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Symbolic economies and the politics of global cyberspaces

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SYMBOLIC ECONOMIES AND THE POLITICS OF GLOBAL CYBERSPACES

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Abstract

This dissertation challenges conventional interpretations of new communications and information technology and their implications for global economies and politics. It develops an understanding of these new technologies and their impacts through a cultural approach based on a sensitivity to symbolic and textual practices. In particular, it organizes its analysis around the notion of general equivalence as a way of interpreting the institution of semiotic or symbolic hierarchies in a number of seemingly diverse areas related to information practices and organizational sovereignties.

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Chapter 1
Introduction

> To what extent may *a* space be read or decoded? A satisfactory answer to this question is certainly not just around the corner. As I noted earlier, without as yet adducing supporting arguments or proof, the notions of message, code, information and so on cannot help us trace the genesis of a space; the fact remains, however, that an already produced space can be decoded, can be *read*. Such a space implies a process of signification.[1]
>
> - Henri Lefebvre (1974) *The Production of Space*.

The notion of "cyberspace" has been circulating in discussions about the future of the world's telecommunications networks. Its meaning is still in some contention but it no doubt refers to both the high bandwidth capabilities of new network technologies as well as the megacomputing abilities of the new electronic microprocessors. Combined they form the world's new telecommunications grid, a dynamic multi trillion dollar infrastructure opening up the electronic "frontier" as the railroads and telegraph opened up the American west.

The commercial, entertainment, financial, logistics, and productive realms of diverse countries and regions are being woven together through the connecting power of cyberspace. It has become a cultural, economic, and political phenomenon which will be at the center of theoretical and research debates for the foreseeable future.

Cyberspace is often connected with the new "virtual reality" technologies especially as they come to support diverse participants sharing an electronic computer-generated environment through the use of the new networks. This conception arose because author William Gibson produced the term to describe the electronic "consensual

hallucination" which the characters in his award-winning novel *Neuromancer* (1984) used in his fictional narrative which posited a near-future scenario in which the new electronic spaces become dominant. In it, "console cowboys" connect to the network by "jacking in," linking into the electronic telecommunications "matrix" via electronic velcro-held "trodes" attached to their heads. Somewhat like a flight simulator, the cowboy experiences a vast simulated space scattered with geometric shapes representing institutional databanks such as the "green cubes of Mitsubishi Bank of America."[2] Their objective is to participate in the "biz," the combination of network and street economies of Gibson's future scenario.

Known posthumously as the "cyberspace trilogy," *Neuromancer* and two consecutive novels, *Count Zero* (1986) *and Mona Lisa Overdrive* (1988), captured the imagination of many of the young and technology-minded. Their popularity has rocketed the author to an extraordinary cult status as evidenced in a cameo performance in the Oliver Stone mini-series *Wild Palms* (1993), a story roughly about the near-future use of virtual reality in the broadcast industry for political purposes. William Gibson was introduced as the man who coined the term cyberspace, to which he replied, "And they won't let me forget it." [3]

> Assembled word *cyberspace* from small and readily available components of language. Neologic spasm: the primal act of pop poetics. Preceding any concept whatever. Slick and hollow--awaiting received meaning.
>
> All I did: folded words as taught. Now other words accrete in the interstices.[4]

Bruce Sterling also acknowledges in his *The Hacker Crackdown: Law and Disorder on the Electronic Frontier* (1992) that Gibson "coined" the cyberspace name in 1982.[5] What is interesting about this term is that it raises the question of money and the similarities between money and language. Are words a type of currency? And what does this mean when considering a relatively new utterance like "cyberspace?"

Generally money is attributed with fulfilling three roles. One is that it can be *stored*. It can be stowed in a purse or placed with a bank. Another is that it can *circulate* throughout society. For money to be useful it needs to pass from one member of an exchange to another. And the third is that is has *value*. It needs to be socially assigned some relative worth in order to reflect the value of the goods or services it is purchasing. Can the term "cyberspace" be stored? Can it circulate? Does it have value?

Symbolic economies implicates a larger sphere of social activity than just economics as it is generally understood. The tendency to arrest and aggregate meaning in a variety of cultural icons and symbols is a major tenet of this project. If a word like cyberspace is like money it also suggests that its value can inflate and deflate. As this term circulates throughout the discussions on new communications technologies it can become a valuable new tender mobilizing new concepts and understandings and/or it can become devalued and dismissed as a cliché. At the time of this writing, cyberspace is already becoming an overworked buzzword in some circles or dismissed as a

trendy way of looking at something more serious researchers have been investigating for years.

In retrospect, Gibson's articulation of the cultural and political dimensions of electronic networks seemed to have entered a discursive void where the only language able to talk about computers and telecommunications was dominated by engineers and technocrats. Cyberspace has become a term with a lot of meanings and expectations but it has been taken on as a new way of conceiving the telecommunications network, one with cultural, literary, and political dimensions. It has rocketed to the status of a currency and has taken on a role as a symbolic currency. Chapter Three discusses the emergence of the term "cyberspace" as what Jean-Joseph Goux calls a symbolic third. A symbolic third arrests or condenses a set of meanings into a value which can be stored, circulated, and exchanged.

Is it a valuable new signifier for a fresh discourse with new explanations about the world we are creating with computer networks and other types of information technology? Or is cyberspace a new buzzword already appropriated by the official frames of understanding telecommunications and the new realms of electronic finance? Cyberspace is becoming a significant icon in a number of media narratives, both cult and popular. These "cyberfictions" (or "Cy-fi") represent an increasing anxiety about the infiltration of information technology into the high towers of scientific laboratories and financial markets as well as the routines of everyday life.[6] The movement of the computer/cyberspace icon to the center stage in a flux of new narratives

point to an increasing concern with the problems and potential's of the new information technology. *Jurassic Park*, written by Michael Crichton (1991) and directed by Steven Spielberg (1993), while ostentatiously about dinosaurs, actually centers its plot around the use of computers. In the story, a biogenetic company invests in several Cray supercomputers to do research on DNA retrieved from prehistoric mosquitos fossilized in solidified tree sap. The processing powers of the new computers give them the capability to isolate and develop dinosaur DNA to the point where they can clone the ancient creatures and display them at a highly complex amusement park off the coast of Costa Rica. In order to save on labor costs, most of the park is automated and sensored with modern computer equipment coordinated from a central "control room." When a disgruntled computer programmer shuts down the electronic systems of surveillance and control to engage in some corporate espionage, a team of experts who are visiting the park to evaluate its safety are placed in mortal danger. While largely a standard survival film, where a small cross-section of society is placed at risk and the ones deemed unworthy are killed off; it is a significant commentary on the confidence of the computer's capability to "control" an environment.

Crichton first attained international acclaim with his *Andromeda Strain* (1971) about an alien viral epidemic from outer space and a later story called *Westworld* (1973) about another computerized amusement park which goes awry. This latter film is situated in Delos, a futuristic park with three different themes (Medieval, Roman, Western). It provides an imaginative retreat for those with sufficient disposable income. Until

the system goes haywire they are able to act out a variety of genre fantasies by shooting and having sex with the robot inhabitants. An obvious precursor to *Jurassic Park*, *Westworld* was one of the early cyberfiction scenarios and its representation of the "control room" in particular raised literal and symbolic questions about the extensive use of information technology.

That the new interpretations of computer and communications worlds should come from literary and cinematic sources is significant. Curiosity about the new machines has raised important questions about the significance and politics of imagery, language, and numeracy. The over reliance on the abstraction "information" has often obscured more meaningful historical and textual analysis. Terms like "information" and "systems" often dull rather than sharpen the conceptual tools brought to bear on the analysis of the new techniques and technologies. Important social and philosophical questions are being raised by addressing the issues of signification, writing, and the construction of the modern "identities." Work is being done by cultural and political theorists which focuses on central relationships between: art and technology; the individual and society; physical worlds and virtual worlds; as well as modes of cognition and modes of symbolic representation.

Applying textual processes to an understanding of the social emphasizes the economies and counter-economies of narratives and texts. Some investigations of texts which deal with computers and media as their major icons are attempted to create of critical space of interpretation. Narratives are crucial to political understanding as they

are intimately tied to demarcating spaces and borderlines.[7] Cyberfictions are imaginative mediums where some of the debates and issues regarding life in an electronic world are presented for reflection. Following in Bahktin's analysis of the novel, cyberfictions are a space for different voices to emerge and interact. It is a theatre of speaking and presenting, where divergent positions can be said, circulated, and challenged.

Like any narrative production, these fictions are prefigured by generic conventions, by the institutionalized modes of scripting which inform as well as limit the text. What is always at stake in the writing process is the confrontation of creativity with intelligibility. To communicate is always to sacrifice creative distance in order to produce understandable frames of reference. Shapiro expands this notion with what he calls the "dilemma of intelligibility." Particularly in the production of politicizing writings it is necessary to generate a setting "with sufficient mutual intelligibility to allow for praxis or political engagement with what are recognized as problems in the predominant public discourse." But this is not enough. The other part of the dilemma he explains is the need to "distance oneself sufficiently from common views to allow for a frame that can disclose unrecognized commitments and forms of subservience to aspects of power embedded within what has seemed to be mere intelligibility, a natural structure of meaning."[8] This is the predicament that has been an agonistic struggle for political writers sensitive to the modes of language and discourse within which they are forced to speak. To subscribe wholly to communicational genres of writing is to fail to

break open new interpretive understandings. On the other hand, to engage in conversational modes heavy with jargonistic or uninterpretable vocabulary means risking the alienation of the reader and failing to put into circulation important counter-discourses.

Postmodern Capitalism: The Information-Debt Society?

This project started as an inquiry into the realm of electronic money. As an interrogation of the "information society" its methodology was perhaps partly inspired by that mythological character, "Deep Throat." This mysterious source of Watergate leaks encouraged the two *Washington Post* reporters who broke the case, to "follow the money." Bob Woodward and Carl Bernstein went on investigate a trail of deception and illegal use of campaign funds used in the famous Presidential coverup of the burglary at the 1972 Democratic Campaign Headquarters.

While lacking such an ignoble target, and by no means as comprehensive, it is an attempt to provide some alternative and suggestive views to both the institutional underpinnings as well as the dynamic changes constituting the "information society." While provocative and suggestive in its early days, the characterization of the information society has generally lacked the theoretical vigour of academic focus and has become more of an industry slogan than a scholarly agenda. By "following the money," this project looks provide some alternative ways to view the phenomenon.

Looking at information societies as debt societies is one possible alternative which is certainly supported by empirical data. If one can point to a correlation between the new information infrastructure and a prevalent economic statistic, it is surely in the degree of indebtedness taken on in the information age. What is debt but a technology of information? Is it not a textual product which temporalizes a financial obligation over a prescribed period of time?

The creation of electronic money has had significant implications for the structure of debt. Deregulation of both the financial and telecommunications industries since the sixties has led to a new electronic infrastructure for the circulation of various types of money. At a global level, the creation of electronic "eurodollars" paved the way for a global economic system. Distributed as finance capital, it underwrote development projects and industrialization throughout the world. Those countries which could take advantage of it became the celebrated NICs (Newly Industrialized Countries) while those that couldn't had to undergo many years of painful restructuring and privatization. When the "Third World Debt Crisis" reached its peak in the early eighties, the money flowed towards acquisitions and mergers of corporations.[9] The era of "spreadsheet capitalism" emerged where entrepreneur "raiders" tapped electronic bank funds to "greenmail" and buy corporations. Where did it go next? Among other debtors, it went to finance the development of eastern Europe and the former USSR.

When it Changed: Electric Money and Cyberspace

Readers of Gibson's trilogy know that "When It Changed" was a seminal event in cyberspace history as it marked the merging of two artificial intelligences and the eventual habitation of electronic matrix with computer-generated omnipotent beings. In the "real world," they also acknowledge that cyberspace started with electric money. Currency traders around the world meet in an electronic "market" which opens up to them through the screens of their computer monitors. Although that "market" is heavily influenced by the central banks of countries who sometimes get very interested in the price of their sovereign currency, the dynamics of this electronic meeting-place suggest a revisit to the economic theories of the celebrated Adam Smith. Smith, or particularly, Shapiro's analysis of Smith provides a point of entry into the processes of exchange and the dynamics of global liberalism and its impact on national and other sovereignty processes.[10]

Perhaps we can acknowledge Richard Nixon as the father of electric money because of his New Economic Policy (NEP) which shocked the world of the gold-dollar standard in 1971 and was partially responsible for the transition to electronic currency trading. The announcement that he "closed the gold window," made to a national television audience, so destabilized the foreign exchange markets that it was decided later that the markets should determine the proper exchange rates. Reuters, the famous British news service which capitalized on the invention of the telegraph to sell news stories around

the European continent was again quick to take advantage of technological change. It had been offering a share quote information service called Stockmaster to securities brokers. Quickly it updated the service to provide "Reuters Money Monitor Rates" a price and news service transmitted over telephone lines to banks and brokerage houses around the world. Before long it became the central price source for the major currency traders throughout the world.[11] It took until the early 1980s before the system became truly interactive, with a system called Dealing and later a version named Dealing 2000. The electronic marketplace has since become global with over two hundred thousand terminals spread throughout 120 countries exchanging almost a trillion US dollars daily.[12]

This project is not about economics in an ordinary sense. While money operates as its central focus, a number of cultural and energetic domains where money undergoes transformations in form is also considered. Money is electric not only in its transport or circulation mode. Money emerges in various representations as a symbol of value. In other words, various cultural items can serve as a type of money. Whenever symbolic processes and exchanges are at work there is a tendency for a form of money to be designated. Money is rarely fixed in value for long. Each day when the currency markets raise or lower the prices of money, the entire wealth of a nation can increase or decrease by trillions of dollars. When the money officials of the major economic powers met in Seoul in 1985 they decided to devalue the US dollar against the Japanese yen. Did the average American realize that over the next few months the value of his bank

account, his car, his home decreased significantly in relation to the yen? To many people in Hawaii it didn't matter, they sold their homes for American dollars at inflated prices. Did they win or lose?

Cybernetic Identities

As the interconnecting grids of cyberspace become ever more dense, the problematic of the "individual" intensifies. Networks of data from an increasingly intricate array of institutional linkages form new sorts of bodies, identities, selves. The problematic of the self, or "subjectivity" in its more political sense, continues to be a central concern in social theory despite being generally ignored by the enthusiasts of the information age. This project explores several themes addressing the interaction of computer technology and identity from a communication or interpretive approach emphasizing textual and multimedia practices. Its presupposition is that recourse to a static, essentialized subjectivity is at odds with the new emphasis on textual practices and multimediated forms of representation.

The new convergences of thought are resulting in powerful texts like Scott Bukatman's (1993) *Terminal Identity: The Virtual Subject in Postmodern Science Fiction*. Drawing on a variety of sources but mainly culture and film studies, he extends the new investigative agenda and creates exciting new understandings of the human in a technological world. He works the postmodern tension between the "end of the subject" and the "new subjectivity constructed at the computer station or

television screen." This is best brought out by the new "terminal identity" subgenre whose texts offer a conditional transcendence to the simultaneously techno-eroticized and delibidinized body.[13]

Cybernetics has two sets of meaning attached to it. Initially, it was advanced by Norbert Wiener as a technique of war, mainly as a targeting mechanism for anti-aircraft weaponry. Drawing on the word, *kubernetes*, or "steersman," (the same word which "govern" is derived from) he developed with Claude Shannon and Warren Weaver a theory of messages and feedback. Subsequently, the author tried to put a humane face to it by attempting a more general model of control and communication.[14] It became a reigning mentality of the cold war against communism and as Mark Poster points out, against an equally insidious enemy--entropy.

> Cybernetics is a theory for an armed camp preparing for a final struggle. But the politico-military atmosphere that pervades Wiener's text, which was written in the early 1950s when the US was in the grip of McCarthyite fever, is displaced from the contest with fascism and communism to the warfare with nature.[15]

Thus, the term has a long association with types of discipline, military and otherwise which will be of interest later in this project.

Cybernetics emerged in a new eroticized form in the eighties largely from the writings of William Gibson and science historian Donna Haraway. Gibson's term "cyberspace" in *Neuromancer* led to a whole new literary subgenre called "cyberpunk" while Haraway's journal article,

"Manifesto for Cyborgs" is considered a classic in feminist social theory. No doubt they reflect an increasing anxiety over the relationship between technology and the body. Gibson's is a story of unlikely set of characters caught in ploys of an artificial intelligence trying to merge with a separated half. Haraway was trying to redefine the human/machine relationship (Cyborg-cybernetic organism) in ways other than that configured by a "heavily militarized, communications-system-based technoscience in its late capitalism, imperialist forms."[16] With stories such as *Robocop* or the "Borg" encounters in *Star Trek: The Next Generation* it should be of little surprise that the insertion of machinery into the human body is becoming a major preoccupation of the popular imagination.

Combining cybernetic with identity is done with several purposes. One is its allusion to governance and power. The science of control and communication, subsidized by military expenditures and use, is now distributed throughout other aspects of modernity from corporate management and production to public administration and policy. This diffusion has been largely propagated through the widespread procurement of information machines and networks which have subsequently drawn on and developed the "systems approach" as a largely apolitical methodology for planning and managing organizational processes. The circulation of "disciplinary models" throughout factions of society is a major premise in the argument below although it will be figured in terms quite different from the Wiener/Shannon/Weaver model.

Another reason for the combination/juxtaposition of the two terms is the importance of the latter with respect to both power and technology. Identity is tied up with social processes and forms of meaningful exchange. The dilemma is probably best expressed by Shapiro in his critique of naive forms of communication theory. Drawing on the Lacanian problem of otherness, he suggests that individuality is in tension with linguistic exchange. Speaking is an act which not only fails to express one's individuality but actually suppresses it in order to participate within an institutionalized frame of communication.[17] Identities are constituted within a social field and are produced by power relations. As the techniques of modernity intertwine with the abilities of the new machines they produce new identities, both physical and electronic.

Summary and Outline

In summary, this project takes a look at the political economies of new electronic spaces engendered by the developments in computer and telecommunications technologies. It deals with the representations, interpretations and the circulation of narratives about global infrastructures of communication and capital which inform contemporary speculative and policy discourses. The production of understanding associated with these networks can be seen as the development of a field of statements and texts which seek to scribe contending versions of a historical epoch occupied with the impact of electronic information machinery. Its emphasis on the symbolic and textual practices

associated with the representations of money, wealth, and the dominant forms of sociosymbolic processes will be applied to a reading of official and speculative writings to produce political interpretations of the creation of electric money. Particularly how money and other forms of semiotically-charged general equivalences are implicated through electronic spaces in the production and dissolving of identities, territories, temporalities, and calculative rationalities.

In part these discourses pay heed to the incorporation of information technology into the practices of commerce and finance which control and coordinate the organization of the transnational political economy. But they can also be implicated in the construction of a global imaginary which is ideologically organized around official and marginalized versions of this transformation. The collection of contemporary textual practices operates in a variety of modern fora and symbolic economies which participate in the further production and circulation of some narratives while devaluing or ignoring others. Official discourses in this scenario refer to the technocratic rationales proffered by corporate and government representatives including those officials of transgovernmental organizations tenured by the United Nations, OECD, and the intergovernmental bureaus. The realm of interpretation associated with computerization, telecommunications, and the emerging interactive field known as virtual reality; while heavily standardized by sanctioned discursive productions (which themselves are not monolithic); is also the subject of alternative textual constructions by academics,

fiction writers, and other cultural producers which draw on the current fascination with high technology.

The overall project uses a theoretical approach which can roughly be described as interpretative with a symbolic and literary edge. This is introduced in the chapter, "Textualizing Cyberfictions and Cyberspaces," which politicizes the economies of meaning and value production in textual narratives. The movie *Wall Street* is used as an exemplary case to read the figurations of criminality and electric money in the loosely held field of cyberfictions. The move to figuring texts is a process of disrupting the normal mode of interpretations which by naturalization or distance from the field of authority and control do not sufficiently utilize a text for a political reading. *Wall Street* it is argued, is associated with the gangster film genre where urban culture confronts the contradictions of liberal capitalism with its promise of a classless, democratic society. *Wall Street's* iconographics and character representations are substitutions for the machine guns and zoot suits of the thirties.

The Utopian genre is used to introduce the symbolic economy approach by using Jean-Joseph Goux's reading of Thomas More's classic work which Goux argues is a critique of "symbolizing thirds" such as concept, money, and God. While Goux also critiques these symbolic manifestations, he argues that the community the Utopians strove so hard to develop for themselves comes only at the price of a new type of orderful sovereignty. This framework is then applied to the dystopic versions of cyberfiction and locates the variable of the symbolic third

within the contrasts of affect and signification proliferation and the opposing limitations on desire and meaning.

The second chapter looks at the circulation of some new interpretations of electronic spaces and examines the elevation of one author in particular. Loosely termed "cyberpunk" or "the new edge," this new genre has captured the attention of many of the disaffected technology-minded.[18] William Gibson and *Neuromancer* are the first subjects of attention. "Neuromancing the Code" refers to the alternative discourses that are emerging to give meaning to electronic spaces and computerization. This type of writing is set against the "code", the "official" forms of technocratic and policy discourse which have dominated the interpretations of what some now call "cyberspace." Acting as a type of money, cyberspace mediates new understandings of information technology. It sets into motion new ideas, new concepts, and new ways of looking at the electronic infrastructure.

Given that the "frontier" is a major constitution of the cyberspace sublime, the chapter recedes with a query on how this iconic metaphor shapes both marginalized and official discourse. By this section, Mikhail Bakhtin's politicization of the novel has taken hold and offers some strategies for figuring cybernetic and displaced identities within the dystopic new order.

With "Cybernetic Governmentalities," the readings move from literary to more theoretical and nonfiction styles. Goux is combined with Michel Foucault to write through some of the cliche and narrative fixtures dealing with the use of computers and information technology. Namely,

the use of these technologies as an "all-seeing" eye used by despotic governments somewhat like that presented in George Orwell's *1984*. Still, the flavor of a structural conspiracy is maintained by focusing on Foucault's use of discourse and disciplinary mechanisms that circulate through modernity. By further attaching this analysis to the "governmentality" factor of Foucault's work, it comes to be posited in a larger social scale. The creation of the "population" through information techniques and "state-tistics," for example, provides a vehicle for attaching computerization to governmental practices and the modern political economy.

What this combination of Goux and Foucault can offer are some insights into the workings of "governmental" processes and how certain developments of knowledge and technique have become integral to its practices. In addition, it will contribute to an interpretation of the mechanization of information practices and implicate these new information technologies in a generalized model of governance. This chapter delves further into the operations of symbolic organization as it both utilizes and calls for the development of new information technologies as part of the tactics of government. The computerization process and the global gridding of information through the formation of electronic spaces is in part becoming a matrix of governmentality: constructing, monitoring, and training populations throughout the globe.

Statistics (state-tistics), which has its origins partly in the development of a political arithematic designed to calculate the wealth of a state, becomes of new importance as informating processes feed into a variety of processing strategies rendering new types of information for official consumption. Informating represents a new source of information for the hungry apparati of the post-modern state. Foucault developed a line of thought which is useful here. His lectures on "governmentality" provide some openings and connections for understanding some of the implications of the new information technologies. Although he did not address computerization directly, he was keenly aware of the technical prowess of the state in its hunt for a more sophisticated understanding of its resources. He interrogates the use of "population" and connects it to the development of governmentality. The "population" was a historical production coinciding partly with a change in the understanding of the dynamics of a nation's wealth. The population became an object for analysis and figuring according to the new calculative strategies engendered by developments in census tabulating. By the time Herman Hollerith developed the "census machine" to calculate the 1890 census, an array of new calculative strategies were at the disposal of state managers eager to tally and assess the new wealth.

Cyberspace in the "real" world is being constructed through the investment practices and organizational structuring of information

technology and telecommunications providers. Electronically mediated information is central to the administrative, productive and logistical strategies of the global political economy. This next chapter interrogates the notion of the "information standard" by recourse to Derrida's logocentrism to propose that a new sovereignty has emerged to structure the economies of meaning towards a new facility of economic exchange based on computer-conditioned language including barcoding and informating.

In "Cybernetic Identities and the Last Vehicle," the victory of cyberspace-mediated sedentariness has dominated. In other words an implosion occurs on the body. Instead of being directed outward into the world; the world now comes to work on the body. Cybernetic identity is the intertext between the body and the machine.

Conclusion: Money and Meaning

Confronting money is to encounter the crucial issues of meaning, value, substitution and desire. The social processes of exchange and accumulation are integral parts of this dynamic. Is money a thing or a practice? How is money implicated in the production of value and the facilitation of exchanges. How does it mediate among independent objects and produce equivalences? What institutional and symbolic factors are at work which invest and divest money with value and utility?

Money is a strategy for interrogating the modern world of computers and telecommunications. Particularly, important dynamics of the

"information society" can be accessed with a research approach sensitive to the meanings and figurations associated with this elusive wonder. Money can take many forms and participates in many processes. Therefore, this project should not be considered a conclusive study of the phenomenon. What can be expected here is the drawing of some links between money (and other symbolic aggregations and representations of value) and electronic processes stimulated by the advanced circuitry of the modern computer.

This study takes some liberties with the definition and meaning of the word "money" and brings into the discussion aspects of the term the reader will perhaps find novel. The focus on symbolic economies should provide a sort of leeway and freedom however to both make some suggestive remarks about what is commonly known as money as well as expand the realm of money into other domains of culture and social interaction. At risk here is a simplification, a potential for overcoding according to a theoretical framework which points to the condensations and plays of meaning at large and interprets them as "economic" processes. Still, it should offer some theoretical frames to aid in understanding the processes of figuration and signification in general.

Since the study of electronic spaces and wealth is a relatively new, a contentious example or more specifically a reversal of economics as we know it may be an appropriate point of departure. Instead of the modes of productive activity let us as Goux suggests look at the *mode of expenditure* and simultaneously expand our inquiry into a larger set of human activities.[19] Instead of an economic sphere centered around

exchange involving coins, paper, or even electronic forms of currency, an opportunity awaits to enlarge the notions of exchange and the symbolic "monies" by which it is facilitated.

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[1] Lefebvre, Henri. (1974) *The Production of Space.* ed. by Nicholson-Smith (1991) Oxford: Basil Blackwell. p. 17.

[2] Part of a quote from William Gibson's (1984) *Neuromancer.* (New York: Ace Books) p. 52. "Inner eye opening to the stepped scarlet pyramid of the Eastern Seaboard Fission Authority burning beyond the green cubes of Mitsubishi Bank of America, and high and very far away he saw the spiral arms of military systems, forever beyond his reach."

[3] *Wild Palms* is a Capital Cities/ABC, Inc. production which was aired in the US as a 6 hour mini-series and in Hawaii during the week of May 16-22, 1993. It was adapted from a long-running adult comic strip in the magazine *DETAILS.*

[4] As part of William Gibson's short story "Academy Leader," in Benedikt, M. (1991) *Cyberspace: First Steps.* (Cambridge, MA: MIT Press) pp. 27-29.

[5] For instance, In a chronology by Bruce Sterling (1992) in *The Hacker Crackdown: Law and Disorder on the Electronic Frontier*, he states that in 1982, "William Gibson coins term *cyberspace.*" p. vii.

[6] I first ran across this usage in "Tomorrow People" a song by Billy Idol and Mark Younger-Smith in *Cyberpunk* (1993), an album by the former released by EMI Records Group.

[7] See de Certeau, M. (1984) *The Practice of Everyday Life.* Trans. Steven Randall. (Berkeley, Calif. University of California Press).

[8] Shapiro, M. (1993) *Reading "Adam Smith": Desire, History, and Value.* A Series on Modernity and Political Thought. Edited by Morton Schoolman. (London: Sage Publications). p. xxx.

[9] Pennings, A. (1986) *Deregulation and the Telecommunications Structure of Transnationally Integrated Financial Industries.* (University of Hawaii: Unpublished MA Thesis. This document contains much of the empirical arguments for the thesis presented in this project.

[10] Shapiro, M. (1993) *Reading "Adam Smith": Desire, History, and Value.* A Series on Modernity and Political Thought. Edited by Morton Schoolman. (London: Sage Publications).

[11] Donnelly, B. (1985) "Can Reuters Conquer the World?" *INSTITUTIONAL INVESTOR.* August, p. 82.

[12] An important survey of Reuters and other technological changes effecting the financial industries is contained in Joel Kurtzman's (1993) *The Death of Money.* (NY: Simon and Schuster).

[13] Bukatman, S (1993) *Terminal Identity: The Virtual Subject in Postmodern Science Fiction.* (Durham: Duke University Press). p. 9.

[14] Weiner, N. (1954) *The Human Use of Human Beings.* (New York: Da Capo Press).

[15] Poster, M. (1990) *The Mode of Information.* (IL:University of Chicago Press). p. 29. The quote was taken from Weiner, N. (1954) *The Human Use of Human Beings: Cybernetics and Society.* (New York: Anchor). p. 15.

[16] From an interview with Donna Haraway (1991) by Constance Penley and Andrew Ross, (eds.) *Technoculture.* (Minneapolis: University of Minnesota Press).

[17] Shapiro, M. (1993) *Reading "Adam Smith": Desire, History, and Value*. A Series on Modernity and Political Thought. Edited by Morton Schoolman. (London: Sage Publications).p. 6.

[18] See *Mondo 2000: User's Guide to the New Edge*. (HarperCollins Publishers). Its subtitle reads: "Cyberpunk, Virtual Reality, Wetware, Designer Aphrodisiacs, Artificial Life, Techno-Erotic Paganism, and More."

[19] Goux, J. (1992) "General Economics and Postmodern Capitalism," *YALE FRENCH STUDIES*, p. 207.

Chapter 2
Textualizing Cyberfiction and Cyberspaces

Central to this writing project are the predominantly symbolic and textualist informed methodologies which have been intermixing with fields of anthropology, communications, feminism, linguistics, literature, film analysis, psychoanalysis and more recently into the endeavours of political economy. The pioneers in these areas are well known (Saussure, Freud, Levi-Strauss, Barthes, Metz, Derrida, Foucault, etc.) but as this project is concerned with resuscitating the notion of general equivalence (if only to watch it die in the cybernetic totality) a major point of departure will be the writings of Jean-Joseph Goux. He focused on the parallels and intersections of political economy with developments in semiotics, linguistics and structural psychoanalysis and argued that certain categories dealing with representation, signification, simulacrum, and value overlapped with these emerging domains of philosophical and political discourse.[1] He was convinced that a "certain style of thought" could establish far-reaching connections between these areas particularly if they were conceived in terms of exchange. This expanded notion of political economy, its focus on exchange and value, particularly as it emerges in the form of a symbolized general equivalent spanning multiple layers of social and economic formation, provides a centralizing theme to interrogate the formations and liberations of meaning structures and intersubjective relations in contemporary technocratic capitalism. In a society immersed in multi-mediated information flows, resorting to a

strategy which focuses on textual mechanisms rather than attempts to gain an unnegotiated access to social processes may prove fruitful in gaining access to the political practices governing contemporary life as it becomes increasingly mechanized with information technology.

There has been a turn towards "economies" by many cultural and political theorists who have challenged the monopoly on modern inquiry which can be characterized by its lack of sensitivity to the practices of grammar, of representation, and of rhetoric in their approaches. By initiating their "research" with this sensibility towards the mediating aspects of social practices, the new theorists have expanded the realm of political thought and with it brought into discussion new domains of social and cultural activity which have traditionally fallen outside the official taxonomies of political discourse. While authority, power and the distribution of resources remain central to these new paths of inquest, a new emphasis on "textual processes" is meant to alarm us to the solidification of meanings associated with these terms and to liberate and place into circulation new critiques and understandings.

The problem of somehow capturing the "real," of representing the complexities of the social field are endemic to the politics of the text. Literary theory for the most part operates with the understanding that a mediated relationship exists between the constructed texts and the social reality they attempt to make legible. A major debate of the seventies, whether films referred to historical realities or aesthetic determinations and generic production, failed to recognize that histories as well as films are a product of facticity, the construction of "reality" along normalized

codes of perception. This process of facticity, strengthened by the hegemonic project of scientific objectification, becomes a major concern and source of dissatisfaction for the textual approach. Offered instead is a type of investigation where the world becomes legible not through one's immediate consciousness, but through the "styles of scripting" which mediate our understanding of the world.[2] Deploying a textual approach involves an analytic sensitivity to the grammars, montages, rhetorics, narrativities used to connote meanings. The production of identities and settings, for example, are implicated in facticity--the genre of the real--not through a process of correspondence between utterances and referents but by the discursive economies of valuing and regard.

If the film works at one level as a hegemonic discourse manoeuvring through the codes and conventions of the medium, it is at another level removed from its authorial intentions and operating in the free play of meanings. Semiotics had shown us that many meanings are produced in any process of textual signification depending on cultural contexts and interpretive strategies. There is no guarantee that an intentional meaning will survive in the circulation of the text. Unlike the study of privileged thematic and stylistics motifs by those who felt the need to invest in the currency of the auteur, textual analysis offered a new relation to the narrative, one which foregoes a firm grasp on the truth and dives instead into the stormy seas of meaning contestation.

Politicizing the Film Text

A knowledge of cinematic representation would, like other formations of knowledge, operate by the characterisation of something presumed to be unknown in terms of something already familiar. This rhetorical strategy, which Michel Foucault disclosed in his analysis of the human sciences when he displaced processes of signification with figuration, has spread through a number of academic disciplines. In film studies, a similar strategy would ultimately come to be used after an early reliance on structural semiotics. When Christian Metz joined his critics in denouncing the use of semiotics in the analysis of film they were primarily denouncing the potentiality of a rigorous semiological framework which would lead to a Saussurian-like language system. Metz had attempted to resolve the contradiction between film as a objective registerer of reality and film as a producer of meaning by introducing the *grande syntagmatique*, the arrangement of successive shots into a meaningful narrative sequence. While a brilliant counter to the pervading autuerism of earlier film criticism, Metz' call for a science of studying "the ordering and functioning of the main signifying units used in the filmic message" came under immediate attack by those who doubted that semiology had either the methodology or the terminology to study visual images while others argued that film was more than the study of just the visual.

A more serious concern came from Marxist critics who saw the early Metz as unwilling to recognize that systems of signs are culturally

and ideologically based. Drawing on the linguist, Louis Hjelmslev, Metz divided meaning into denotation and connotation levels. Unlike Roland Barthes, who also appropriated Hjemslev's model, Metz emphasized the denotative level, the "literalness of the a plot." Connotation was considered outside the immediate scope of semiology. Artistic effects, even when they are substantially inseparable from the semic act by which the film tells the story, nevertheless constitute another level of signification, which from the methodological point of view had to come later. The failure of a denotative semiology would place scientific approaches in the background and subsequently privilege a return to myth and the relationship of the viewer to film. Structural and formalistic dissection was replaced by rise of psychoanalytic and social issues as a new political aim sought to replace objectivism with a reflective approach to the study of the cinematic text: one which considered the practices of desire and meaning creation--figuration--in the film production and exhibition process.

The figural needed to address and develop a broader vision of the creation of meaning in the film, one that accounts for the constitution of human subjectivity, cultural objects, and political events. It needed to operate at the level of narrative and dramatic structure as well as *mise-en-scene* and the production process. Film theorists drew on the debates where structuralist and formalist proponents and opponents encountered the new challenges by psychoanalysis, feminism, rhetorics, as well as interpretive strategies, both hermeneutic and post-structural. If structuralism has run up against resistance in the past few years, it is in

part because cultural studies have felt the need to pass from the logical clarity of linguistics to the more murkier disciplines such as rhetoric.

Henceforth the reading of figures, not just codes, is paramount in an examination of cultural productions. French philosophers, having rejected many of the themes of the positivist dominated structural debates, later took up many of its basic themes - the suspicion of meaning, decentering of the subject, and the reflexive concern on language. Rejecting the psychologically layered and motivated individual, Roland Barthes' reading strategy privileged the metonymic representation of social positions and values imbedded in the "figure" of the narrative. Barthes moved away from the an emphasis on structural formalism to processes of figuration which involve the reading as well as writing process. The figure is a cultural stereotype not unlike Propp's character roles, but is determined culturally rather than by the needs of the narrative structure.[3]

Figuring *Wall Street*

To understand better the figural analysis as it applies to the politicization of a text, an exemplary narrative is required. Oliver Stone's *Wall Street* is in many ways a modern gangster film and analysing it with both a sensitivity towards a genre reading and its figuring proclivities can render relevant interpretations. While the construction of criminality is not a major organizing tenet of this work, it is ultimately a major issue in confronting the great financial crimes of the eighties. The trader and the

hacker are merely two preliminary archetypes which need to be confronted and implicated in the emergence of the modern information-debt society. Stone's text is merely one entry into this figuration, but it is a useful example of text which confronts major social issues while resorting to common, perhaps conservative generic constructions. In theorizing, one always confronts the tensions of either provoking new political terrain and risking a loss of understanding or maintaining status quo constructions and failing to sufficiently problematize a dynamic new territory. Stone's movie was an exercise in moving forward politically while confronting this dilemma. It laid out some of the larger global contexts from which to comprehend electric money while exploring the motivational structures which guide some of its characters.

Much of the financial world started to change dramatically during the eighties. Deregulation and technical innovation created new dangers and new opportunities for both the abuse and the creation of wealth. A financial explosion occurred. *Business Week* called it, "The Casino Society," citing new games such as futures and leveraging which have made it more an arena of speculating than a conduit for investment.[4] The financial system began to operate as an "autonomous subsystem" of the larger world economy, fuelled by a widening array of negotiable texts such as commodities, foreign exchange, government bonds, options, and over-the counter stocks.[5] The fire was fanned even more by a new US administration which not only added trillions of dollars of new debt to the casino but in fearing further economic stagnation was hesitant to enact legislation which might intervene and regulate the financial environment.

The financial industry like other types of business depends on profits which in turn depends on volume. In other words, the more debt they can create, the more profits they can make. Cash-management accounts, credit cards, syndicated lending, and other new techniques dramatically increased their ability to create debt.

Overall, the financial explosion transformed the modern commercial environment. Much of the profit was channelled into new communications and information equipment, new office buildings and the rapidly changing transport firms such as Federal Express. Data processing and telecommunications expenditures were dominated by the banking, insurance and share market industries during the eighties.[6] *Wall Street* is clearly a metonym for a new spatialization: part city and part communications network. This was brought out clearly in a *New York Times* style article which talked of a "small army" of California residents who live according to New York time. These are mainly "stockbrokers, bankers, lawyers and news and entertainment people" in Los Angeles who have developed a lifestyle "keyed to New York and other Eastern cities." They rise at 3:00 AM, start work at 5 AM and are in bed by 9 PM. As Shapiro and Virilio suggest this is a function of the new electronic technologies which have created what Virilio called "chronospace." The temporal and spatial meet in a new electronic cultural and commercial environment.[7]

Capital markets have always sold themselves as vehicles for capital movement. They aggregate wealth at a fixed point and they also provide liquidity, the ability to let investors withdraw their money when

they need it. Wall Street is the major intermediary in this movement of electronic wealth. Stone's story merges this financial backdrop with a story about an ambitious young newcomer (Bud Fox) who comes to the "Big Apple" in search of fortune and recognition. He ultimately joins up with a seasoned corporate raider (Gordon Gekko) whose deal-making thrives on inside information. Tired of analyzing operating statistics (relative price-earning ratios, divisional breakup values, credit coverages, etc.) to prepare stock recommendations, Fox attempts to use some privileged information to his advantage. He teams up with Gekko to use the information to buy the airline where his father works. Troubled by a FAA (Federal Aviation Administration) investigation which is blocking route expansion and the purchase of vital new equipment, Bluestar Airlines looked to remain stagnant if not go into the red. Bud inadvertently gets the insider information because his father is the shop steward of his union at the airline. With the aid of Gekko, he attempts to raid the company's stock and become its president only to find that his mentor has plans to dissolve the airline.

The study of the gangster film gained notoriety with Colin McArthur's *Underworld USA* (1972) in which he laid out the iconographic elements of the genre -- the "patterns of visual imagery, of recurrent objects and figures in dynamic relationship." Three categories were delineated to lay a foundation for a dynamic, intelligible account of the genre. The first was the physical presence or denotative attributes such as the dress of the characters. The second consisted of the "urban

milieux" in which the fiction was played out. The last was the technology used by the characters, primarily, guns and cars.

While villainy is a stable in narrative structure, the moral space created by the text frequently situates the criminal character outside this traditional function. The gangster as a product of the new of the new urban civilization confronted the contradictions of liberal capitalism with its promise of a classless, democratic society. The genre pitted desire against constraint, where the gangster, amidst the legal and social conditions of the early thirties, violated the system of rules and bureaucracy in the name of tragic individualism.

Stone's iconographics place his main characters as outsiders within the urban cathedrals of modern power. Its main characters are creatures of desire facing a world which denies them. They adhere to the strictest bourgeois codes yet their business consists of an underground network of shady transactions outside the official economy. Their aggressions propel towards the rational economy while their pasts repel them. From their lofty towers they plot electronic raids on unsuspecting companies. They replace guns and cars with spreadsheets and cellular telephones in order to expand the sphere of their influence or hostage others for greenmail.

The gangster character-type with its propensity towards dramatic action and individualistic profiteering has long been a favorite of in American popular film. Its aggressive, yet misguided personas fit well into tragic and moralistic tales which the emerging Hollywood studios were quick to exploit during the Great Depression. Warner Brothers in

particular, drawing on new developments in sound and picture quality, positioned these new identities in a contemporaneous social realism markedly different from the fantasy films such as *King Kong*, and *Dracula* which dominated the period.

The attraction of the early gangster, despite this villainy, was largely tied to his position as outsider. The populist criticism of liberal capitalism saw in the gangster genre a vehicle for politicizing the current problems of the time -- alienation, greed, poverty, and unemployment. Criminality was seen as resulting from socioeconomic factors such as the Prohibition and the unequal distributions of wealth. Films such as *Public Enemy*, stressed the gangster's working class roots and underclass markers such as unfashionable clothes and ghetto dialects. The Warner Brothers studio itself was identified with the Democratic New Deal, and its economic success left it relatively independent from the Morgan/Rockefeller banking empire.[8]

Stone clearly figures his main characters in *Wall Street* from this early genre and its iconographics. Gordon Gekko and Bud Fox both hail, quite energetically, from working class conditions. Gekko's father sold electrical supplies in Campsville, Arkansas after the government foreclosed on the family farm.[9] Carl returned nightly to a home in Queens after a day's work fixing aircraft for the Bluestar airline. Like Stone's award-winning film, Platoon, Charlie Sheen plays a "coming to age" character trying to reconcile his subjectivity among capitalism's competing myths. The film's narrative acts out the tensions between two discourses which structure the acts of criminality but bring in a set of

conflicting interpretations. On one hand it presents good sound capitalism, the kind Marx thought might lead to communism one day. Three supporting characters reinforce this discourse: Bud's father, a union leader; Sir Lawrence Wildman, a reconverted raider; and Lou Mannheim who works at the same brokerage film. Lou, a potential mentor, cautions Bud, "You're part of something here, the money we invest creates science, jobs, goods and services."

The other discourse is entrepreneurial greed -- competition with no holds barred. Gekko as anti-hero was its main representation in the film but it was also the dominant Wall Street coda. The securities inflation of 1980's was one of the decade's major media stories and a lasting legacy of the Reagan Era. The Dow Jones and Nikkei indexes were the smiling faces of the new age of electronic predatory capitalism. Share price aggregates broke one numerical milestone after another as the world turned its attention to the new liberal prosperity. The "Masters of the Universe," as Tom Wolfe called them in his book, *Bonfire of the Vanities*, fascinated the America public as a new breed of "robber barons' drawing on the entrepreneurial spirit to re-energize American industry and drive out the bureaucratic corpocracy accused of letting American competitiveness slide in favour of its former World War II enemies. One of the most celebrated and later reprimanded of these new money mandarins was Michael Milken. Milken was credited with developing the infamous "junk bond" market. These high interest bonds of the less creditworthy companies attracted money from around the world. Insurance companies, Mutual funds, Savings and Loans, among others,

were the first to purchase these high return notes. Junk bonds provided a quick but expensive way to raise large amounts of capital for buying vulnerable companies. Unfortunately, the high costs of procuring this type of financing in many cases makes breaking up these companies the most profitable strategy for the raider. Assets such as buildings, equipment, and intellectual property are sold off for quick profits. T. Boone Pickens, a sort of real life J. R. Ewing of *Dallas*, made US$107 million at one point from raiding big companies like Gulf and Philips Petroleum. To Bud Fox's horror, he realizes that his mentor Gekko had planned all along to break up the airline company which employs his father and many friends. Bud's enthusiasm to restructure the Bluestar airline and save it financially plays into the hands of the major gangster and sets it up for the fall.

Stone's myth and characterizations are contemporaneous with New York's emergence as the new numispolis, and the transition to a transnational system for arbitrage and the movement of electronic money. New York's dominance had been complete with the first defeat of Germany in 1919, but it emerged even stronger with the financial destruction of the US's government in the 1980s. The country's burden was Wall Street's bonanza. The city that needed a bailout in the seventies was soaking up the world's cash reserves a year later. Packs of transnational eurodollars, abandoning the dream of a newly developed Third World, returned to yuppiedom to feast on an unsuspecting corporate infrastructure. The IMF had put out the yellow light on Brazil, Venezuela, the Philippines. A national government may not go bankrupt,

as David Rockefeller proclaimed in the mid-seventies when bankers were searching out new markets for their coffers of petrodollars, but they apparently had unfathomable appetites for foreign currencies. As prospects for rich returns diminished, new calculative strategies, enriched by the computer, took aim at corporate America.

The corporate raider became a new socio-economic caricature to which Stone has made his contribution by intertexting the gangster genre into his filmed critique of the contradictions of modern capitalism. The new gangster, represented by Gekko and Fox in Wall Street, is figured heavily by the sympathies Americans have for the criminal who fights the bureaucratic barriers to opportunity and advancement but who must ultimately take a tragic downfall in the name of the law.

Whenever a film or any textual practice and its stock of associated readings disrupts the continuity of meaning it begins to enter the field of the political. At times this politicizing process works in the direction of mystification and legitimation, serving prevailing structures of power and authority, and at times it operates in the direction of resistance. Figuring then is a complex social process with implications for politicizing domains that have been naturalized or are too distantly associated with interest and power to evoke the idea that the issue of control is problematic. The next stage of the textual analysis of cyberfiction and cyberspaces seeks to address this issue of control and to incorporate an expanded notion of economies from its general use in the analysis of capital, identity, and the production of commodities.

Reversing Utopia

How are representational and meaning-creating practices engaged in valuing processes? In which ways do they work to form hierarchical systems of authority and control? How do these practices sustain, refuse, or marginalize political identities? Are there some apparent similarities in the seemingly diverse modes of cultural and economic signification which might suggest a path of inquiry and a languaging project to better comprehend the systems of meaning informing modern society?

Semiotics, economics, and psychoanalysis all seemed to concern themselves with "the question of substitution and its correlative, value."[10] This notion of substitution is the cornerstone of Goux's radicalized text of exchange, which following Derrida, saw signifying events as substitutes for the signified as well as the ideal form of the signifier. By opening up the designation "exchange," Goux attempts to demonstrate that the processes of equivalence, substitution, and representation are constantly taking place in social signification.[11]

Returning to the literary interrogation of the genre distinctions; this dimension of inquiry has not been exempt from the "economic" strategy nor is it unrelated to the constitutive and political practices forming social thought and policy. One way in which this can be demonstrated is by looking at the utopian/dystopian intertext which informs many socially oriented narratives. In part these stories are characterized by the constant interplay and tension between sovereign communal forces and

the expansion of exchange and signifying impulses. The utopian anti-economy impulse is contrasted with the proliferating expenditure and privatization of dystopian writings. Sir Thomas More's *Utopia* (1516) among others is notable for its critique of exchange and money-forms. More's Utopians scorned gold and the occasional foreign dignitaries who would adorn themselves with the metal that they used for constructing urinals and for chaining their slaves.

Drawing particularly on the writings of Freud, Lacan, and Derrida, Goux brings together the notion of a third, a new entity which in each of the areas these men concentrated on, is raised to an exclusive level. The promotion of father to the rank of privileged subject, patricentrism; the centralization of the phallus as the select object of drive, phallocentrism; and the primacy of language, logocentrism; are to Goux, similar processes. This accession is followed in other symbolic domains such that Goux distinguishes a logic of symbolization. In the same way that gold becomes the general equivalent of manufactured goods, the father becomes the general equivalent of subjects, the phallus of objects, and language for the world of signs. The choice sign, after its exclusion and rise is termed the symbolized third. Whether the process takes place in the realm of labor and commodities or energetic zones and erogenous investments, the genesis and structuring tenets of general equivalence merge in the third.

The reversal of the symbolizing logic leads one to speculate on the cultural and political implications of a society without the formation of symbolized thirds. Goux targeted More's *Utopia* as a check on the

proliferation of signification in general and particularly the other symbolic forms which he argues mediates exchange. By collapsing these symbols into a general equivalent form, Goux adds another layer of complexity to the reading of the genre.

By identifying and separating an element from its set, a value can be produced with the ability to circulate and interchange. But in each case Goux argues the symbolic third "freezes into a rigid mediation that dominates."

> If the symbolic relation introduces a *third entity*, a mediating element, by which the ceaseless floods of the imaginary are absorbed . . . a symbolic counteraction, operating like a forced currency, blocks the balancing process and dispossesses subjects of their own activity, through the symbolic functions of the state, money, the concept.[12]

Utopia's debt to the moneyed world, to the Other from which it mobilizes its repression of the commensurating symbolized third, is a vehicle to pursue the complex relationships between value, exchange, and sovereignty. Goux used Sir Thomas More's writing as a way of scripting the role of the general equivalent but within the larger interpretive framework focusing on symbolic economies. *Utopia* is political and particularly sensitive to the workings of symbolic economies in the sense that Goux suggests More's project was to "overthrow the tyranny of the symbolic."[13] More's *Utopia* was a direct critique of the general equivalents: money, concept, God. Unlike the continent, the mythical island of Utopia held no fetishcized regard for gold. The metal

exists as use-value only, devoid of its power in exchange, substitution and representation. Near the end of "Book II, The Discourse on Utopia," Hythloday, the returned visitor to the Republic of Utopia, compares his experiences of other nations with the island:

> And yet they are far short of the happiness of the Utopians, who have abolished the use of money, and with it greed. What evils they avoid! What a multitude of crimes they prevent! Everyone knows that frauds, thefts, quarrels, contentions, uprisings, murders, betrayals, poisonings (evils which are commonly punished rather than checked by the severity of law) would wither away if money were eradicated! Fear, anxiety, worry, care toil, and sleepless nights would disappear at the same time as money! Even poverty, which seems to need money more than anything else for its relief, would vanish if money were gone.[14]

It would be premature to figure Goux allied with More in this critique of the general equivalent. More himself used conversational interaction between himself, his friend Peter Giles, and the fictional Hythloday as a device to distance himself from the radical critique of the ancient mariner. More ends Book II with the following reflection:

> I admit that not a few things in the manners and laws of the Utopians seemed very absurd to me: their way of waging war, their religious customs, as well as other matters, but especially the keystone of their entire system, namely their communal living without the use of money. This one thing takes away all the nobility, magnificence, splendor, and majesty which public opinion commonly regards as the true ornaments of a nation.... Yet I confess that there are many things in the Utopian Commonwealth that I wish rather than expect to see followed among our citizens.[15]

Without the symbolized third, order becomes possible only with the imposition of an ideal legislator. Goux chose to expand the argument by deferring to the tensions between the institutionalized subjectivities forged by the affective and symbolic possibilities of destabilized exchange relations and sovereign controls over the processes of signification and interpretation. The symbolized third, "by delegating value, divorcing use from exchange, performing substitution and representation, prevents the community of life and property after which the Republic of Utopia strives." Seeking to inhibit the spending and production of surplus value in the name of collective identity, the utopian governmentality seeks to control affect, signification, and valor.

> In More's utopian republic, everything is made uniform. In a society without a law of exchange revolving around a symbolizing third, utopia is only possible through the fiction of a society based on identity. If there is a utopian order, it is an order that, in the real, is based on uniformity.[16]

One way to view the utopia/dystopian intertext and thus a range of science fiction writing is through this literary political economy. Goux's paradox posits a basic dichotomy between social arrangements based on the orderful control of sovereignty, "an immutable organizational principle;" and the symbolic regulation of "a law of exchange revolving around a symbolizing third."[17] From this perspective we might posit the hypothesis that any conservative call for stable orders of signification and energetic flows and conversely any liberation hopes for the opened

pathways of enlightenment are destined to meet each other in futility. This is certainly bad news for any of us looking at the possibilities of praxis or new political identities which can work effectively in the institutionalized spaces of the modern political economy. Are any possible openings suggested here for a politics which provides counter-arguments for the lulling narratives of reassurance which have routinely accompanied the justifications for a new society based on exchanges of informational commodities? These questions are to be expected when faced with the daunting paradoxes suggested by Goux's analysis of *Utopia*. Given Goux's diagnosis that utopias are in part literary attempts to outlaw the emergence of symbolic thirds, perhaps some examination of its converse, the dystopia, is in order. It may be necessary to refer a wide, rather discontinuous grouping of texts with a varied set of iconographics and thematics but the attempt is not to create and justify a genre but rather to suggest some economic and political openings.

Economies of the Utopia/Dystopia Intertext

Dystopias then are desperate economies which have commodified culture and aesthetics. In the dystopia ("sick place" as opposed to the "no place") it is difference and spending which dominate. Extravagance and expenditure rule, encouraged by the technological extension of temporal boundaries that result in new forms of credit and money. The complex webs of signification produce new forms of desire and sign-values for consumption such as the electric animals in Philip K. Dick's *Do*

Androids Dream of Electric Sheep, the storyline for the movie *Bladerunner* (1982). The story is exemplary for among things examining a marketplace subjectivity which is not produced by the domination of needs, but in the desire read in the gaze of the other. This approach contrasts significantly from the utilitarian postulate based on use-value. Quoting Orlean: "rather than supposing the subject to be constituted before exchange, exchange should be seen as the source of individual desires."[18]

A theoretical reworking of value from an essential concept to one based on a more complex series of imaginary and rhetorical forms is integral to the textualist project. Rather than view value as transparent to mediating factors and segment social value within the base of production, this approach locates it within a complex intersection of textual practices and semiotic codes.

> The structure of Marxian anthropology, as it emerges from Capital, is parallel to the epistemological structure of traditional empiricism. Eschewing socially mediating frames for the production of meaning, and, therefore, what is valued, it posits a simple causal theory of meaning. "Real" or authentic value, for Marx, involves a meeting of objects and persons. The physical properties of the object confront the "needs" of the user. There is no individually or sociosymbolically motivated interpretive work shaping the object. The person is simply ready for the thing inasmuch as persons are a collection of needs, and desire is involved only to the extent that it is seen as desire to fulfil needs.[19]

Shapiro acknowledges that Marxist political economy is more critical than formulations by schools of liberal capitalism. It has recoded

economic relations to "provide a discursive space within which structures of domination and subjugation can be discerned."[20] But its resistance to acknowledging the role of culture and representational practices in the political economy has partitioned off viable domains of analysis. By separating culture from economy it relies on a flawed notion of "use-value" as an unmediated given. Jean Baudrillard was critical in transforming the work in the area of semiotics into a plausible account of economic activity which countered the dominant critical language of Marxism. For *A Critique of the Political Economy of the Sign* (1972) and *The Mirror of Production* (1975) both used Marx as a frame of reference but the argument shifted from a semiological support for the "relative autonomy" to "the complete autonomy of the mode of signification."[21] Baudrillard made the early arguments for understanding "needs" as being secondary to social exchange processes. Exchanging and consuming are institutions which fulfil "the social function of prestige and hierarchical distribution" rather than serving a "vital necessity" or natural condition.[22] Objects are consumed in an attempt to organize one's private existence within the dominant ordering of signs. Rather it is the consumption of a system of objects which imbues identity with meaning. Objects are appropriated for their sign-value which has assumed its meaning in its "differential relation to other signs."[23] Use-value in Marx's conception is value measured according to a concrete outside world, a value based on the material usefulness of a given object. Baudrillard rejects the notion of a concrete outside world without considering the secondary effects or rationalizations which can be implicated in its

comprehension. The "usefulness" of an object is determined by the prescripted modes of signification which are brought to its understanding. There is nothing intrinsic to a chair that invites one to sit on it.

Elaborating the systems of value and exploitation was an important contribution to the understanding of the generalized political economy, but far more subtle and potentially totalitarian is the control of the code. This is the crux of Baudrillard's argument which critiques the way the modern world codes, measures, regulates and pins down everything in the name of economic value. Referring everything to natural labour-power, natural needs, and natural use-value is the ideology which creates the stable forms needed for the tyranny of measurement and the operationalization of all exchanges under the law of the code. It is only with the new sensitivity to the textual processes involved in the construction of epistemological relations that a critical practice can expand beyond the narrow barriers which have been limiting economic inquiry, the construction of value, and thus important considerations of commodity production, exchange and desire.

Locating Cyberspaces: The "Cy-Fi" Genre

Genre analysis is increasingly effective in the political analysis of film as it moves from auteur criticism and taxonomic empiricism to the study of iconographic cinematic and cultural conventions. Categorizing films as treasure chests of cinematic rituals, formulas and unities, and determining memberships according to a threshold of creativity and art

has worked to ensure audience power but not necessarily to politicize a terrain of thought. The mobilization of genre as a series of reading strategies is more useful if it discards its Aristotelian notions of an essential being which is intrinsic to that which is being interpreted. The genre is an intersection of codes and figurations and therefore unity is a fiction rather than an autonomous truth. The textualist approach recognizes that there is a value system involved in the construction of a genre's conventional objects, characters, and topographies.

The dystopian narratives are informed by horror and gangster genres but are usually defined within the science fiction problematic of a fallen humanity in the midst of technological triumph. By expanding the notion of economy to include the post-modern problematic of representational practices we can supersede the technology/science vs. politics/culture dilemma which preoccupies much of the discussion which identifies the dystopian text. The insertion of political economy into science fiction is contemporaneous with new concerns about technology and its links with big capitalism instead of exclusively big science.

The spent economies of the post-industrial modes of production shows up in a dark portrayal of urban decay, pollution, and the ever present rhetoric of technology. This visual texture has been labelled "tech noir" and has been argued by Kerr that its "film noir" predecessors developed their characteristic styles: disoriented lighting; off kilter camera angles; and nighttime shooting mainly to economize or to thwart union restrictions.[24]

Much of this new writing moves away from the dominant tropes of the science fiction by dispensing with the spaceship as its dominant icon in favor of sophisticated computer technology and the electronic grids of media dominated by multinational capitalism and/or the military. A rogue group of writers which are constantly identified as "cyberpunks" have centered the notion of electronic space in their novelistic narratives. *Islands in the Net* (1988) by Bruce Sterling and *Neuromancer* (1984) by William Gibson both enact plots which operate largely in computerized databanks connected on a global scale by satellites and undersea cables.

In her analysis of the cyberpunk wave, which is heavily influenced by science fiction literature and film *??s t y l e s. ????* Frances Bonner has offered the "four C's" of plotting narratives as a way of gaining distinctiveness for the genre in film studies.[25] Computers, corporations, crime, and corporeality are the main categories she explores in her analysis of such film and television texts as Alien (1979), *Blade Runner*, *Max Headroom* (1984), *Repo Man* (1984), *Robocop* (1988), *Terminator* (1984), and *Terminator 2: Judgement Day* (1991). While the analysis suffers from the dubious attempt at judging whether the texts belong to the cyberpunk genre her categories are an interesting point of departure. As adventure films, they draw on a range of genre iconographics and cinematic practices, arresting and controlling meanings to shape their stories. These conventions with their representative aesthetics, cultural values and rituals provide the standards of interpretation and intelligibility which lure the spectator into disavowing their illusion. Activated by

Baudry's *cinematic apparatus* with its combination of technological and energetic components, the viewer slips into the structure of familiarity and faith engendered by its recognizable characters, costumes, music, and visual settings.

The *Terminator* films are interesting variations on the military theme as defense computers come to control the entire array of automated and robotic production. *The Terminator* is a "terminal" of the former defense network, Skynet, which has reasoned its own revolt against human control. After remodelling their production lines, one of their main products is a warrior android designed and programmed to kill humans. This seems to suggest that the category "Computers" is an unsatisfactory classification. While the computer has had some interesting cameos in such films as *Logan's Run* (1976) and of course *2001: A Space Odyssey* neither could foretell the fascinatingly ubiquitous future of the computer and its appendages. The literary notion of *cyberspace*, which while still largely undertheorized, has been circulating rapidly as an alternative interpretation of the new technological environment.

Cyberspace is a figural construction in contrast to the official telecommunications discourse which emerged from technical and legal backgrounds. This will be explored further in the next chapter but it should be added that unlike the latter, the notion of cyberspace foregrounds its cultural and social issues. Though initially coined by William Gibson for *Neuromancer*, its precursors emerged in a number of older films. *Dr. Strangelove: or How I Learned to Stop Worrying and*

Love the Bomb (1964) was the first film to implicate the computer as a global nuclear threat. Later, *War Games* (1983) introduced the possible instability of defense networks to a new generation of computer-literate adolescents when a young hacker crashing computer systems to steal games initiates a NORAD thermonuclear war game. It is interesting to note that the computer modem was invented to connect remote radar stations to a centralized computer in order to aggregate data about potential airborne nuclear attacks. The first data networks connected primitive modems at radar stations around the North American continent to centralize information about a possible nuclear attack and are now part a whole worldwide gridscape of military intelligence with capabilities for command, control and communication (C^3I).

While early films such as *Metropolis* (1926) and *Modern Times* (1936) hinted at the surveillance capabilities of telecommunications in modern industrial environments, few films with the possible exceptions of *Rollerball* (1975) and *Wall Street* have explored the modern electronic spaces in commercial and industrial contexts. The real contribution of cyberfiction has been to politicize the computer networks as sites of corporate activity, both locally and internationally. While *Wall Street* is perhaps more poignant in acknowledging cyberspace as a site of capital formation and coordination, *Die Hard* (1988) and *Die Hard 2* (1990) have contributed to a meditation on the abstraction of modern spatiality in the programming of the computer and its software. Both films figured complex electronic spaces throughout their narratives using the corporate highrise in the first and the international airport in the second

to feature high tech environments. The perpetrators in the *Die Hards* gain an initial advantage by their mastery of the spatial domain via electronics. Control has been abstracted and textualized in the symbolic constructions of the computer. Physical space is controlled by computerized software. The corporate tower and the international airport become subject to electronic takeovers which can only be overcome by human heroics.

The *Die Hard* films could in some sense be considered 'cyberfictions.' Both narratives are richly produced with the "tech noir" lighting and iconography which has become primary to the stylistics of many new films. Computers, cellphones, security systems, television, are eminent but within a context of multinational capitalism and political dynamism. As Der Derian points out, airports are premier settings for corporate and international espionage in fiction. "Imagined menace is made immediate by extensive security systems: luggage is X-rayed, bodies are electronically scanned, and bags are "sniffed" for explosives, while at various choke points, surveillance cameras swivel and zoom."[26] The *Die Hard* film narratives are intertwined with a dense media space made up of public airphones, paging beepers, computerized air traffic, intelligent buildings, and electronic security systems. "Wake up and smell the nineties" is Holly McClane's admonitory to recognize the new communications technologies not only as superstructure but as a predominating electronic infrastructure.

Max Headroom (1985) prefigured *Die Hard*'s exploration of the corporate's new reliance on computerized control. Its opening shots

(after its city silhouette of a sky "the color of television, tuned to a dead channel."[27]) is of the Network XXIII' s Securikam, part of the electronically mediated technosphere which dominates the film's cinematic stylistics and narrative construction. The computer battle over Network XXIII' s intelligent headquarters is ultimately what sets up the story's turning point and creates its main icon, MAX HEADROOM.

The intelligent building is a major manifestation of the cyberfiction genre and is notably for its contribution to the understanding of (post)modern spaces. The *DieHard* narrative features the corporate headquarters of the Nakatomi *kaisha* (corporation). The towering structure becomes not merely the site of action but itself becomes a major icon. Its intertextual precursors can be traced from an amalgamation of *The Towering Inferno* (1974) and the tech noir style of more recent SF films like *Aliens* (1986) and *Terminator* (1984). The thirty-five stories of the skyscraper were heavily centered in the advertisements which preceded the movie's release as well as the videotape cover which portrayed it rising up in phallic fashion including an urethra canal rising from its base and culminating in a gigantic explosion at its tip. Understanding the symbolic significance of the Nakatomi Tower requires investigation outside usual film genre conventions to the representations governing urban and architectural design. If the Nakatomi Tower is a stylized version of architecture's "international style modernism," the movie subverts its tenets through its *mise-en-scene*. The internationalist architecture, aligned with the modernist project, constructs its designs within a overall social purpose.

Space is conquered in the name of the technocratic state apparatus and corporate capitalism which together would mold the future of the human species. The monofunctionally zoned central business district with its grand archetype, the Skyscraper, is one part of the symbolic poverty created by modernist design which also includes residential suburbs and industrial zones.

Historically, the commercial highrise got its most significant start with New York's Woolworth Building, which was the tallest building in the world from 1913 until 1930. In 1917, S. Parkes Cadman, one of America's first great radio preachers, christened it the "Cathedral of Commerce." It was a symbol of the young nation's newly emerging industrial and financial power and he proclaimed that it housed the spirit of man which, through means of exchange and barter, binds people into unity and peace, and reduces the hazards of war and bloodshed. Tall buildings have been effective historical carriers of symbolic power. Churches slowly relinquished their aerial symbolic power to governments which soon saw their buildings topped by corporations. In a theological context, where the world is arranged hierarchically, height attains a spiritual significance. In the world of the patriarchal monarch where power is paramount, the highrise is a phallic connotation of potency and strength. In an age of electronic money and information flows, the symbolic power of the large building may be needed to reinforce the legitimacy of the new modes of representation.

The highrise debacle in John Guillerman's *The Towering Inferno* predated *DieHard* as it trapped its victims in an office building's top

stories which could not be reached by firehoses. The Nakatomi Plaza transforms into a prison for the hostages and a fortress for the police. Commandeering the building's elaborate computerized security systems are the first priority for the intruders. Low-angle long shots of the building provide a sense of unreachability as do interspersed shots of metal gates closing and electronic doors locking. Like a castle under siege its defensive measures provide protection by immobility.

It may be interesting to ponder how many people have watched the video version of *Die Hard* while they were situated in a highrise building because like the movie *Earthquake* (1974), whose first cinematic tremors are felt by viewers in the movie theatre, *Die Hard* is notable for its contemporaneous narrativity. While it does not explicitly mention a time period, there is nothing to suggest that it occurs in a historical past or a speculative future. The viewer is drawn into, if not the feasibility of the event, the fear that their familiar urban environs are not as safe as they might of imagined. As Yacowar suggests about the disaster film, "there is no distancing in time, place, or costume, so the threatened society is ourselves."[28] Immediacy like this, where the viewer experiences a temporal continuity with threats experienced by the character is also one of the main conventions of the "survival" genre. The recent bombing of New York's World Trade Center, now nicknamed the "Towers of Terror," drew immediate references to *The Towering Inferno* in the media world and will no doubt enter the lore of highrise paranoia.

This near contemporaneous narrativity (*Max Headroom*'s "twenty minutes into the future") draws the reader or viewer into the fear that their familiar environs are not as they might of imagined. Cyberfictions like *Jurassic Park, The Lawnmower Man,* or *War Games* for example, maintain a "real-time" temporality in order to enhance the dramatic value of their stories and blur the lines between fiction and "fact."

Another convention is the sense of isolation created by a disaster or the remoteness of the location where the incident occurred. Unlike the homey environment of the *Star Trek*'s Enterprise, the crew of the *Alien's Nostrodomo* live in a stark industrial factory-like ship. Outer space is figured as course and harsh in the latter and the sense of isolation is heightened by their reliance on suspended animation for long trips. The creation of isolation through montage and mise-en-scene adds to the desperation shared between character and viewer.

The cyberpunk world is dominated by high technocracies and their bleak corporate structures. From the Tyrrel Corporation of *Blade Runner* to Network XXIII of *Max Headroom*, *Terminator*'s Cyberdyne Corporation, and the Tessier-Ashpool conglomeration of Gibson's trilogy; organized capitalism provides the overriding multinational and in some cases interstellar space the plots are enacted within. The Corporations have staked out huge tracks of land where they have built their own "arcologies," heavily guarded, self sufficient factories and research centers which house their top research and development people. The miniature Silicon Valley-type conservatories are post-industrial fortifications which place a premium on knowledge and expertise.

Working off the cultural energy of the eighties with its fascination for both global high tech and indigenous countercultures, the hacker and the rocker, the Information Age and Armageddon; the cyberpunks dramatic conflicts largely center in and around what Gibson called "the biz," the interlockings of technocratic capitalism, organized crime and the "street."

Cyberfiction offers alternative understandings of the new mediascapes which surround our lives and are constituting a new realm of international politics. The electronic technologies of the *Die Hard* films are dangerous weapons, which to be effective, require years of training and extensive infusions of capital. Unlike the "cyberpunk" movement which reifies the individual neo-liberal hacker against the corporate system, gaining strategic advantage in the *Die Hard* films requires the skill base and capital investment from either paramilitary operations and/or drug smuggling and other organized crime.

The post-futurist vision has given up on the progressive tendencies and thus the teleological dilemmas of late capitalism. Gone is the modernized future with its promise of equality and communal identity. Along with its politicization of spatial and administrative disciplines, they dramaticize the familiarity of its consumer culture, and take pleasure in its environmental defects and nostaligized brand names. It eroticizes cybernetic technology by representing its control over information, logistics, and ultimately the production of consumer classes. It is no friend of the far left, lacking in the dread and xenophobic qualities which are important to political mobilization. Its generic development is

deeply infused with the cultural categories of the new postmodern stylisms so that "the luxury of the old-fashioned ideological critique, the indignant moral denunciation of the other, become unavailable."[29]

The cyberfictional representation of these electronic spaces reiterates and challenges the meager but dominant interpretations of the new networks. In the face of the current (still) lack of concern over these transnational grids by political theorists and social scientists, the literary critique through film and novelization provides some interesting characters and topographical realizations. These electronic or cyber-spaces, fuelled by the development of communications satellites, digital computers, and the complex codings of machine and application languages may prove to be the dominant economic and political arena of the near future. An approach sensitive to symbolic economies with a literary edge is one way of interrogating these networks and their impact on range of human activities in the new electronically mediated world. Bonner is right in reflecting society's acceptance of the computer as the universal icon of the information age but a more complex language is needed to the describe and implicate the complexities of the new telecommunications environments. The cyberspace notion will be considered extensively in this project as it is associated with important language reconstructing telecommunications discourse along less technocratic forms.

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Chapter 3
Neuromancing the Code: Cyberspace Discourse and Official Telecommunications Policy

"I've never wanted to be a prophet," contested William Gibson during a television interview program entitled *Cyberscribe*.[1] The author of the award winning science fiction novel, *Neuromancer* was disclaiming his new rank as the diviner of a future society centered around a global computer and telecommunications system he coined "cyberspace." His uneasiness is one of the more striking aspects of this production which characterizes him with a number of titles such as the "Godfather of cyberpunk," "literary guru," and the "messiah" of a new style of science fiction. Even Timothy Leary, famous for championing psychoactive drugs during the sixties, is edited in to talk about Gibson's status. Leary noted the reluctance with which Gibson, who he describes as an "old friend," reacted to the acclaim over his books. "When he became the patron saint of computers. He didn't like that at all," exclaimed the former Harvard professor.

This chapter examines the relationship between science fiction and official policy discourse. Its first argument is that the symbolic economies of textual practices elevate certain authors and texts to privileged positions which enhance their apportionment and thus their ability to influence and intertwine with other discourses. These economies place William Gibson, author of *Neuromancer* and several other books dealing with new telecommunications and computer

technologies in an model position. Author, text, and various icons have achieved a high rate of dispersion amongst technical and both "official" and periphery documentation dealing with the interpretations of electronic networks. His major icon, "cyberspace," has lubricated the flows of meaning which are informing new understandings of telecommunications and related policies.

The second argument deals more explicitly with the processes of centralizing and marginalizing discourses. The novel is used, mainly as politicized by Bakhtin, to examine the production of identities and the means which might give them voice(s). If cyberspace is being conceived as a new frontier being roughed out by "console cowboys" then who are the Indians?[2] What marginalized identities are both being produced and positioned within the new cybernetically saturated societies?

Elevating the Author

Few authors of science fiction are mentioned in both literary and technological texts to the extent that Gibson's name is used. One exception might be Arthur C. Clarke, the author of *2001: A Space Odyssey* who has become famous among telecommunications specialists as a result of a 1945 edition of *Wireless World*, in which he outlined the possibility of "rocket stations" now commonly known as satellites stationed in geosynchronous orbits, providing world wide radio coverage. Unlike Gibson's narrative strategy which sets technological development

within a political and social context, Clarke speculated within engineering discourse.

An exemplary case is the textual/technical production at MIT which is constantly being related to iconic visions produced in science fiction novels. Stewart Brand who is best known as the founder and publisher of the *Whole Earth Catalogue* referred to Gibson in his book, *The Media Lab: Inventing the Future at M.I.T.*

> Science fiction is the literature at MIT. The campus bookstore has a collection as large as some science fiction specialty stores. Every computer student knows and refers to John Brunner's *Shockwave Rider*, Vernor Vinge's *True Names* (Afterword by Marvin Minsky), William Gibson's *Neuromancer*.[3]

Gibson's elevation to the select author of the future of computers and telecommunications networks is indicative of a logic which will be examined consistently in this writing. The traces of intertextuality between science fiction and official policy discourse as they increasingly rotate around computerized information and electronic spaces are subject to processes of symbolization and discourse which throw certain texts to the forefront and bypass others. The way Gibson is centered in this television program can be used for drawing some connections between the historically marginalized discourse of science fiction and the officially centered discourses of telecommunications policy. A reading of the representations and symbolizations of these discourses will be instructive in arguing that the technocratic codes of the latter are being

induced into a complicity with the former. A seduction is taking place in which the more politicized narratives of science fiction are recoding some conventional bureaucratic and technical orientations.

This symbolization process is an operation which organizes itself economically, in that textual practices are better understood as systems of value production and symbolic investments rather than as the structural forms of communication and empirical relations between signifieds and signifiers which hindered traditional semiology. We return to Goux who has introduced the notion of the "symbolic third" to characterize this logic. By drawing on the articulation of general equivalence from Plato to Marx and relating it to similarities in the psychodynamics of Freud and Lacan as well as the logocentrism of Derrida, he is able to postulate a generalized symbolic economy which can be applied to the authoring process and the production of circulating icons.

> It is a (legal) process whereby the established domination of the universal and normative equivalent (money, father, phallus, word) centers or anchors all products of exchange in a single point, such that their multiple, heterogeneous relations swivel around a single, unilateral fulcrum. [4]

In the flux of choices and alternatives which present themselves in social activity a method emerges which creates values and makes distinctions, ultimately setting aside a symbolic third such as money or the chosen author. This sociosymbolic process reveals itself in the

choices among SF authors and the privileging of Gibson as the author *sine qua non.*

We can refer to the metaphor of money to provide an entry into this type of analysis. The first part of *Capital* provided Goux with a grounding for his generalized political economy. He uses this vehicle to develop an understanding of symbolization which could be transferred to other sociosymbolic processes such as energetic drives and language coded as writing. It is important to comprehend that for Goux, the general equivalent does not emerge first in the economic sphere but probably in the spheres of legal, religious, and sexual symbolic practices. Nevertheless, an explication of general equivalence involving exchange and substitution of goods in a money economy is not only a critical strategy for interrogating modern society but provides important homologies to other psychological, cultural, and historical configurations including the elevation of the author.

> The four phases--elementary, extended, generalized, and money forms--which diachronically divide the gold commodity's ascension to sovereignty over all the other commodities and which endow gold with its centralizing function obey a rigorous formal necessity, doubtless universally characteristic of the symbolic order. At the very least, it is a formal necessity within a particular system, within a particular time period.[5]

The money form can be met in the different phases outlined by Marx and developed by Goux. Given a genesis and a temporal strategy based on a historical progression, it offers a "whole theater of

evaluations, substitutions, and social supplementations."[6] The path of money leads to a discursive process instructive of the institutional processes involved in the ordering of the subject, the localization of drives, and the promotion of phonic signifier. Mapping the history of money will not only address the enigma of what programs the capitalist economy but will plot a pivotal structuration in sociohistorical organization.

The original equation for the production of value forms is the equivalence accorded to two objects. One is declared similar to the other and they are recognized as identical. This is called the elementary or accidental form of value.[7] In the Lacanian orders of recognition the other is created and the self is formed with the image that alienates itself by internalizing the other as an "ideal ego." Marx alluded to this relationship in his own formation of ". . . it is with the human being as with the commodity."[8]

The second form is the total or extended form. This brings the commodity into relationship with not just the other commodity, but with the world of commodities in general. This relationship is overwhelming, and not particularly satisfying. The commodity exists in a state of relativism, the realm of endless numbers of equations. Similarly, the child leaves the dyadic relationship with the mother to enter the realm of cultural exchange and the discourse of the symbolic order. The bifurcation opens the subject to the world of diversity, "a simple specular relationship in which he was the signified of the primordial other, in order to accede to a world of others, each of whom reflects a particular

determination back to him."[9] No particular valuation is achieved, no identity established, no prices are fixed. This is the stress which leads to the solution of the common denominator. From the flux of choices and alternatives a general equivalent is chosen to mirror the values of all commodities.

In the third form, the generalized form of value, the discord is resolved. "By exchanging their intricate mutual dependencies for a simple relationship to a single equivalent, by expressing their value in a single mirror, they acquire a determination that is both social and autonomous."[10] By using the same commodity, the form of value is established in uniform fashion.

With the fourth or money form of value, the world of commodities becomes centered around an exclusive form which confers a value, expressed as a fixed price, on each good. Historically this role has been played by gold. A condition of this privileging is the setting apart of the general equivalent. Goux revives the "dead father" only to elevate him to separation by transcendence. Here the father has been chosen to resolve the issue of identity by becoming the lone reflecting figure of all subjects "seeking their worth."[11]

A good start towards applying this process is divulged in a chapter "On Gibson and Cyberpunk SF," by Darko Suvin in *Storming the Reality Studio* (1991). Somewhat inadvertently in his caveat about the methodology used for his exposition on Gibson is the acknowledgment of his elevation to center stage. Suvin's struggle to produce commentary on science fiction is isomorphic to the general symbolization logic which is

perhaps best laid out in Marx's (Another privileged author) theorizing about the elevation of the money-form in *Capital*.[12] Here Suvin struggles with a seemingly endless constellation of potentially equivalent authors (commodities) in multiple relationships.

> An encompassing extensive survey of cyberpunk SF, therefore, looks not only materially impossible, but also methodologically dubious. My solution to the pragmatic dilemma is to opt for representative intension. As I have hinted above, I have read all the books authored by Gibson and Sterling, who, by both accessibility and critical attention paid to them, seem to be the most popular, and who are taken to be the most representative, writers of this trend.[13]

Mirroring the impulse towards valuing money as a symbolic third, he chooses the select author as a general equivalent of all cyberpunk SF. All other authors of this genre begin to express their value in the relationship to the privileged author. While he mentions two authors here, a reading of the article indicates that Gibson more than Sterling is "most representative." Another statement from the same book is useful here to peruse the language of someone who is not versed in the symbolic economies involved.

> My suspicion is that most of the literary cyberpunks bask in the light of the one major writer who is original and gifted enough to make the whole movement seem original and gifted. That figure is William Gibson, whose first novel, *Neuromancer* (1984), is to my mind one of the most interesting books of the postmodern age.[14]

Is it just humility which makes Gibson so tenuous about his status? Or is he distraught at being rocketed into a textual hyperreality outside the scope of his own writing competence and strategy? About the best he can muster for himself in *Cyberscribe* is a "five-chord wonder" who invented the dynamics of cyberspace because he lacked the narrative tools to move his characters in and out of various situations. Certainly Gibson's work is worthy of credit and maybe even the status of "a bible of the postmodern age." In fact this project is based partly on that argument. However, to neglect the exemplary constitution of Gibson's status is to risk losing some insights into the semiosymbolic process and a crucial aspect of literary and discursive development. As the symbolic third, Gibson and his works circulate in a variety of ways and increasingly in a number of different textual communities. *Neuromancer* made a stunning entrance into the science fiction field by picking up the Hugo Award, the Nebula Award, and the Philip K. Dick Memorial Award. Suvin even refers to it as *N*, revealing not so much the economies of effort involved in the writing process but the symbolic investments which has promoted it to a detached, abstract entity.

The argument that an author can emerge as special representative of a genre and serve as the unique measure of all others in that class is only one thrust of this argument. But it is important to establish that Gibson and *Neuromancer* may have accumulated what Foucault calls "inaugurative value."[15]

> The author's name is not a function of a man's civil status, nor is it fictional; it is situated in the breach, among the discontinuities, which give rise to new groups of discourse and their singular mode of existence.[16]

As a departing point of reference, Gibson and his narrative representations seep into a variety of discourses. The next part will focus on the circulation of one of Gibson's most potent icons--cyberspace. This notion carries over to official discourses with some regularity. It is most striking for the textual spaces it has opened up. Just as the storyline of *Neuromancer* rotates around an attempt to "hack" into a powerful computer intelligence to create a new political force, it can be argued that cyberspace has penetrated into the official interpretations of telecommunications policy and expanded the range of possible new meanings associated with computer networks.

Interpreting Cyberspace

Probably most important aspect of this elevation is the increased circulation and interpretations of Gibson's cyberspace. It is surprising how the term has stuck with Gibson who has staked a claim for its contrivance but also how it is beginning to become a commonly accepted term. In *Cyberscribe* he describes how he put it together.

> . . . I concocted cyberspace by sitting at a manual typewriter with a blank sheet of paper and writing a bunch of words with I think .. double-spaced capital letters.. hyperspace. . . other there. . . . you know horrible, like horrible things that would

> never stick and then I typed cyberspace, and I thought oh, you know.. that's kind of sexy. . . .[17]

Cyberspace has become a very provocative term which has achieved a high rate of circulation among the technologically minded as well as the literati. It is probably the most important representation of Gibson which is beginning to operate in more official discourses. Its "cyber" root can be traced to the Greek word *kybernetes* or the "steersman." It gained popularity after World War II when Norbert Wiener popularized "cybernetics" as a science of control and communication. "Space" has a wide array of meanings but it will be used hereafter in the spirit of Henri Lefebvre, who has been influential in politicizing spatial domains.

> And even if there is no general code of space, inherent to all language or to all languages, there may have existed specific codes, established at specific historical periods and varying in their effects. If so, interested 'subjects', as members of a particular society, would have acceded by this means at once to their space and to their status as 'subjects' acting within that space and (in broadest sense of the word) comprehending it. [18]

Lefebvre's writings can be useful in rendering new interpretations of the "space" of modern telecommunications network connections. While his work has been mostly associated with "reading' concrete spaces inasmuch as they are recognized as "social products," it will be applied here to electronic spaces. Cyberspace presents one opportunity

to interrogate the emerging practices of calculation, imagination, and surveillance executed in these new domains.

A work published by MIT Press is indicative of its appropriation. *Cyberspace: First Steps* (1991), despite its academic and technological fix, not only contains a short story by him but owes the main part of the title to his authorship. Gibson's three major novels focus on global telecommunications systems and artificial intelligences. His writings contemplate the implications of these networks that are becoming such a prevalent medium in modern society. It is a world overlaid with a dense grid of very high capacity digital communication networks as indicated in this passage from *Neuromancer*.

> Program a map to display frequency of data exchange, every thousand megabytes a single pixel on a very large screen. Manhattan and Atlanta burn solid white. Then they start to pulse, the rate of traffic threatening to overload your simulation. Your map is about to go nova. Cool it down. Up your scale. Each pixel a million megabytes. At a hundred million megabytes per second, you begin to make out certain blocks in midtown Manhattan, outlines of hundred-year-old industrial parks ringing the old core of Atlanta.[19]

Historically the first data networks connected a whole global gridscape of military intelligence and control. New multimegabyte nets now coordinate modern commercial activities such as finance, logistics, marketing, and production. These networks have proliferated under a complex code of institutional and instrumental rationality, a "governmentality" which has worked out a rough discourse of standards

and practices to link the world's electronic practices of voice and data exchange. The next section suggests an opening to expand the conversation and range of meanings about these electronic spaces.

Circulating Cyberspace

A recent cover of *Scientific American* is worthy of some note here. It reads "Communications, Computers, and Networks: How to Work, Play, and Thrive in Cyberspace."[20] While perhaps it is more an indication of the commercial trend the magazine has pursued in the last decade, this will not negate the point in question here. After its prominent display and slight mention in the table of contents, cyberspace reemerges again in the last section, a common practice in technology-minded texts which usually reserve a small section at the end of the manuscript for "social" or "human" issues. In this case they have reserved some space for "public policy."

An impressive trio of authors is mobilized to address these issues however: Al Gore, a Senator when he wrote it and currently Vice-President; Anne W. Branscomb, Harvard professor and Chairman of the Communications Law Division of the American Bar Association; and Mitchell Kapor, designer of Lotus 1-2-3 and co-founder and President of the Electronic Frontier Foundation. Vice President Gore never quite manages to use cyberspace as a metaphorical device for understanding data networks preferring to see them as an "infrastructure" which must be built like the canals, railroads, and highways.[21] No doubt this is a textual

strategy where telecommunications get recoded according to a set of policy rules which allow for government intervention. By linguistically constructing cyberspaces as the new "electronic highways," legislation compared to the National Defense Interstate Highway Systems Act of 1956 can be proposed for public funding. Under the guise of "information infrastructure," NREN (National Research and Education Network) is now a lightning rod attracting attention throughout the academic, library, publishing, and scientific communities throughout the U.S.[22]

Anne Branscomb, who has been a serious writer about telecommunications policy from a legalistic perspective, connects cyberspace to the frontier language which has been pivotal for telecommunications policy:

> Cyberspace is a frontier where territorial rights are being established and electronic environments are being differentiated in much the way the Western frontier was pushed back by voyagers, pioneers, miners, and cattlemen. And the entrepreneurs are arriving with their new institutions and information technology, in much the same way as the pony express and railroads pioneered communications networks during the 19th century.[23]

This perspective is a useful one given that the history of telegraph and telephone law emerged from "common carrier" precedents set in the era when railroads were expanding throughout the American western frontier.[24]

The character Gibson uses most to explicate the "frontier" fabrication of these networks is Case, who at twenty-four years, is

already a washed out computer hacker. He had "been a cowboy, a rustler, one of the best in the Sprawl," before he stole some money from a previous employee. Case was a thief, working for other thieves. The lands he roamed were the "rich fields of data" which are fenced off by exotic programs known as ICE (Intrusion Countermeasures Electronics) and are potentially lethal.[25] Gibson's narrative takes advantage of the intertextuality with the great American myth of the West, an open land which challenged the legal systems of the East. This strategy provides literary intelligibility to his story-making and allows him to participate in the production of spaces which has become such an integral part of postmodern capitalism.

What may make cyberspace so attractive to Branscomb is the meaty analogy it holds to the historical environment which bred so much of the official legalism which controls the development of modern telecommunications systems. Unfortunately her conclusion that "the common law of cyberspace ... will evolve as users express their concerns and seek consensual solutions to common problems" betrays her unwillingness to cope with the very important social and economic problems which accompanied those times. "Users" to anyone familiar with the history of official telecommunications policy discourse is a term which fails to distinguish between residential and small business "users" and the giant multinational business "users" who have been so active in lobbying telecommunications policy-making. Just as the legal discourse of telecommunications "evolved" with help from, let us say "the fittest," so cyberspace law may follow the same path. While *Neuromancer* does not

advocate anything approaching the "overthrow" of multinational capitalism, neither does it condone the liberal neglectism which plagues the development of electronic spaces. Branscomb opens up the conversation between science fiction and official discourse and to her credit outlines a series of problems and precedents which will no doubt inform cyberspace policy, but she fails to face the angst which drives computer hackers and the critical movement. Her example of the "Legionnaires," a group of reformed hackers who were busted for breaking into BellSouth computers and now have their own computer security company only serves to illustrate this point.

The last *Scientific American* article, "Civil Liberties in Cyberspace," attempts to "head off" dangers to civil rights" at the pass." Largely in response to the Secret Service's practice of confiscating computer hardware and electronic bulletin board software, Kapor advocates going to court on first and fourth amendment arguments (roughly freedom of speech and undue search and seizure). Kapor and the Electronic Frontier Foundation (EFF) which he co-founded is supporting Steve Jackson, a computer entrepreneur who had his equipment seized, not because he necessarily did anything wrong but because the hacker group mentioned earlier had allegedly conspired together on the electronic bulletin business he ran out of his house. Kapor also quotes Gibson in his article and his general argument follows the same metaphorical logic presented in Branscomb's case: cyberspace is a vast hinterland in need of interpretation along liberal and libertarian lines.

More recently, Kapor's partner at the EFF, John Perry Barlow, submitted a piece to the *Communications of the ACM* entitled the "The Great Work." Barlow advocates constitutional rights but caveats: "in such borderless terrain, the First Amendment is a local ordinance."

> While we have not abandoned a constitutional strategy in ensuring free digital commerce, we have also come to realize that, as Kapor put it, "Architecture is politics." In other words, if the Net is ubiquitous, affordable, easy to access, tunnelled with encrypted passageways, and based on multiple competitive channels, no local tyranny will be very effective against it.[26]

While it is clear in this article that Barlow follows the more libertarian approach which was developed by Ithiel de sola Pool, in his *Technologies of Freedom*, he is opening up the space of telecommunications to a larger sphere of interpretations including the transcendental approach of Teilhard de Chardin. His emphasis on "politics" writes against the neutralist approach taken by most technical writings but is it the only alternative?

Returning to the *Cyberscribe* video, an interview with the head of a software company says that Gibson writes in a way that the "technology is alive." A poor metaphor perhaps, but it points to a new imaginative space which is accompanying the move towards a society which is faced with new types of media and the incorporation of many of its traditional bureaucratic and commercial practices into the derealized space of modern telecommunications. Gibson's cyberspace provokes new scenarios and identities in the shadows of the power and wealth of the

military and zaibatsu data zones. It is not a prescription for policymakers trying to act on an external world. It is rather a new world and narrative process, elevated by the dynamics of symbolic economies, which seduces and produces.

Textualizing Telecommunications

Mikhail Bakhtin wrote against the dominant state sponsored genre of Soviet Realism during the 1930s. At the time when all authors were being required to join the new Union of Writers and adopt canonical formulas organized around a stylistic unity: one leader, one party, one aesthetic. Although originally he considered himself a philosopher trained in the German tradition, which was highly regarded by Russian universities as he pursued his education, he came to develop a strong interest in the novel. No doubt his interest reflected the campaign, partly sponsored by the Communist Academy, to institute the obligatory style.

Bakhtin saw in the Renaissance subversiveness against the Catholic Church his own struggles against the official doctrines of the Communist orthodoxy. His most famous book, *Rabelais and His World*, brings to scrutiny the language politics of folk life. He used it to undermine the forms of official power he confronted. By revealing the astonishing vigor of the unconventional and democratic spirit of folk-culture humour, as presented in the French Rabelais' narratives, Bakhtin not only politicized the problems of the Renaissance, but those of his own country under Stalin. With Bakhtin, literary theory turns into a type

of self-conscious political anthropology, where anthropology becomes the mediated study of a type of text.

Unlike mimetic theories of the narrative which defended a theory of narration as show, dramatization, and spectacle, the Russian Formalist critics championed diegetic theories which spoke of literary narration as "above all an affair with language."[27] Of central concern was the genre of the novel itself, particularly the language transformations and manipulation of verbal norms which were necessary to produce it. For Bakhtin, the novel is a multiplicity of styles and discourses, "it is a polyphony, even a cacophony, of different registers of speech and written language: a montage of voices."[28] The novel unfolds as a multiplicity of tongues engaged in a type of communication which is fundamentally political, going beyond simple conversation in that it emphasizes socially placed relationships. The discourse of the genre of the novel has an intimate connection with the discourse of normalized life. Each voice is a "speaking man" socially located and thus polemical.[29] These voices reveal new relations between language, body, and political practice in that the strategy is to disrupt the authentic account of things and events. His study of Rabelaisian images revealed an opposition to all that was "finished and polished, to all pomposity, to every ready-made solution in the sphere of thought and world outlook."[30]

What do novelistic discourses have to say about the politics of cyberspaces? What voices in the technocratic order can be heard or made to speak? To discharge these questions we must first put Bakhtin's categories into a more specific political context, one which he

himself articulated in the *Dialogical Imagination*. He presents a tension between the "centripetal" forces that centralize and unify what he called the "verbal-ideological world" and the "centrifugal" forces that operate against this homogenization.

> But the centrifugal forces of the life of language, embodied in a "unitary language," operate in the midst of heteroglossia. At any given moment of its evolution, language is stratified not only into linguistic dialects in the strict sense of the word (according to formal linguistic markers, especially phonetic), but also--and for us this is the essential point--into languages that are socio-ideological: languages of social groups, "professional" and "generic" languages, languages of generations and so forth.[31]

To the extent that these socio-ideological discourses work towards a justification and a series of practices which centralizes power and authority, or limits and conditions eligibilities, they become important focal points for political analysis. Given the historical roles of information technology and telecommunications in centralizing bureaucratic and corporate power, we can place them as forces leading toward sociopolitical "centripetal" centralization. The dominance of institutionalized forms of capital accumulation characterizing the modern political economy would be unthinkable without the powers of calculation, surveillance, and acceleration brought on by the information technology.

But information technology development does not itself move in linear, nonconfrontational, progressive paths. It is negotiated through a series of conversations, backed by national, corporate, and academic

vested interests. In the superindustrial age, the complexity of technological standards negotiated in state and international fora results less from scientific and engineering rigors as from economic and political deliberations. The development of ISDN (Integrated Digital Services Networks) has pitted European nation-states, themselves organized through regional bodies against the corporate concerns of the U.S. and Japan. At stake are huge markets for consumer goods, customer premise equipment, and centralized switching equipment as well as national pride and jobs for labor populations. It is no wonder that a series of discourses has arisen to justify and promote the use and consumption of information products. Spanning the array of media practices, the voices of technological euphoria can be heard to hawk the ideology of a new society centered around the "information society."[32]

Surplus Meaning and Voices without Bodies

One way to bridge novelistic writings with the politics of telecommunications is to interrogate the novelistic production of various voices in a society highly permeated by telecommunications technology. The cyberpunk subgenre of science fiction presents a strange new look of a world society organized around high velocity cyberspaces. Arrayed against the global technostructure, are peripheral societies of technoidentity subcultures: interface cowboys, software fences, drug-dealing Zionites, surgically implanted RAM controlled whores, vat-grown Yakuza ninjas, etc. All these try to eke out a meager existence through

"the biz," the hum of black market economies dealing in stolen software, designer drugs, and reconditioned body parts.

In Gibson's second novel, *Count Zero*, paramilitary mercenaries are hired by the Hosaka corporation to facilitate a "career move" by Mitchell, a major designer of biochips currently working for Maas-Neotek. Here, Turner, the top corporate "merc" gets introduced to a new teammate for the job.

> "You took Chauvet from IBM for Mitsu, he said, "and they say you took Semenov out of Tomsk."
> "Is that a question?"
> "I was security for IBM Marrakech when you blew the hotel."
> Turner met the man's eyes. They were blue, calm, very bright.
> "Is that a problem for you?"
> "No fear," Sutcliffe said, "Just to say I've seen you work."[33]

Turner intermediary character provides distinctions between the exclusive realm of corporate life and the marginalized countercultures which operate in the fringes of the cyberpunk's world. The identities created by highly administrated and media saturated worlds are of major concern to these writers. The dearth of opportunity structures endemic to the dual economy creates a variety of consolidated a split subjectivities. The corporation is figured as the dominant "governmentality" notable for both its inclusions and exclusions.

> Turner himself was incapable of meshing with the intensely tribal world of the zaibatsumen, the lifers. He was a perpetual outsider, a rogue factor adrift on the secret seas of intercorporate politics. No companyman would have been capable of taking the initiatives Turner was required to take in

> the course of an extraction. No company man was capable of Turner's professionally casual ability to realign his loyalties to fit a change in employers.[34]

The human body becomes radically decentered in the cyberpunk genre. Computer hackers devalorize the "meat" of their bodies in favor of the direct access to the cyberspace grid through "trodes" connected to their nervous systems. "Johnny Mnemonic," a character in a short story of the same name has exactly this capability. The story follows his flight from the Yakuza who want him killed because of the data electronically stored in the microchip implanted in his brain.[35] Digitized "subjectivities" are another aspect of the decentered body. In Pat Cadigan's "Pretty Boy Crossover," a young boy caught up in a whirlish media-saturated nightlife wonders if he should follow his lover who is now electronically SAD (Self-Aware Data) and on the video screen every night in the "hottest clubs."[36] He is caught between the seduction of the gaze and the questions he has about life after the body. In a play with Turing's intelligence test, he asks "You really like it Bobby, being a blip on a chip?"[37] His answer is more challenge, more allure. Downloaded mentalities also make up the main character, Max Headroom, in the television series of the same name. An alter-ego of Edison Carter, a famous network reporter in the dystopian future, Max confronts the viewer with his disembodied electronic yet jestful personality.

Human bodies are routinely cloned as commodities in the service of the nodes of power. In a sense, cyberpunk is the literary incarnation of the eighties and nineties countercultures, which merges dissent with

technology: the rocker and the hacker. Characters celebrate their subversive identities amidst the overwhelming cybernetic-control order. Unlike the sixties which engaged the rhetoric of love in search of a romanticized, anti-tech utopia; the cyberpunks have embraced the unnatural and grotesque to signify the symbolic destruction of liberal capitalism's official technocratic vision. Largely identified as "anti-humanist" because it breaks down the traditional opposition between nature and culture, cyberpunk has explored new relations between the human and machine and with the help of post-structural textualists has highlighted the institutional structures which produce the coherent identities the Enlightenment labelled the 'self.'

An important part of Bakhtin's sociological theory is his characterization of the carnival. The carnival is a key strategy for understanding popular development for it is counterpoised to the seriousness and authoritative conceptions of economic and state doctrines.

> One might say that the carnival celebrated temporary liberation from the prevailing truth and from the established order; it marked the suspension of all hierarchical rank, privileges, norms, and prohibitions. Carnival was the true feast of time, the feast of becoming, change, and renewal. It was hostile to all that was immortalized and completed.[38]

The proliferation of affect and signification of the carnival succeeds in penetrating the closed signifying systems of official culture and its stable hierarchical systems. Unlike the strategies of officialdom,

which seek to control the proliferation of disruptive signs, the carnival explodes with impertinence, parody and the grotesque. In line with the post-structural problematic of both meaning abundance and meaning rigidity, the carnival dissipates surplus meaning attached to these indubitable hierarchies, such as priestly power, rendering them limp and impotent. In *Symbolic Economies*, Goux discusses the repression of primary energy investments by the counter-investment of surplus meaning and thus the condensation of official forms of knowledge and control.

> Just as money (value) becomes CAPITAL only as a counterinvestment imposed upon labor, likewise *speech* (meaning) becomes LOGOS only as a counterinvestment imposed upon "writing" as a signifying elaboration. So again, the *chief* (power of the class he represents) becomes the STATE only by entering into the circuit of counterinvestment applied to the relative form of subjects which is the dominated class.[39]

Returning to Bakhtin's analysis of the carnival, we can apply some of his interpretations to several iconographic elements in the cyberpunk genre. One is his concern with the grotesque. These images appear in Rabelais and are an important part of his theme of regeneration and renewal. The grotesque is a part of the carnival spirit which redirects the prevailing view of the world away from necessity and seriousness. It disclosed the potentiality of an entirely different world, out of the confines of the stable, the normal, and the indisputable. The world is destroyed so that it may find a new birth, away from the false truths of the existing order.

Likewise, the grotesque imagery in cyberpunk serves the potentiality of a new world. For central to the motivation of the genre is to chronicle the changes in technology, and with it the changes in the subjectivities produced in the technocratic order of Big Business/Big Science. It seeks to problematize the borders between technology and the body, rendering the body, mechanical; and the new machinery, visceral. Unlike other forms of science fiction which depict the human against the background of technology, in this subgenre, it is the technology which invades the body. In *Neuromancer*, this identification of human and machine in the form of the grotesque is rampant: prosthetic limbs, implanted microcircuitry, and genetic alterations. "Night City was like a deranged experiment in social Darwinism, designed by a bored researcher who kept one thumb permanently on the fast-forward button."[40] In Rabelais' underworld, the grotesque emerges as a "funny monster," in cyberpunk, the low life emerge as "hopeful monsters" engaged in the "dance of the biz, data made flesh in the mazes of the black market."[41]

Conclusion: Cowboys and Indians

Working off the cultural energy of the eighties with its fascination for both global high tech and indigenous countercultures, the hacker and the rocker, the Information Age and Armageddon; the cyberpunks dramatic conflicts largely center in and around what Gibson called "the biz," the interlockings of technocratic capitalism, organized crime and the

"street." Here his narrative style provokes imagery of a dynamic, polymorphous future where multiple identities proliferate.

Rather than an overwhelming center of power, it is dispersed and subject to change. The utopic society which is a popular narrative strategy of many science fiction writers is based on the desirability of the singular identity where equivalence is ruled by an "immutable organizational principle,"[42] Money as the mediator of values is outlawed in the utopic society to be replaced with the ideal order based on the legislative third. The dystopic society is based on a plurality of symbolizing thirds not the rationality of a single equalizer that mediates between exchanging parties. The biz is the mediation between thirds and identities. Even money has been diversified into the illegal New Yen or cash, the electronic ledgers of the Swiss bank accounts, and a variety of contending values such as computer memory, designer drugs, and Ninja clones. *Neuromancer* traverses a number of prohibited economies: pleasure, pain, altered states. It breaks open futurism's code of the future, its modern aesthetics of order and pleasures. It is not a place which has successfully transitioned to the technocratic dream of a universal regulator which reaches into every nook and cranny to resolve every incommode. Affect and valor control are characteristic of the utopian governmentality.

To the extent that the cyberfiction texts oppose the official frames of meaning which work to naturalize and dehistoricize information and cybernetic processes they become political. While cyberpunk tends to fashionalize the socially marginal, its juxtaposition to white-bread

technocracy writes against the dominant interpretations of high tech capitalism. Using the grammar of extrapolation but the intelligibility of the modern condition, the writers use the genre as a vehicle to script a plausible near future focusing on a new set of starting points: not from the shopworn formula of robots, spaceships, and the modern miracle of atomic energy but from cybernetics, biotechnology, and the communications web. Its looks critically at the liberal version of a new utopia based on an abundance of information by posing a new script where a world defined by powerful computer networks favors some and disenfranchises most.

Gibson mentions in *Cyberscribe* that science fiction is not about the future, it's "about the year you live in".[43]

> As a narrative of social problems haunting the present but displaced into a distopic near-future, the whole post-modern genre of "cyberpunk" literature and film (in which the cyborg now reigns) confronts us not so much with the problem of symbolizing the tech-ridden future as such but of replicating the no-less-awful present that besets a reconfigured, transnationalized, and economically dismantled America.[44]

Like any newly discovered terrain, cyberspace is open to new migrations, to new options and possibilities, new hopes and dreams for the prospects of individuality. Now is a crucial time for the interpretation and understanding of this new frontier. Who will access and habitate this new hinterland? (Or will it soon be the center of commercial and cultural life?) What institutions will flourish? Which will fade? Is cyberspace a

garden of artistic and educational potentiality or a desert of cultural despair?

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[1] *Cyberscribe* (1991) Canadian Broadcasting Corporation Production. By Producer/Director Frances-Mary Morrison, Editor Jacques Milette. Series Producer Patricia Smith Strom and Executive Producer Adrienne Clarkson. A larger context of his conversation goes "I've never wanted to be a prophet, prophecy is creepy...and I've never really done any of it. And I'm not a futurist either, any science fiction writer who tells you he is a futurist is full of it because science fiction is about the year you live in."

[2] This issue was pointed out to me by Dr. Kathy E. Ferguson, University of Hawaii, Political Science Department, who was kind enough to read and comment on an earlier draft of this chapter.

[3] Brand, S. (1987) *The Media Lab: Inventing the Future at M.I.T.* (New York: Penguin Books). p. 224.

[4] Goux, J. (1990) *Symbolic Economies: After Marx and Freud.* p. 44.

[5] Goux, J. (1990) *Symbolic Economies.* p. 20.

[6] Goux, J. (1990) *Symbolic Economies.* p. 13.

[7] Goux, J. (1990) *Symbolic Economies.* p. 13.

[8] Marx, K. (1977) *Capital: A Critique of the Political Economy. Volume One.* Translated by Ben Fowkes. (New York: Vintage Books).

[9] Goux, J. (1990) *Symbolic Economies.* p. 15.

[10] Goux, J. (1990) *Symbolic Economies.* p. 16.

[11] This same logic is followed, according to Goux, in the development of the ego. Following Lacan's proposition that the formation of the subject occurs along a line of ideal identifications that are basically the products of imago, the Father is selected as the "sole reflecting image of all subjects seeking their worth." The father is chosen as the general equivalent resolving the series of conflicts which confronts the ego formation.

[12] A good explanation of this particular stage can be found in Marx's discussion of the money-form in *Capital: Volume One.*

[13] Suvin, D. (1991) "On Gibson and Cyberpunk SF," *Storming the Reality Studio.* In McCaffery, L. (ed.) *Storming the Reality Studio: A Casebook of Cyberpunk and Postmodern Science Fiction.* (Durham: Duke University Press). p. 351.

[14] Csicsery-Ronay, I (1991) "Cyberpunk and Neuromanticism" In McCaffery, L. (ed.) *Storming the Reality Studio: A Casebook of Cyberpunk and Postmodern Science Fiction.* (Durham: Duke University Press).

[15] Foucault, M. "What is an Author?" In Mukerji, C. and Schudson, M. (eds.) *Rethinking Popular Culture.* (Berkeley: University of California Press).

[16] ibid, p. 542.

[17] from *Cyberscribe* (1991) Canadian Broadcasting Corporation Production. By Producer/Director Frances-Mary Morrison, Editor Jacques Milette.

[18] Lefebvre, Henri. (1974) *The Production of Space.* (ed.) by Nicholson-Smith (1991) Oxford: Basil Blackwell. p. 17.

[19] Gibson, W. (1984) *Neuromancer*, p. 43.

[20] *SCIENTIFIC AMERICAN*, September, 1991.

[21] Gore, A. (1991) "Infrastructure for the Global Village," in *SCIENTIFIC AMERICAN*,

September. p. 150.

[22] Kahin, B. (ed.) (1992) *Building Information Infrastructure: Issues in the Development of a National Research and Education Network.* McGraw-Hill Primis, Inc. This book contains a series of papers and appendixes giving an excellent overview of the discussion and legislation leading to the NREN.

[23] Branscomb, A. (1991) "Common Law for the Electronic Frontier," in *SCIENTIFIC AMERICAN*, September. p. 150.

[24] For an excellent historical perspective on the development of common carrier law see Pool, I. (1983) *Technologies of Freedom: Free Speech in an Electronic Age.* (Cambridge, MA: The Belknap Press of Harvard University Press).

[25] *Neuromancer.* p. 5.

[26] Barlow, J.P. (1992) "The Great Work," in *COMMUNICATIONS OF THE ACM*, Vol 53, No.1, p. 25.

[27] Bordwell, D. *Narration in the Fiction Film.* (Madison: University of Wisconsin Press). p. 16.

[28] ibid, p. 17.

[29] Bakhtin, M. (1984) *Rabelais and His World.* (Bloomington: University of Indiana Press). p. ix.

[30] ibid. p. 3.

[31] Bakhtin. M. *The Dialogical Imagination.* p. 272.

[32] I owe much of any connections I make between telecommunications and Bakhtin's thought to Syed A. Rahim, East-West Center. Particularly his "Outline of a Dialogical Theory of Development Communication."

[33] Gibson, W. (1986) *Count Zero.* (New York: Ace Books). p. 43.

[34] ibid, p. 89.

[35] See the collection of early stories by Gibson (1986) in *Burning Chrome.* The story originally appeared in *OMNI.*

[36] Cadigan, P. (1989) *Patterns.* (London: HarperCollins Publishers). p. 191-204.

[37] ibid, p. 201.

[38] Bahktin, *Rabelais and his World.* p. 10.

[39] Goux, J. *Symbolic Economies.* p. 61.

[40] *Neuromancer.* p. 7.

[41] *Rabelais.* p. 49 and *Neuromancer.* p. 16.

[42] Goux, J. (1990) *Symbolic Economies.* p. 165.

[43] See the first footnote for this chapter.

[44] Wilson, R. (1991) "Cyborg America: Policing the Social Sublime in Robocop I and II," An Essay prepared for the film symposium on "Cinema and Nationhood: East and West" of the Hawaii International Film Festival, East-West Center, Honolulu, Hawaii. December 2, 1991. Forthcoming in Richard Burt, (1993) (ed.) *The Administration of Aesthetics.* (Minneapolis: University of Minnesota Press).

Chapter 4
Cybernetic Governmentalities

'Tis not a tale I tell to many.
The Government's Engines have long memories.

- William Gibson and Bruce Sterling, (1990) *The Difference Engine.*

The *machines a gouverner* will define the State as the best-informed player at each particular level; and the State is the only supreme co-ordinator of all partial decisions.

- *LE MONDE*, (1948)[1]

Introduction

In reading Goux it becomes apparent that his discourse of general equivalents and symbolic economies is a struggle to develop a language which is a departure from, but necessarily intertwined with, the discourses of idealism and essentialism. Although he strives for a postmodern politics based on recovery, his terrain is foremost that of reconstructing the dominant symbolic forms which guide social organization and exchange. Central to his critique of idealist modes of understanding is an insistence that general equivalents are not reflections of some sort of Platonic archetypes but rather "constitute the focused reflection, the specular image, of the world's multiplicity and differentiation."[2] Rather than the "idealist illusion," which sees thought as something of a different order than that which is material, it is the complexity of socio-symbolizing processes which generates the appearance of the general equivalent. Goux's is a struggle to map these dominant forms and the paths to resist them.

Michel Foucault also seemed to traverse this difficult terrain. By invoking his discussion on disciplinary techniques and what he termed "governmentality," it becomes clear that he is also struggling against vestiges of idealistic interpretation while positing an elevation of certain concepts and procedures of power. His discussions about the facility of a figural political technology termed discipline and neatly expressed in the mechanism known as the "panopticon," strives to articulate a series of practices which are both abstracted and material. Likewise, he traces a history of governance to a singular perspective of reason which achieves pre-eminence in the West. Government emerges as both the elevation of a concept and the institutionalization of a mentality "realized as a reigning discursive practice."[3]

No stranger to the "economizing" of symbolic systems, Foucault provides a vehicle to link with Goux's symbolic elevation and abstraction of government and state. In his deliberations on the power of discipline and the techniques of "governmentality" he provides a strategy for connecting knowledge practices and symbolic economies and thus to the information machinery which are increasingly implicated in these activities.

What this combination of Goux and Foucault can offer is some insights into the workings of "governmental" processes and how certain developments of knowledge and technique have become integral to their practices. In addition, it will contribute to an interpretation of the mechanization of information practices and implicate these new information technologies in generalized models of discipline and

governance. This chapter delves further into the operations of symbolic organization as it both utilizes and calls for the development of new information technologies as part of the tactics of government. The computerization process and the global gridding of information through the formation of electronic spaces is in part becoming a matrix of governmentality: constructing, monitoring, and training populations throughout the globe.

Symbolic Investments and Counter-Investments

Goux formulates the genesis of the monarch and government as phases of sociosymbolic logic. In the political sphere, the monarch becomes the general equivalent of social forces, "administering equivalences before a group of individuals who become his subjects." All differences become negated as subjects and lands become equal before the rule of king. The genesis of political representation is homologous to that of money, "the subjection of many to the sovereignty of one."[4] Shapiro makes a similar connection:

> Hobbes' notion of the sovereign or monarch whose will substitutes for those of all subjects, is analogous to Marx's notion of the sovereignty of gold, which monopolizes value just as the sovereign monopolizes normativity as a general representative.[5]

With Hegel, a patriarchal kingdom is supplanted with the coming of new spheres of power and with the precipitation of a "fortuitous aristocracy," a new ruling power emerges which exists outside the other interests--a mon-arch. This monarchical organization is the same for commodities as it is for sexual drives and mental organization. The lone symbolic element emerges with uncontested power in the institutionalization of a norm and the regulation over the set of its 'peers.' Like the abstraction of money from material commodity to fetish (gold), the symbol (coin) and then pure sign, the same shift occurs with king replaced by the monarch (bearer of the crown), and then by the "chief of state."[6]

A key to understanding state activities according to this interpretative approach to symbolic economies is the notion of counter-investment. As Shapiro pointed out, a sovereign governmentality wrests control of "normativity" in the elevation of prevailing discourse. In this domain of the subjectivity over territory and the population, counter-investment results in the form of a dominating technocratic order. Social forces become obscured and overlooked, as the (symbolic) economic detour which produces value works to exclude the general equivalent (monarch) and instil a bureaucratic regime with regulations and laws. Just as capital is money-value counterinvested in labor in the form of wages, the state emerges as excess value invested against the population in the form of generalized discursive practices. For Goux, the general process of counterinvestment denotes "the surplus that subjugates." Surplus meaning accumulates in the plenitude of writing as

surplus value accumulates in the calculations of capital, and "in the full meaning, invested as logos against writing."[7]

Foucault's notion of "governmentality" resounds with the elevation of political centralization in Goux's work in that it comes to occupy a central place in the relation between self and society. These ideas were developed and presented when Foucault held a specially created chair called the History of Systems of Thought at the College de France. They were condensed and translated by his students in an essay entitled "Governmentality." By this he meant a rationality which sprang from a fissure between two discourses of governance. One which proved too weak: that of the family; and the other overpowering: that of the absolute sovereign. This opening is complex but involves at least the emergence of: 1) a field of knowledge which comes to be known as political economy; 2) the elevation of "population" as a primary datum to be constituted as both object and subject; and also; 3) the new apparatuses of discipline and security which work "on all and each" through this new area of knowledge known as population. In the first of three general meanings of governmentality, Foucault suggests the series of three movements which cede the employment of this new type of power.

> 1. The ensemble formed by the institutions, procedures, analyses and reflections, the calculations and tactics that allow the exercise of this very specific albeit complex form of power, which has as its target population, as its principal form of knowledge political economy, and as its essential technical means apparatuses of security.[8]

These movements provide a trajectory of analysis for developing an understanding of cybernetic governmentality which includes a history of information and its technological appendages. The construction of the realm "population" is the result of a new fixation on alphanumeric calculations which in turn becomes an impetus for new techniques of social measurement and definition. Embedded in this process were new rationales of economic development and national wealth as well as the importance of labor. A discourse emerged with displaced the subject's legalistic obligation to the sovereign with an aggregate concern with health and wealth for the subject in general. Adam Smith for example creates a labor theory of value which "plays the role of producing a system of calculation for that management."[9] For Smith the problem for sovereignty was how facilitate the flows of commerce needed to improve the social conditions and vigour of the population. Empirical knowledge techniques were transferred from the calculation of a sovereign's wealth based on a mercantile system to that inspired by the industrial innovations radically changing the sphere of goods production. A number of aggregating and listing techniques developed for inventorying the goods to be transferred to and from the far-flung empires were put to use in a new type of wealth accumulation, one which posits new problems and opportunities for the new condensation known slowly as the state. As Rabinow points out, the interest Foucault has in this new apparatus is not really its totalizing power of control over a realm but its combination of totalizing and individualizing processes. This system is based on a new rationality, a knowledge based on a combination of

architectural and alphanumeric techniques designed to facilitate a new productivity based on a theory of wealth centered on the usefulness of the individual.[10]

Governmentality develops as an autonomous rationality which is no longer derived from and subordinate to a cosmological hierarchy controlled by the interpretations of a dominant theocracy. It produces its own reason *(raison d'etat)* in accordance with its own might. Primary is the science of policing, *Polizeiwissenschaft*, and also political arithematic or as it came to be known, "statistics" ("state"-tistics). These become integral techniques in the state's construction and practice.[11]

Security gains importance and comes to take on a number of meanings from the defense of new nation-state boundaries to issues such as health maintenance, disease control and the mobilization of the population along officially prescribed pursuits.

A progressive political perspective for Foucault is one that, among other things, refuses to validate uncritically the domain of technocratic practice. Long rationalized in terms of transcendental reason or historical inevitability instead of regulated and conditioned practices, he opens the field of inquiry into governmentality both to conditions of history and of transformation. Instead of focusing on "ideal necessities, one-way determinations or the free play of individual initiatives," it looks rather to the historic preconditions and the specific procedures of a practice. Instead of looking at the "presence of genius" or posing politics in terms of consciousness or the facility of thought his concern was with the relations of discourses: economic, scientific, legal; with political

practices and other discursive epistemologies. Rather than a faith in the "uniform abstraction of change," he instead sought to "define a practice's possibilities of transformation."[12]

Foucault's research and writing was largely against the state or rather against the idea that the state should occupy such a central place in the inquiries of intellectuals. His writing projects were if not directly, than indirectly against the flourishing body of thought about Marx and socialism. But as was revealed in his lectures in 1978 and 1979, this concern was more over methodology than whether or not labour and the state were valid issues for intellectual inquiry. This was to some extent in reaction to the critique of the Marxists who thought that Foucault failed to address issues of class relations, global politics and the importance of the state. This latter criticism was largely true as he considered the theory of the state as generally discussed by them as "essentialist," writing much on inherent propensities of institutions and attending little to the practices of the state. This essentialist vision rendered it as a "target needing to be attacked and a privileged position needing to be occupied." It is the study of the techniques and practices of governing which resounded with his own style of analysis. Rather than its activities emanating from the nature of its innate propensities, the functions of its practices determines the state. The "state is no more than a composite reality and a mythicized abstraction" according to Foucault who is obviously on one hand attacking the Marxist notions of the state and on the other conceding to its symbolic separation. It has been invested with "excessive value" by the lyricisms of love and horror and through

functional reductionisms "such as the development of productive forces and the reproduction of relations of production."[13]

In the second of the meanings he attaches to the term "governmentality," he refers to its elevation and its relation to practices and knowledges.

> 2. The tendency which, over a long period and throughout the West, has steadily led towards the pre-eminence over all other forms (sovereignty, discipline, etc.) of this type of power which may be termed government, resulting, on the one hand, in the formation of a whole series of specific governmental apparatuses, and on the other, in the development of a whole complex of savoirs.[14]

As Shapiro points out, at least two textual processes are mobilized for us with Foucault's work in this area. One is that "governmentalizing" the state transforms it from a static noun into a temporal process and in the process "loosens the grip of the present facticity" thereby challenging claims of truth and authority and opening up new forms of inquiry into the practices which sustain the powers of the present. Rather than reifying essential structural properties one is on the lookout for a variety of information practices and procedures which work in constantly delimiting fields of analysis, ranges of subjectivity, and systems of intelligibility.

The other textual practice at work here is that government is turned into a franchised mentality, a discourse or knowledge which circulates in various sectors. This methodological turn emphasizes the

production of meaning and value and its epistemological relation to subjectivity. Rather than treat these as originating in and acquiring ownership in autonomous sites, Derrida pointed out that the location of meaning resides in pre-scripted orders of signification. These orders directed the institutionalization of meanings such that some possible forms were marginalized to the advancement of others. The prevailing discourse of information technology has been forgetful of the history and politics which have shaped its organization and applications.[15]

Mark Poster and others have been instrumental in providing a theoretical linkage between Foucault's work on "knowledge/power" and the proliferation of information technologies. In the next section some possibilities and connections are suggested which may make some contributions to the thinkability of the computerization process and its implication in government practices.

Governmentality and Information Practices

A significant way to understand the technical innovations of information is to recover their history within this new governmentality-based view of the state. Although these technological developments reach a certain peak only in the last decade, it is the last century and a half which accounts for a number of conditions and events which shape the movement of computerization and information. Through these changes we can develop an understanding of the techniques of information and language and their relation with to the new formations of

government. The starting point for this project is the emergence of a political arithematic centering around the use of statistics as accounting and numbering systems for the monarchical government and the new forms of information listing and storage which come to obtain new temporal and spatial powers over a slowly forming population.

State-tistics and the Computerization of the Population

From the eighteen century, changes start to occur in the way sovereignty is construed. The advent of mercantilism for one, which did much to apply the new rationality and arts of government for the welfare of the state begins to give way to an even broader application of political practices. Whereas the instruments of the state under mercantilism worked to increase the wealth of the ruler, the new practices and knowledges of the state paid increasing heed to the new problem of population. The rigid framework of sovereignty which had been previously modelled on the patriarchal family begins to confront an increasing money supply, new numerical techniques allowing demographical accounting, and the expansion of agricultural and goods production.

Bureaucracy expands, taking on an increasing demands in terms of aggregating, interpreting, and textualizing information. Max Weber is known for his innovative analyses of "officialdom," the emerging proliferation of administrative powers engendered by the new calculative rationality and expertise put to use in support of an encroaching

expansion of spatial and temporal power. Weber's deliberations on bureaucracy and capitalism focused largely on the role of a money economy and taxation as an "indispensable precondition for bureaucratization."[16] Born to a politician during Bismarck's Reich, he was in a privileged position to study both historical and newly proliferating European bureaucracies. It was the "administrative tasks" which he considered the "proper soil" for the specific development of bureaucratization. Writing largely before the advent of "scientific" concerns which predominated American public administration, Weber focused on the textual aspects of the modern organization: files, education, expertise, laws, regulations.

The new convergence on population lead directly to the eminence of a series of statistical strategies for constructing, reading, and acting upon this problem. Numbering for the state or 'statistics' emerges as a formative knowledge in the construction of governmental practices. Officials are put to use in collecting the new information. The comprehension of the population as the new source of national wealth and as the focus of administrative activity calls forth a new language based on alphanumeric figuring. Based on the elevation of the algebraic notation system as the quantitative rhetoric of reality (from the old French term *real* - the space controlled by royalty), statistics develops as a state instrument for social surveying with consequences for both the constitution of the population and according to Foucault, the new forms of governmentality, including the elaboration of political economy. No longer could the family serve as a viable model of economic

accumulation and social governance. The family instead becomes part of the demographic realm to be studied and calculated.

> Whereas statistics had previously worked within the administrative frame and thus in terms of the functioning of sovereignty, it now gradually reveals that population has its own regularities, its own rate of deaths and diseases, its cycle of scarcity, etc.; statistics shows also that the domain of population involves a range of intrinsic, aggregate effects, phenomena that are irreducible to those of the family, such as epidemics, endemic levels of mortality, ascending spirals of labour and wealth; lastly it shows that, through its shifts, customs, activities, etc., population has specific economic effects: statistics, by making it possible to quantify these specific phenomena of population, also shows that this phenomenon is irreducible to the dimension of the family.[17]

The origins of the new field of statistics or political arithematic as it was known in England was first articulated in a chapter of Baron J. F. Bielfeld's *Elements of Erudition* in 1787 entitled "Statistics" and seeked to chronicle the "noteworthy characteristics of the state." While initially concerned with verbal descriptions, by the beginning of the next century these descriptions are largely replaced by numerical data and calculation.

This new enthusiasm for calculation led to the publication of a number of books and the participation of many "societies" in the task of producing lists of numbers. By the time of Charles Babbage who published a book in 1832 urging the publication of more books on numeral constants, the number of numbers increased dramatically.

> Babbage had twenty kinds of numbers to be listed. They begin with familiar enough; material, astronomy, atomic weights, specific heats and so forth. They quickly pass to the number of feet of oak a man can saw in an hour, the productive powers of men, horses, camels, and steam engines compared, the relative weights of the bones of various species, the relative frequency of occurrence of letters in various languages.[18]

This "avalanche" of algebraic numerals diffused calculative and listing capabilities throughout a number of domains. As bureaucracy was in its infancy, it was initially more pronounced in the universities and societies, in areas such as epidemiology, genetics, and political economy. World statistical conferences convened such as the Manchester Statistical Society and the Statistical Society of London who included such members as Thomas Malthus. Statistics were from its earliest beginnings, a very politically charged discourse. Of great importance to the members of these societies was "the condition of the people" as statistics became an important part of the social reform movements which accompanied the trials of industrialization.[19]

The use of statistics for the absolute state was practiced in the area of taxation and finance as it concerned itself with the internal affairs of the state and the monitoring of wealth extracted from the empire. During the eighteenth and nineteenth century, however, it turns towards the keeping of population statistics. This includes the "centralized collation of materials registering births, marriages and deaths, statistics pertaining to residence, ethnic background and occupation; and what

came to be called by Quetelet and others 'moral statistics', relating to suicide, delinquency, divorce and so on."[20] It shows in the Belgian census of 1840 which would go on to become the international model as countries learned from each other the techniques of constructing a population.

By the late nineteenth century, frustration with manual methods of compiling statistics was rising. Despite increasing loads and classification projects; pencils, pens, and rulers were still the main tools for classifying, calculating, and summarizing work sheets into journals and ledgers. The newly formed Census Bureau in the United States started to look for alternatives after the 1880 census took nearly ten years to be completed. Besides employing the newly developed typewriter, they hired Dr. Herman Hollerith to find a mechanical solution to the problem of aggregating census data. He designed a instrument soon to known as the "census machine," which was developed around the use of punch cards used initially for controlling looms in the weaving industry. Holes in the cards allowed an electrical circuit to be completed which tripped a relay and added another number to the appropriate counter wheel. The new machine readable card system allowed the 1890 census to be tabulated in less than three years despite the larger volume of numbers which indicated that the population had increased from 50 to 63 million in the decade after 1880. Still using punched card equipment, this was reduced to two years by 1950 while the 1980 census using new computer equipment reduced the total calculation time to less than a few months.

By the turn of the century there appeared to be a bright future for calculating machines. Another census engineer built a punch card tabulator and formed a company which after a merger in 1911 became Sperry Rand, later to become a major computer manufacturer. Hollerinth went on convert his equipment for business use such as tabulating timetables and setting up freight statistics systems for the railroad industry. His Tabulating Machine Company formed in 1896 later merged with two other companies to form the International Business Machines Corporation known more commonly today as IBM.[21]

As the United States was later to labor through the depths of the Great Depression, one of the side-effects of the New Deal program was to save IBM. Roosevelt's burgeoning federal administration had immediate needs for its data processing capabilities. In particular, it was the Social Security Administration which provided the financial support through these troubled times until the war would introduce new developments in electronics and general computing machines. The Social Security Act provided it with longstanding contracts to construct an information system to monitor the population and provide minimum benefits to the blind, the disabled, dependent children and the elderly. IBM's punched card tabulators with their new capabilities of not only summation, but multiplication, were quite helpful for the thriving new bureaucracies of the New Deal as well as the corporate mobilization for World War II. While the major impetus for developing the computer has been attributed to the breaking of enemy codes and calculating

trajectories for artillery, electromechanical devices; they were also prominent in personnel and logistical operations.

Research into the first uses of computers in "developing" countries shows that they were used early on primarily in census and other population-oriented statistics. In Thailand for example, the first computers, both second generation IBM 1401s (Second generation signifies the replacement of vacuum tubes with transistors), were installed for the International Census Society Programme and the National Statistical Office in 1963.[22] It has followed up this project with a nationwide information system called the Population Registration and Information System Improvement Project to emend the registration of vital statistics and modernise the postal delivery system. Another project is intent on developing a personal identification system with identity numbers indicating a range of information from birthdates to fingerprints and occupation. Other more modern uses include the Narcotics Board acquisition of a IBM 3083 computer to store and process information on aspects of the drug trade such as delivery routes, traffic, production, and the listing of known drug addicts.[23]

Economies of Discipline and Knowledge in Cyberspace

What distinguishes the "population" from the "social" is the range of techniques which create specific individuals as well as masses. Whereas the latter is, in part, an aggregated numerical collection; the latter is an exercise based on uniformity.

Foucault's emphasis on "bodies" rather than "labour" strove not to displace the latter as an integral node of inquiry but rather to expand the political inquiry to include other means by which men, women and children came to be identified, objectified and aggregated by calculative procedures. His examination of health politics for example looked in part at the transformation of the doctor from primarily a healer to an adviser and an expert on hygiene and subsequently as "programmers of a well-ordered society." The doctor by virtue of a newly respected language and expertise becomes a modern node of power connected to but somewhat detached from the powers associated with capital and the state. While the Smith/Marx model of labour led to its ascendancy as a theoretical tool often to the exclusion of other conceptions of the social body, Foucault's approach is more mindful of some other important conceptions of the useful body: subject, soldier, soul, student to name a few. No doubt these were largely conceptions of the state in conjunction with powerful merchant and later industrial interests, but they disperse knowledge and power in ways which were apparently ignored in critical social theory. By invoking the technology of population, a new understanding of power becomes evident and with it new perspectives on its intricate and elaborate operations in modern society.

The movement of governmentality based on a knowledge of the population (demographics) and a new economy based neither on the monarch or the family but rather on the wealth of this new subjectivity (political economy) is dependent on the series of interventions. Even more than the monarchical-mercantile system, the state of

governmentality reaches into the realm of its territories and people because it now sees the latter as its ultimate objective. The population is constructed as a knowledge through a series of discursive and statistical rhetorics but having been so constructed, it becomes "an objective of governmental techniques" primarily through the mechanisms of security and policing.[24]

> As for discipline, this is not eliminated either, clearly its modes of organization, all the institutions within which it had developed in the seventeenth and eighteenth century -schools, manufactories, armies, etc. - all this can only be understood on the basis of the development of the great administrative monarchies, but nevertheless, discipline was never more important or more valorized than at the moment when it became important to manage a population; the managing of a population not only concerns the collective mass of phenomenon, the level of its aggregate effects, it also implies the management of population in its depths and details.[25]

In this quotation by Foucault, he links his concerns with governmentality and population with the generalized model of discipline which he posited in several of his works. Cybernetic governmentality is an acknowledgment of the historical disciplinary techniques which have become embedded in the practices of modern information technology. With statistical calculation and computation, a new realm is constructed and increasingly becomes a site of effect. A generalized control over the social goes into operation based on an abstracted alphanumerical-phonographic rhetoric of reality. The "universal machine" as the computer is sometimes called, has a neglected past which can be

interpretively historicized to characterize it within a more problematic field. This process has the potential of being further individualized with the new extensions of the computer through digital communications and the simulation-affect technologies known as virtual reality. Brought into the realm of the forces of governmentality, these technologies actualize a generalized model of disciplinary power within the political, economic and social spheres coming under the domain of electronic spaces.

Two abstractions are central to Foucault's contribution to a critique of computerization and virtual reality in an increasingly ubiquitous cybernetic governmentality. One is discourse and the other is discipline. Discourse is simply a system of meaning but one which is subject to social processes such as economies and rules. Discourse is in a sense, the knowledge created by power. Discipline is more closely related to the body. It links knowledge/discourse with a project to write a body (to use the vernacular) and thus "discipline produces subjected and practised bodies."[26] The disciplined body has an inverse relationship with empowerment. By turning the forces of body towards utility and turning it into an "aptitude," discipline divests the body of its political power and transforms it, according to Foucault, into a "relation of strict subjection."[27] Discourse and discipline combine to create a new social power, one which works in conjunction with the new technologies of information. In fact, they have invested it with cultural conditions for their utilization and success.

It is important to understand the complexity which Foucault brought to the notion of discipline. He acknowledges two images of

discipline. One focused on 'negative functions' - "arresting evil, breaking communications, suspending time." - the prison and the blockade. This is the discipline which evokes concern and has been popularly associated with information technology in the service of a "Big Brother" governmentality. The other image of discipline is one in service of productivity and the training of useful individuals. Discipline not only constrains and controls, but rewards and librates in terms of positive economies. It educates bodies and minds for useful activities and it organizes the population towards arrangements which improve efficiency, health, and security.

The disciplinary system is "a functional mechanism that must improve the exercise of power by making it lighter, more rapid, more effective, a design of subtle coercion for a society to come."[28] To find this disciplinary power at work he suggests looking not at omnipotent expressions of control and tyrannical excesses but rather in the more mundane procedures and modalities of ordinary institutions. Discipline is a historical and sociological model taking various forms throughout both modern and post-modern societies. What is to be noticed here is the relationship discipline forms with the technologies of communication and information which have come to play such an important part of personal and institutional fabric of contemporary life.

Foucault's concern is both practical and political, but fundamentally he raised important issues of communication, discourse, and knowledge. First, he challenged the Baconian treatise that "information itself is power" which has seeped so thoroughly into the

post-industrial mentality. This truism has been used to justify new investments in information technology while also creating discursive blinders which ignore important political and economic changes. For Foucault, "power and knowledge directly imply one another; that there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations." His exaggeration "power produces knowledge"[29] is meant to temporarily shift us out of this contemporary paradigm or discursive field that the more information we have, the more power we will be able to accumulate. This problematized version of knowledge is a focal point of the late philosopher who saw it in relation to a political technology of the body. Knowledge becomes "inscribed" on activities and behaviors and creates a docile form of compliance with the predominating codes and conventions circulating throughout society. This strategy is a set of "dispositions, manoeuvres, tactics, techniques, functionings" which encase the body in a "network of relations"[30] or a "perpetual battle." It is within this context that the normalization of attitudes, behaviours, gestures, movements, etc. take place and that renders subjectivities into objects of knowledge. Foucault introduced the term "power-knowledge" to characterize this new perspective on the formations of knowledge by forms of authority.[31] To theorize with Foucault is to go somewhat against the grain of his project. What is striking about his work is the self-consciousness he applies to his own work. He is steadfastly aware that he is involved in a critique of writing while he is engaging the medium.

The unproblematic notions of "information" and even "technology" have resulted in a myopic understanding of the ramifications of the information society. It is not so much a lack of vision which is endangering postmodern developments but rather a preponderance of "noise" (to use the information theorist own jargon) produced largely through the promotional culture spurred on my industrial capital which has become threatening. While discipline is initially arranged in the architecture of buildings and cities, it comes to be abstracted in the organization of knowledge/discourse and eventually the computer. The economy and utility of the disciplinary model comes to be embedded in the invention and practices of the computer and the electronic communications which connects it with a multitude of other computers and a range of terminal equipment from production machinery to security surveillance apparatuses. Without resorting to an idealist form of discipline, it is possible to suggest a logic which elevates the computer form semiotically to a mobile, diffusible model. These practices which will be set out below in more detail are themselves are part of a comprehensive yet contentious set of practices. They emerge from a cultural framework in many ways unique to the West. Foucault goes into extensive detail to set out the practices which have led to the diffusion of the discipline model, particularly as this new blueprint of organization and control circulates very rapidly in the seventeenth and eighteenth centuries.

The techniques of governmentality made discipline into an abstract and dispersed "analytical space."[32] These spaces are constituted by the

convergences of various discourses, methods, and technical specifications. The awareness of detail is merged with the knowledges of daily living and producing. The theological and the cosmological give way to a focus on the minute aspects of morality and control.

> The disciplines function increasingly as techniques for making useful individuals. Hence their emergence from a marginal position on the confines of society, and detachment from the forms of exclusion or expiation, confinement or retreat. Hence the slow loosening of their kinship with religious regularities and enclosures. Hence also their rooting in the most important, most central and most productive sectors of society. They become attached to some of the great essential functions: factory production, the transmission of knowledge, the diffusion of aptitudes and skills, the war-machine.[33]

Educational space for example, is preoccupied with new techniques of classification and ranking which realized the dream of early educational reformists who saw it could produce an efficient hierarchy based on spatial arrangement. "Pupils attending the highest lessons will be placed in the benches closest to the wall, followed by the others according to the order of the lessons moving towards the middle of the room."[34] This regime makes functionable and visible to the teacher the character of the "multiplicity" as well as an immediate access to the status of the individual. This problematic is generally characteristic of the new governmentality; 'Omnes et singulatim' (all and each), becomes a striking development in the history of discipline.[35]

This new analytic spatiality, whether congealed in architectural design or abstracted in electronic space has both political and economic dimensions. It has as its objective both power and utility. Organized by discipline, this rationalized space carries out its operations via a set of rules, principles, or techniques. These are the basis of what Foucault called the "micro-physics" of discipline.[36] They are the exacting, elemental work done on the individual body in order to make it docile and productive--within reasonable costs and with only a subtle form of coercion. These are discussed in 'The art of distributions,' a section in *Discipline and Punish* which marks a turning point in his methodological concerns. From here he would detail a set of relations between discursive power, individuals, and spatiality; a set of relations which are instrumental in the development and usage of the computer and associated information technologies.

The elemental work of discipline would require first an enclosure, a segregated locality such as the barracks, the classroom, the factory, or the hospital. These would be partitioned, so that each individual could be assigned a cell. "Each individual has his place and each place its individual." Each place in this scheme is coded with a functionality, based largely on an intended utility. As these became more complex, they required also the techniques of supervision and the mapping of productive movements. What comes into place is a legible grid where each individual comes to be trained, ranked, and evaluated. A 'table' is formed which marks out classifications, quantities, and singularities.

The table becomes by the eighteenth century, a new technology of power engaged in a range of ordering and registering activities:

> In the order of the economy, it makes possible the measurement of quantities and the analysis of movements. In the form of taxonomy, it has the function of characterizing (and consequently reducing individual singularities) and constituting classes (and therefore of excluding considerations of number). But in the form of disciplinary distribution, on the other hand, the table has the function of treating multiplicity itself, distributing it and deriving from it as many effects as possible.[37]

The modern spreadsheet is derivative of the disciplinary agenda which has been carried into the modern world. It combines the alphanumerical mode of textualization with a tabular form of organization. It abstracts spatial distribution strategies by constructing electronic spaces or 'cells,' within electronic tables thus setting up complex relationships between symbolic and material resources. The spreadsheet works by separating and yet fixating transient pluralities into partitioned categories.

The table is a conjunction of the political technology of 'listing' well noted by Goody and adds columns of other lists to create dimensional relationships.[38] Combined with what Goody referred to as the non-syntactical uses of words and languages, the spreadsheet table as it is being developed in programs such as Lotus 1-2-3 are notable for its combination of word-categories cross-listed with numerical lists.

When the electronic spreadsheet was designed by a student at Harvard Business School, it came in a response to an assignment where the student was to determine the financial consequences of the acquisition of one company by another company. Drawing on standard accounting ledgers, Dan Bricklin designed a number processor on a microcomputer where figures could be calculated instantaneously and refigured each time a change needed to be made. Spreadsheets allow a capability to perform specific types of analyses in order to observe, rank, and explore these new types of relationships along with possible 'what-if' scenarios. In order for the spreadsheet to be useful to test various scenarios, it must recalculate the entire table each time a single change is made. It is a technique of classifying, dividing, registering, and generally organizing multiplicity while still attending to and accounting for each detail. Budgeting for example, provides a singular view of an organization's talents, resources and sites of expenditure. It juxtaposes the listings of these classifications against monetary means. It facilitates the allocating of resources and the mobilization of activities.

Bricklin became a rich man when he marketed his electronic technique called VisiCalc (for *Visi*ble *Calc*ulation) for Apple computers in 1979. Countering the prevailing notion that accounting calculations are the domain of meekish accountants and subordinate secretaries, electronic spreadsheets reached a whole new range of entrepreneurs, executives, shopowners, students, etc. Levy suggests that the electric spreadsheet is an innovation comparable to the development of bookkeeping's double entry accounting formula.[39] The latter separated

debits and credits and allowed merchants to get a new representation of their business. Decisions were able to be made in light of this new information from balance sheets of cost and investment. With the spreadsheet, an even more sophisticated view of the business or organization is obtained. This numerical reality offers a way of keeping track of resources: inventory, accounts receivables; or expenses such as salaries, rent payments, interest on loans, etc. Combined with the balance sheet techniques, the new programs quickly became a favorite of the takeover architects of the eighties as it allowed for very quick analyses of companies to determine if they were good acquisition targets.

Disciplining Time

The efficient model of discipline is also reliant on control over the temporal. Religious discipline, which structures earthly time for heavenly reward, meets after the Reformation and the Enlightenment with a new calculative rationality. The undermining of the ancien regime with a new dispersed system of organization and control develops only slowly in the wake a hierarchical system based on control over the temporal. Of antecedent importance was the monastic traditions; "Its three great methods -- establish rhythms, impose particular occupations, regulate the cycles of repetition," soon found their way into other forms of discipline such as the factories, the hospitals and the schools.[40] By solidifying the representation of time within alphanumerical terminology

and tables it sets the stage for a new correlation--investment. The notion that sacrifice made in the present will pay off in the future becomes an important organizing precept. As well as in commerce, it forms an integral cultural component in the emerging education practices. The building of a coded disciplinary space, a mode of ranking and classification; all these provide returns in the form of trained and useful individuals.

The time-table adds a new dynamism to the "table." The major calculating tasks after the census were for the railroads: calculating timetables for arrivals and departures of a predictable rail service.

Combining spatializing and temporalizing practices, another procedure is engaged in the disciplinary focus. This one is exercise, the occupation of the body in the "ceremony" of efficiency and its internal arrangement. The context for exercise is one of what Foucault calls "the two great discoveries of the eighteenth century - the progress of societies and the geneses of individuals." Exercise had a long history of mystical importance, but it was to slowly take on a new meaning in the West as a useful ingredient "in the political technology of the body and of duration". The seriation of prescribed movements and exercises" imposes on the body tasks that are both repetitive and different, but always graduated. By bending behaviour towards a terminal state, exercise makes possible a perpetual characterization of the individual either in relation to this term, in relation to other individuals, or in relation to a type of itinerary."[41]

Closely related to the computer is the new composition of technologies known a virtual reality. Although currently undertheorized, it displays signs of its relation to the disciplinary model. The general formula is characterized in the new machinery of artificial reality and its treatment of the individual body. It is a technology of detail which fits neatly into the "projects of docility" spelled out by Foucault. Docility, which "joins the analysable body to the manipulable body" is not a question of working the body "en masse" but rather "retail." It is the exertion over the active, individual body --its attitudes, gestures, movements-- which makes it so powerful.

In the book *Virtual Reality* by Howard Rheingold, now considered the classic work on popularizing VR, he starts off describing the "conversion experience" which sparked his commitment to the study of the new technical field. "I was standing in a carpeted room, gripping a handle, but I was also staring into a microscopic space and directly manoeuvring two molecules with my hands... I didn't know the rules of "molecular docking" -- a tool for helping chemists find molecules shaped like the keys to specific proteins--the way a chemist knows them, but I could feel them, through my hand and the force-reflective feedback mechanism built into the ARM, the Argonne remote manipulator."

What Rheingold describes is his training. "A few pushes, pulls, nudges, and rotations gave me a feel for the ARM's dimensions of movement."[42] From this perspective what becomes pertinent about virtual reality (VR) is not necessarily its ability to create realistic-looking computer-generated scenarios and graphic simulations; but rather its

real effects on the human body. What is absolutely "real" about virtual reality is its operation on, and registry of knowledge on the body. VR as an apparatus of bodily sensors, while giving the pretension of working within an artificial reality, becomes a device for strict observations about the minute movements of the subject. The celebrated helmet, the sensor-laden gloves, the possible data suit or the more external CAVE are connected via the computer which has become a very able monitoring device.

These practices which are congealed in the machines of virtual reality are designed to work on the individual body and invest it with productive instincts. VR appears to be developing according to the "general formulas" of discipline which creates a form of domination he goes to great pains to qualify. It is not a domination by violence or an appropriation of bodies. Its elegance is in just the avoidance of such costly measures. If the goal is utility, the growth of skills; its beauty emerges from the techniques which operate continuously, economically, which may induce pleasure. Rather than an exclusive regard for the result, oversight of the entire range of movements and performative actions guarantees the meticulous control of the body.[43]

Security and the Circulation of Panopticism

Foucault's use of "panopticism" has significantly recirculated the term since its previous incarnation. Based on the architectural drawings of Samuel Bentham and the moral philosophy of his brother Jeremy

Bentham, the "panopticon" became a metonym for the disciplinary technologies of modernity. The latter championed the technology as a moral innovation which could increase of productivity and virtue of convicts, paupers, students, workers, etc. "Bentham dreamt of... a network of mechanisms that would be everywhere and always alert, running through society without interruption in space or in time."[44] Bentham saw his innovation as a generalized function, capable of circulating throughout society and promising: "Morals reformed - health preserved - industry invigorated - instruction diffused - public burthens lightened.... all by a simple idea in architecture!"[45]

Unfortunately, the panopticon is also probably the most misunderstood of Foucault's work as it is largely construed as a technology of surveillance over a coherent body and identity or that it guards against the spontaneous release of a raised consciousness. By the time of his governmentality lecture Foucault was critical of the rhetoric he used earlier in *Discipline and Punish,* which stressed the excessive primacy put on the uses of power and its "almost absolute capability to tame and subject individuals."[46] A careful reading of the original shows however, that he in fact he tried to downplay this view part way into the book and emphasized the strength of discipline as a positivity. The image of discipline as a negative force preoccupied with arresting expenditures and confining bodies is quite popular and has been carried on in articles such as "Terrorvision: Panopticism in the Age of Totally Hidden Video," by Mark Dery who manipulates very sensationalist renditions.[47]

> But the Panopticon must not be understood as a dream building: it is the diagram of a mechanism of power reduced to its ideal form; its functioning, abstracted from any obstacle, resistance or friction, must be represented as a pure architectural and optical system: it is in fact a figure of political technology that may and must be detached from any specific use.[48]

While he did not address computerized information technology directly his writings, Foucault presented some suggestive ideas which have been taken up in a number of writing projects such as Mark Poster's *Mode of Information* (1990) and Shoshana Zuboff's *In the Age of the Smart Machine.*[49] Both Zuboff and Poster develop Foucault's notion of discipline and apply it to the computer. Each was taken with the notion of the "panopticon." Bentham argued that the panopticon was a method of control, production, and surveillance which could be applied to a host of institutionalized architectures such as barracks, hospitals, prisons, and schools. These modern authors suggest that the computer is perhaps "a superpanopticon," in the words of Poster; or the "information panopticon" as suggested by Zuboff.

Zuboff refers to the "informating" capacities of these new "smart" machines. By this she refers to their capabilities to "textualize" a work environment or any other site where productive activities are intended. Textualizing makes explicit, through symbolization, a range of activities which would normally remain implicit in action. In other words, the computer can give valuable readouts about actions or conditions which would normally remain unarticulated. A body suspended in virtual reality

could be the source of detailed specification and examination in computer terms. This information could be studied for additional improvements and training innovations.

The computer combines the alphanumeric textualization and calculation of society with governmentality's ensemble of institutions, procedures, analyses, calculations, reflections. The panoptic stratagem seemed fated to spread throughout the social body; its symbolic destiny was to become a generalized function.

The appraisal which can be brought to bear on the subject is another and key aspect of the disciplinary process. An examination makes visible the individual while separating him or her from their peers. It makes them into a "case" in which evaluations are produced in writing and stored - either electronically or on paper. Ferguson referred to the governmental subject or "client" metaphorically as a 'second sex' because they are constantly required to respond to bureaucratic discourse in order to be administered "benefits." They must constantly yield intimate information about themselves to become and maintain eligibility. "Clients, in other words, are required to adopt the strategies of femininity to ensure survival, just as women have traditional done and just as administrators themselves must also do in a bureaucratic climate."[50] The bureaucrat, also operating within a dominating structure, must maintain a vigilant inquiry into the living arrangements, child-rearing practices, sexual behaviours, and other personal details of its "case." The file becomes a surveillance text, which needs to be

constantly fed and updated. In fact, it is usually in the clients interest to "feed" their file and to aggressively monitor its contents.

While the techniques of discipline proposed in Bentham's schema circulated long before the computer, they are abstracted in the computer and its program applications. One example of the sophistication of the computer as a generalized model is its appropriation by the financial sector. Computerized database techniques are infiltrating banking and becoming very important in targeting a market population and testing new products through simulated exercises. "Householding technology," for example, tracks financial relationships and purchasing patterns within a client's or prospective client's household. Householding is a computerized process in which individual client name and address records are evaluated and linked to form "households." This process is often run against a client information file (CIF) or marketing client information file (MCIF), but it can also be performed on client data extracted from application systems or externally acquired prospect lists. The process adds value to the client file by grouping individuals into households and assigning a unique household key for each family of records. Thus, each member of the household shares a common key. Once a household key is established, the entire household can be analyzed, marketed, sold, serviced and managed as a group or economic decision-making unit. These software packages contain very expensive and complex "household algorithms" and "what-if" spreadsheet which they use as a "window of opportunity" to peer into the unsuspecting home.

Symbolic Economies and Computerized Governmentality

Returning to our economic analysis based on the circulation of general equivalents and symbolic thirds, the computer emerges for Goux, in the history of writing, as the capitalist-technocratic contribution to the global mode of symbolizing. The model of the panopticon as generalized by both Bentham and Foucault, leads us to a general technology of discipline which can be applied in any forum where the operation of power through observation and coding (informating) is needed.

The technologies of computerization and virtual reality have developed along these reasons of economy, but one must first reconceptualize the primacy of the visual in the panoptic mechanism. Surveillance is economized through the abstracting power of the computer. The force of general equivalency is that same force which organizes the genesis of the phonographic concept (Nietzsche's "shallow victory"). Writing is no longer that of the "pure reflection of object or action" as Derrida points out, nor a simple pictographic correspondence that "employs *one sign per thing*." Computer writing or "information" is mostly that of the alphabetic-numeric form whose power of "representative condensation reaches its abstract limit."[51] Opticism lacks the economy of the abstracted form, whose operational symbolization is more closely connected to the technocratic-cybernetic mode of domination. The visual apparatus is not archaic, as much as it

will be subsumed in the multimedia mechanisms to come and thus combine imagery with numerics and associated text. Meanwhile, governmentality continues to be invested with abstracted cybernetic practices which are counter-invested in the population and the individual.

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1 Quoted from Weiner, N. (1950) *The Human Use of Human Beings*. Da Capo Series in Science. (New York: Da Capo Press). p. 179. Written by a Dominican friar, Pe're Dubarle in a review of Weiner's *Cybernetics*.

2 Goux, *Symbolic Economies*. p. 94.

3 Shapiro, M. (1992) *Reading the Postmodern Polity: Political Theory as Textual Practice*. p. 14.

4 Goux, J. *Symbolic Economies*. p. 39.

5 Shapiro, M. (1991) "Sovereignty and Exchange in the Orders of Modernity." *ALTERNATIVES*. 16 p. 450.

6 Goux's work on the elevation of the monarch as general equivalent can be found mostly in his chapter on "Numismatics," the key theoretical chapter of *Symbolic Economies*, p. 33-49.

7 Goux, J. *Symbolic Economies*. p. 61.

8 Foucault, M. (1991) "Governmentality, " in Burchell, G., Gordon, C. and Miller, P. (eds.) *The Foucault Effect: Studies in Governmentality*. (Chicago: University of Chicago Press). p. 102.

9 Shapiro, M. J. (1993) *Reading "Adam Smith": Desire, History, and Value*. (Sage Publications: Newbury Park, CA) p. 11.

10 Rabinow, P. (1984) *The Foucault Reader*. (London: Penquin Books). See "Introduction," p. 3-29.

11 For a discussion of the lecture series in which Foucault first introduced "governmentality" see Gordon, C. "Governmental rationality: an introduction." in Burchell, G., Gordon, C. and Miller, P. (eds.) *The Foucault Effect: Studies in Governmentality*. (Chicago: University of Chicago Press).

12 Foucault, M. (1991) "Politics and the Study of Discourse, " in Gordon, C. "Governmental rationality: an introduction." in Burchell, G., Gordon, C. and Miller, P. (eds.) *The Foucault Effect: Studies in Governmentality*. (Chicago: University of Chicago Press). p. 70.

13 Foucault, "Governmentality," In Burchell, G., Gordon, C. and Miller, P. (eds.) *The Foucault Effect: Studies in Governmentality*. (Chicago: University of Chicago Press). p. 103.

14 Foucault, M. (1991) "Governmentality, " p. 102.

15 Shapiro, M. (1992) *Reading the Postmodern Polity: Political Theory as Textual Practice*. (Oxford: University of Minnesota Press). p. 14-15.

16 Gerth, H. H. and Mills, C. W. (eds) (1946) *From Max Weber: Essays in Sociology*. (Oxford: Oxford Press). See pages 196-244 for Weber on "Bureaucracy."

[17] Foucault, M. (1991) "Governmentality, " p. 99.
[18] Hacking, I. (1991) "How should we do a history of statistics?" in Burchell, G., Gordon, C. and Miller, P. (eds.) *The Foucault Effect: Studies in Governmentality.* (Chicago: University of Chicago Press). p. 186.
[19] Manicus, P. (1987) *A History and Philosophy of the Social Sciences.* (Oxford: Basil Blackwell). p. 196-197. See also Poovey, M. (1993) "Figures of Arithematic, Figures of Speech: The Discourse of Statistics in the 1830's," *CRITICAL INQUIRY.* Winter, Vol. 19, No. 2.
[20] Hacking, I. (1991) "How should we do a history of statistics?" in Burchell, G., Gordon, C. and Miller, P. (eds.) *The Foucault Effect: Studies in Governmentality.* (Chicago: University of Chicago Press). p. 182.
[21] Sanders, D. H. (1985) *Computers Today.* (New York: McGraw-Hill). p. 30.
[22] Rahim, S. A. and Pennings, A.J., (1987) *Computerization and Development in Southeast Asia.* (Singapore: AMIC). p. 87.
[23] Rahim, A. S. and Pennings, A. J. (1987) *Computerization and Development in Southeast Asia.* (Singapore: AMIC). p. 88.
[24] Foucault, M. (1991) "Governmentality," in Burchell, G., Gordon, C. and Miller, P. (eds.) *The Foucault Effect: Studies in Governmentality.* (Chicago: University of Chicago Press). p. 102.
[25] Foucault, *"Governmentality,"* p. 102.
[26] Foucault, M. (1979) *Discipline and Punish.* (New York: Vintage Books). p. 138.
[27] ibid, p. 138.
[28] ibid, p. 209.
[29] ibid, p. 27.
[30] ibid, p. 26.
[31] ibid, p. 28.
[32] ibid, p. 143.
[33] ibid, p. 211.
[34] ibid, p. 147.
[35] Gordon, "Governmental Rationality," p. 3. 'Omnes et singulatim: Towards a Critique of "Political Reason' was the title of a lecture by Foucault in *The Tanner Lectures of Human Values II*, ed. Sterling McMurrin, Utah, 1981.
[36] Foucault, *Discipline and Punish.* p. 149.
[37] ibid, p. 149.
[38] Goody, J. (1986) *The Logic of Writing and the Organization of Society. Studies in Literacy, Family, Culture and the State.* (Cambridge: Cambridge University Press).
[39] Levy, S. (1989) "A Spreadsheet Way of Knowledge," in *Computers in the Human Context: Information Technology, Productivity, and People.* Tom Forester (ed.) (Oxford: Basil Blackwell). p. 319.
[40] Foucault, M. (1979) *Discipline and Punish.* p. 149.
[41] Foucault's discourse on exercise is presented in the *Discipline and Punish*, p. 156-161.
[42] *Virtual Reality,* by Howard Rheingold, (New York: Touchstone). p. 14.
[43] Foucault, M. (1979) *Discipline and Punish.* p. 137.
[44] ibid, p. 209.
[45] Bentham, p. 39.
[46] Gorden, C. (1991) "Governmental rationality: an introduction, " in

Burchell, G., Gordon, C. and Miller, P. (eds.) *The Foucault Effect: Studies in Governmentality.* (Chicago: University of Chicago Press). p. 5.

[47] Dery, M. (1992) "Terrorvision: Panopticism in the Age of Totally Hidden Video," *MONDO 2000*, p. 46.

[48] Foucault, M. *Discipline and Punish.* p. 205.

[49] Poster, M. (1990) *The Mode of Information: Poststructuralism and Social Context.* (Chicago: University of Chicago Press). Zuboff, S. (1988) *In the Age of the Smart Machine: The Future of Work and Power.* (New York: Basic Books). They address information technology respectively from phenomenological and post-structural approaches which differ in the importance placed on human consciousness, the production of meaning, and subjectivity. The latter stresses autonomy while the former underscores social relations.

[50] Ferguson, K. E. (1984) *The Femininist Case Against Bureaucracy.* (Philadelphia: Temple University Press). p. 143-153.

[51] Derrida, J. (1976) *Of Grammatology.* trans. Gayatri Chakravorty Spivak (Baltimore: John Hopkins Press). p. 283-4. Emphasis added by J. Goux. *Symbolic Economies*, p. 42.

Chapter 5
Economies of Information and the Privatization of the Telecoms

> If the theory of cybernetics is by itself to oust all metaphysical concepts--including the concepts of soul, of life, of choice, of memory--which until recently served to separate the machine from man, it must conserve the notion of writing, trace, gramme [written mark], or grapheme, until its own historico-metaphysical character is also exposed.
>
> - Jacques Derrida, *Of Grammatology*

> For by Art is created that great LEVIATHAN, called a COMMON-WEALTH, or STATE (in Latin CIVITAS) which is but an Artificial Man; though of greater stature and strength than the Naturall, for whose protection and defence it was intended; and in which, the *Soveraignty* is an Artificial *Soul*, as giving life and motion to the whole body; ....."
>
> - T. Hobbes, *Leviathan*, (1651)

Introduction: The Information Standard

In the early 1980's, Walter Wriston, then CEO of Citicorp, proposed that the world's financial markets worked on a new "information standard," leaving behind the gold-dollar standard created at the Bretton Woods Conference in 1944. The world of international finance and currency exchange trading had been slowly changing from a small club of major bankers to a global network of telegraph and telex-linked financial dealers. Reuters was not unfamiliar to commerce in financial information when the world went off the gold standard, It had gotten its start with carrier pigeons in the mid-nineteenth century. What was novel was the new utility of telecommunications services. When the governments of the major currencies of the world decided to let the "markets" decide the exchange rates, a type of electronic interchange interceded to coordinate

these transactions. Instead of control by a few of the largest central banks, the world's currencies became linked together in electronic markets using value-added telecommunications networks and computer monitors displaying the prices of various monies. In his nationally televised speech of August 15, 1971, Nixon introduced his New Economic Policy (NEP) which deregulated the dollar and destroyed the gold-dollar standard. The "Nixon Shokku" as it was called by the Japanese effectively removed gold from the international monetary system. It delinked the dollar from its US$35 a gold ounce obligation and thus destabilized most of the world's currencies which under the Bretton Woods agreements were generally required to be held within 10% of the dollar's par value. In the advent of the "Nixon Shock," the electronic environment became the new "market" for buying and selling international monies. Geostationary satellites joined the longstanding networks of undersea communications cables to provide data and voice services to financial institutions all over the world. The same rockets which propelled the first moon landings also provided the launch capabilities for the international telecommunications satellite consortium, INTELSAT, which provided dial-up and leased lines for currency and stock price services such as Reuters' Money Monitor Rates.[1] By the time the IMF (International Monetary Fund) endorsed floating exchange rates in 1973, the Reuters news agency became the central price source in the currency markets. "The world since that time has been operating with a monetary system for which there has been no historical precedent in that no major currency in the world is currently tied to a physical commodity."[2]

The since retired Wriston has now produced a book, *The Twilight of Sovereignty: How the Information Revolution is Changing our World.* Its thesis is that the 'sovereign' privileges and powers of the nation-state and even the 'Napoleons of Commerce" are being overturned because of the new information technology and its resultant "information standard."[3] He argues that global communications connecting cellular phones, fax machines, personal computers, televisions and other types of information technology are making national boundaries and organizational hierarchies irrelevant. Information is replacing energy as the world's "paramount transforming resource" and is busy breaking down the sovereignty of governments and other large bureaucracies. The convergence of computers and telecommunications made possible by new microprocessing devices is decentralizing both power and knowledge: currency traders armed with computers and telephones threaten central banks and sovereign monies much as "illiterate tribesman" with Stinger missiles threaten expensive attack helicopters and their extensively skilled crews. What is happening according to Wriston is that the previous consolidations of power are under a constant barrage from the new information techniques such that they can never be out of the scrutiny of others armed with the new technologies. "The Orwellian vision of Big Brother has been stood on its head, it is the citizen who is watching Big Brother."[4]

The issues of sovereignty, as Wriston rightly points out, are paramount to the discussions and analyses of a world being deterritorialized by permissive transportation and telecommunications

technologies.[5] The new technologies of information do threaten to have a modern "Trojan horse" effect on the walls of national sovereignty, bypassing the scrutiny of official regulation with potential implications for national wealth.[6] Modern businesses see the new networks as essential networks to the resources they need. They prefer a telecom line as opaque as possible, unhindered and unseen by nosy bureaucrats and legislators who might devise schemes to make their activities more accountable.

Wriston's interpretation is stunted by its limited view of sovereignty conforming to the genre of international relations, sometimes known as geopolitics. Historically, when the international arrangement of relatively autonomous states developed, "politics was accordingly theorized as the control over citizen/subjects within delimited national boundaries."[7] As was mentioned in the previous chapter, with the end of mercantilism a shift has already occurred in the understanding about wealth from monarchical accumulation to the modern state with its useful populations. Subsequently Wriston's understanding of this term and its associated dynamics is quite limited when compared to its more recent circulation in the textualist domain. Goux, Shapiro and others have used an expanded sovereignty concept compared and contrasted with the field of exchange to politicize the organization of modernity and its political economy.[8] Empowered by the new facilities brought on by developments in the merging of post-structuralism, political theory, and symbolic economies, a potent strategy has emerged to offer new alternatives to the analysis of global politics.

The impulses associated with sovereignty and exchange are intimately tied to a politics of domains, subjectivities, and territories. This makes them a suitable mode of interpretation for the interrogation of electronic spaces in the modern world. Sometimes contradictory, but sometimes mutually cooperative, these signifying surges nonetheless represent fundamental tensions or ebbs and flows to be considered in the analysis of sovereignty and the understanding of general equivalence as it relates to practices of signification. This chapter considers Wriston's "information standard" in relation to Derrida's concern with "logocentrism." Using the symbolic economy approach, the elevation of "information" is treated as a type of computer logocracy, a variation in the mode of phonocentric signifying which has with the alphanumerical mode of representation come to be the symbolizing other of modern signification.

In the age of CNN and the dissolution of the USSR, the notion that a technology-led democracy is breaking out has became very popular. Wriston's view that the state-centric model of geopolitics is dissolving into a sea of democratic proclivities has some interesting discernments into the processes of exchange but what is disturbing is that he appears to be incognizant of the alternative forms of boundaries and identities creating new forms of authority and control. For instance, if we know anything about the consequences of information societies so far it is that they have become *debt* societies. The new communication and information technologies have merged neatly with the deregulated environment of banking and other financial institutions allowing new

forms of computerized debt to register on national, corporate and individual balance sheets. The new mechanization of these long-time information industries has dramatically changed these organizations. From credit cards to junk bonds, to national treasury notes, the new instruments of financial credit and obligation have created a global grid of obligation and engendered a new politics of debt. What started as the "third world debt crisis" has turned into a global debt epidemic with as yet largely unexplored consequences for nations, enterprises and individual citizens. In the seventies and eighties, major bankers lent hundreds of billions of electronic petrodollars, often called eurocurrency, to sovereign governments because they claimed that these governments couldn't go bankrupt.[9] Heavily burdened with foreign debt, these countries have been forced to undergo IMF restructuring of government administration, programs and social services in order to procure more funding to pay off the debts. Next came the reduction of wages while simultaneously lifting government controls on prices. Finally they are "privatising" their indigenous resources at receivership prices and with computerized debt for equity swaps could see wholesale stocks of resources switch from public to private ownership. The new circulation of wealth caused by the emergence of electronic money has made it possible to conscript formerly public-owned resources under the codes of private ownership.

Wriston discounts any personal or institutional agency involved in these changes, for him the causes are clear:

> This new discipline is being administered by a completely new system of international finance. Unlike all prior arrangements, this new system was not built by politicians, economists, central bankers or finance ministers. No high-level international conference produced a master plan. The new system was built by technology."

While this study does approach the topic from a "technostructuralist" perspective which privileges the social and political implications of the new technologies, it sees these technologies as emerging from institutional and economic concerns and thus intimately tied to the processes of signification, symbolic elevation and the dynamics of sovereignty and exchange.[10]

When Wriston claims that "currency values will be experienced less as a power and privilege of sovereignty then as a discipline on the economic policies of imprudent sovereigns," he leaves out any critical analysis of the institutional arrangement this new technological system engenders. In the next part, changes in the telecommunication infrastructure are examined with the intention of linking the new forms of information and information technology with the privatization of the organizations now known more commonly as around the world as a "Telecom."

Privatization and the Globalization of Information

A striking signature of 1980s will certainly be the dramatic changes occurring to telecommunications providers around the globe.

Throughout the world, most formerly government-controlled PTTs (Postal Telephone, and Telegraph) have undergone various degrees of deregulation, liberalization, and privatization. Although these terms are often used interchangeably, their generally assigned meanings within the context of official telecommunications policy refer respectively to: the easing of government rules and stipulations; opening up new markets for telecommunications; and the selling of government or public owned facilities to private interests.

The organization of telecommunications has traditionally been a government operation or a large bureaucracy which grew under government control. Typically dedicated to expanding basic telephone service over large geographic areas and offering access to remote populations, with the information age they have been under various pressures to change their network technologies and ownership structures. The breakup and deregulation of AT&T was perhaps the most dramatic of these changes, unleashing both the famous long distance communications provider as well as the "Baby Bells" to comb the world for potential markets for their considerable network expertise and products. Other notable changes occurred with the capitalization of British Telecom and Japan's NTT (Nippon Telephone and Telegraph) which set off a subsequent wildfire of dismantling and reorganizing PTT providers in places like Malaysia and Spain.

At the global level, privatization requires the consideration of at least two dynamics which should be considered as contributing to this massive organizational restructuring. The first is the elevation of

"information" as the central organising strategy, the new currency, for the transnationalized political economy. Second is the proliferation of telecommunications and information technology providers. By approaching the privatization issue from the perspective of both information and information technology it is possible to see that the interconnections between the two are complex and yet substantial enough to warrant further elaboration.

It is no accident that privatization for the most part started with the telecom providers. Privatization is intrinsically tied up with the processes of highly coded mechanized information. Coding not in the sense of encryption, but in the organization of knowledge which is so central to the administrative and production disciplines of modern organizations. "The languages of modern business are encoded in professional discourses which render them opaque to outsiders, but permit a rapid sharing of information, technique, and knowledge to those conversant in the codes. Of these the most important are accounting, law, business administration, engineering, and economics." [11] Each of these areas are developing their capabilities to use the new information technologies to create new types of knowledge. By merging the new media through the centralizing tendencies of the computer and its new software abilities, an array of new techniques are mobilized and integrated into textual products. Dordick and Neubauer were two of the first to recognize the relationship between the new forms of information and the changes occurring in the provision of telecommunications services. After a tour of Asian telecommunications providers, they concluded the following:

> In the enumeration of forces that are creating pressures for privatization of national telecommunications infrastructures, what has been overlooked is the very factor which has been exhaustively discussed in both popular and academic circles as the key force in creating the new information society, information itself. In particular the fact that money is information on today's international telecommunications networks has been a major force in creating new enterprise structures throughout the world. Firms can utilize financial resources in ways heretofore impossible or difficult. This ability for intra-and interfirm transactions opens the door for configurations of new business activities effectively breaking down traditional barriers of product and process knowledge and experience and skills normally seen as restricting business expansion. The availability of a coherent world-wide system for handling information may explain the revolutionary dimensions emerging in world business.[12]

Combined with the computer, information becomes even more significant. In fact, the second dynamic to be considered in the privatization of telecommunications is the range of new information technology providers introducing network, desktop, and personal technologies at an unprecedented rate. The combination of the new forms of information techniques with the information technologies improve command over the logistical and financial aspects of the modern organization which has been convinced that it needs the new technologies to compete in the national and world markets. They want the most sophisticated technologies to ensure the utmost in coordination and control for the management of transnational operations.

The number of entrants into the global telecommunications and information technology business increased dramatically in the eighties.

Telecom equipment suppliers, many who were previously wed to domestic PTTs, saw the international market as ripe for their network technologies. NEC, Okidata, Siemens, etc., (many with solid government backing) all began to look outward to sell their equipment and services. AT&T was released from the FCC Consent Decree which had limited it to domestic sales and subsequently the Regional Bell Operating Companies (RBOCs) or "Baby Bells" also began to look internationally. These companies have been developing an extensive array of new broadband transmission systems and digital switching modules capable of extending their value-added service offerings and have targeted foreign countries as their new markets.

Private firms such as banking, manufacturing, and travel industries have pushed for PTTs and Telecom providers around the world to modernize their facilities in line with innovations in global technologies and standards. The considerable investment required to modernize switching systems, trunk lines, as well as "the last loop," have made PTTs reluctant to spend the monies required, especially when it was looked on as a major source of employment and a boost for national treasuries. However, airline reservation networks, currency quoting and trading systems, as well as the new industrial data communication applications over international valued-added networks brought early pressure on PTTs around the world. A number of technological developments such as faster microprocessors, multiplexed packet-switched circuits, high speed data transmission, digital switching systems, enhanced RAM /ROM memories as well as elaborate relational

software programs all required new strategical approaches to the business of telecommunications.

The firms that were able to comprehend this trend and integrate the emerging information technologies "leaped into the world arena." To do this the firms needed to learn from each other by watching which organizational devices and strategies worked and which did not. They had to cognate and master this information by sharing upper management and personnel who had understood the "languages" of commercial, financial, and productive knowledge.[13]

The identification of information and information technology as central phenomenon in geopolitical and geoeconomic development is not particularly unique to this study. A whole body of knowledge focusing on the arrival of an information society has circulated in academia and in popular writings for some time now. What portends to be unique in this project is a more extensive interrogation of the term "information" and an analysis which figures this choice of a signifying process as an emerging exclusive form of knowledge system.

Writing Economies/Deconstructing Information

Up until this point the implication of language and writing technology as a general equivalent has been only briefly mentioned. It is however, one of the most intriguing of Goux's theoretical propositions. The ascension of writing is part of Goux's fourfold effort to bring attention to the notion of the general equivalent and is a crucial element in this

analysis of cyberspace. His strategy links the modes of writing which were characteristic of different social formations to the conditions of exchange in each of those societies. Before it became fixed in its present phonographic stage, writing moved through historical "thresholds" where it performed as pictographic and then ideographic modes of signifying.

> At the stage of pictography, the drawings work on the basis of a resemblance between the signifying marks and the things and actions to which they refer. In the next stage, in which ideographic notation takes over, (as in hieroglyphics), writing has moved to the extended form of value in that the written signs now represent aggregates rather than individual entities. Once writing moves to the more abstract stage in which signifiers represent sounds, the stage of general substitution or equivalence has been reached. A small number of linguistic entities can be arranged to stand for the entire range of objects and relations, thereby allowing for a more universalistic form of representation. Arbitrary signs produce a system for generating and transmitting meaning.[14]

As writing moved into the phonographic stage there developed a much more fluid and effective way of dispersing forms of knowledge. "Through this general equivalent--the new system of alphabetization--it became possible to translate concepts from one language to another, and authors began to participate extensively in the exchange of knowledge."[15]

Goux includes the elevation of a "logocentric" signifying practice in the realm of the general equivalent. In his terms, the prevailing mode of notation is congruous with the dominant form of exchange. He draws

on the Derridan notion of logocentrism "as the choice of a very particular type of signs as general equivalents of all other signs, that is, both as their universal measure and ideal principle of evaluation and as the privileged, if not exclusive, vehicle for the circulation of meaning."[16]

> Hence, when writing becomes thoroughly phonographic in the course of this third stage, we can assert that it corresponds logically to the moment of the general equivalent value form: a limited battery of "arbitrary" signs (the result however, of a long history) of purely phonetic value becomes the universal signifying substitute for all possible signifiers, the privileged medium of signifying.[17]

How is it that the realm of signifying comes to be generalized as information? Can we construe the elevation of information as a symbolic economy? How has "information" been elevated to the select position? How is it to be thought of in a textual symbolic approach? The way this study will pursue these questions is to expand on Goux's general equivalence and Derrida's notion of the transcendental signified. But first an abbreviated understanding of the word information is in order especially as it has come to circulate in official and many academic understandings of the complex changes occurring in modern society.

Reading the Information Society

The technocratic delineations of knowledge achieve a high rate of circulation by the eighties when the notion of an information society is popularized. In Japan, the concept of *Johoka Shakai* or

"Informationalized Society" had circulated since the early sixties when Tadeo Umesao published an influential article entitled "*Joho Sangyo Ron*"("On Information Societies"). Using a biological metaphor, he proposed three stages of human industry development leading to a "spiritual industry" of knowledge production and consumption. The earlier stages of agriculture and material industries were likened to the body's needs for food and shelter.[18]

Marc Porat's doctoral dissertation which disaggregated US Department of Commerce employment data was often cited as empirical proof that agriculture and manufacturing industries were on the decline and that the "information economy" had arrived.[19] Activities that created information for sale or as an intermediary enhancing the production process were growing at the relative expense of activities which created farm and factory products. By focusing on the activities that workers performed rather than their explicit job titles, he was able to argue that by 1980, "more people in the United States were engaged in information work than any other kind of work, indeed about 48 percent of the U.S. population was engaged in one form or another of information work, while only about 3 percent were in agriculture, slightly more than 20 percent in manufacturing, and about 30 percent in providing services."[20]

Porat was both instrumental and exemplary of the rush to develop and defend the discourse of the information society.[21] Central to the group of academics, futurists, and policymakers who rallied around this new conviction was the liberalist connotations that the new technologies of computers and telecommunications will become universally available

and provide an abundance of information to combat the dominant discourses propagated through one-way, industrially produced, media messages. Information technology was the harbinger of a post-industrial revolution which could upset previously dominant structures of power and in the meantime democratize wealth because its "nature" was intrinsically undepletable and infinitely sharable. The new information environment would provide information composed not from the "top" but from diversified and autonomous sources. Pool for example, in his *Technologies of Freedom*, mirrored this view with a "soft" technological determinism arguing that the new converging communication and information technologies are "conducive to freedom" and are more "pluralistic and competitive."[22]

For the less enthusiastic Marxist-informed interpretations, "information" is usually explained as a solutions to aid capitalism's desire to extract surplus value without extensive investments in additional equipment, labour, and raw materials. The dependency schools focused on how international flows of information extend domination of existing power structures, making weaker states more dependent on the centers of innovation and capital. When not tied the productivist mode of accumulation, information is usually regarded as part of the realm of the superstructure, following a general epistemological differentiation between reality and appearance.[23]

Information is not a new word flowing through the English language, nevertheless it achieves a new importance with the technical innovations of the second world war. Its new carnation has strong roots

in the military and industrial efforts leading to major advances in ballistics, computing, and telecommunications. Automatic gun sights, radar, and other tracking technology sparked the search for the alphanumerical calculation of electronic signals. Initially developed to target German airplanes for anti-aircraft guns, cybernetics was soon elevated "to attack the problem of control and communication in general.[24]" As a by-product of the sensory and calculating equipment, "information" emerged as a mathematical and measurable concept. The twin theories of information theory and cybernetics led to the development of a formalized unit of "feedback" and measurement.

Before the end of the 1940's an executive of the Rockefeller Foundation joined a Bell Labs scientist to produce a book entitled *The Mathematical Theory of Communication* (1949). The former applied a more generalized interpretation to the scientist's theory. With authors Claude Shannon and Earl Weaver, information becomes a statistical relation between communication and noise. That which is not lost in the communication process by entropic dissipation is information.

Other theorists such as Alan Turing and John Von Neuman continued the process of reworking epistemological problems in terms of circuitry and then computer nomenclature. Its goal was efficiency and organization. "Information reduces uncertainty," according to the Shannon and Weaver writings.[25] The new world view deciphered enemy codes, protected the perimeters of the free world, and provided new advanced communication circuits which started to connect new grids of electronic exchange. Nature became figured as a chaotic force to be

controlled by government-military-industrial cyberneticists. For Wiener, "we are always *fighting* nature's tendency to degrade the organized and to destroy the meaningful...."

> The "law" of entropy legitimates the just cause of the technocratic domination of language and the bureaucratic reduction of meaning to "electronic engineering."[26]

The Shannon-Weaver model outlined in *The Mathematical Theory of Communication* (1949) was instrumental in decontextualizing information from its cultural and political environments. "Systems or information theory is, in a very real sense, the 'ideology,' the metaphysical justification and practical belief system of the 'information revolution.'[27] The information theory model assumes similarly enculturated sovereign identities on both ends of the communication channel and shifts the focus of inquiry into the problems occurring along the route from sender to receiver.

Unlike textual approaches which acknowledge the complexities of language and other forms of mediation involved in the exchange of meaning, the "bullet theory" of communication posits problems in terms of "interference" or "noise" with an unmediated message. While it does consider that the sender and receiver respectively "code" and "decode" the message, it does not consider the implications of signification for subjectivity. The bullet theory works to reify the illusion that communicating subjects do not have to enter into a prescribed social order to be able to exchange meanings. While textualists are quick to

point out that a price must be paid to enter into a discourse, the Shannon and Weaver configure the process in technical terms, abstracting and refining information to render it more susceptible to forms of exchange based on a limited mode of signification and identity coherence. Following the Lacanian model, Shapiro suggests that to engage in communication "is not to express one's individuality but to suppress it in order to participate within an institutional frame of intersubjectivity."[28]

The shift from figuration, speech and writing to "information" reduces analytical problems by disposing of realms of contestation and peripheral discourse. The fascination with information conditions the predominant mode of symbolizing such that all disciplines become converted "into a kind of symbolic, quantified representation--a new universal language which would translate the languages, dialects, and jargons of all languages and disciplines--appropriate to the basic circuit logics in the computers."[29] Meaning becomes compressed into an official techno-language and circulates as the new general equivalent of knowledge representation. For a new class of technocrats, a commodious intelligibility has been found in the DNA code as proof of an ideal, universalized language. Seeped in systems and information theories they snuggle in the stacked truth claims of "nature."

Goux was influenced by the Jacques Derrida and his work on logocentrism which he saw as part of the unified yet contestive process he had been developing. The reign of linguistic signs over iconic signs, in which a particular type of sign attains the rank of privileged mode of interpretation over all other signs in is line with the notion of

logocentrism. All meaning is consolidated in a few graphic signs of phonetic value, just as economic exchange-value appears to be reified in official currency.

By logocentrism, Derrida means a coherent sovereign voice that supplies lucid meaning and direction to the interpretation of the spatial and epochal vicissitudes of history. A sovereign inflection, this doctrine is itself "regarded as a pure and originary presence--an unproblematic, extrahistorical identity, in need of no critical accounting." In Derrida's words, this logocentric disposition is "not just one metaphysical gesture among others; it is the metaphysical exigency, the constant, profound, and potent procedure."[30]

Derrida argued that the signifier does not directly yield to us the signified. No direct correspondence can be construed because the context is always shifting and slipping. Language then is inherently unstable. Meaning is never quite present in the sign, always escaping the chain of signifiers but always to be trapped again in the realm of language. For Derrida, the western world, insofar as it maintains metaphysical dualities, has always anchored its craft of language in a central "transcendental signified," which is itself is understood as removed or independent of that system. This final terminology is integral to the difference between the signified and the signifier. "If there is no such term, then every signified functions in turn as a signifier, in an endless play of signification."[31]

His attempts were in part to eradicate this vestige of idealism from among other realms, that of semiotics, which has tended to subordinate

material terms to the less material. For Saussure, language became the "master-pattern" which separated linguistics as the most "ideal" in the study of semiology. Other signifying systems would require a linguistic verbal or written "supplement" in order to maintain meaning.[32] His contention that the signifier is attached only by convention to the signified was conditioned by the degree of motivation. Symbol-oriented languages with a high level or motivation between signs and signified would be inferior. This "logocentrism" is of concern for Goux who views the logocratic subsumption as another form of domination by the symbolized third. "Just as *money* (value) becomes CAPITAL only as a counterinvestment imposed upon labor, likewise *speech* (meaning) becomes LOGOS only as a counterinvestment imposed on "writing" as a signifying elaboration."[33]

The economies of writing and its apogees into the symbolic thirds of alphabetic and algebraic forms of notation provide an important opening for interpreting the electronic spaces of computer and multi-mediated information within a symbolic economy approach. Based on the promotion of phonographic language as the economic exemplar both in terms of its elevation to a symbolic third as well as its reduction of signifying material to a few marks standing for sounds, this fabrication of language formed the basis for the operational aspects of the computer. Standardization in this area is accomplished early on with the typewriter which increased legibility and writing speed as it was introduced in the bureaucracies and corporations in the late nineteenth century.

According to Goux, the form of writing in which a society engages is closely related to its social formation. The symbolic elevation of both alphabetic notation and algebraic numeration come to play central roles in the configuration of modern capitalist society and form integral pretext to the operations of modern computer technology. This dual mode of phonographic symbolizing in which writing replicates sounds rather than attempting to establish correspondence through an ideographic or pictographic representation allows a limited range of arbitrary signs to produce a system for generating and transmitting meaning.

This mode of writing is institutionalized in the information age through the development of a standard code readable by the machinations of the computer. John von Neuman's contribution to the wave of computerization, in which he suggested that a binary numbering system be used in the building of computers, did little to stop the centralization of an alphabetic-algebraic code of symbolizing. After all, the two digits (or bits) representing "on" and "off" are still represented by the algebraic "1's" and "O's" and in some cases the alphabetic "ones" and "zeros." The computer is integrated into the privileged form of representing by the introduction of the 7 and 8 bit coding of alphabetic characters (26 lower and 26 upper case letters) and the algebraic decimal characters (1-10) as well as a number of other characters representing important functions (=, +, -, x), signifying marks ($, #, @) and punctuation (?, ;, !). These codes are commonly known as the American Standard Code or Information Interchange (ASCII) and in IBM machines the Extended Binary Coded Decimal Interchange Code

(EBCDIC). Translating the alphanumerals into the discrete values of binary machine language allows the computer to enter common usage. The computer becomes perfectly suited to carrying on the mode of symbolizing which is most closely correlated to the symbolic demands of the modern political economy and fulfils the requirements for modern governmentality.

> The power of the symbolic has changed. *Abstract operational symbolization*, in the computer or in the bank, is linked to technocratic society's mode of domination, just as *cryptophoric symbolization*, with its religious depth, was inseparable from a certain type of ideological domination in great agrarian empires with military-priestly relations of production.[34]

This does not mean the computer is limited to the constraints of the dominant form of symbolizing. It engages in a set of exercises which hyper-extend these practices into new techniques of power. Through its complicity with the production of meaning and value, the computer is intimately tied up in the processes of credit, eligibility, identification, ownership, spatiality, and temporality and thus the constitution of modern society and its organization of power. As a form of writing technology, computerization stores its marks over durations of time. Connected to the new techniques of modulating over electrical-based telecommunication circuits, computerization moves its characters rapidly over geographical terrains. It lists any number of objects or people complete with corresponding data fields adding interpretation and

description. The computer co-relates. It links, makes connections, combines people with places and resources.

Dreaming Electric Money

The money-sign emerges in modern mass culture as the embodiment of possibility, the semiotic of success. "Money is a dream," said David Bazelon, author of *The Paper Economy* (1963). "It is a piece of paper on which is imprinted in invisible ink the dream of all the things it will buy, all the trinkets and all the power over others."[35] Money no longer needs to have intrinsic value as it did in previous ages. Michel Foucault in *The Order of Things* historicized the representations of money in the classical age and outlined the variables of signs necessary for representations during that period, or what he was calling at the time an "episteme." He argued that money could only represent wealth during that time, when it itself was precious. Gold and silver became the common medium for exchange because they displayed the properties necessary for representation at the time.[36] This is partially validated by the reaction to the stories of Marco Polo who told of the paper money used by the China of Kublai Khan. They were denounced as outright lies because they could not conceptualize money without the physical properties representing wealth. Polo had used the metaphors of "alchemy and flight" to describe the Chinese financial practices.[37]

A circuitous route to establishing an understanding the relationship between money and information is through the Lacanian

reordering of the Freudian province. Like gold which is refined to an unadulterated state, information is purified by information and communication theory into a form of money. It can be circulated, stored (hoarded) and comes to represent meaning and value. With technological innovations each of these functions is enhanced. With the ubiquity of telecommunications networks, information is quickly and easily exchanged. Electromagnetic tape, RAM chips, optical disks, provide new forms of storage which have been combined with traditional double-entry accounting systems; and with the prevailing mode of electronic logocentrism, it conveys meaning. In this sense, money acts in similar ways to the three generally accepted "domains" of information technology: storage, transmission, and processing.[38]

Lacan's "symbolic orders" merged his classical study of psychoanalysis with the debate around Levi-Strauss' *The Savage Mind* in which he read society as an "ensemble" of signifying systems.[39] The strategy allowed him to attack the latter's deterministic views while accepting its primacy of culture over nature. The first order addresses the measuring of values in which money operates as imaginary. "What produces value is the ability to identify the units involved in circulation and exchange."[40] Goux must struggle through a number of theoretical issues including Marx's essentialist rhetoric and metaphysics to establish the representational practices which operate in the measure of value. It is particularly through Lacan's discussion of the phallus as a signifier and Marx's opposition of use-value and exchange value to which helps him arrive at the simulacrum of value.

> The imaginary function of the general equivalent is likewise to be observed in the paternal ideal and can also be found in the linguistic register, as situated outside the purely symbolic function in a world of "ideas," forms, models and images--that is, in an imagined relation to nonlinguistic realities.[41]

This convergence into an abstract symbolic entity provides a site of measurement, whether for commodities or other investments such as labor or libido. The choice of a center sign of signification reduces the various investments to the code of the third. As the institutionalization of the norm continues, the exclusion of one element from the set makes way for centralization, evaluation, and subsumption on the basis of the quantity of investment. While labor joins the commodity under the historic monopoly of gold, libidinous drives organize under the single genital and ultimately the outside signifier. In each case of the third's institutionalization, the organization is regulated "by the uncontested power of a single symbolic element, a monarchical organization."

The second function is as symbol. Money officiates as a circulating medium, either as gold or paper or any of the other "worthless symbols of itself."[42] The symbolic order of the currency is that of pure concatenation or abstract textuality, in that the circulation process in the world of commodities takes shape as "a link not only of one endless chain of metaphorphoses, but of many such chains." In this world of circulation, monetary forms are fleetingly articulated, strung together, but not arrested in the form of use-value. It is as if only the difference of prices, their reciprocal relation, the value quotient, come into play but not

the embodied, material value. Extended circulation thus makes viable. . . a purely symbolic order, in that it appears to be founded solely on complex linkage and diacritical determination.[43]

Finally, as a means of payment and as a value for hoarding, money operates in the domain of the "real." The incarnation of value in the form of an executable instrument is paramount to the exchange process in the realm of symbolic economy. Goux is no realist, subscribing to unmediated processes of signification, the real is an activity which operates within a network of established practices. "Now this coin is well-examined / And now we know its alloy and weight. / But tell me: do you have it in your purse?" It is a question of measuring up, weighing in, counting out, and forking over.[44]

Engaging Goux's essay on "Numismatics," where he recounts a historical commencement of traditional money, where one commodity among others is placed as the unique measure of the values of all other commodities, we see that money becomes a regulator of value, it settles the contradictions of multiple equivalences, governs the exchange of commodities, and settles accounts as a means of payment.

> Now fundamentally, money, by virtue of its function as general equivalent, is the mediator, the third party, which arbitrates the conflicts of market values, which settles their disputes and effaces their differences.[45]

Money could become paper and finally electric only with the pacification of populations by the administrative orders of bureaucracy

and the corporation. In the disciplinary and normalized activities of modernizing society, the necessary rules and procedures for exchange become inscribed in the discourse and behaviours of its subjects. The meaning of money is determined by a system of constitutive rules and institutions, or a standard.

The notion of the standard, coded in the terms of a generalized symbolic economy, has been coded by Goux in his writing on "Figurative Standards: Gold and the Phallus." There was much talk after the Gold Standard was abandoned by Great Britain in 1915 that it would someday return like a monarch, but as J. M. Keynes said, "shorn of his ancient despotic powers and compelled to accept the advice of a Parliament of Banks."

> The place or position maintained by the standard: what is virtually self-evident here is an umbilical or gravitational anchor that ensures the consistency of a system of conventional signifying marks and prevents them from drifting or floating in relation to the valences they are meant to signify. The very logic of this economic procedure, without any intervention from linguistics or psychoanalysis, makes it easy to declare that what hangs upon the existence of standard coverage includes all the value effects of a fiduciary currency and thus its signifying aspect. This standard is a privileged place: a node of "cash on hand." Through their imaginary but potentially realizable relation to this pivot, the symbolic valences in circulation are constituted.[46]

What is especially important about Goux's elaborated definition here is his concern with the uniformity of an arrangement of prevailing "signifying marks" and the forces which prevents them from "drifting or

floating." In a sense, Goux is only slightly interested in the economic and fiduciary aspects of the gold standard and rather has his attention on its generalized aspects and its *symbology*.

The new circulations of the words information and the information society seems after analysis to institute insidious restrictions of the flows of, if not information, than signification. In short a discourse or knowledge emerges which delimits or restricts the flow of meanings associated with the standard. It moves towards the creation of a sovereign stock of signs and meanings and maintains it so as to create the units of exchange.

Computer Logocentricism and Organizational Sovereignty

This knowledge about money is central to modern capitalism and integral to it is the codification and technicalization of information. It implicates agents, both people and organizations in its expression. Techniques and language reinforce the new power of money, particularly the new disciplines of accounting and budgeting. This money-knowledge is transnational and hegemonic. Corporations and governments both contribute to a process of reproducing money as well as suffer from its structuring effects.

Organizational society has developed specific languages, techniques, and technologies for the legitimation and manipulation of the money-sign. A select group of institutions exist in a privileged stratum within the transnational regime of industrial formations and disciplinary

practices which allocate power and possibility in modern society. Advancement in the hierarchical scheme of this regime requires the careful coordination of the central sign of contemporary society--the money sign. The money-sign in its various forms such as assets, credit, bonds, stocks, etc. has become the primary vehicle for organizing modern society.

Technocratic organizations are highly sensitive to the power of money and the rules through which access to them are constituted. For the modern corporation, the "bottom-line" is a mega-metaphor. Corporations strive to display capital accounting results in an organized and consistent manner to directors, stockholders, and the media. The word "consistent" here is used because while the corporation is organized for the surplus accumulation of wealth in the ultimate form of the money-sign, it is, as Galbraith pointed out long ago, the logic of bureaucratic capitalism that profits should be rendered predictable.[47] Thus the financial accounting apparatuses of most corporations, under the direction of their chief executive officers, tend to organize their operations to show steady quarterly profits. (Unless you are currently running IBM!)

The systems of information management become crucial for the modern organization. Surveillance of resources become important not only for inventory purposes but for the valuation of the organization of in terms of capital or money-signs. Giddens echoes Weber in pointing out the invention of bookkeeping is essential for the development of capitalism and specifically the stability of the organization over time.

"Double-entry bookkeeping allows the adjusting of inflows and outflows that occur over long periods of time." Giddens argued that every social system 'stretches' across time and space. He introduced the notion of "time-space" distanciation" to combine the *longue duree* of institutional time with their spatial effects. Information storage is integral to this process with money accounting being a prime source of "time-space power." It "allows for the distancing of economic relations across time-space, facilitating the storage and co-ordination of information used to regularize such relations."[48]

Money is the organizational lubricant for business and government. It clearly has taken on new forms and functions in this transformed technological environment. The practices of budgeting across multinational divisions, managing treasury accounts, and raising investment capital have increasingly relied on new forms of computerized financial representation and substitution. Budgeting becomes an essential technique of control in the technocratic organization, both in the corporation and the government. The steeper the organizational chart, the more budgeting is used as a political tool. Budgeting frames the organization and its objectives in quantitative money terms. It allocates resources to some and restricts them to others, it can be used to redirect programs and to pressure subordinates and organizational adversaries to conform to new objectives.

These money languages provide an understanding the of phenomenon of multi-mediated information and its importance for the global economy. Combining the powers of computers with the

sophistication of a traditional discipline creates a new type of knowledge, one that requires interpretative skill based on a discipline's foundation. The organization of knowledge imposed by various state-of-the art disciplines combined with the new information techniques improves command over the financial, logistical, and productive aspects of the modern organization.[49] With the computer-based technique and the knowledge-based interpretive skill becoming intertwined, it behoves to explore some examples of its social impact. The spreadsheet is exemplary, its ability to manipulate numerical data in tabular format and create a variety of calculative scenarios is having an enormous impact on an assortment of disciplines. Since the first spreadsheet was designed in 1978 by a Harvard student to project the consequences of one company's acquisition of another, the application program has become second only to word processing in its popularity. Armed with the new computerized spreadsheets, multiple what-if scenarios can be produced to simulate organizational decisions. The spreadsheet both democratizes numerical power and modelling processes as well as gives numerous advantages to those who can combine its power with other organizational factors such as access to capital. The last decade of "spreadsheet capitalism" combined the eurocurrency investment capital along with the capabilities of entrepreneur raiders using the spreadsheets to analyse takeover targets and shake up the predominate corporate structure.

The changes in the world economy are complex and the diagnosis as well as prescriptive proposals are contentious. Much of discussion regarding

the changes in the global political economy makes the argument that the Fordist -Keynesian regime of social organization, which combined new productive capacities and new forms of social and macro-economic regulation, has been in a rapid state of disintegration since the early 1970's. This situates the technocratic information standard, the new computer logocentrism, in the center of the new post-fordist regime.

Multimediated Information for Productive and Logistical Processes

The Fordist -Keynesian economic-political system was characterized by a preponderance of mass production in developed countries where high working wages were offered in return for compliance to the adoption of the assembly line technologies. This meant not only a rapid state of the commodities production but a corresponding consumerist society able to afford the goods. The system emerged during the gold standard and continued through the post-World War II agreements which linked major currencies around the world to the US dollar which was itself fixed to a set price for gold.

More recently the global economy has shifted mass production to lower wage and/or automated economies leaving the rest of the world economy to resort to a new type of flexible commerce dispersed among many nations and cultures. The world economy is now undergoing what Harvey[50] calls a "time-space compression" due to new permissive technologies such as jet airplanes and telecommunications. This has meant a shift from vertically-organized corporation to new networked economies which privilege

inter-organizational ties by such means as outsourcing and sub-contracting. The rigidities of Fordism have been shaken largely by the capabilities of the new information technology-driven organizations. Spatial and temporal dimensions of the economy are being reorganized in the need to reduce turnover times for flexible production and marketing strategies on a global scale. For example, coordinating the logistics of containerization, inventory control, and packaging needed to compete in the new marketplace requires contact with a wide of array of competing services. Access to information such as the GATT agreements on pesticides and food additives as well as other non-tariff barriers is becoming critical for devising new global trading strategies.

Most countries have been establishing electronic trading links with other countries in order to tie in a steady flow of orders for its export commodities. This takes a labor and management pool who are practiced with the new techniques of information management. Customer and supplier relationships are increasingly becoming locked into electronic document standards such as EDI (Electronic Data Interchange). International trade: customs declarations, cargo clearance, customs duties, delivery orders, insurance certificates, bills of lading, interconnecting carriers, vehicle booking, sales tax, excise tax, quarantines, etc. all consist of document procedures which are becoming increasingly electronic. This has meant a new intensification of mental labour activity and accelerated the need for new types of labor learning strategies.

One of the most extensive series of studies looking at the new types of multi-mediated information produced by the convergence of

information technology and new work environments was written by Shoshana Zuboff. While her study lacks sufficient linkages to the motivations of the global economy and is phenomenological-based thus raising some poignant ontological questions, her insights into the transformations occurring in the workplace are instructive nonetheless. Her major book, *In the Age of the Smart Machine,* argues that the new information technologies have two faces, not only do they automate but they also informate. That is, what computerization does best, in addition to monitoring automation, is to produce information. This following quotation explains:

> What is it, then, that distinguishes information technology from earlier generations of machine technology? As information technology is used to reproduce, extend, and improve upon the process of substituting machines for human agency, it simultaneously accomplishes something quite different. The devices that automate by translating information into action also register data about those automated activities, thus generating new streams of information. For example, computer-based, numerically controlled machine tools or microprocessor-based sensing devices not only apply programmed instructions to equipment but also convert the current state of equipment, product, or process into data. Scanner devices in supermarkets automate the checkout process and simultaneously generate data that can be used for inventory control, warehousing, scheduling of deliveries, and market analysis. The same systems that make it possible to automate office transactions also create a vast overview of an organization's operations, with many levels of data coordinated and accessible for a variety of analytical efforts.[51]

The potential of automating, in accordance with Frederick Taylor's scientific management approach, was that it could divest workers of their knowledge and congeal it in the practices and procedures of the new machinery. Extensive studies of the motions and practices workers engaged in were invested in machinery to reduce labor needs. Automation meant doing more with less human power.

Automation will continue to be an integral part of the industrial equation, but the term "informating" considers the facility of textual and symbolizing processes in the workplace. Zuboff coined the term to refer to the production of symbolically coded information about automated activities. Computers in the modern workplace take three dimensional tasks and objects and translate them into symbolic data which are presented on a screen. Toil is becoming progressively symbolic and abstract. Labor that was once done manually is now mediated by the computer. Automation, which once decreased the importance of knowledge in the workplace; now becomes heavily dependent on it.

For Zuboff, this is a discontinuous stage in industrialization. Instead of simplifying work, computers now make work more complex and more challenging. The new working environments put a premium on abstract rationalisation and interpretation as the informating process generates streams of data about organizational and production activities which need to be understood in the context of the organization's strategies and goals.

What this means is that information--symbolized and textualized--is the new intellective frontier and represents a major challenge for

education and training. The industrial system called for the honing of the body and its effort towards the skilful manipulation of physical space, now the multi-mediated information systems of flexible commerce and production require a new mentality with the ability to produce and interpret from abstract symbolizations. Instead of substituting machine automation for human moil, information technologies add a textual layer.

The barriers to entry into the workplace are rising. Physical jobs have become mental jobs as workers move from the floor to the office. The control room has replicated itself from the television studio to the factory office. Workers are tied to the screen as the dominant channel of working activity. Nurtured through the television age, the screen is, is a Lacanian mirror sense, a motherly form to the modern worker. Automated plants producing cars, computers, paper, etc. do not run themselves or at least require such a high level of investment capital that to sit idly for lack of a machine replacement or a proper diagnostic program is a very expensive oversight. A lot of work is still required to check and maintain equipment, but even these jobs are becoming highly intellective.

The intricacies of the modern logistical capabilities depend on the new symbolic codifications of information. Federal Express, who got its start in the courier business, moved quickly into package delivery business after the introduction of the facsimile machine dramatically reduced the need to hand deliver important business documents. They now offer package delivery to their clients as well as inventory and parts management systems to facilitate the replacement of sold stock or

irreparable equipment. Extending the informating process but also adding a new symbolic coding system allows them an unprecedented ability to offer logistical services.

The Universal Product Code

One of the most striking and ubiquitous symbolic technologies in use is the Universal Product Code, otherwise known as the "bar code" or as they are known in the industry, "symbologies." This rather inconspicuous set of markings is becoming evident on retail items, distribution packaging, and also on the literary and public psyche. The generic coding language based on a combination of alphanumeric symbols and machine readable bar codings is fast becoming central to the accelerative logistics and production systems now becoming operative in the global political economy. Combined with the interpretative and calculative capabilities of the computer, the bar coding writing system is fast becoming a central means of information coordination.

Its impact on the efficiency of transactions and the "informating" process mentioned earlier has raised concerns about an accelerated and thus intensive store of information on the individual. These affairs have even captured the imagination's of the religious right who have equated the numerical sequences with the biblical "mark of the beast" - 666.

> And that no man might buy or sell, save he that had the mark, or the name of the beast, or the number of his name. Here is wisdom. Let him that hath understanding count the number of the beast for it is the number of a man, and his number is Six hundred, three score and six.[52]

In an uncanny intertextuality, the three numbers which begin, center, and end the symbology sequences are by standardization, "6-6-6."

The bar code is the front end of an elaborate computer information system. It has become an efficient replacement for human-mediated data entry systems through the use of laser scanners which can read the complex codes. Federal Express's Cosmos computerized "supertracker" system in Memphis can get reports as to the exact location of their packages through the bar codes.[53] Symbologies on each package are scanned at key points in the distribution trajectory. Information from every pickup and delivery is sent to the computer system and can give real-time reports on delivery routes, load factors, the number of packages requiring special handling, etc. They even offer inventory management systems which bypass the wholesaler and deliver products to the customer in 12 to 72 hours. Instead of maintaining warehouses of inventory, these systems allow JIT (Just-In-Time) deliveries to industrial or retail locations. Barcoding has become an essential part of the accelerative logistics and production systems now becoming operative around the world.

The technology for storing data in this form is developing rapidly. A variety of formats have been produced which instead of being in competition, are instead being allocated for a variety of applications. One corporation, Symbol Technologies, has created a new bar code called PDF 417 (Portable Data File) which can encode nearly 2,000 alphanumeric or 3,000 numeric characters in just a few square inches.[54]

The 3 kilobytes has been touted as containing enough memory to store the Gettysburg Address and takes less than a second to scan. Some of its applications include medical histories, manufacturing instructions, parts tracking, as well as equipment calibration and maintenance encoded right into the machines.

Information Standards and Sovereignties

We can now return to Wriston's thesis that an information standard has emerged to dominate the international money system to the extent that nation-states and corporate bureaucracies are seriously threatened and are being replaced by a new form of electronic economic and political democracy. In this sense, the information standard as presented by Wriston is a contribution to the understanding of how technology has been integrated into the international political economy. Especially since he alludes to its more generalized form and its translation and substitution into other symbolic forms.

However, placed within the approach of this project, Wriston's emphasis on a political economy in which international exchange has been mobilized through the transacting capabilities of the new technologies leaves questions about the organization of symbolizing thirds which would serve to facilitate these dealings. Returning to Goux, his economies obtain a more potent utility when placed within the elaborated politics of exchange flows and sovereign subjectivities. If at one level what calibrates value is the competence to distinguish the

elements involved, at another level these units must be understood within a sphere of circulation and exchange. Money is most easily understood in this regard as it ultimately brings to question a sociosymbolic approach to the dissolution to the gold standard and the prefiguration of new forms of monies as a "mechanographic language."[55]

Shapiro's study of texts responding to sovereignty crises at several critical junctures in English history for example, provide some important insights into the impulses and interpretive struggles involved in the flows of exchange and in the maintenance of sovereignty boundaries. He uses as an exemplary model the resistance of those in the Thatcher government, including Mrs Thatcher, who rejected from early on one of the basic components of the European Community economic integration--a monetary union. Her concerns that such a union would mean "the end of British sovereignty" and "the demise of the sterling" were strongly at odds with many influential members in her government who cautioned against making the issue seem as if it were a "zero-sum game." The resignation of her deputy prime minister, Sir Geoffrey Howe, was in response to Lady Thatcher's unwillingness to compromise on the issue of the single European currency or a monetary system permanently organized around fixed exchange rates.

To enliven the argument, Shapiro takes in the text of an earlier writer who addressed issues of sovereignty and exchange resulting from the Scottish-England Union which was effectuated in the early part of the eighteenth century. Here Scotland was also faced with giving up "some venerable institutions in order to gain some economic advantages."[56] His

reading of Adam Smith through *Lectures in Jurisprudence* and *Wealth of Nations* avoids a nation-state reductionism and sets up a theoretical approach to better understand the sovereignty model at both the level of a legalistic collective as well as the level of what he calls the "proto-sovereign."

Smith's effectiveness was in part due to his ability to articulate a model of the individual which, while not necessarily novel for his times, nevertheless, resonated with the changes from an absolute state to a government based on legislative, judicial, and executive powers. Unlike Thomas Hobbes, whose individual surrendered knowingly their will to the sovereign in order to obtain civil peace, the individual in a Smithian universe is a socialized being with an "attenuated" sovereignty, "not a self-contained, sovereign actor but a bifurcated or double self, containing both an actor and an imagined observer through whom action predicates are mediated."[57] Subsequently, Smith's "proto-sovereign" concerns moved from the obligations of the subject to provide for the wealth of the sovereign to a more aggregate concern for the welfare of a "population."

> With Smith, the "social" had become the primary alibi for the political. The very meaning of politics had shifted from the Hobbesian notion of a contract between previously wholly sovereign individuals and the general representative equivalent, the monarch, to a notion of the political arising from the social. The political had developed "a social referent," and once this happened, the problem of sovereignty became one of managing the social configuration.[58]

What this means is that the static economy organized around the mercantilism "becomes unstuck." Sovereignty and stasis give way to circulation and mobility as exchange is favored over the maintenance of a monarchical realm. A new form of sovereignty, that of private ownership and accumulation emerges to become the new "wealth of nations." Sovereignty is subjugated to the new flows and circulations of the economy. Likewise, the ideal spiritual hierarchy is also subsumed in the energies of everyday life.[59]

Smith enlists a historical narrative arguing that societies organized around hunting or agriculture needed little governance because of their inability to foster the complex property relations which comes with manufacture. The forces associated with industrialism shifted power from the monarch to the legislative parliament and with it an emphasis on steering the mechanisms of wealth rather than coffering stores of authority. Thus, the crisis of sovereignty is averted, textually at least, with the more complex understanding between the sovereign government and the forms of its wealth.

Shapiro is quick to qualify his use of the European Monetary Union as an example for examining the sovereignty-exchange nexus less the reader come to the conclusion that these impelling forces continually work against each other.

> Despite this simple and familiar rendering of the opposing impulses of sovereignty and exchange, the interrelationships between them are exceeding complex. In various cultural configurations, in different epochs in the histories of states and economies and with respect to different aspects of association,

> sovereignty and exchange can be opposing, mutually facilitating, or relatively independent.[60]

This caveat is crucial to avoid a simplistic rendering of the social and political processes of privatization. On an initial inspection, the worldwide phenomenon of privatization may appear to champion the forces of exchange against a history of bureaucratic control over the economy. Indeed, the rationalizations which enter public discourse about selling government facilities are often riddled with references to free enterprise, unrestricted communications, and the dispersing of wealth. However, it is unclear and unlikely that the forces of sovereignty would lie down so sheepishly. A return to the chapter on cybernetic governmentalities would be a reminder that the technological imperative is fraught with other forms of control and collectivities. As this chapter has strove to point out, the emergence of the new computerized information standard is a new form of signifying which must necessarily preclude other forms of signification. A new stabilization of sovereignty and its resultant solidification of meaning pre-empts other forms of otherness and consequently what is also at stake are the new identities and "proto-sovereignties." The twilight of national sovereignty suggests that this stable form, with all its administrative posturing and violence, may soon give way to other forms of political and economic authority. It is not too early to raise substantive questions about the new domains and subjectivities which will rush in to take its place.

[1] Pennings, A. (1986) *Deregulation and the Telecommunications Structure of Transnationally Integrated Financial Industries*. (University of Hawaii: MA Thesis).

[2] Wriston, W. (1992) *The Twilight of Sovereignty: How the Information Revolution is Changing our World*. (New York: Charles Scribner's Sons). p. 58.

[3] Wriston, W. (1992) *The Twilight of Sovereignty: How the Information Revolution is Changing our World*. (New York: Charles Scribner's Sons). p. 114.

[4] ibid, p. xii.

[5] For an excellent elaboration on "permissive technologies" see Bluestone B. and Harrison, B. (1982) *The Deindustrialization of America*. (New York: Basic Books). p. 115-25.

[6] See the author's commentary in *Media Asia*, #4. 1988 for a discussion of the impact of telecommunications on national boundaries and the government control of telecommunications.

[7] Shapiro, M. (1992) "Sovereignty, Exchange, and the Politics of Reading." Prepared for delivery at the 1992 Annual AERA Meeting, San Francisco, April 20-24. p. 3.

[8] See Der Derian, J. and Shapiro, M. J. (eds.) (1989) *International/Intertextual Relations: Postmodern Readings of World Politics*. Issues in World Politics Series. (MA: Lexington Books: D.C. Heath and Company).

[9] For an excellent summary of the events leading to the "Third World Debt Crisis" refer to Moffit, M. (1983) *The World's Money: International Banking from Bretton Woods to*

the Brink of Insolvency. (NY: Simon & Schuster). Also see Pennings, A. (1986) *Deregulation and the Telecommunications Structure of Transnationally Integrated Financial Industries.* Unpublished MA Thesis. University of Hawaii.

[10] Technostructuralism is a term used in Tehranian, M. (1990) *Technologies of Power: Information Machines and Democratic Prospects.* (NJ: Ablex Publishing Company).

[11] Dordick, H.S., and Neubauer, D. (1985) "Information as Currency: Organizational Restructuring under the Impact of the Information Revolution." *KEIO REVIEW*, No. 25.

[12] Dordick, H.S., and Neubauer, D. (1985) "Information as Currency: Organizational Restructuring under the Impact of the Information Revolution." *KEIO REVIEW*, No. 25. p. 11. This study was sponsored by the East-West Center's Institute of Culture and Communication, Hawaii.

[13] Dordick, H.S., and Neubauer, D. (1985) "Information as Currency: Organizational Restructuring under the Impact of the Information Revolution." *KEIO REVIEW*, No. 25.

[14] Shapiro, M. J. (1991) "That Obscure Object of Violence: Logistics and Desire in the Gulf War," Prepared for delivery at the Annual Conference of the British International Studies Association, University of Warwick, 16-18 December, 1991, p. 18.

[15] Shapiro, M. (1991) "Sovereignty and Exchange in the Orders of Modernity," *ALTERNATIVES.* Volume 16, p. 447-477.

[16] Goux, J. (1990) *Symbolic Economies.* (Ithaca: Cornell University Press). p. 42-42.

[17] Goux, J. (1990) *Symbolic Economies.* p.71.

[18] See Ito, Y. (1981) "The 'Johoka Shakai' Approach to the Study of Communications in Japan," in G.C. Wilhoit and H. De Brock (eds.) *MASS COMMUNICATIONS REVIEW YEARBOOK*, Vol. 2. (Beverly Hills, CA: Sage). Also Masuda, Y. (1981) *The Information Society: A Post-Industrial Society.* (Tokyo: Institute for the Information Society).

[19] Porat, Marc, U. (1977) *The Information Economy: Definition and Measurement.* Vol. 1. (Washington DC: Department of Commerce, OT Special Publication, 77-12(1).

[20] Dordick, Herbert, S. (1986) *Understanding Modern Telecommunications.* New York: McGraw-Hill Book Company. p. 9.

[21] Rahim, S. A. and Pennings, A.J., (1987) "The Information Society Discourse, " in *Computerization and Development in Southeast Asia.* (Singapore: AMIC). p. 1-12.

[22] Pool, I. (1983) *Technologies of Freedom: Free Speech in an Electronic Age.* (Cambridge, MA: The Belknap Press of Harvard University Press).

[23] Cees Hamelink, Herb Schiller, V. Mosco, A. Gouldner, and J. Galtung, are some of the excellent writers from this perspective. Although not Marxist-informed, Majid Tehranian's *Technologies of Power: Information Machines and Democratic Prospects* is one of the most potent critical texts in this field.

[24] Weiner, N. (1954) *The Human Use of Human Beings: Cybernetics and Society.* (New York: Anchor). p. 17.

[25] Shannon, C., and Weaver, W. (1949) *The Mathematical Theory of Communication.* (IL: University of Illinois Press).

[26] Poster, M. (1990) *The Mode of Information.* (IL:University of Chicago Press). p. 29. The quote was taken from Weiner, N. (1954) *The Human Use of Human Beings: Cybernetics and Society.* (New York: Anchor). p. 15.

[27] Finlay, M. (1987) *Powermatics.* p. 163.

[28] Shapiro, M. (1992) "Sovereignty, Exchange, and the Politics of Reading." Prepared for delivery at the 1992 Annual AERA Meeting, San Francisco, April 20-24. p. 13. Also see Nelson, C. (1985) 'Poststructuralism and Communication," *JOURNAL OF COMMUNICATION INQUIRY.* Vol 9. No. 2.

[29] Yurick, S. (1985) *Metatron.* (Columbia University: Semiotext(e) Foreign Agent Series).

p. 26.

[30] Ashley, R. (1989) "Living on the Border Lines: Man, Post-structuralism, and War," in Der Derian J. and Shapiro, M. (eds.) *International/Intertextual Relations: Postmodern Readings of World Politics.* (MA: Lexington Books). p. 261. Quotation is from Derrida, J. (1981) *Positions.* (Il: University of Chicago Press). p. 32.

[31] Silverman, K. (1983) *The Subject of Semiotics.* (Oxford: Oxford University Press). p 32.

[32] For a brief summation of Derrida's use of the transcendental signfied, see Silverman, K. (1983) *The Subject of Semiotics.* (Oxford: Oxford University Press). p 32-35.

[33] Goux, p. 62.

[34] ibid, p. 130.

[35] Bazelon, D. (1963) *The Paper Economy.* p. 68.

[36] Foucault, M. (1973) *The Order of Things.*

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[38] This model is largely attributed to Prof. John Tiffin, Victoria University of Wellington, NZ.

[39] Levi-Strauss, C. (1962) *The Savage Mind.* (London: Weidenfeld and Nicolson).

[40] Shapiro, M. (1991) "Sovereignty and Exchange in the Orders of Modernity." *ALTERNATIVES.* 16 p. 467.

[41] Goux, J. (1990) *Symbolic Economies.* (Ithaca: Cornell University Press). p. 48.

[42] Goux, J. (1990) *Symbolic Economies.* p. 47. The quote is originally from *Capital.*

[43] ibid, p. 49.

[44] Goux, J. (1990) *Symbolic Economies.* p. 49. The second is an inquiry from St. Peter in heaven to Dante in *Paradiso.* Goux, p. 51.

[45] Goux, *Symbolic Economies.* p. 34.

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[47] Galbraith, K. (1967) *The New Industrial State.* (NY: The New American Library).

[48] Giddens, A. (1983) *A Contemptable Critique of Historical Materialism.* p 117. and Giddens, A. (1983) *The Nation-State and Violence.* Both are published by the University of California Press.

[49] For an extended argument see the author's commentary in *MEDIAASIA*, No. 4, 1988.

[50] Harvey, D. (1989) *The Condition of Post-Modernity.* (Oxford: Basil Blackwell). p. 147.

[51] Zuboff, S. (1990) *In the Age of the Smart Machine: The Future of Work and Power.* (New York: Basic Books). p. 9.

[52] Taken from Barry R Smith's *Final Notice*, and intriguing Far Right perspective on Biblical prophecies and contemporary politics. p. xx.

[53] From "Setting the Pace for the 1990's," (1998) Federal Express Corporate Film. Greg Cooke Productions, Inc.

[54] See *THE BOOKSELLER*, November 29, 1991, p. 1583.

[55] Goux, *Symbolic Economies.* p. 120.

[56] Shapiro, M. (1991) "Sovereignty and Exchange in the Orders of Modernity." *ALTERNATIVES.* 16 p. 452.

[57] ibid, p. 453.

[58] ibid, p. 454.

[59] Shapiro, M. (1990) "Moral Sentiments and Textual Subjectivities: Smith with Sade and Postmodernism." Prepared for delivery at the 86th Annual Meeting of the American Political Science Association, August 30 - September 2, 1990, San Francisco. California. p. 2.

[60] Shapiro, M. (1991) "Sovereignty and Exchange in the Orders of Modernity." *ALTERNATIVES.* 16 p. 448.

Chapter 6
Cybernetic Identities and the Last Vehicle

> Nowadays, one no longer says: "You've got a soul and you must save it," but:
> "You've got a sexual nature, and you must find out how to use it well."
> "You've got an unconscious, and you must learn how to liberate it."
> "You've got a body, and you must know how to enjoy it."
> "You've got a libido, and you must learn how to spend it, etc., etc."
>
> - Jean Baudrillard, (1984) *Forget Foucault*

> Now imagine two armies, two strategically assisted, cyberspace-trained, post-industrial, panoptic ninja armies going head-to-head.
>
> - Bruce Sterling, (1993) "Virtual War"[1]

Introduction

The time was 1909 and E.M. Forster, the celebrated author of *A Passage to India* and *A Room with a View,* reacted strongly to the technological euphoria of H.G. Wells and *The Time Machine* with a response entitled, *The Machine Stops*, a harrowing short story of a civilization connected only by the wires of a collective machine intelligence. All the characters in his narrative lived in little hexagonal cells beneath the earth and were connected only by an electronic network. The story centers around a woman, Vashti, and her son who live in separate cave-like rooms. One day before presenting an important lecture over the system, she is interrupted by her son, whom she has not seen in person since birth. She considers him bothersome, because he has no interesting ideas to offer except heresies about the machine. "The Machine proceeds--but not to our goals," he warns, but is

met only with disgust. His sad triumph is achieved when one day the machine breaks down.

> ...there came a day when, without the slightest warning, without any previous hint of feebleness, the entire communication system broke down, all over the world, and the world as they understood it, ended.

As Vashti and her son meet for the last time he tragically laments: "I am dying,--but we touch, we talk, not through the machine."

Forster's work is one of the earliest written texts to consider intersubjective relations in an electronic environment. It is not overly surprising however that he should take some time to write about the new networks. The skies of any major city during that time were black with the telephone and telegraph cables of competing companies looking to win a competitive share of the new market. During that year, Theodore Vail, the new chairman of American Telephone & Telegraph (AT&T) was lobbying hard for the government intervention which he thought would bring order and security to the very competitive market.[2] Despite these new developments in his time and the fascinating narrative he produced one is left wondering whether he could really have foreseen the total break with movement which the last vehicle offers in the age of derealization and speed.

The integration of broadband networks, high definition television, and virtual reality technologies are creating the telecinematic engine of cyberspace. These technological developments with their respective

histories in technocratic commerce, mass entertainment, and military simulation equipment have become, along with the high computational speeds of the new generations of computers, an audiovisual vehicle with a vector of seeming motion. Paul Virilio raises the notion of the "last vehicle" as a cinematic audiovisual.[3] A static, final generation of kinetic energy, this new simulation machine signals the victory of sedentariness over movement. What implications does this have for the mechanical production of virtual beings and complicitious, productive bodies?

> Here comes the time of the great Culture of tactile communication, under the sign of the technico-luminous cinematic space of total spatio-dynamic theatre.
>
> This is a completely imaginary contact-world of sensorial mimetics and tactile mysticism; it is essentially an entire ecology that is grafted on this universe of operational simulation, multistimulation and multiresponse. [4]

Ontology of the Last Vehicle

This venture into the contemporary discourse over "virtual reality" (VR) is anticipated by Virilio's ongoing concern with technological speed and the logistics of perception. He suggests a new 'cinematic energy' be considered. In addition to the kinetic energy which governs movement, why not include this new energy which is the result of "the effect of varying degrees of speed of movement upon ocular, optical, and opticoelectronic perceptions.[5]" Virilio's rendering of cinematic energy should not be interpreted as an attempt at informing physical science or contributing to the naturalistic metaphors which have monopolized the

popular analysis of social phenomenon of late, but rather a contribution to the "epistemo-technical" and the "onto-technical"[6] These areas combine a concern with technology; with epistemology--how authority creates knowledge; and ontology--how knowledge creates subjectivity.

Virilio's overriding theoretical "suggestions" have been aimed at the relationships between speed, optical perceptions, military mentalities, and the urban setting. His ventures into cyberspace and telecommunications resulted from his concerns with chronotechnologies (ships, jets, telecommunications, etc.) and the dwindling of that last commodity: duration.[7] For Virilio, speed is a type of violence; the essence of war. It relies on technology and produces logistics: "the procedure in which a nation's potential is transferred to its armed forces, in times of peace as well as war."[8] Speed is the technical vehicle that needs to be recovered through politics.

The alignment of different branches of knowledge under the code of technological and military discipline has obscured an understanding of the technological origins and trajectories of the last vehicle and thus its complicity with governance. This code, traditionally preoccupied with dynamic vehicles, realizes with the Vietnam War and then the Gulf War its cinestatic destiny. What can be seen is already destroyed in the process of "derealization--the displacement of direct vision by aerial imaging devices."[9] Unmanned drones first scouted the Iraqi terrain sending back topographical data which was processed by computers into digital simulations of potential targets. Unlike the Iraqi tanks, which couldn't navigate parts of its own desert because it lacked a tracking and

coordinate system, the U.S. tanks were connected to navigational and remote sensing satellites giving them specific location and topographical information.

> The earth and its inhabitants became a series of strategic coordinates and various symbolic entities within the coordinates. In the absence of direct vision, the targets had been derealized. "Enemies" had become wholly and continuously invisible to those who, relying on electronic identification systems, had to strike at what can be seen only as symbols rather than discernible bodies.[10]

During the era of Reagan, the grand patriarch of simulation, the military turned to virtual reality machines to forge new electronic battlefields. Fort Knox, known for its storage of another simulacrum, now hosts SIMNET at its Combined Arms and Tactical Training Centre (CATTC). SIMNET is a virtual war machine which is connected to other simulation centers around the world. Among other scenarios it accommodates is the vast Mojave desert where US tanks have trained for years. Packed into the M1 Abrams tank simulators, the "Jacuzzis of Death," four men fight imaginary Soviet T-72 heavy tanks being controlled by Apple Macintoshs programmed with Soviet battle strategies.[11] Every decision and movement is informated, evaluated, and stored for the analysis of individual performances. The assessment effects promotion and recognition within the new military-industrial complex.

But bigger and better telecinematic machines are in the works. One is the Distributed Simulation Internet, a design for the

interconnection of nearly ten thousand tank, aircraft, cruise missile, destroyer, satellite, etc., etc., simulators. The buzzword is "seamless" where the distinctions between "reality" and "virtuality" are hazed. Like the movie, *The Last Starfighter*, where aliens place video games on earth only to scoop up the winners to "man" their spacefighters against an impending space armada; the military now trains its men and women with the "mother of all computer games."[12]

While drawing on Virilio, Shapiro shifts the theoretical domain to technology and the military/war ontology. Why military? Because even more than private industry, which is somewhat subject to the vagaries of competition, militaries have been and are ontologically centered fulcrums of social systems. The process of warring is a major organizing and valuing principle which commands maximum intellective and material resources of a society.

The boundary between warrior and civilian diminishes as they begin to share the same technical data and are excluded from alternative simulations which focus on the consequences of the new warfare. Aerial photography becomes both a source of tactical cunning as well as television entertainment. Camera guided missiles scored direct hits in living rooms throughout the world as millions tuned to the Gulf drama and participated in the selected hits on Iraqi marks. Broadcasts from Bagdad and other target sites were no match for the remote controlled missiles and virtual reality trained pilots. Sitting at home, warrior-citizens "engaged" the enemy in their on-screen cyberwar, participating in the defense of their "national security." Unlike Vietnam,

the Gulf War (or what the military now calls "Southwest Asia") was a participatory, virtual war, where viewers around the world tuned into real-time, albeit media-constructed, war. As Laura Mulvey pointed out, the camera recreated the Hollywood gaze and created the viewer as a cinematic subject. Did the CNN gaze reproduce the post-industrial military subject?[13]

The ontological shift occurs as the mediating process, remote sensing satellites and the other perceptual weaponry increasingly code the visual rift between adversaries, obscuring the lethal violence and misery. The mediating aspects of the cinematic war technologies are only one dimension in mediation of modern warfare. Just as important is the way war has been predicated in modern society where "there is a prior conceptual mediation that has been at work in the language representing warfare."[14]

Shapiro turns to one of the most influential of modern warfare theorists for a vehicle to analyse this history of the intertextuality and intelligibility of modern warfare. His textual analysis of Carl Von Clausewitz's *On War* provides him with an exemplary figuration. Beyond Clausewitz's more instrumental notions of warfare such as "war is nothing but the continuation of politics by other means," is a grammatical domain which announces "a passionate ontological commitment rather than cool political reason."

> Ontologically, however, war is a major aspect of <u>being</u>; it emerges as a production, maintenance, and reproduction of

> the virtuous self, a way (for men) to achieve an ideal form of subjectivity.[15]

War, according to Clauswitz, is a danger which provides for men the stakes to become what they must, to "be all that you can be" according to a popular U.S. Armed Forces television commercial. With Christian symbolism and moral pronouncements he provides the rationalization for war and also how it includes, "the people." A nation's population enters the war as a source of "primordial violence, hatred, and enmity, which are to be regarded as a blind natural force."[16] It seems no wonder that the historically engendered discourses of war, mediated through linguistic and technological relations, found such comfort in the homes of the Gulf War's audience. CNN and its television brethen throughout the world are complitious in the geostrategic discourses which define the international scope of friends and foes and thus draws their audience into absent transnational as well as indigenous forms of enmity.

Dead Poets and the Lawnmower Man

Turning to the production of modern educational spaces and their subsequent subjectivities, we can revive the epistemological and ontological concerns of Virilio and Shapiro to prefigure the linguistic and institutional configurations in the "virtual classroom."[17] The lessons of the previous analysis transfer to a film which textualizes both the

romantic and disciplinary notions of education and which work to inform contemporary circulations and ideations of educational policy and space. A long tradition of involving the viewer in a cinematic experience of suspended belief has resulted in a rich body of textual interpretation which may prove useful for the analysis of virtual reality applications.

The stark contrasts between the closed moral community of the preparatory Welton Academy in the *Dead Poets Society* and the emotional and intellectual capers of its new teacher played by Robin Williams affords the opportunity to query the processes of signification and energetic investments in modernity's educational spaces. Likewise, the representation of educational subjectivity in *The Lawnmower Man* provides a contrast and an ancillary juncture to explore the technicalization of educational space and its subsequent operations on the body and its intellects. These interrogations could prove useful in an analysis of the symbolic dynamics which operate in the "virtual classrooms" that are emerging through the use of new multimedia communications technology and telecinematic simulation equipment.

The repressed libidinous and spiritual "economies" of the boarding school invite a reading of *The Dead Poets Society* which focuses on sociosignifying practices, and in particular refigures the role of the teacher as a symbolic third. Following Goux in his quest for a symbolic general economics, we can not only figure the teacher as representative of patriarchal, but logocentric significance as well. A condensation of values occurs which respectively raises his position to that of privileged subject and evaluator and the text to the privileged

mode of signifying. His role becomes one of the mediator and arbitrator of intellectual values and texts and as such develops a monopoly on the construction of facticity and "truth."

The teacher, played by Robin Williams is a "media event" in the sense that, by elaborating a series of emotionally and intellectually rich forms of signification he disrupts the school's anti-erotic sovereignties and traditional forms of educational worship. John Keating is a carefully constructed teacher-character who maintains a credible front to his peers while engaging his students in a series of revaluing exercises. His invoking of the philosophy of "carpe diem" for example, disrupts the ascetic denial of pleasure and self-gratification which serve to channel emotional and intellectual investments into the subjectivities prescribed by the school's bourgeois govern-mentality. His unusual behaviour and pedagogy invoke a curiosity in his students which addresses their subjugated desires and self-construction. His former pact with an "ancient" secret society of self-proclaimed poets awakens their dormant dreams of social adventure and expressive identities. This secret knowledge, time-tested by the ancients of their alma mater, promises sexual conquest and alternative forms of imagination. "Spirits soared, women swooned, and gods were created." By re-presenting literary classics of Shakespeare and Milton but with the voice of macho film star and arch-American John Wayne, he distorts the distinctions between "high" and "low" cultures and encourages the dissolution of aesthetic boundaries which work to solidify not only class distinctions but the sociosymbolic rigidifications of affect.

The reincarnated "Dead Poets Society" organize their meetings in a cave located off the campus in a nearby forest. There they read unauthorized poetry, smoked cigarettes, mixed with women, all the activities they are forbidden at the school. As Gebauer points out, the symbology of the cave has never been about the outside world, but about the inside one. "Our imagination remains captive in the cave. We do, in fact, repeatably seek out the cave in a different form." Our ontology has its commencement in the topography of the cave and he points out: "In one way or another, all our notions of paradise are linked with situations of the cave."[18] This is also the encapsulating trajectory of the last vehicle.

Keating's enthusiastic ideations soon come into conflict with other domains of symbolic controls however, including the potent Oedipal dynamics which have proved to rein too tight a grip on one of his students. In his quest to act in a community play, the student goes against his father's demands to cut down on his extracurricular activities, forges a permission slip, and performs the main role of Buck in *A Midsummer Night's Dream*. The father inadvertently discovers the disobedience and shows up at the play to observe. He fiercely pulls his son away from the backstage party despite the acclaim and obvious success. After a confrontation at home, where among other things, the mother's disappointment is invoked to punish the son, he is forbidden to act again, or at least until he goes on and finishes medical school. Faced with this paternal injunction, he takes his own life.

The death of the student presents a moral catastrophe which overpowers the privileged text of spontaneity and impunity. These latter are now recoded as degenerate improprieties and their "unproductive" forms of expenditure are tallied against the teacher as infractions within the Calvinistic ledgers of the schoolmasters. The conflicting father is able to easily organize the dismissal of the teacher. The students respond by pledging their allegiance at the resolution of the film, by standing on top of their class desks and recitating, "My captain, my captain," respecting his role as their navigator through the uncharted course of adolescent squanderings and discoveries.

If we view education as the inscription of subject sovereignties and the socialization of new moral and administrative subjectivities required by the post-industrial information society ("proto-sovereignties"), then the virtual classroom presents an alluring new vehicle for liberating expressive capabilities, massaging sensory intelligences, and prescribing new competences in terms of workplace requirements or prevailing art and intellectual practices.[19] The *Dead Poets Society* reflects the profound symbolic and historic investments structuring traditional education and how the currency of the teacher can facilitate new types of energetic and intellective exchanges. If educational space is to become cyberspace in a socially and politically responsive way, than it behoves us to mark its inception with at least one strategy which is sensitive to the "economies" which mediate and control its symbolic investments.

Another instructive approach has been taken up by writers developing a history and a problematic of computer technology around the theme of the "military information society."[20] They rightly point to the military's central influence on the development of computer-generated simulation environments and information technology in general. Noble, for example, writes about the militarization of learning and the production of what he calls "mental materiel." The merging of educational technology and the cognitive sciences received its impetus from a recognition that behaviourist theory had reached diminishing returns and that technical advances in instructional technology would be more fruitful.[21] This merging soon emerged metaphorically in popular culture as the 'cyborg' imagery in which machinery becomes directly implanted into the docile body. Cognitive science since its beginnings has been the "science of the artificial" with the production of prescribed cognitive processes modelled on computer procedures and systems foremost on its laboratorial agenda.[22]

The film *Lawnmower Man* has presented a very up-to-this-date "cyberpunk" vision of the new technology. While the film has been criticized for its overbearing Frankenstienish narrative, its visual and technological settings drew from industry leaders and became a showcase for the new VR technology. Its poster subheading, "Nature made him an idiot, science made him a god" is a good foray into the disciplining aspect of the new technology.

Virtual reality uses computer-controlled 3-D graphics to provide an interactive environment which is oriented from a learner or viewer

perspective and which tends to suspend the viewer's belief that the environment is produced. In virtual reality, the body is encased in a computer mediated and informated environment, often wearing a sensor-laden helmet and gloves tied to a megacomputing system capable of responding to the movements and commands of the user. This system is still in the process of transformation and it is likely that the variety of user interfaces will be marketed and brought into use.

In this story Dr. Angelo of Virtual Space Industries has major contracts with the U.S. government to experiment with VR to produce better fighting and technology-competent soldiers. His initial work is with chimpanzees, who are fitted into a sensory body suit and helmet and who hang suspended in a gyroscopic device which allows the body to turn 360 degrees in any direction. In combination with constant injections of vitamins and neurotropic drugs, the chimp is subjected to long training hours of fighting within a variety of electronically simulated environments.

When Dr. Angelo's chimp escapes and kills a guard, it is hunted down and killed. The investigator then turns to a human subject to continue his work "on the evolution of the human mind." Jobe is a dim-witted ward of St. Anthony's Church who makes his living caring for the church and mowing lawns, one of which belongs to Dr. Angelo. Cajoled by the doctor's argument that he could become smarter and thus avoid "people taking advantage of him," Jobe agrees to undergo some tests and participate in the VR training.

Unfortunately, the government liaison tampers with the serums and the computer learning programs and installs the "Project Five" formulas which were designed to produce extreme forms of aggression. The continuos work on Jobe had originally transformed him into an attractive, socially graceful, and intelligent subject but the new program transforms him into a symbolic authority figure and a despotic shaman. Through his electronically enhanced and meticulous training. Jobe becomes a "cyberchrist" and enters the world's telecommunications networks with the promise that he will give us what we yearn for -- a figurehead to lead us.

The Lawnmower Man counters the mythic tendency that VR is becoming a liberation technology, that it will soothe our souls and free our consciousness. As was mentioned earlier in the "Cybernetic Governmentalities" chapter, VR's trajectory is one of efficiency and training which presents its own positivities and productions. The movie lacks the moral subtlety which might have made it a more successful film but it serves nonetheless to pick up on some of the discourse which VR has fit into and also exposes a large audience to questions regarding the VR technology.

Educational "visionaries" now are "tripping over themselves to transform the schools, unwittingly, into a staging ground for playing out militarized scenarios."[23] Combined with the new imperatives of international capital, which has become totally dependent on the new information technologies, mechanized learning "becomes a site for the actual production of 'mental materiel' - for the design and manufacture of

'intellectual capital'."[24] Public education is implicated as both a laboratory and a site of legitimation for the new technical learning. A new "cognitivist agenda" is responding to the demands of corporations with "problem solving" skills and the ability to interpret "abstract symbolizations."

Informating the Subject

The Apple Macintosh now supports flight simulators that are approved by the FAA (Federal Aviation Agency) for training how to fly an airplane. The screen splits into two parts. One is a representation of the view seen from inside the airplane; the other is reserved for flight instrumentation. The former is a virtual reality, the latter is a symbolic environment. The virtual reality is limited in its complexity but it retains the integral spatial coordinates and topographical features which create an acceptable rendition of the flight's landscape which is correlated with the readings of the plane's instrumentation. Except for the gravitational forces and the physical shocks created by turbulence and landings, it is a believable scenario. It fulfils two major requirements of a "virtual reality," a viewer perspective and the suspension of disbelief. Prolonged use, especially when combined with a lot of experimental flying can definitely promote dizziness and disorientation.

What is striking about the program and its implications for other applications of virtual reality is its relation to informating. While it

simulates the flight and provides important immediate feedback in the training of the pilot, it also charts and logs each individual action.

Zuboff's work, while suffering from a number of deficiencies, nonetheless represents a serious and significant contribution to the organizational and sociological discussion of the new information technologies. One of her contributions, the verb "informating," is an important understanding of a key practice of the new technologies. Applied in computerized environments, informating is an effectual concept for approaching that vast writing project which characterises electronic modernity. Zuboff distinguishes informating from automating because "it produces a voice that symbolically renders events, objects, and processes so that they become visible, knowable, and shareable in a new way."[25] Informating was a vehicle for this project to politicize the constitution of the self in the modern information society. Like other textual practices, computerized informating is implicated in the ways individuals both know themselves as well as the way they are situated in modernity's broad range of institutional structures and their disciplines and eligibilities.

While Zuboff's analyses strays towards a phenomenological reading of human subjectivity, one which privilege's an autonomous conscience on the part of the individual, it still has much to offer a textual approach to computerization and virtual reality. Zuboff often forgets that human experiences and actions are prescripted in major narratives and practices of a situation. For her, cognitive and "intellective" skills are an antidote to the discourses and historical practices which dominate the

technological work environment. Subjects are able to ascribe meaning to their experiences without recourse to a mediated text. Still, theoretical treatises on the new information technologies are rare. Her concern with the codification of the work environment into machine-compatible texts opens up a range of inquiry which is applicable to other facets of modern life. Drawing on what she terms the dual capacity of information technology: its ability to both automate and informate productive activities; she is able to analyse how technology changes the practices of work, managerial authority, and the supervision of employees. Although her main concern is how industrial intelligence has been removed from the site of the body and relocated within the electronic space of control and communication, her suppositions have applicability elsewhere.

The textual processes involved in computerization are significant in that they lead to an accumulation of information that intimately related to the individual and yet are essential, in aggregate, for the continuance of modern bureaucracy. As they monitor the various activities of everyday life, they also keep a record which can be accessed or fed into a larger database. Informating stores data about activities. It places it in files which can later be analysed, examined, and graded. For example, the mechanisms that automate financial transactions by translating information into action also register data about those automated activities, thus communicating new streams of information. The informating of modern subjectivities into multiple, dispersed databases is the production of cybernetic identities.

What this project has been largely concerned with is the informating of the body in virtual reality and the production of electronic assessment which this process entails. In other words, a politics of the file is called into question which, it will be argued, is made even more controversial by the codification of virtual reality data produced in virtual environments. As Jaron Lanier claims in the foreword of *Silicon Mirage: The Art and Science of Virtual Reality*, the technology "is distinct from other configurations of computer technology primarily in that it places the human being in the center."[26] It is yet to be seen if it is the center of a highly organized disciplinary mechanism, the "last vehicle," conditioned by the vagrancies of the information-debt society.

Cybernetic Identities

Informating provides an important database which can be referred to again for the examination and further training of the subject. For Foucault, the procedures of examination are a crucial strategy for the exercise of power. They turn the economies of surveillance and visibility into an operation of control. The examination works to hold the subject "in a mechanism of objectification." It proceeds by the textualization of visibility according to a prescribed knowledge. The subject becomes a slate to be written on, evaluated, classified, and registered. The file is a prescripted event. "The examination that places individuals in a field of surveillance also situates them in a network of writing; it engages them in a whole mass of documents that capture and fix them."[27]

Poster used Foucault to think about the consequences of computer databases on subjectivity. He was less concerned with databases as "an invasion of privacy, as a threat to a centered individual, but as the multiplication of the individual, the constitution of an additional self, one that may be acted upon to the detriment of the 'real' self without that 'real' self ever being aware of what is happening."[28]
The texture of postmodern subjectivity is dispersed among multiple sources of information production and storage. In *The Mode of Information,* he warned of the "destabilization of the subject," a fixed self no more but rather one "multiplied by databases, dispersed by computer messaging and conferencing, decontextualized and reidentified by TV ads, dissolved and materialized continuously in the electronic transmission of symbols."[29]

Cybernetic identities are connected to the great bureaucratic spaces of credit, education, and production. They are the result of types of observation, classification, and registration. They result from a penetrating gaze which codes, disciplines, and files under the appropriate heading. These cybernetic identities are characteristic of the information age. Identities are rooted in an institutional and textual structure. They are mediated and produced through the predominant modes of signification and understanding. The proliferation of multimediated information is changing the way people operate in the arenas of their lives. Furthermore, since information technology is largely developed out of institutional requirements, it is inherently political.

Conclusion: Seduce and Discipline

At this stage it is uncertain whether virtual reality will result in much more than convenient machinery for siphoning off excess nervous energy. In fact, for Goux, masturbation, like money represents the possibility of all unrealized fantasies. Or as Goux says, it is the "general substantive jouissance."[30] With virtual sex and teledilidonics being some of the hot topics, is this the true future of the last vehicle?

> This compulsion toward liquidity, flow, and an accelerated circulation of what is psychic, sexual, or pertaining to the body is the exact replica of the force which rules market value: capital must circulate; gravity and any fixed point must disappear; the chain of investments and reinvestments must never stop; value must radiate endlessly and in every direction. This is the form itself which the current realization of value takes. It is the form of capital, and sexuality as a catchword and a model is the way it appears at the level of bodies.[31]

Cyberspace, the convergence of computing power with communications capabilities, is providing a new arena for the constitution of subjectivity. It is a subjectivity torn between Baudrillard's sign-value and seduction on one hand and Foucault's disciplinary model and governmentality on the other. Virtual reality for example, offers both representations of a responsive *mise-en-scene* as well as the production of a useful body. Is its "real" significance in the realm of desire and

attraction or as a technology of minute and careful training of an individual's actions and reflexes.

From flight simulators to gene manipulators, these simulation mechanisms are, in potentiality, precise instruments of regimentation. But what we also need to consider is the information by-products of these artificial environs. What computing also offers with these technologies is an analysis. It offers a calculative response, an offering of compiled data. Virtual realities are not only interactive, they are mindful. They can observe the activity and produce a report: a chart, a list, a graph. They can produce for the interested gaze a detailed summary of the activity. VR's attraction is both participation and objectification.

The Gulf war against Iraq suggested that VR's ability to provide attack simulations for its pilots and tank crews, with fractalized satellite cartographies of the Middle Eastern topos, has an impressive future in the military. Investment in many countries is streaming into VR research and it is likely that besides entertainment and military applications, it will invade a host of other modern activities such as industry and education.

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