by our own vulnerabilities in relation to a technological apparatus of power “that tries to seduce us into denying our very experiences of its fallibility.”¹⁶ She sees as flawed the current concealing approach to these vulnerabilities and considers that resisting the vulnerabilities leads to the conflation of control and freedom, of democracy with security, and consequently to paranoia. She considers as a more productive approach “to deal with questions of *democracy* in terms of vulnerability and fear”¹⁷, because, for Chun, the democratic potential of fiber-optic networks, the “something like democracy”, contrary to common conceptions, “stems from our vulnerabilities rather than our control.”¹⁸ She argues that the democratic potential of fiber-optic networks lays in rejecting the conflation of freedom with control and, by revealing the invisibilities, acknowledging our vulnerability in relation

¹⁵ Nancy, Jean-Luc, *The Experience of Freedom*, Stanford University Press, 1993, p. 78 in Chun, *Control and Freedom*, p. 293

¹⁶ *Ibid.*, *Epilogue*, p. 302

¹⁷ *Ibid.*, p. 127

¹⁸ *Ibid.*, p. 297

to the technology as the basis for a productive approach towards its improvement: “so that we might work together to create vulnerable systems with which we can live.”¹⁹

The concept of *fiber-optics* plays an important role in Chun’s metaphorical association of the circulation of light through the fiber-optic networks with the *enlightenment* of users. But the new medium requires a reconsideration of enlightenment, not as limited to rational discourse, but rather as uncontrollable, because the medium permits surveillance as well as self-reflection: “Fiber-optic networks, then, enable communications that physically instantiate and thus explode enlightenment”²⁰. Fiber-optic networks thus operate enlightenment as overexposure, which becomes a source to understand our vulnerabilities, according to Chun.

The concept of fiber optics also indicates the time of study as the early age of Internet, more specifically the moment of its emergence as a medium, in the mid to late 1990s in the United States. Galloway’s analysis on the other hand focuses more generally on the apparatus of control specific to the control society of the end of the twentieth century and the beginning of the twenty first.

Common theoretical corpus

In connecting the Internet technology with the concepts of *power* and *control*, Chun and Galloway rely on a common corpus of theorists, namely the French philosophers *Michel Foucault* and *Gilles Deleuze*. They both situate their argument in relation to the rough periodization theorized by the two philosophers, but have slightly different approaches to it.

Foucault, throughout his writings, such as *Discipline and Punish: The Birth of the Prison*, as well as *The History of Sexuality, Volume 1* and *Madness and Civilization*, analyzed the organization and practice of power and control throughout history and theorized two historical phases: the sovereign society, and its shift to the disciplinary society. In the sovereign society the discourse of power relies on coerciveness, the death penalty and the physical existence of a monarch. While sovereign power is power to inflict death, and is specific to the classical or sovereign era of the eighteenth

¹⁹ Ibid., *Preface*, p. viii

²⁰ Ibid., p. 98

century, the disciplinary or modern society relies on a disciplinary mechanism, originally introduced in the penal practice and extended from institutional practice to a general social mechanism, as disciplinary power. This type of power is exercised as power over life through discipline, the mechanism of infliction of which is Jeremy Bentham's *Panopticon*, which materializes the principle of constant surveillance through visible but unverifiable apparatuses, the major effect of which was to "induce the inmate a state of conscious and permanent visibility that assures the automatic functioning of power."²¹

Deleuze in *Postscript on Control Societies* further develops Foucault's periodization and argues for a shift, originating in the post-war period, from Foucault's disciplinary society to control or postmodern society, as a consequence of changes in technology and capitalism. Both Galloway and Chun place their analysis in this third phase of control society, when the confinement and isolation of bodies, characteristic for the disciplinary societies, is being replaced by flexibility, codes and modulations. Deleuze introduces in his analysis of control society a key element of interest to both Galloway and Chun, namely the relationship between different historical phases and the technologies native to them, which places the computer as specific to control society: "The old societies of sovereignty made use of simple machines--levers, pulleys, clocks; but the recent disciplinary societies equipped themselves with machines involving energy, with the passive danger of entropy and the active danger of sabotage; the societies of control operate with machines of a third type, *computers*, whose passive danger is jamming and whose active one is piracy or the introduction of viruses."²² Galloway's book will be elaborating on specific characteristics of this third phase, the control society, "by focusing on the controlling computer technologies native to it."²³ Similarly, Chun, relating to Deleuze's statement, considers that "The computer, with its emphasis on information and its reduction of the individual to the password, epitomizes control societies. Digital language makes control systems invisible: we no longer experience the visible yet unverifiable gaze but a network of nonvisualizable digital control."²⁴ Both Chun and Galloway

²¹ Michel Foucault, *Discipline and Punish: The Birth of the Prison*, Vintage Books, New York, 1978, p. 201, in Chun, *Control and Freedom*, p. 7

²² Deleuze, Gilles, *Postscript on the Societies of Control*, in *L'autre journal*, No. I, May 1990, p. 3-7, <http://www.nadir.org/nadir/archiv/netzkritik/societyofcontrol.html>

²³ Galloway, *Protocol*, p. 3

²⁴ Chun, *Control and Freedom*, p. 9

recognize that, while for power to function in disciplinary society it has to be visible but unverifiable, in control society power is invisible.

The new technology permits for the disciplinary apparatus of power to be replaced by more flexible codes of control in the new societal stage, by operating a change in the way individuals are conceived of. While disciplinary societies function on two pillars: signatures, standing for the individual, and numbers in a register, standing for their position in a mass, the society of control identifies individuals in a digital way: by means of codes and passwords, which allow or reject access. The dichotomy individual - mass changes into “dividuals“ - “samples, data, markets, or banks.”²⁵ Deleuze suggests that the biological and the technological become intertwined in control society through the representation of the biological through data, challenging the distinction between organic and non-organic. This particular quality of control societies which Deleuze introduces, the blurring boundaries between organic and nonorganic life, will function as one of the premises for Galloway’s argument, that protocol is a regulating force of life itself, that it functions as a management system of both organic and nonorganic life.

While Galloway seems to be uncritically inspired by Deleuze’s essay in establishing the object of study of his book as the apparatus of control specific to the postmodern society of the end of the twentieth century and the beginning of the twenty first, which he describes as comprising of a diagram (the distributed network), a technology (the digital computer), and a management style (the protocol), Chun takes a more critical stand to Deleuze’s contribution in theorizing control society. Although acknowledging Deleuze’s influence in theorizing it, Chun estimates his account of it as arguably paranoid. His consideration of the computer in several points in his essay exposes his overestimation of the infallibility of the control system effected by technologies, which is defining for Chun’s notion of paranoia in the age of fiber optics, and is in line with the paranoid myths of the Internet as tool of infallible control. It thus could be argued that Deleuze as well participates in the mythologization of the control system effected by digital technology by ignoring its failures and conflating possibility with probability.

²⁵ Deleuze, *Postscript on the Societies of Control*,
<http://www.nadir.org/nadir/archiv/netzkritik/societyofcontrol.html>

While Galloway drawing on Deleuze focuses his analysis on the technological apparatus of control and the openness that stems from it, Chun differentiates her approach from Deleuze's by including in her analysis the failures of technology as well, as a source of better understanding of a control-freedom system, which allows her to place primacy on freedom and expand on the Internet's ability to enable possibilities of freedom beyond control.

Chun uses Foucault's theories more extensively than Galloway because her analysis employs more than the media archaeology approach. She uses Foucault's argument from *The History of Sexuality*, that sexuality is the hidden instrumental to power and knowledge, in her extensive discussion of sexuality in relation to fiber optic networks, to argue that "the relationship between control and freedom in terms of fiber-optic networks is often experienced as sexuality or is mapped in terms of sexuality-paranoia."²⁶ The paranoid tension between control and freedom determines changes in sexuality and race to the extent that "Sexuality is the meeting point between two objects of biopower (the power over life): the individual and the species. As such, sexuality is intimately linked to twentieth-century racism."²⁷

Methodological approach

The complexity of Chun's argument vis-à-vis Galloway's is grounded in her more complex methodological approach and different theoretical and writing style. In terms of methodology, Chun critically examines the four layers of networked media: hardware, software, interface, and extramedial representation, "the representation of networked media in other media and/or its functioning in larger economic and political systems."²⁸ She thus brings together two different approaches to media, namely *visual culture studies*, which focus on "the subjective and cultural effects of media, or on the transformative possibilities of the interfaces"²⁹, and the approach employed by Galloway, *media archaeology*, which concentrates on issues of hardware and software, on the functions and structures of technology. Her use of the two currently perceived as opposed approaches, follows, I believe, the same logic

²⁶ Chun, *Control and Freedom*, p. 11

²⁷ *Ibid.*, p. 12

²⁸ *Ibid.*, p. 16

²⁹ Wendy Hui Kyong Chun, Thomas W. Keenan, *New Media, Old Media: A History and Theory Reader*, Routledge, 2005, p. 4

which explains their compilation in Chun's other book, *New Media, Old Media: A History and Theory Reader*: "to map the field's possibilities and blindnesses."³⁰

Throughout the book she alternatively employs the critical cultural studies approach to deconstruct and debunk cultural discourses and myths in a logic of making the invisible visible, supporting her hypotheses by resorting to media archaeology approaches. In her approach to common myths related to the Internet, her purpose is not to simply dismiss them, but rather to deconstruct them, in order to understand and expose their effects in mapping the perception of Internet and the practices they engender.

Her more poetic writing style is tactical and reflects the content of her writing. The rhetorical tactic of making the invisible visible, by showing both aspects of a fact, not necessarily as oppositional, but rather as different sides of the same coin, reflects her more *nuanced and multimodal writing style*. In this style, she exposes the two competing myths related to the early existence of the Internet: the Internet as a tool of total freedom, and the Internet as a tool of total control and surveillance, as paranoid narratives resulting from the flawed approach of reducing political problems to technological ones.

While Galloway considers the Internet to be the most highly controlled media known so far, as a counterpoint, she argues in a more nuanced way that: "The forms of control the Internet enables are not complete, and the freedom we experience stems from these controls."³¹ She argues that the freedom which we experience on the Internet is a consequence of the lack of complete control which we have over our actions, thus a consequence of our vulnerability. To illustrate this argument, she introduces the example of the packet sniffer technology, a software program which stores traffic travelling through a local area network. The use of this software shows that the computer not only sends and receives data at the command of the user, but that the computer is constantly engaged in an exchange of information when connected to the Internet, of which the user is unaware without the use of a packet sniffer. Thus the Internet circulates "reproductions" of data related to the user without

³⁰ Ibidem.

³¹ Chun, *Control and Freedom*, p. 3

his knowledge. This constant, nonvolitional exchange of information is at the heart of the existence of the Internet, and from this literal interpretation of control stems the freedom to access “reproductions” of the other on the Internet.

Galloway’s study argues for a *material understanding* of the Internet technology, or, as he states: “I attempt to read the never-ending stream of computer code as we read any text, decoding its structure of control.”³² Chun too relies on this approach, which she supplements with an extensive study of various *extramedial discourses* which take Internet as their object, from literature to press, advertising and legislative discourse, in order to map their effects on the Internet’s perception and conceptualization. From this point of view, the purpose of her book is not only to examine the paradoxical acceptance of the Internet as a medium of freedom, although it is founded on a technology of control, but also to examine the changes in sexuality and race which it determines, as a consequence of the privatization of networks, public services and space, and the hypertrophy of publicity and paranoia in everyday life. She critically studies these extramedial representations and deconstructs their meanings to render them inadequate, by confronting them with the characteristics, structure and functions of the network resulting from a material approach to it.

As part of her analysis of extremedial discourses, the study of *cyberpunk literature* concerning cyberspace occupies an important place. It can be argued even that she overestimates its role in defining the perception of Internet, at least as far as *Ghost in a Shell* is concerned, which is released after the privatization of the Internet, in 1995. Chun argues that it is cyberpunk’s exposition of electronic spaces as high-tech Orientalism which made it so influential in the mythologization of the Internet. Cyberpunk literature about cyberspace contributed in Chun’s view to the discourse surrounding the mass adoption of the Internet in the mid 1990s, to envision it as a heterotopia, a perfect frontier, a space of empowerment and freedom. Chun questions the adequacy of the Internet being popularly conceived of as cyberspace and other notions deriving from it. By materially analyzing the technology, the way it functions and its structure, she questions the spatiality of cyberspace and consequently of the Internet, the notion of navigation, suggesting in exchange the notion of teleportation

³² Galloway, *Protocol*, p. xii

as more adequate, or the notion of the user as *flâneur*, in exchange considering more adequate the notion of *lurker* or *gawker*.

The orientalising of the digital landscape through cyberspace has led to the emergence of Asian pornography and Asian as pornographic category in Chun's view. The theme of deviant oriental sexuality has in turn led to the regulation of cyberporn. It can be argued that Chun overestimates the influence of cyberporn and high-tech Orientalism in significantly marking the entire digital landscape, and that its influence is not holistic, but just one type of knowledge which the Internet enables, limited to certain uses and practices.

In the extramedial analysis, Chun also examines Internet's relation with the notion of democracy by focusing on early *legislative discourses* regarding the Internet. She analyzes the "Great Internet Sex Panic of 1995", related to online pornography, which led to the U.S. Federal and Supreme Court decisions on the Communications Decency Act (CDA) from 1996. Chun draws on Foucault's argument that sexuality serves as an instrument for power, because it serves as pretext for surveillance, to redefine pornography and map its role in the regulation of Internet. Moving from mass media representation to legislative discourse, Chun aims to show how U.S. regulation of the Internet through two laws, CDA (1996) and COPA (Child Online Protection Act), 1998, which restricted minors' access to pornography, endangered the democratic potential of the Internet. By use of a media archaeology approach, Chun confronts the myth of user control, to which the legislative narratives contribute, in order to demonstrate that the structure of the fiber-optic network does not allow pure, supreme agency. The governmental assumption of the user being in control is proven wrong by the software construction of a pornographic site. By rewriting basic function of HTML, HTTP and javascripts, porn websites are proven to control interactivity, and not the user's mouse clicks.

She also examines the role of *race* in the discourse surrounding the promotion of the Internet as commodity in its early years. By hiding the vulnerability of the user online under a discourse of technological and racial empowerment, which accompanied the transformation of the Internet from a public to an user-controlled utopian commercial space, supposedly egalitarian and democratic, the Internet was promoted as a

technological fix to a broader political problem, the race problem. This promoted image of empowerment hid the reality of the technically constructed vulnerability of the user within “one of the most invasive and insecure forms of communication created to date”³³, in Chun’s view. Through critical analysis of this extramedial representation, Chun makes visible a deeper signification of the commercial, which is the naturalization of racism in the process of presenting technology as a solution to it. This vulnerability of the Internet, the racist trend, is not irrevocable in Chun’s view, and, just as Galloway, she sees artistic antiracist uses of the Internet as useful practices in fighting it.

The analysis of extramedial narratives permits Chun to expand the analysis of the Internet as discursive object beyond Galloway’s concepts of control, and insightfully relate it to defining issues, such as race, gender, sexuality, and democracy, by exposing their cultural or material grounds, and their adequacy or inadequacy in defining the Internet.

TCP/IP and code

After having analyzed how their different methodological approaches give specificity to their studies, it is also relevant to make a comparison of their reading of technological aspects, such as protocols, in particular TCP/IP, and code.

For Galloway TCP/IP (Transmission Control Protocol/Internet Protocol) is one of the most important protocols of the Internet, along with DNS (Domain Name System). While the TCP/IP protocol is concerned with host-to-host communication and composes a horizontal system of distribution of control into autonomous host computers, the DNS protocol is responsible for translating Internet addresses from names into numbers in a hierarchical and decentralized way. The tension between these two opposing machines gives protocol a dual nature, which is extended from the technical to the functioning principle of protocol. Internet protocols help engender a distributed system of organization, while being themselves supported by bureaucratic institutions or technologies (DNS), making control the founding principle of the

³³ Chun, *Control and Freedom*, p. 129-130

Internet in Galloway's view, one which enables openness, inclusion, universalism and flexibility.

For Galloway protocols are open and non-proprietary, while proprietary and commercial interests are a threat to the expansion and well functioning of protocol. Both Galloway and Chun see proprietary as a threat to the openness of the Internet. In discussing the privatization of the Internet backbone and the threats it brings to Internet's potential for democracy, Chun too considers protocols as the source of Internet's public nature, defined as "an indeterminate space that belongs to no one."³⁴ They both see proprietary interests and privatization as threats to the public character of the Internet.

Galloway places the authority of protocol outside all the bureaucratic and institutional forces which establish its framework and operate standardization as a reactionary tactic, in order to enable protocol to reach its strategical goal of openness. He considers the authority of protocol to lay in the technology, the *code* and the way it is programmed. While both Galloway and Chun, in line with Lawrence Lessing, recognize the superiority of code as technological language in relation to natural languages or to law, because it has an executable layer which allows it to enforce itself, Galloway is sceptical of Lessing's suggestion that the origin of Internet was one of total freedom, proving through his technical analysis that control is the founding principle of Internet. Similarly, Chun argues against Lessing's assumption that free or open software guarantee democracy. She is sceptical of open source and open software's uninterrogated potential for democracy on the Internet, because they are based on factors of inequality, such as proprietary hardware or discriminatory access based on education. She questions Lessing's assumption that transparency, non-propriety of the code equals democracy of the Internet and minimizes control, because it places control as being antithetical to freedom, and her perspective, as well as Galloway's analysis of the TCP/IP protocol prove different.

She agrees with Galloway's argument that control is inherent and crucial to protocol in producing an open technology, because it is a special type of control, one that

³⁴ Ibid., p. 63

enables openness. She questions however freedom and control as being exact opposites, and sees them rather as different sides of the same coin: “control is the matrix that enables freedom as openness.”³⁵ Chun takes further Galloway’s argument of openness, resulting from an analysis of the technical, by relating to it in a more philosophical way. She believes that enabling freedom as openness through control requires a redefinition of the notion of freedom in line with Nancy’s definition of freedom as experience, as a fact. Openness is not democracy either but it creates a structure for sharing, it “makes democratic struggle possible, makes their code functionally analogous to a public space”³⁶, if one considers Lefort’s notion of public space as belonging to no one and thus guaranteeing democracy.³⁷

Thus Chun goes further than Galloway in her reading of the Internet’s possibilities, as not only enabling openness but also possibilities for freedom and democracy, by adding a political and philosophical layer to the technical and formal analysis of protocol. In Chun’s view, the Internet does not guarantee democracy through the open character of its protocols, but it “opens up possibilities for reimagining democracy and democratic structures.”³⁸

Resistance and approaches to the future of the Internet technology

Both authors approach the future of the Internet technology in a progressive manner. Galloway discusses the future of the Internet technology as a progressive project in terms of *resistance*, a process inherent to the well functioning of any system. Both Galloway and Chun see resistance as an exploitation of the vulnerable areas of a system and art as an useful practice in this respect.

Galloway focuses on three types of users and their disruptive practices as enablers of change within protocol: hackers, tactical media, such as cyberfeminism, and Internet art. For him, hypertrophy is the tactical form of resistance in the protocological age. The essential characteristic that comes with the change in resistance practices in the protocological age is that resistance cannot work outside and against the system anymore, but only within and in favour of it. Resistance does not limit the system, but

³⁵ Ibid., p. 71

³⁶ Ibidem.

³⁷ Ibidem.

³⁸ Ibid., p. 72

it works towards its improvement. In Galloway's view, resistance practices, such as tactical media "are able to exploit flaws in protocological and proprietary command and control, not to destroy technology, but to sculpt protocol and make it better suited to people's real desires."³⁹

Chun agrees with Galloway's consideration of art and tactical media as effective means of exploiting the flaws of protocological control in order to mould protocol. She too sees resistance as improving rather than liming the system and offers artistic antiracist uses of the Internet, such as the projects of the Mongrel group, as examples of useful practices in fighting racist trends, although she slightly questions their functioning within the system. More than seeing artistic practices as tactical media and their potential for improving the Internet, in the same way as Galloway, her own poetic writing style can serve as practice of resistance.

The two authors' views diverge however in their consideration of the human subject. While Galloway's view is somehow idealistic in envisioning the progress of the system by moulding it according to people's desires, Chun is more sceptical and sees the relation between technology and desire problematic. Her study indicates that humans relate to technology through the Lacanian notions of "paranoid knowledge" and "dialectical of jealousy", which motivates her assertion that people's desires are not autonomous, but also generated by the system.

While Galloway discusses of vulnerabilities in terms of the system and focuses on resistance in terms of how it sculpts and improves the system, although according to "people's desires", Chun focuses on vulnerabilities at subjective level and speaks of the individuals' awareness of their and technology's vulnerabilities as starting point for the improvement of the systems and the way we experience them. While Galloway sees in the gaps and failures of the system possibilities for it to be improved, Chun sees in the same areas of the system that fail to accomplish their promise, their potential for the individual, the potential for freedom beyond control, which makes our decisions possible in the Internet medium.

³⁹ Galloway, *Protocol*, p. 176

In conclusion, although both books were motivated by the same project, to offer a counterpoint to existing discourses and myths related to the Internet technology, which presented it as either a tool of total freedom or of total control, the two authors fulfil their objectives in a rather distinct way. Galloway approaches the technical and formal issues more, while Chun touches also on cultural and philosophical issues. While they share some common views and diverge in others, employ common theoretical corpuses, and use a common methodology, media archaeology, Chun's analysis expands beyond Galloway's research area and methodology and is overall more complex. She partially incorporates in her study Galloway's argument, but not uncritically. She complicates Galloway's argument by supplementing her study with more philosophical sources, which complicate the themes of power and control with concepts such as freedom and paranoia. The cultural studies approach creates an even more intricate effect, by mapping the tension between control and freedom in terms of sexuality, race and gender. While both very insightful, Chun's *Control and Freedom: Power and Paranoia in the Age of Fiber-Optics* is more comprehensive and extends beyond Galloway's *Protocol: How Control Exists after Decentralization*, by not only including a study of the technical, but also analyzing the mythicizing internet narratives, as well as their impact on human subjectivity and on the creation of technology and legislation.