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Intimate Couplings:
A Feminist Interrogation of the Cyborg

by

Sheryl N. Hamilton, B.A., LL.B.

A thesis submitted to
The Faculty of Graduate Studies
in partial fulfilment of
the requirements for the degree of

Master of Arts

School of Journalism and Communication

Carleton University
Ottawa, Ontario
August 1995
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submitted by Sheryl N. Hamilton, B.A., LL.B.

in partial fulfilment of the requirements for

the degree of Master of Arts

Thesis Supervisor

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Abstract

An emergent body of literature in the field of communication explores issues of subjectivity through the metaphor of the cyborg. Labelling this literature cybertheory, this thesis identifies, defines, and examines feminist cybertheory to determine its potential contribution to current feminist theory. Taking as a starting assumption that social theory since industrialization is premised, in part, upon an underlying notion of the desired relationship between human and machines, two historical models are constructed, the biomechanical and the mechanical. In an attempt to overcome the gendered limitations of the biomechanical and mechanical models, feminist cybertheory adopts a different model, the digital. However, in its attempt to rewrite the nature and ontology of the biomechanical and mechanical models, the digital model rejects sexed embodiment and does not problematize a technological metaphor of ontology; the digital model, with the intimate coupling offered in the cyborg, is not a qualitatively different nor effective feminist model.

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I. Introduction

The imaginative figures of cyborgs, androids, and robots help to locate both the mythic force and the ethical, political, and social implications in the technologies that challenge the boundaries of humanity -- Alice Rayner

Donna Haraway notes in the introduction to a reprint of "A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s" (*Cyborg Manifesto*), four years after the essay's original publication date, that "[s]ince its publication, this bit of cyborgian writing has had a surprising half-life. It has proved impossible to rewrite the cyborg" (Haraway, 1989: 173). While it is certainly true that the piece has had a dramatic half-life, it is perhaps not surprising given its exploration of issues which have only become more relevant since 1985. The *Cyborg Manifesto* offers a polemical challenge to women, urging them to alter their relationship to the social relations of science and technology, to explore the potential and the risk of *being cyborg*. Through exploring the possibility of eroding boundaries in the late twentieth century, boundaries between human and animal, between organism and machine, women can overcome their longstanding reluctance to engage with technology and can create new spaces for feminist resistance and subjectivity. The organizing metaphor of this seminal piece is, of course, the cyborg -- neither wholly man, woman, nor machine.

While it may be impossible to rewrite the cyborg, many thinkers have developed, explored, and engaged the cyborg. This "bit of cyborgian writing" has, in fact, served as a generative metaphor, producing and shaping a body of thought and writing since the late 1980s which explores, among other things, the coupling of

bodies and machines.³ While not all encounters with the cyborg have been feminist, all are located within late twentieth century discourses surrounding changing notions of self and society in a culture dominated by the technological.

This project begins with the premise that technology, as a set of discursive structures and practices, is a dominant meaning system in our society. I share Arturo Escobar's view that "... any technology represents a cultural invention, in the sense that it brings forth a world; it emerges out of particular cultural conditions and in turn helps to create new ones" (Escobar, 1994: 211). If one of the goals of feminism is to create new cultural conditions organized around radically altered relations between men and women, then the culture of technology, or *cyberculture* as Escobar names it, is a necessary site of intervention.

Academic interest in, and writing about, cyberculture have exploded in recent years.⁴ Yet, at the same time, the relationship between science, technology, and culture remains undertheorized (Lécourt, 1992; Escobar, 1994). Enthusiastic exploration is not often enough tempered with a firm framework for the critical analysis of the relationship between culture and technology. What is developing, however, is a field of study, approached from a wide array of disciplines, exploring cyberculture.⁵ One stream of this literature focuses on issues of subjectivity, specifically through exploring the fusion of body and machine. Often in conversation with Haraway's essay, this literature takes the *cyborg* as its subject and from there, builds its worlds.

Representations of the cyborg abound in Western popular culture -- Alex

Murphy in *Robocop* (1987), the robotic Maria in *Metropolis* (1926), the "Borg" in *Star Trek: The Next Generation*, the replicants in *Blade Runner* (1982), the Terminator (1984, 1991), the experience promised by virtual reality gurus (Rheingold, 1991; Leary, 1992), Johnny in *Johnny Mnemonic* (1995).⁶ Cyborgs people social theory as well. Whether it is Marshall McLuhan suggesting that man becomes the sex organs of the machine world (McLuhan, 1964: 55-6), Jean-François Lyotard suggesting that thinking machines must be nourished on gender difference (Lyotard, 1988-9: 85), or Scott Bukatman arguing that the human is now configured as a terminal of multiple networks (Bukatman 1990: 201), Western thought has long been fascinated with the notion of body/machine fusion and its implications for our notions of the human and the social. In each of its incarnations, however, the cyborg represents a limit point to the notion of the subject, and of the body, both individual and collective.

Haraway suggests that "[m]onsters have always defined the limits of community in Western imaginations" (Haraway, 1985: 97). This idea has a significant history in Western culture, explored through such narratives as *Frankenstein* (1818), *L'Eve Futur* (1886), and "The Golem" (1911),⁷ and has been the source of much intellectual analysis (Rayner, 1994; Roberts, 1993; Bellour, 1991; Huyssen, 1986). Increasingly, however, there are shifts in representations of the monstrous, in the generative metaphors. I agree with Alice Rayner when she suggests that "[t]echnology is the source of images of 'monsters' in the contemporary world as humans grapple with their own power to transform themselves" (Rayner, 1994: 125).

The cyborg is the archetypical monster of the late twentieth century.

I read the cyborg as an attempt to negotiate the space between the personal body and the social body through the metaphor of the machine; the limit of the subject defines the limits of community. In an interesting article pondering the "life-cycles" of cyborgs, N. Katherine Hayles asks a question relevant to both current social theory and my project: "[h]ow does a culture understand and process new modes of subjectivity?" (Hayles, 1993: 153). The answer she offers is intriguing and forms one of the founding assumptions of this work. "Primarily through the stories it tells, or more precisely, through narratives that count as stories in a given cultural context" (Hayles, 1993: 153). My thesis examines the "stories" we are telling ourselves about personal and social bodies through narratives of technology, specifically, through cyborg stories.

Cyborg, both word and entity, is an amalgam of cybernetics and organism, of man and machine, of human and technology, "... an integrated man-machine system" (Simpson and Wiener, 1989: 188). While human/machine interface has a history dating back to industrialism, the term cyborg, itself, came into use in the 1960s and was coined by Norbert Wiener, the grandfather of cybernetics (Nichols, 1988: 35). Hayles highlights the erosion of the boundary between human and machine in her definition of the cyborg; "... a hybrid species created by crossing biological organism with cybernetic mechanism. [I]t is *constructed*, a technological object that confounds the dichotomy between natural and unnatural, made and born" (Hayles, 1993: 152). Haraway suggests that her cyborg is "... a creature of social reality as

well as a creature of fiction" (Haraway, 1985: 65). These multiple hybridizations of machine/human and science/myth are key to the power of the cyborg:

... cyborgs are simultaneously entities and metaphors, living beings and narrative constructions. The conjunction of technology and discourse is crucial. Were the cyborg only a product of discourse, it could perhaps be relegated to science fiction, of interest to SF aficionados but not of vital concern to the culture. Were it only a technological practice, it could be confined to such technical fields as bionics, medical prostheses and virtual reality. Manifesting itself as both technological object and discursive formation, it partakes of the power of the imagination as well as the actuality of technology (Hayles, 1993: 152-3).

While Hayles makes what I suggest is a somewhat problematic distinction between technology and discourse, her point remains relevant, that the cyborg is located at the intersection of, overlap between, or multiple sites of, technological and textual practice.

Any definition of the cyborg must therefore reflect these multiple identities. Margaret Morse argues that the status of the cyborg in our culture remains "murky", and that it is unclear whether it is a "... metaphor, dreamlike fantasy, and/or a literal being" (Morse, 1994: 87). I suggest that the cyborg is all of these, and it is, in part, due to this murkiness, that the cyborg is so powerful. The cyborg is a discursive construct which combines human and technology to produce something which is different than the sum of the two, and which shapes, and is shaped by, our notions of the subject/subjectivity and bodies, personal and collective. In Mark Seltzer's term, the cyborg represents the *intimate coupling* of bodies and machines. This is a complex notion which is not encapsulated

... simply in the notion that machines *replace* bodies and persons ...; nor is it accounted for primarily in the notion that persons are *already*

machines ...; nor is it even 'covered' in the notion that technologies *make* bodies and persons ... rather it is the *intimate coupling* of bodies and machines (emphasis in original; Seltzer, 1992: 12-13).

This intimate coupling manifests itself at multiple sites: film, literature, social theory, art, and all the various hybrid fusions of these and other cultural spaces.

In all of its various incarnations, the cyborg problematizes our notions of body, subjectivity, technology, and their interrelationships. My thesis identifies, defines, and analyzes an emergent body of cyborg literature, one stream in the analysis of cyberculture, which I am labelling cybertheory. Cybertheory, as I am defining it, is the theorization of, or knowledge produced around, cyberculture.

'Bodies,' 'organisms,' and 'communities' thus have to be retheorized as composed of elements that originate in three different domains with permeable boundaries: the organic, the technical (or technoeconomic), and the textual (or, broadly speaking, culture). While nature, bodies and organisms certainly have an *organic* basis, they are increasingly produced in conjunction with *machines*, and this production is always mediated by scientific *narratives* ('discourses' of biology, technology, and the like) and by culture in general. Cyberculture must thus be understood as the overarching field of forces and meanings in which this complex production of life, labor, and language takes place (emphasis in original; Escobar, 1994: 217).

I heartily prefer Escobar's sophisticated and nuanced notion of cyberculture to that offered by Mark Dery:

"[a] far flung, loosely knit complex of sublegitimate, alternative, and oppositional subcultures (whose common project is the subversive use of technocommodities often framed by radical body politics). ... (Cyberculture) is divisible into several major territories: visionary technology, fringe science avant-garde art, and pop culture" (insertions in original; Dery, 1993: 566).

This flippant, undertheorized, and naively celebratory definition, while qualifying

Dery as a cyberpunk,⁸ does not offer a useful basis upon which to conduct analysis of

the cultural phenomenon. It reproduces, rather than recognizes, the system of meanings which technology shapes.

Key to my notion of cybertheory is the recognition that issues of gender are necessarily implicated in the problematics posed by, and must be examined within the study of, cyberculture. As Mary Anne Doane suggests, "[w]hen technology intersects with the body in the realm of representation, the question of sexual difference is inevitably involved" (Doane, 1990: 163). Although Escobar recognizes that gender is relevant to the study of cyberculture, I am going further to suggest that it is such an integral issue that it must form part of the theorization of relations between humans and technology.⁹ As such, cybertheory seeks to understand what it means to be human at the end of the twentieth century, complete with contradictions and eroding (and holding) boundaries. The subject of cybertheory is, of course, the cyborg. As the cyborg is such a prevalent myth, in which gender is necessarily implicated, the cyborg offers to feminists (whose goal it is to alter gendered power relations in society) a tremendous opportunity and responsibility. Feminists have been among the foremost cybertheorists -- exploring how we might rewrite the human through writing the cyborg.

This thesis specifically identifies and examines a growing body of literature which, through the cyborg, explores the gendered implications of cybertheory from a feminist perspective. Each of the elements challenged by the notion of the cyborg -- the body/subjectivity, sex/gender, and machine/technology -- has associated with it particular knowledge systems. The body and subjectivity are increasingly being

explored within, and in response to, postmodernist engagements with the modernist subject; sex and gender are explored, in part, through feminist thought; and machines and technologies are grounded in knowledges of science and technology.¹⁰ Therefore, *feminist cybertheory*, or cybertheory which adopts a feminist stance on the issues of body/subjectivity, sex/gender, machine/technology, is theoretically situated at the *intersection* of postmodernism, feminism, and science and technology. I adopt Jenny Wolmark's conception of intersection, which she employs "... to suggest those cross-over points where discourses become openly contradictory, and boundaries become flexible and subject to renegotiation" (Wolmark, 1994: 3).

Underpinning my definitions of cyborg and feminist cybertheory are a series of assumptions which shape my particular understanding of both technology and feminism, and thus, my analysis. I take as a starting position that in our society, power is differentially held and exercised according to gender difference and that this is not a legitimate basis upon which to hierarchize social relations. I hold that the production of knowledge is inextricably tied to, and implicated in, the exercise of power, and in particular, gendered power. I take knowledge production to be a cultural practice, meaning that theories, for example, can be read as cultural texts which emerge from, interact with, and shape social relations in particular historical locations. I agree with Hanno Hardt that "[t]heories are the product of historical practice within a cultural setting; they emerge from such environments as contemporary explanations of society" (Hardt, 1992: 11). Theories are also implicated at the micro-level however, for as Donna Haraway suggests: "... theories

are accounts *of* and *for* specific kinds of lives" (emphasis in original; Haraway, 1989: 8). Theories are discourses of dominant and marginal ways of being in our society. Through them, we construct particular realities which we inhabit. Therefore, knowledge is a viable social site in which to intervene in the struggle against gendered power relations. Or, more specifically, feminism should intervene in technology.

By technology, I do not mean merely the hardware and software which surrounds us. Judy Wajcman's characterization of three layers of technology is useful: technology as knowledge, technology as human activities and practices, and technology as artifacts (Wajcman, 1991: 14-15). She argues that "... technology is more than a set of physical objects or artifacts. It also fundamentally embodies a culture or set of social relations made up of certain sorts of knowledge, beliefs, desires, and practices" (Wajcman, 1991: 149). She suggests that viewing technology as culture permits one to see the extent to which technology has been constitutive of masculine identity in our culture and how men have defined themselves in relation to technology. While I agree that viewing technology as culture or a set of socially-created meanings and practices is both useful and important, I suggest that viewing this as primarily constituting masculine identity is unsophisticated and reflects a static view of technology/culture.¹¹ If technology is going to be a meaningful site of intervention for feminism, then it is more useful to view technology as a cultural site which constructs femininity, as well as masculinity. How technology constructs femininity and the implications of this for women's interaction with technology are as significant as its construction of masculinity and men's identification with it.

Technology, as a set of cultural understandings, practices, and artifacts, is a crucial site of intervention for feminism given its centrality as one of, if not the, dominant meaning systems of our time. Fifteen years ago, Teresa de Lauretis, Andreas Huyssen, and Kathleen Woodward suggested that technology, or technologies, are integral to cultural transformation. "... [T]echnology shapes the very content and form of the imagination in our time and ... the imagination cannot be detached from the discourses and practices, the theories and fictions, in which it is concretely, textually inscribed" (De Lauretis, Huyssen, and Woodward, 1980: viii). Some thinkers have gone so far as to argue that technology has become our ontology (Heidegger, 1977; Bukatman, 1993; Diamond, 1994) or our metaphysics (Darby, 1986). Tom Darby suggests, in his introduction to an edited collection of "reflections on technology", that "... technology is one of the few things, if not the only thing, most of us do not question, and since it is the organizing principle of our lives, its status, and its status only, is sacred" (Darby, 1986: 20). If feminism wants to posit a new way of being not organized around gendered power relations, then it must engage with technology, rethink it, rewrite it, redo it.

Also central to my understanding of cyborgs and feminist cybertheory is my definition of feminism and my identification of myself as feminist. While I accept the oft-stated position that feminism is at once a belief system and a practical politics, it is also a knowledge-producing movement. Feminism, in its current forms, at least, is organized around some notion of commonality, a key element of which is the desire to end power inequities organized around, and upon the basis of, gender.

Cybertheory *necessarily* implicates the body, and therefore, I assert that it is gendered. If scholars such as Scott Bukatman (1990, 1991, 1993), Istvan Csicsery-Ronay, Jr. (1991a, 1991b), Thomas Foster (1993a, 1993b), and Larry McCaffery (1991), explore the issues of cybertheory without recognizing that gender is implicated in their analyses, and ignore or merely "tack on" gender analysis, then I suggest that theirs is not cybertheory. Feminist cybertheory, in particular, not only recognizes that gender is integral to any discussion of cybertheory, but it specifically adopts a feminist stance in its analysis and critique.

While I will explore its roots and construction in more detail in Chapter III, feminist cybertheory is a body of thought engaging in some way with the *Cyborg Manifesto*. Some of the literature explores representations of cyborgs in popular culture and how they illustrate shifts in the representation of masculinity; some more directly theorizes postmodern feminist subjectivity; and finally, some explores the potential of "real" cyborgism. To borrow from Morse, the cyborg is explored as "dreamlike fantasy", as "metaphor", and as "literal being". Much of the writing offers interesting hybrids of the three. It is feminist cybertheory, as I have defined it, which forms the analytical object, or data, of my analysis. Through critically examining this writing, I hope to construct and interrogate the underlying model of the subject/technology relationship upon which it relies, and interrogate that model's viability for feminist interventions into technology.

Cybertheory, and other social theory, can be usefully examined as embracing a specific position on the relationship between the human and the technological. To this

end, I construct two ideal-type models of the body/machine relationship which I suggest underlie various social theories since industrialization; I label these the *biomechanical* and the *mechanical*. Each is gendered, and therefore, has a different relation to, and implications for, feminism. Both the biomechanical and mechanical models, and their theoretical exemplars, reflect an often unspoken coding of nature as feminine and technology as masculine. The ideal-type model which underlies feminist cybertheory claims to embrace neither the biomechanical nor the mechanical model of the human/technology relationship. From my examination of feminist cybertheory literature, I draw out a third and expressly feminist model which I call the *digital model*. The digital model attempts to overcome some of the limiting binaries which seemingly render the other two models, and the theories evoking them, gendered, and specifically, patriarchal. In particular, the digital model attempts to break out of the nature/culture binary and to rethink the ontological grounding of social theory.

Feminist cybertheory purports to reject the nature/culture binary, and as a result most, if not all, progressive emancipation grounded in this distinction. Is gendered nature truly rejected, however? Alternatively, does this rejection merely reflect a surrender to the control of the mechanical model, the unnatural side of the binary? As well, feminist cybertheory seeks to rewrite ontology through combining elements of postmodernism and feminism. Can it do this, or does it slip back into issues of epistemology? In rewriting ontology, where is materiality to be located and can this new ontology ground a movement such as feminism? My analysis asks whether the transcendence of nature and the rewriting of ontology are possible, or

even desirable, from the standpoint of grounding feminist interventions into technology. Through my engagement and critique of the literature comprising feminist cybertheory, I identify and interrogate its underlying assumptions about the ideal relationship between human and technology, the digital model. Therefore, my research question is: *does the digital model, as constructed by feminist cybertheory, offer a viable feminist model for the relationship between women and technology?*

To answer my research question, I first locate my research in the field of cultural feminist analysis of technology in Chapter II. In Chapter III, I define the parameters of feminist cybertheory, identify the specific pieces which I am examining, and briefly describe and categorize each piece according to the perspective it takes upon the cyborg. In Chapter IV, I develop the process by which I extract and construct, from social theory, models of the subject/technology relationship. The two models I propose, the biomechanical and mechanical, implicitly advocate a particular view of the subject, embodying the relationship between human and machine/technology. I then explore their gendered implications from a feminist perspective.

In the following two chapters, I critically examine feminist cybertheory with a view to ascertaining the characteristics of the model of the subject (or human/machine relationship) which underlie it. It is, in part, in their definition and maintenance of a gendered nature/culture binary and a related modernist ontology, that the biomechanical and mechanical models support patriarchal social relations. It is along the axes of first, nature, and then, ontology, that I interrogate feminist cybertheory to

determine if its underlying model is truly different, and if so, whether it contributes to feminist engagements with technology. I conclude, in Chapter VII, by identifying, based upon my analysis of feminist cybertheory, the digital model of the subject and offer some conclusions about its potential contribution to feminist theory. In this way, I hope to answer whether the digital model, in its rewriting of nature and ontology, succeeds in offering a feminist coupling of human and machine, where the biomechanical and mechanical, do not.

Given the rapid invasion and ubiquitous presence of new information and communication technologies in North America, and given our culture's apparent eagerness to uncritically embrace these, both in representation, and in practice, I suggest that it is important to make sense of cyberculture. I suggest that this sense-making is of particular significance to feminists. If indeed, these technologies offer the potential to revolutionize society as the optimists cry, or to further entrench control by currently dominant groups, as the more pessimistic assert, then feminists must be engaged. Whatever else it is, technology is a very powerful symbolic system through which we make meanings in our society, meanings that are frequently gendered, and embedded within, and help to shape, gendered social relations.

Feminist cybertheorists are suggesting, however, that rewriting the stories of our relationship to technology may offer a route to altering these gendered social relations. Through rewriting nature and ontology, they suggest we can transcend oppression on the basis of gender. Through my naming, structuring, and interrogating of these claims, my thesis offers a framework for analyzing a growing

and significant body of feminist literature surrounding women and technology. In this, my thesis offers a contribution to feminist interventions in the technologized relations which surround us, and which we inhabit, as part of an ongoing project to theorize and build a feminist future.

II. The Environment of Hopeful Monsters: Theoretical Context

I said 'I think they might also be what are called "hopeful monsters".' She said 'What are hopeful monsters?' I said 'They are things born perhaps slightly before their time; when it's not known if the environment is quite ready for them.' -- Nicholas Mosley¹²

It may well be possible that the environment was not quite ready for Haraway's *Cyborg Manifesto* when it appeared in 1985. The cyborg, representing as it does, multiple identity finding a home in the environment(s) of feminism, postmodernism, and technology, may yet be before its time. However, whether or not the environment is quite ready for the cyborg and what it represents, it's here. In terms of the popularity of the imagery, the technological potential, and the inevitable issues these pose, the cyborg has arrived. In this chapter, I examine the readiness of each of the environments which I suggest, in combination, spawned the cyborg. I outline both the theoretical environment which shapes, and in which I locate, my analysis, as well as that to which I hope it makes a contribution.

Because my research has as its object of study a body of theoretical literature, that is, because my work, itself, is feminist cybertheory, there is some unavoidable overlap between the literatures and thought informing my analysis and position, and those informing other feminist cybertheory. I address the literatures where I feel my work is most valuably located and which inform my own theoretical position. My work is informed by, and located within, the ongoing engagement of feminism with the knowledges and practices of first, science, and second, technology. While there is definite overlap in the feminist debates with science and those with technology, as Wajcman notes, it is important to make a distinction between the two (Wajcman,

1991: 1). I briefly review various engagements of feminism first with science, and, more recently, with technology, highlighting the work which influences my own. As well, given their relevance to feminist cybertheory, I briefly discuss feminist engagements with postmodernism. In addition, my work and other feminist cybertheory is one stream in a growing body of work on issues posed by cyberculture. Mainstream cyberculture research has been notorious for its ability to ignore feminist concerns, feminist work, or even issues of gender. While my work is not so much influenced by that writing, it is certainly in dialogue with it. My project, and the work of other feminist scholars in this area, will thus be a significant feminist contribution to the field: in other words, the environment must *get* ready.

When examining feminist cybertheory and its cyborg subject, the relevant environments are feminism, postmodernism, and science and technology. My choice to locate my project within a history of feminist engagements with science and technology, rather than within the debates around feminism and postmodernism, is deliberate. Many feminist cybertheorists, and virtually all of those working in the area of cyberculture, uncritically privilege the role of the postmodern aesthetic and postmodernist theory in the formation of the cyborg. This renders problematic the foundation from which to critically evaluate cybertheory. The implications of the technological environment, which is equally as much a part of cybertheory as postmodernism, is inadequately interrogated. If feminist cybertheory is (re)located in an ongoing discourse of feminism, culture, and technology, the tools exist to engage with it critically and to assess its potential for feminist thought and practice.

1. Feminism and Science

Given the parallels and interrelationships between feminism's relationship to each of science and technology, any complete understanding of feminism's analysis of technology rests upon an understanding of the history of the feminist engagement with science. Science was perhaps an obvious site for feminist intervention, given its power to define and delimit *woman* as a scientific construct, thereby constraining how *women* could speak and live. Mary Jacobus, Evelyn Fox Keller, and Sally Shuttleworth recognize this role for science in their introduction to *Body/Politics: Women and the Discourse of Science*, specifically addressing

... the persistence and power of the discourses of science to define the feminine body as the object of knowledge par excellence -- as subjected rather than subject, and hence as the site of crucial feminist struggle in the realm of both politics and theory (Jacobus, Fox Keller, Shuttleworth, 1990: 6).

Historically, science has been a privileged tool to define woman and man, relying upon the naturalization of meaning, the authority of objectivity, and the fact that even within critiques of science, issues of gender have not been prominent (Benjamin, 1993: 8). In this section, I briefly review a series of "maps of the field" in order to suggest one which I feel is most useful to my project.

(i) **other maps**

Given the significance of science as an ordering and naming discourse, in general, and its dramatic and differential impact upon women's bodies and identities, in particular, it is not surprising that in the 1970s feminists began to examine the role

of science in defining and maintaining gendered power relations.¹³ This engagement has continued ever since, growing in complexity and breadth over the years. Sandra Harding suggests that feminists have engaged with science in five areas: the analyses of women's situation in science; the sexist misuse and abuse of science and its technologies; sexist and androcentric bias in the results of biological and social science research; the sexual meanings of nature and inquiry; and androcentric theories of scientific knowledge (Harding, 1991). Wajcman suggests five stages as well: recovery of women's science history, women in science practice, uses and abuses of science, the sociology of science, and finally, the feminist critique of scientific knowledge (Wajcman, 1991: 1-5).

Maureen McNeil and Sarah Franklin (1991), examining science and feminist cultural studies, suggest three periods. They label these the feminist critique of scientific epistemology; the feminist analysis of science as culture; and feminism, science, and postmodern culture. While Harding's and Wajcman's analyses make distinctions which are too detailed for my purposes, McNeil and Franklin suggest a chronology, which, while accurate in denoting certain patterns, imposes a false evolution upon the encounter between feminism and science. The implication of such a chronology is that women's science history is no longer being done, or that we have "progressed" past that type of work. Work on the uses and abuses of science in the area of reproductive technologies, for example, is more relevant than ever.

(ii) a hybrid: my map of the intersection

I suggest that four categories of engagement between feminism and science are useful. These are neither meant to be strictly chronological, nor to suggest a natural evolution of thinking. I label these categories: *foundational*, *epistemological*, *cultural*, and *postmodern*. In foundational work, I mean to encapsulate the first three of each of Harding's and Wajcman's categories, and the early research recognized by McNeil and Franklin (prior to the cultural studies approach being prevalent).

Foundational feminist critiques of science laid the groundwork for the recognition that science was indeed a gendered set of ideas, practices, and technologies. This includes what Harding labels "women worthies" or "the many women who have made important contributions but who are ignored or devalued in the androcentric mainstream literature" (Harding, 1991: 22); "women's contributions" or the contributions of women to science historically which have not been necessarily tied to one outstanding individual; "structural obstacles" or the various barriers in the practice of science and larger society which impede women having a more significant role within science; and "science education" which examines the sexist nature of education in the sciences, and lays the groundwork for attracting more women into the sciences as a career (Harding, 1991: 25-34).

Foundational feminist critiques of science contribute to the argument that science as a set of practices is oppressive to women and their bodies. It focuses more particularly on the practices of science, rather than science as a knowledge system. This focus is clearly reflected in early feminist works such as, *Our Bodies, Ourselves*,

first published in 1973, and a bestseller ever since.¹⁴ Continuing this early work, much foundational research and writing in the 1980s centred on reproductive technologies, for example, Christine Overall's, *The Future of Human Reproduction* (1989), and Gena Corea's, *The Mother Machine* (1986).

The second type of feminist encounter with science exposes and explores science as a gendered epistemology. Seminal in this area is Sandra Harding's, *The Science Question in Feminism* (1986), which explores science as a gendered philosophy at the epistemological level. Harding coins the useful term, *standpoint epistemologies*, to capture the gendered, racialized, and located nature of knowledge production. Science is examined as a set of androcentric knowledges.

This early work problematized the masculine nature of scientific epistemology, rather than the nature of epistemology, itself. With the influence of poststructuralism upon feminism, the epistemological status of science has come under further scrutiny and debate. How we produce scientific knowledge in a non-masculine way becomes an issue (Longino, 1993). The place of *woman* as object of science, rather than *women* as subjects, is problematized. The poststructuralist critique of rationality and Enlightenment thought is revealed in the work of Phyllis Rooney (1991), for example, who explores the gendered metaphors embedded in the philosophy of science, or Elizabeth Grosz (1993), who explores the relationship between sexed bodies and the production of knowledges. Haraway's own work on "situated knowledges" (1991a) can be read as epistemological work.

Some feminists have been concerned, however, that the epistemological

critique of science depoliticizes and deactivates feminism's engagement with the practices of science. The focus on science as epistemology has often pushed to secondary significance the challenging of practices of science which affect women's daily lives, some argue (McNeil and Franklin, 1991; Longino, 1993; Wajcman, 1991). I suggest that part of the answer to this challenge is the recognition that the production of knowledge *is* a social practice, and one which, because it is imbued with power and helps to define our reality, dramatically impacts upon women's daily lives. However, perhaps somewhat in response to this concern, and also in response to poststructuralist focuses on language, the cultural approach to science characterizes science as a cultural belief system, one highly privileged in modernist thought and at the root of many modern metanarratives. As denoted in Harding's fourth category, the shift is from viewing science as a set of practices or overarching epistemology, to its role in the production of gendered meanings which have impacts not found solely in scientific discourses.

An early exemplar of this work is Emily Martin's, *The Woman in the Body: A Cultural Analysis of Reproduction* (1987), in which the author examines various texts and practices associated with reproduction as culturally situated activities shaping the meanings of reproduction at certain points in history. Donna Haraway's, *Primate Visions: Gender, Race, and Nature in the World of Modern Science* (1989), explores the sexist and racist nature of historical discourses of primatology, highlighting the normalizing impact of science as culture. Rather than examining science to understand culture, some of the work in the collection edited by Marina Benjamin, *A*

Question of Identity: Women, Science & Literature (1993), examines cultural narratives to understand how the stories "privileged in our culture are often privileged in our science" (Benjamin, 1993: 19). Cultural feminist approaches to science allow feminists to interrogate the science found, not only in the textbooks, but in everyday social relations. They also allow the study of the relationship between various cultural meaning systems, of which science, although powerful, is but one.

The fourth area of engagement between feminism and science, I label postmodern. It results from the increasing understanding arising out of the cultural work that science and technology are significant metanarratives in our society, and out of an increasing fascination with both the dangers, and potentials, of science and technology for dramatically altering the nature of all human relations. Because of its starting assumption that we inhabit a postmodern culture, it is in this area where the feminist engagement with science and that of technology begin to converge. McNeil and Franklin offer Haraway's *Cyborg Manifesto* as an exemplar of the postmodern approach. Drawing upon postmodernist social critique and the fascination with technology that characterizes the postmodern aesthetic, the fourth area in which feminism is engaging with science is, in fact, cybertheory.

2. Feminism and Technology

While the feminist study and criticism of science should not be conflated with the feminist study and criticism of technology, they are related and share similar patterns of development. Some scholars suggest that feminist approaches to

technology are more recent than those to science, and are less theoretically developed (Wajcman, 1991: 15). My research would support this contention, particularly with respect to new information technologies. I suggest that this is, in part, due to the fact that as a discourse, science has come under attack for its subjective, constructed, and fallible nature. Science is not seen to be the saviour that it was; technology, on the other hand, has not lost its mystique.

Increasingly and uncritically, our culture vests its hopes for community, for society, in technology. Myron Krueger, a virtual reality pioneer, in his introduction to Michael Heim's (1993) recent book offers a classic example of this approach.

In this book, Heim puts his finger on why virtual reality has excited us as a culture. It is an intellectual feast to which we are all invited, an intellectual frontier that we are all free to explore and invent. He analyzes this process of change without judging whether it is good or bad, because understanding it is both important, and interesting. We can embrace it not because it will cost us nothing, but because it is our destiny to redefine ourselves (Krueger, 1993: viii).

This naive frontierism, the paradox of unstoppable technology that we simultaneously "invent", the universalizing "we", and the suspension of all critical faculties seems endemic to the recent flurry of academic work surrounding the "destiny" of technology, and new information technologies, in particular.

Feminist voices have been marginalized in this work. While a token feminist piece (or at least an article by a woman) is usually included in most edited collections, or there is some passing reference to the differential impact of these technologies according to gender, this work is largely undertheorized, uncritical, and unwilling to deal with issues of gender. This makes technology a crucial site for feminist

intervention, and while feminists may have come lately to their engagement with technology, the work that has been, and is being, done is significant and important. Again, I review and engage with two other maps of this field in order to suggest my own and locate my work.

(i) other maps

Lana Rakow suggests a four-part categorization of feminism's critique of technology. Her first category, *masculine and feminine values*, argues that technology is shaped by, and reflects, masculine values. Our culture values certain characteristics over others, those which are masculine, and these are often linked to technology (Rakow, 1988: 62-3). Some of this work can tend towards essentialism and much of it assumes, without demonstration, that technology reflects the values our society codes as "masculine". This assumption does not permit scholars to recognize the range of masculinities and femininities at any given historical and cultural moment, which are not static, and which shift over time. As well, based as it is upon essentialist assumptions of the immutability of gender, the solutions posed by this position tend towards a liberal approach. If women, or the characteristics of femininity, were more prevalent in the realm of technology, then the power inequities surrounding the use and impacts of technology would disappear.

The second category Rakow offers is that of *women creators and innovators* (Rakow, 1988: 63). This is mainly an area of recovering the rich history of innovation offered by women and redefining the historical parameters of discussion to

encompass their contributions. Her third category is *domestic and paid labour*. Ranging from studies of household labour to office work, research in this area examines the differential impact upon women's labour of various technologies (Rakow, 1988: 64-5). It is typically informed by a socialist or Marxist theoretical view and focuses on the impacts of technology. Technology is theorized primarily as artifact, although one implicated in social relations.

Finally, Rakow's fourth category is *space and time*, which examines "[t]he work by feminist geographers and feminist analysis of public and private spheres and of masculine and feminine principles in design [which] illuminate some of the possibilities for understanding the role of technology in constructing gender" (Rakow, 1988: 65). Again, this work can tend towards biologism and essentialism. Further, it tends to both assume, and thereby reinforce, the notions of private and public spheres being coded feminine and masculine.

Judy Wajcman also discusses a number of differing feminist approaches to technology, which I organize as four distinct categories: *recovery and redefinition*, the *gendered character of technology, labour and work*, and the *sociological/historical approach*. In the recovery and redefinition work, she notes the need to rewrite the history of technology to include the contributions of women (Wajcman, 1991: 15-17), as does Rakow in her women creators and innovators category. This approach, however, is not engaging directly with the gendered nature of technology, but rather, with the gendered nature of historiography and social relations. The technology, itself, is treated as neutral.

In the 1980s, Wajcman suggests that this view began to change and technology was seen as embodying patriarchal values. The nature of technology itself was assumed to be gendered (Wajcman, 1991: 17-19). This categorization captures eco-feminist and psychoanalytic work as well, where the starting position is that, for different reasons, technology is gendered. At the same time, however, this treatment of technology, as I note previously, can tend towards instrumentalism and many of the more radical analyses tended towards technological determinism and biological essentialism.

The third category of work which Wajcman examines is the research specifically targeting the impact of technology on women's labour and work. Again, this work is heavily influenced by Marxist or socialist feminism. Rather than beginning with technology, the relations of labour are the starting point; thus, women's exclusion from technology is as a consequence of the division of labour (Wajcman, 1991: 19-22). Again, my concerns with this are the causality it posits and that it serves to entrench the masculine character of technology in a highly static way.

Wajcman's final category of feminist approaches to technology is the sociological/historical approach in which she asserts that she is treating technology as culture. She argues that mainstream work in the sociology of technology has remained largely blind to gender issues (Wajcman, 1991: 23). A feminist sociology of technology would take as its starting assumption that "[w]omen's profound alienation from technology is accounted for in terms of the historical and cultural construction of technology as masculine" (Wajcman, 1991: 22).

This category is problematic as Wajcman conflates two separate notions. The traditional object of study in sociology is not culture, but the social relations which produce culture. In fact, Wajcman's own analysis reflects this, as she begins by assuming that culture is masculine and studying the workplace, reproductive technologies, domestic technologies, and built environments for their impact upon women. Taking computers as her example, she focuses on the "... social mechanisms by which a new technology becomes integrated into the masculine cultural system" (Wajcman, 1991: 151). Because her focus is on social relations, so too, must her solutions be entry points into social relations such as unions, education, and so on. For sociologists, social relations generate culture. Therefore, while her latter category is correctly labelled the sociology of technology and is a valid area of analysis, it does not take as its starting point the view of technology as culture. To treat technology as culture, or as a system of producing meanings, one must turn to either anthropology or cultural studies. There is something to be gained by examining technology as a set of meanings which shape, and are shaped by, our social relations. It permits us to look at representations of technology, the potential meanings of various technologies, the role of technology in the construction of identity, and so on.

(ii) another hybrid: my map of the intersection

Rather than focusing on the object of study as categories such as Rakow's "space and time" or Wajcman's "labour and work" typologies, I think it more useful to offer analytic categories which reveal the perspective from which the work is

undertaken. In doing this, I suggest that five categories of feminist engagement with technology are useful: *foundational*, *values*, *sociological*, *cultural*, and *postmodern*. Not all of these areas have been equally studied, particularly given that technology only became an object of concerted feminist research in the 1980s. For reasons which I will discuss in greater detail subsequently, I locate my work in the cultural stream of feminism and technology.

Most research specifically addressing issues of gender and technology began in the 1980s with a "recovery" stage, as with feminist science. This involved the recovery of women's history to challenge the image of the prototypical male inventor. Some work located women inventors within the existing parameters of technological innovation, for example, biographies of women such as Lady Ada Lovelace, an early computer pioneer. Much of this work has been made more difficult by the fact that often women had to record their inventions in the names of their husbands and in many regions, women could not legally hold patents.

The foundational research has also illustrated the need to redefine "technology" to include the activities of women. For example, innovations to domestic technologies need to be recognized as technological inventions. Foundational research continues into the 1990s as feminists battle mistaken assumptions about new information technologies. As Anne Balsamo notes, "[t]o read accounts of the development of information technologies, for example, one might conclude that women have only just begun to shown an interest in and aptitude for technological knowledge, innovation, and employment" (Balsamo, 1993: 699).

Feminists have demonstrated the gendered impacts of technology, and in particular, new information technologies (Wajcman, 1988, 1991; Linn, 1987; Frissen, 1992; van Zoonen, 1992) and to recover historical contributions made by women to computer development (Stein, 1985; Kraft, 1977; Giordano, 1988). As with foundational work in science, what results is an historical foundation in which to ground current research and innovation in technological fields, and the debunking of the notion that women cannot, and have not, participated in the furtherance of technological development.

In the mid-1980s, a shift parallel to that from the women question in science to the science question in feminism occurred, as feminists began to engage with the gendered character of technology and suggest that it reflected patriarchal values. Much of this work focused on the technology itself, and suggested that whether it was due to the production of technology in a masculinist, capitalist context, its use in masculinist knowledge production, or its predominant use by men, technology, itself, was gendered. Both Rakow and Wajcman recognize the extensive work conducted in this area. A key collection contributing to this approach is Joan Rothschild's 1983 collection, *Machina Ex Dea: Feminist Perspectives on Technology*.

More recently, in work on computer technologies, the suggestion has been made that computers embody the values our culture codes as masculine -- objectivity, linearity and logic, intelligence -- while the feminine is associated with less valued attributes -- subjectivity, circularity and intuition, and the body. A seminal work which I would locate in this stream is Sherry Turkle's 1984 book, *The Second Self*:

Computers and the Human Spirit, in which the author examines the gendered nature of computer usage. Turkle's research demonstrates that technology, or at least its use, is not neutral. This work has a tendency towards essentialism, however, in its assertion that technology is masculine and not feminine. This tends to be a disempowering argument as women are then displaced from the realm of the technological by feminist critique. Wajcman levels this criticism at Turkle, citing her psychological approach as the cause, preferring the sociological (Wajcman, 1991: 157). Valerie Frissen labels values theory as "exclusion" work, suggesting it offers too simplistic an approach to the complexity of power relations and perpetuates the role of victim for women vis-à-vis technology (Frissen, 1992: 32).

The third stream of feminist work in technology is that identified, and I argue, practised, by Wajcman -- the sociology of technology. This work examines shifting patterns of social relations due to the introduction of new technologies and the resulting impacts upon women's participation in those social relations. Certainly predominant in this area has been the extensive work on the impact of technologies on women's labour, in the home and office (McNeil, 1987; Hacker, 1989; Garson, 1988). Taking as a root assumption that social relations produce culture, then relations such as work, family, education, produce our different relations to technology. It is not so much that the technology, itself, is gendered, as it has a gendered impact on individuals because of the gendered social relations in which it is embedded. The work of Michèle Martin (1991) on the development of the Canadian telephone offers a good example. Martin extensively documents the social relations

and context of the development and implementation of the telephone in Canada and its gendered impact on culture and society. Again, while written in the language of culture, the analysis is sociological, relying for causality upon social relations such as labour and economics, rather than taking a more social constructivist position.

My dissatisfaction with this approach is that it offers an instrumental or artifactual reading of technology; it is unable to problematize the role that technology as a discourse plays in the construction of our social and individual realities. I believe that any successful feminist entry into the technological realm must also recognize technology as a system of meanings structuring how we think about gender and other aspects of society.

The fourth stream of feminist engagement with technology is the cultural, which views technology as knowledge, human activities and practices, and artifacts, all involved in the production of shared meanings. Liesbet Van Zoonen advocates a cultural approach. Borrowing from anthropology, she asserts that culture must be interpreted as "... the conditions and the forms in which meaning and values are structured and articulated within a society" (van Zoonen, 1992: 10). Reflecting a more constructivist position, I add to this definition that culture is the conditions and the forms in which meanings and values are *produced*, structured, and articulated within a society. This takes as a starting point that like all cultural constructs, technology is gendered. Rakow suggests that technologies are gendered because they "... both constitute and express a model of social relationships. The contemporary meaning and experience of gender does not exist somewhere outside of and distinct

from technology; gender is articulated through it" (Rakow, 1988: 68).

As I discuss previously, while Wajcman asserts that her work falls into this category, I suggest that it does not. The work of Frissen on new information technologies, however, does. She argues that:

[t]echnology is in itself a socio-cultural practice and the discourses associated with these practices must be seen as expressions of more general socio-cultural value systems, sets of assumptions not only about technology but about social reality, and about gender relations as well (Frissen, 1992: 32).

This allows Frissen to break out of the categories of public and private spheres which continue to circumscribe the thinking of the sociological approach, and to examine the role that technology plays in their construction. There is not, yet, however, a lot of work in this stream. Van Zoonen notes a dearth of research which starts from the premise of technology as a discursive construct, notwithstanding the influence of poststructuralist and postmodernist thought in this area (van Zoonen, 1992: 10-11).

The cultural stream is where I locate my work and is the stream which I, too, suggest is the least theorized and practised. Unlike science, which does not as readily produce concrete objects, technology manifests in the production and operation of objects -- computers, televisions, microwave ovens. In part due to this, it is easier to focus on the objects, their production, the content they portray, their operation in social relations, than it is to see them as carriers and shapers of shared meanings, not necessarily related to their object(ive) presence. In short, it is more difficult to treat technology as discourse. However, only by doing so can its overall social impact be assessed and informed political choices be made. I agree with Haraway's argument

that, "[m]eanings are applications; how meanings are constituted is the essence of politics. No one can constitute meanings by wishing them into existence; discourse is a material practice" (Haraway, 1989a: 111).

The fifth and final feminist approach to technology, I label postmodern. This might be considered a subset of the former category of culture, because it is distinguished primarily in that it assumes our culture is postmodern. The reason I treat it as a separate stream, however, is because while the cultural stream retains a critical foundation from which to critique the discourses of technology, the postmodern stream is more optimistic. As is often the case with applications of postmodern thought, complications arise for a located politics like feminism, when power cannot be fixed to be engaged with. The quintessential piece in this area, is of course, the foundational work in feminist cybertheory, Donna Haraway's, *Cyborg Manifesto*.

Many of the issues I explore in and through feminist cybertheory reflect the ongoing engagement between feminism and postmodernism (or poststructuralism).¹⁵ Relocating these debate within the feminism and technology area is part of my project; however, this ongoing debate, while not specifically engaging with technology, remains relevant, and I will outline it briefly.

3. **"Mapping the feminist postmodern"**

Notwithstanding the claims of thinkers such as Andreas Huyssen (1990) and Steven Connor (1989), for the past 15 years, feminists have been exploring the

potential and the risk posed by the intersection of postmodernism and feminism. The attraction offered feminism by postmodernism is captured well in a point made by Mark Seltzer: "If persons and things are constructed, they could, at least in principle, be constructed differently" (Seltzer, 1992: 155). Postmodernism's frontal attack on the rational, unitary modernist subject and upon metanarratives seemingly opens the door to difference, multiple identity, subjectivity, multiple knowledges, and implicitly at least, the role of gender, race, sexuality, and class in those spaces. However, the well-versed paradox is that feminism continues to be a political movement necessarily founded upon some notion of unity grounded in material commonality.

The most frequently acknowledged areas of "theoretical conjuncture" between feminism and postmodernism, to borrow Michèle Barrett's phrase, are: first, a critique of theoretical universalism; second, an extensive critique of "Enlightenment thought", including the dual aspects of rationalism and a Cartesian notion of the subject; third, the gendered nature of modernity; and finally, a critique of materialism. Barrett suggests that the encounter between feminism and postmodernism has been responsible, in part, for a shift within feminist thought from things to words (Barrett, 1992: 106-8).

As Barrett and Anne Phillips caution, however, in their introduction to the collection containing Barrett's piece, "... the critique of modernist and universalistic thought does not reduce the importance of formulating a new basis for feminist political aspiration. ... Forging a commonality across difference now figures as a goal rather than a given" (Barrett and Phillips, 1992: 8-9). Others identify the same

hurdle:

[t]he challenge remains, at both a theoretical and political level, for feminists to be able to hold onto certain commonalities in women's position in relation to oppressive social relations, without denying the very real differences between women and the resulting specificities in the forms of their oppression (Franklin, Lury and Stacey, 1991: 174).

Feminists have been bold and prolific in their explorations of this intersection.

However, the least daring and thus, the least useful, writing in this area has been that which either embraces postmodernism unproblematically (Scott, 1988; Flax, 1987; Owens, 1985) or that which rejects its potential cursorily (Hartsock, 1990; Di Stefano, 1990; Lovibond, 1990).

Much more fruitful is the work of many feminists exploring the possible "potent fusions" between feminism and postmodernism.¹⁶ My review of this work suggests that it can be separated for analytic purposes into two streams: the theoretical and the metaphorical. Each stream has made unique contributions to feminist thought, and each has influenced and enriched the other.

In the first stream, I locate thinkers like Michèle Barrett (1992), Nancy Fraser and Linda Nicholson (1988), Susan Hekman (1990), Elspeth Probyn (1987), and Meaghan Morris (1979, 1988). A number of collections have been key in exploring the relevant issues: Nicholson's edited collection *Feminism/Postmodernism* (1990), Irene Diamond and Lee Quinby's collection, *Feminism and Foucault: Reflections on Resistance* (1988), and Susan Hekman's *Gender and Knowledge: Elements of Postmodern Feminism* (1990). As a sub-genre, this literature has allowed for an ongoing feminist critique of the gendered nature of modernity and modernism. As

well, certain related issues have been identified as central. How is political unity to be found in difference? Should gender be a basis of subjecthood or merely subjectivity? Where is materiality to be located? Does gender remain a useful category for analysis and/or politics? Where and how should intervention into power relations occur?

Theoretical stream work continues with collections such as that edited by Caroline Ramazanoğlu (1993) exploring, yet again, the tensions between the two "f words" -- feminism and Foucault. The body, local resistance in the face of global oppression, and the diffused power of "post-" theories are continual points of contestation for feminists. I suggest that this stream risks increasing redundancy, however; the issues, while extremely relevant, have been adequately outlined. This is why I wish to displace feminist cybertheory from this environment and relocate it in the context of cultural feminist treatments of technology. This is where the theoretical stream can begin to draw more effectively upon the work of the metaphorical stream. Perhaps the distinction is reflected in the notion that what the theoretical stream is contemplating is feminist postmodernism, whereas metaphorical thinkers are pondering postmodern feminism.

Metaphorical stream thinkers like Haraway (1985, 1991a, 1991b, 1992) and de Laetis (1987, 1990), whose writings are more polemical, deliberately problematize the activity of theorizing and posit action, however, metaphorically, in the face of this intersection. Whether employing the cyborg or the lesbian as the organizing metaphor,¹⁷ these thinkers locate materiality, and can therefore, they claim, rescue

agency in postmodernism. The metaphoric nature of these texts makes their arguments at once more powerful, and yet, inherently more difficult to implement. As they allow the exploration of possibilities that do not yet exist, they are risky; in this, they may present an entirely new set of problems. Most problematic for some feminists is that these writers embrace a position outside of gender, rejecting gender as a framework for analysis, and thus, for politics.

As noted above, many of the issues explored by both streams converge in the cyborg as "... an imagined embodiment of the subject of feminism" (Wolmark, 1994: 26). Increasingly, the cyborg metaphor is being uncritically employed to explain the contradictions and potency of postmodern techno-feminism. If the cyborg is read as a discursive object carrying, shaping, and delimiting certain meanings surrounding subjectivity, gender, and technology -- that is, if the cyborg is relocated in a feminist cultural analysis of technology, and removed from the debates surrounding feminism and postmodernism -- its true potential for feminism in the late 20th century can be assessed.

4. Thinking about Cyberculture

While my work both draws upon feminist inquiries into technology and, I hope, makes a contribution to that field, there is another environment to which my work seems to contribute. It is more difficult, however, to draw upon this work given its continued refusal to recognize the intrinsic nature of gender in its inquiries. This is the study of cyberculture, as defined by Escobar.¹⁸ This work tends to follow

two paths: what I am calling the *anthropology of cyberculture* and the *SF of cyberculture*.¹⁹ Again, I distinguish these from feminist cybertheory on the basis of their refusal to see issues of gender as inherent to their analyses. Both the anthropology and SF of cyberculture are implicated in Escobar's recognition that,

... cyberculture originates in a well-known social and cultural matrix, that of modernity, even though it orients itself toward the constitution of a new order -- which we cannot yet fully conceptualize but must try to understand -- through the transformation of the range of possibilities for communicating, working and being (Escobar, 1994: 214-5).

The work of Escobar, himself, other anthropologists, and critical cultural studies scholars targets the origin points of cyberculture, while the SF approach tackles the project of conceptualizing possible new ways of being.

(i) **the anthropology of cyberculture**

While Escobar suggests that "... the cultural constructions and reconstructions on which the new technologies are based and which they in turn help to shape" (Escobar, 1994: 211) is the proper domain of anthropology, I suggest that it is also the proper domain of the cultural approach to information technologies located within the discipline of communication studies. They share a similar starting point, again eloquently stated by Escobar: "... the belief that any technology represents a cultural invention, in the sense that it brings forth a world; it emerges out of particular cultural conditions and in turn helps to create new ones" (Escobar, 1994: 211). In his review of the anthropological approach to the study of cyberculture, Escobar suggests a series of questions to guide research:

1. What are the discourses and practices that are generated around/by computers and biotechnology? What domains of human activity do these discourses and practices create? In what larger social networks of institutions, values, conventions, etc., are these domains situated? ...
2. How can these practices and domains be studied ethnographically in various social, regional, and ethnic settings? ...
3. What is the background of understanding from which the new technologies emerge? ... What continuities do the new technologies exhibit in relation to the modern order? ...
4. What is the political economy of cyberculture? ...
5. Finally, what are the implications of this analysis for a cultural politics of science and technology? (Escobar, 1994: 214-15).

Examples of work in this area include David Thomas' (1992) research where he posits that technologies such as those comprising cyberspace are bringing about new rites of passage between types of society and types of subjects. Other research has suggested that ethnography must adapt to be able to analyze how technology serves as an agent in social and cultural production (outlined in Escobar, 1994: 16). Cyberculture also offers new subcultures and new forms of human relations, resulting in new areas of study. Popular examples include the phenomenon of computer sex (Branwyn, 1993; Furniss, 1993) and the subculture spawned from computer hacking (Ross, 1991; Sobchak, 1993; Sterling, 1993; Hafner and Markoff, 1991).

Much of this work has been uncritical, however, and seemingly unable to recognize the differential impacts of these phenomena upon women, people of colour, and so on. This may well be due to inadequate theoretical foundations; Escobar suggests that given that these are unprecedented sites of articulation of power and

knowledge, theoretical approaches developed in other historical and cultural contexts may be inadequate. He recommends two approaches, first, that which "... pay[s] attention to the social and cultural relations of science and technology as central mechanisms for the production of life and culture in the 21st century", and second, that which explores the possibilities posed by the erosion of previously established boundaries between bodies and machines, individuals and communities, reality and fiction (Escobar, 1994: 217). Specifically, he notes the requirement to theorize the rewriting of the body posed by this reconstruction of space.

How is the body being reconfigured and reimagined through inscriptions at the level of the relation between body and machine? What would be a post-structuralist understanding of the body in cyberspace, if this understanding is to avoid the trappings both of the frontier (the body that can or cannot be transcended) and of humanism (the body one can 'remake')? A fruitful theorization of posthumanity might lie in this area of inquiry (Escobar, 1994: 218).

The fruitful theorization of posthumanity is what is being attempted by what I label the SF of cyberculture.

(ii) the SF of cyberculture

Science and postmodernism seem to intersect in the discourses exploring and constructing the myth and reality of new information technologies and computer mediated communications -- the foundation of cyberculture. Much of this writing takes on an almost science fictional quality, and in fact, Jenny Wolmark (1994) demonstrates that there is considerable overlap between the writing of many postmodernists and science fiction/fact. Istvan Csicsery-Ronay, Jr. has gone so far as

to suggest that thinkers like Jean Baudrillard and Donna Haraway are writing what he labels SF, a mode of awareness constituted from two gaps.

One gap extends between, on the one hand, belief that certain ideas and images of scientific-technological transformations of the world can be *entertained*, and, on the other, the rational recognition that they may be *realized* (along with their ramifications for worldly life). It is a gap that lies between the conceivability of future transformations and the possibility of their actualizations. In its other aspect, SF names the gap between, on the one hand, belief in the immanent possibility (and perhaps inexorable necessity) of those transformations, and, on the other, reflection about their possible ethical, social and spiritual interpretations (i.e., about their embeddedness in a web of social-historical relations) (emphasis in original; Csicsery-Ronay, Jr., 1991a: 387).

Therefore, any writing that explores scientific-technological possibility in material human relations, with their necessary implications, can be characterized as SF. The writing at the intersection of science and postmodernism is certainly SF.

Writers such as Jean Baudrillard (1983, 1991), Arthur and Marilouise Kroker (1987), Frederic Jameson (1984), and Jean-François Lyotard (1984, 1988-9), have all implicated SF and new information technologies in their writing about the condition of postmodernity. A second generation of writers has taken up the challenges posed by these postmodernists and has more explicitly linked the discourses of new information technologies, computer-mediated communications, and postmodernism. Scholars like Scott Bukatman (1990, 1991, 1993), Csicsery-Ronay, Jr. (1991a, 1991b), Nicole Stenger (1992), Michael Benedikt (1992), and Veronica Hollinger (1991), are exploring the intersection of postmodernism and science through hybrids of science fiction and new technologies. This writing is characterized by its exploration of blurring boundaries between science fiction and science fact, and between theory and

fiction.

Virtual reality and other computer-mediated communications technologies have been seized upon unproblematically as quintessential models/metaphors of postmodern thought. For example, Bukatman suggests that virtual reality is the "... very embodiment of postmodern disembodiment" (Bukatman, 1993: 188). Hollinger concurs: "... virtual reality works to decenter conventional humanist notions of an unproblematical real" (Hollinger, 1991: 207). George P. Landow (1992) explores what he characterizes as a convergence of contemporary theory and technology when he asserts that hypertext serves as a material realization of postmodernist and poststructuralist theory. He cites its erosion of the boundary between author and reader, its intertextual nature, its multivocality, and its decentred nature as evidence.

Postmodernism's scepticism about the viability of metanarratives, the status of the subject, the significance of the marked body, and the contradictions embodied within postmodernism, itself, are reflected in these writings. The fragmenting of the postmodern subject is reflected in Bukatman's techno-notion of *terminal identity*: "... an unmistakably doubled articulation in which we find both the end of the subject and a new subjectivity constructed at the computer station or television screen" (Bukatman, 1990: 201). Allucquere Rosanne Stone links the body and the modernist subject when she suggests, "[t]he unitary bounded, safely warranted body constituted within the frame of bourgeois modernity is undergoing a gradual process of translation to the refigured and reinscribed embodiments of the cyberspace community" (Stone, 1992: 109). The concluding chapter in O.B. Hardison, Jr.'s

popular work. *Disappearing Through the Skylight: Culture and Technology in the Twentieth Century* (1989) is entitled, "*Deux Ex Machina: Or, the Disappearance of Man*", and explores the implications of the loss of the body to technology in the late twentieth century. In short, explorations of SF -- the fusion of postmodernism and science/technology -- abound and are found in discussions of postmodernism, technology, fiction, and their convergence.

The cyborg is emblematic of the issues posed in the encounter between science/technology and postmodernism and is a frequently, albeit loosely, employed metaphor. It is difficult, however, to extract the cyborg from its place in cybertheory, that is, to ignore its impact upon gender and to elide the impact of feminist knowledges from its construction. The discourses of technology and postmodernism have each been subject to feminist critique, as I have demonstrated; however, these critiques have proceeded from different feminist quarters and have frequently been separated by disciplinary borders. This has permitted the convergence of postmodernism and science, manifesting itself in the SF cyberculture, to selectively ignore feminist critiques of each separate discourse. The writing surrounding the hopes, fantasies, and realities of information technologies is both strikingly gendered and uncritical, a point made somewhat convincingly by a few scholars (Sobchak, 1993; Balsamo, 1993), and casually by a few others (Bukatman, 1993; Csicsery-Ronay, Jr., 1991b). Current work must bring together the engagement of feminists with technology and with postmodernism to better understand the power, potential, and dangers inherent in cybertheory and in the

cyborg way of life.

5. Conclusion

Feminist cybertheory, as I have defined it, can be seen as the attempt to (re)write a feminist SF of cyberculture or alternatively, to conduct a feminist anthropology of cyberculture. Notwithstanding a solid tradition of feminist engagements with technology, and the central role that technology plays in cyberculture, feminist cybertheory is more informed by the feminist encounter with postmodernism, than with science and technology. Perhaps some of the *jouissance* of the SF of cyberculture literature imbues the metaphor of the cyborg whichever environment it inhabits. I suggest that by relocating feminist cybertheory, and its subject cyborg, in the tradition of feminist cultural analyses of technology, the potential for a feminist cyberculture can be assessed. To do this, I first define and organize the literatures which constitute feminist cybertheory, the data of my analysis.

III. Defining Feminist Cybertheory: The Data

... we [feminists] must constantly remind ourselves that images, metaphors, and theoretical language itself, are also sites of cultural and political contestation. The meaning of an image is never easily won -- Anne Balsamo²⁰

Feminist cybertheory is an emergent body of feminist literature which explores issues of technology, culture, and gender, specifically through interrogating a manifestation of the intimate coupling of body and machine, the cyborg. Feminist cybertheory arises at the intersection of postmodernism, feminism, and science and technology; it is the activity of theorizing a feminist cyberculture. In part because this writing is found in such a variety of sites and is often linked only by its examination of the cyborg, there have been no previous sustained analyses of these pieces as a body of literature offering a unique contribution to the feminist analysis of technology. Given the issues with which this writing grapples, however, it is important to bring them together for analytic purposes, this "surprising half-life" of Haraway's cyborg. This chapter establishes the parameters of the body of literature which I collect and label feminist cybertheory, and outlines the characteristics which guide my selections. I then provide a brief overview of the literature, organized around the specific treatment of the cyborg as representation, metaphor, or "reality".

1. Characteristics of Cybertheory

There are a number of characteristics according to which I select and delimit this body of writing, the object of my analysis. First, feminist cybertheory, and cybertheory generally, relies explicitly, or implicitly, on the generative metaphor of the cyborg. By this, I mean that the metaphor of the intimate coupling of body and technology serves to set the problems posed in the literature, and thereby defines and delimits the solutions which can be offered (Schön, 1993). The use of the cyborg varies from the analysis of its representation in popular cultural forms, to its use as a metaphor for a non- or un-gendered human subject. Regardless of its use, however, it raises certain issues from its starting assumption that literally or metaphorically, the human subject in the twentieth century is increasingly coupled with technology. This implicates the body, and in particular, the sexed body; the traditional distinction between nature and culture or nature and science; the future of the humanist subject of knowledge; the future of identity politics based on fixed notions of bodies and subjects; and more. These are the issues cybertheory generates from its starting point at the micro-level, the cyborg subject.

Second, the feminist literature employs the notion of body/machine coupling to explore, in some way, the tensions between gender and technology -- whether in the context of grappling with a postmodern culture dominated by information technology, exploring representations in popular culture through psychoanalytic analysis, or contemplating the "reality" of body/machine fusion offered by new communication and information technologies. All of the writing takes as a starting point that gender

and technology are both discursive constructs and explores -- figuratively, representatively, or literally -- what happens when these discourses intersect or collide.

Third, all of the writing I consider is writing by women. While I do not assert that men *cannot* write feminist cybertheory, I am suggesting that they *have not* done so.²¹ While gender issues are occasionally nodded at, the full implications of body/machine coupling for women's bodies and women's subjectivity seem to be a primary concern for women. There is, however, a secondary level of literature which can be relied upon in support of some of the claims of feminist cybertheorists, or which serves as a useful point of reference. This includes writing by thinkers such as Jean Baudrillard (1983a, 1983b, 1987a, 1987b, 1991), Jean-François Lyotard (1988-9), Lewis Mumford (1966), Scott Bukatman (1990, 1991), and others offering various perspectives on the impact of information technologies on our culture.

More particularly in the SF of cyberculture, examples of some analyses which will inform my analysis of feminist cybertheory include: a special issue of *Genders* (1993) entitled "Cyberpunk: Technologies of Cultural Identity" with guest editor, Thomas Foster;²² Scott Bukatman's chapter, ostensibly on gender issues in his book *Terminal Identity: The Virtual Subject in Post-modern Fiction* (1993) entitled, "Terminal Resistance/Cyborg Acceptance"; and explorations of science fiction, social theory, and specifically, postmodernism, by Istvan Csicsery-Ronay, Jr. (1991a, 1991b). Much of this writing could benefit from problematizing the cyborg metaphor, a more critical evaluation of the implications of the technological, and a

more complex understanding of the gender issues present, but largely unaddressed, in their work.

The fourth characteristic of feminist cybertheory is related to, and an elaboration of, its being written by women. Cybertheory is a body of theory attempting to grapple with the bodily implications -- individual and social -- of "new" technologies. Issues of gender are inherent to this discussion. For this reason, I exclude from my categorization some writing which others would likely include. Feminist cybertheory takes a specifically feminist stance on these issues of gender.

Fifth, one could convincingly argue that some feminist fiction, particularly feminist SF, can wear the mantle of feminist cybertheory as I have defined it. Works such as Marge Piercy's *He, She, It* (1991), Joan Slonczewski's *Daughter of Elysium* (1993), Pat Cadigan's *Synners* (1991), James Tiptree Jr.'s (Alice Sheldon's) short story "The Girl Who Was Plugged In" (1975), do have a very legitimate claim to be feminist cybertheory. Often the fiction offers more theoretically sophisticated and more eloquently treated reflections on the feminist issues posed by cybertheory than the writing calling itself academic. However, for the purposes of keeping the size of my project manageable, I do not include fiction. As well, while there have been some attempts to analyze what might be called fictional cybertheory (Wolmark, 1993; Bukatman, 1993; Hollinger, 1991), there has not been an effort to compile and analyze non-fictional cybertheory as a growing and significant body of feminist theory. While I recognize that the line between fiction and non-fiction is somewhat problematic, the cybertheory I address is written as, and intended to be read as,

academic feminist theory or analysis.

A sixth characteristic of feminist cybertheory is its fluidity. Like its cyborg namesake, this is a notoriously multiplicitous body of literature in its naming, location, and theoretical perspective. A number of pieces slide easily between a number of the categories which I construct. The selections are found in journals on film, literary studies, socialism, art, communication, and discourse analysis, feminist theory collections, and computer magazines. They are located within theoretical discourses as diverse as psychoanalysis, socialist feminism, and postmodernist feminism. While I have selected a finite number of pieces for my analysis, I do not mean to suggest that there are not other writings which have been, or are being written, that could fall within the parameters of feminist cybertheory.²³ My project has two goals, however. First, it identifies the attributes and contributions of a body of feminist theory and writing which offers a unique and stimulating approach to exploring technology. Second, it offers a framework for analysis which I hope continues to be relevant in the ongoing critical examination of writing of this nature.

Feminist cybertheory poses a certain problematic. While the original piece by Haraway was written "... to find political direction in the 1980s in the face of the odd techno-organic, humanoid hybrids 'we' seemed to have become worldwide" (Haraway, 1991b: 21), much of the subsequent writing has focused, instead, on the potential for postmodern subjectivity offered by the cyborg. Perhaps, some would argue, these are not so different. This remains an open question, but one which I suggest can only be answered by a closer examination of the meanings of

technoscience. If the cyborg's parents are postmodernism and technoscience, more particularly, if postmodernism is the mother, then what of the father?²⁴

2. The Three Faces: Metaphor, Dreamlike Fantasy, Literal Being

As I note in my introduction, Margaret Morse, in her critique of cyborg existence, begins by questioning the status of the cyborg in our culture. "However satisfying such an imaginary blend might be, the actual status of the cyborg is murky as to whether it is a metaphor, a dreamlike fantasy, and/or a literal being ..." (Morse, 1994: 87). I suggest that the cyborg is most richly cast as all three. Some feminist cybertheory accepts the cyborg as metaphor, often for postmodern subjectivity; some considers the cultural representation of the cyborg and the fantasies those representations embody; and yet other work considers the potential of real cyborgs, of the fusion of body and machine through new communication and information technologies. The discussions of each of these facets of the cyborg contribute to an overall understanding of the issues which can be explored through feminist cybertheory.

In the section which follows, I briefly outline these three cyborg identities and identify the particular writings which comprise them. There is a certain amount of necessary slippage in these categories as one piece often speaks to more than one issue and therefore, contributes to more than one category. Finally, I identify a series of issues posed by each incarnation of the cyborg.

(i) **cyborg as metaphor**

Like all neuroses, mine is rooted in the problem of metaphor, that is, the problem of the relation of bodies and language -- Donna Haraway²⁵

The cyborg-as-metaphor literature uses the image or construct of the cyborg to represent that which is not man nor woman, but something else. The goal of this group of feminist cybertheory is to explore a theoretical possibility which is not possible in the language of existing feminist imagery. Alternatively used as a metaphor for an ungendered subject, for a particular relationship with technology, or most frequently, as a fractured and multiple subjectivity, the cyborg-as-metaphor writing is the foundation of feminist cybertheory.

Of course, key to this work is Donna Haraway's essay, "A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s". She suggests that the cyborg is "... a fiction mapping our social and bodily reality ..." (Haraway, 1985: 66). Challenging modernist dualisms such as nature/culture and man/woman, Haraway's cyborg rewrites the ontological grounding of emancipatory politics in a world characterized by an informatics of domination where all is cast as a problem of coding. She asserts that "[c]yborg imagery can suggest a way out of the maze of dualisms in which we have explained our bodies and our tools to ourselves" (Haraway, 1985: 100).

There is certain other writing by, and interviews with, Haraway which shed further light on the ideas she offers in the *Cyborg Manifesto*. In an interview given to Constance Penley and Andrew Ross, entitled, "Cyborgs at Large" and in a postscript to the interview, she elaborates on the original purpose of the essay and of her

ongoing project (Penley and Ross, 1990). As well, in a "conversation" with Kum-Kum Bhavnani, she locates her work in relation to various stages of her career and discusses issues of race, gender, and identity (Bhavnani and Haraway, 1994). In a chapter entitled, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective" in her collection, *Simians, Cyborgs, and Women: The Reinvention of Nature* (1991a), she grapples with radical social constructivism, on the one hand, and the apparent need to continue to generate scientific knowledge about our "reality", on the other. Finally, in a more recent piece, "The promise of monsters: a regenerative politics for inappropriate/d others" (1992), she extends her cyborg notions even further and refines her metaphors. Taken as a group, Haraway's writing remains perhaps the most effective in using the cyborg as a metaphor to explore alternative feminist theoretical positions. Virtually all other feminist cybertheory is in conversation, either critically or favourably, with her writing.

There are several writers who have engaged with Haraway's cyborg vision on theoretical terms; some celebrate its potential and freshness, while others critique it as untenable. Three writers in particular -- Christina Crosby (1989), Mary Anne Doane (1989), and Joan W. Scott (1989) -- offer a useful range of theoretical responses to cyborg existence. Crosby interrogates the apocalyptic nature of Haraway's vision, while celebrating the pleasure offered by the text itself, "... ironic, pleasurable, perverse -- and powerful" (Crosby, 1989: 207). Her primary critique centres around her doubts surrounding Haraway's fusion of seemingly epistemologically inconsistent modes of theory. Doane's is the most sophisticated of the three analyses, in my

view, as she focuses on Haraway's opposition between nature and choice and the difficulties for a feminist politics implicit in the attempt to reground ontology. Scott notes Haraway's refusal of nineteenth century dualisms, her assertion that the world now consists of a problem of coding in the informatics of domination, and that affinity, rather than identity, grounds cyborg politics. Her three critiques centre around the problems of a non-humanist socialist-feminist politics, a lingering technological determinism underlying Haraway's arguments, and Haraway's use of "women of colour" as exemplars of cyborgs, without recognizing her evocation of natural identity (Scott, 1989: 126-7).

In addition to Haraway's cybertheory, other writings that employ the cyborg metaphorically are Margaret Morse's, "What do Cyborgs Eat?: Oral Logic in an Information Society," where the author reads the cyborg as a metaphor for the rejection of the organic body and locates this in the larger social context of attitudes towards "body loathing and machine desire" (Morse, 1994: 87). Organizing her critical assessment around the question of what cyborgs eat, she contemplates, in theoretical and popular cultural sources, our paradoxical relationship to the body in current society. Gabriele Schwab, in "Cyborgs, Postmodern Phantasms of Body and Mind" (1987), employs the cyborg as a metaphor for postmodern, technologically-informed subjectivity and contemplates what this reveals about deep-seated psychological fears in us and our culture. She hopes to disrupt technology as a "cause" of many of these ideas.

From this perspective, technology is not viewed in the context of its concrete implications, be they utopian or dystopian. Instead, I hope to

shift the focus toward the psychohistorical dynamic that expresses itself in the ways in which technology becomes a field of cathexis, an imaginary screen onto which psychic energies from the most archaic to the most up-to-date may be projected (Schwab, 1987: 67-8).

Thus, the cyborg is metaphor for psychological anxiety about technology.

Combining an analysis of works of fiction and theory, Judith Genova investigates the cyborg as a metaphor for a particular vision of the nature/culture binary in her article, "Tiptree and Haraway: The Reinvention of Nature" (1994). Refusing to view nature as "culture's silent dummy", while at the same time rescuing it from "determinist science", the cyborg is metaphor for the reinvention of nature (Genova, 1994: 7). One could also argue that an assumption underlying Genova's work is that fiction is metaphorical theory and theory can be metaphorical fiction. In a somewhat weaker piece, Stephanie A. Smith also uses feminist SF as cyborg writing to further explore the implications of postmodern subjectivity in her article, "Morphing, Materialism, and the Marketing of *Xenogenesis*" (1993). She highlights issues of what I call the aestheticization and artifactualization of the body through her discussion of the marketing of cyberpunk writing.²⁶

In a more sophisticated analysis, which begins with fiction but does not end there, N. Katherine Hayles' essay, "The Lifecycle of Cyborgs: Writing the Posthuman", explores the cyborg as a discursive metaphor employed primarily in science fiction, but one revealing of larger social and cultural perceptions as technology seemingly pushes us into the realm of the posthuman. In a related analysis, "Cyborgs and Replicants: On the Boundaries" (1994), Alice Rayner takes a more holistic approach, viewing the cyborg as a metaphor, not for eroding boundaries

between the human and the technological, but rather more as a "clarifying mirror for the human" as we grapple with our fear of, and our fascination with, technology (Rayner, 1994: 125).

In more culturally-grounded analyses, both Anne Balsamo's, "Reading Cyborgs Writing Feminism" (1988), and Jenny Wolmark's, *Aliens and Others: Science Fiction, Feminism and Postmodernism* (1994), explore the potential of the cyborg as a metaphor for a feminist, postmodern subject. "I want to reclaim the cyborg image as a cultural image and possible prototype for a feminist reconceptualization of personal and political identity which embraces, and perhaps, celebrates the diversity of woman's identity" (Balsamo, 1988: 342). For Wolmark, "[t]he cyborg metaphor emphasizes the increasingly fluid borders between reality and simulation as definitions of the human as cyborg and the cyborg as human become blurred" (Wolmark, 1994: 127).

Perhaps uniquely in current feminist cybertheory, Susan Leigh Star considers the practical implications of postmodern subjectivity and the ubiquity of technology in her article, "Power, technology and the phenomenology of conventions: on being allergic to onions" (1991). She suggests: "[o]ur selves are thus in two senses monstrous selves, cyborgs, impure, first in the sense of uniting split selves and secondly in the sense of being that which goes unrepresented in encounters with technology" (Star, 1991: 29). Hers is one of the few pieces to suggest a practical embodiment of cyborg existence in terms of multiple communities and identities.

As Balsamo suggests "... [c]yborgs ... open up productive ways of thinking

about subjectivity, gender, and the materiality of a physical body" (Balsamo, 1988: 343). The potential of the metaphoric cyborg is in its embodiment of issues of feminist postmodern subjectivity, of the relationship between politics organized around gender and a sexed body, of the relevance of a body at all, of whether gender oppression disappears if gender does. Determining whether feminist cybertheory, in its metaphoric incarnation, asks these questions or offers answers is part of the work of this project.

(ii) **cyborg as dreamlike fantasy**

What popular culture's cyborg imagery suggests is that electronic technology also makes possible the thrill of escape from the confines of the body and from the boundaries that have separated organic from inorganic matter --
Claudia Springer²⁷

Many feminist cybertheorists begin their analyses of the cyborg, even as a theoretical notion, by engaging first with the plethora of cyborg images surrounding us in popular culture. While a number -- Hayles (1993), Rayner (1994), Wolmark (1994), and Balsamo (1988) -- then move on to engage with the cyborg as a feminist theoretical construct as well, others explore the meaning systems in which popular cyborgs are embedded and the meanings which they shape and reinforce.

Most writers suggest that the popular cyborg representation is a response to a crisis in straight white male subjectivity. Cynthia Fuchs, in "'Death is Irrelevant': Cyborgs, Reproduction, and the Future of Male Hysteria" (1993), suggests a three-part typology of the "triumphant macho-cyborg", such as Robocop or the Terminator, the "threateningly androgynous cyborg", such as Robocop 2 or the T-1000 or T2, and

the "human forced to function as a cyborg", such as Captain Picard as Borg in *Star Trek: The Next Generation*. Her categorization of the various films, grounded in psychoanalytic theory, is too detailed for my purposes; I prefer the analysis offered by Claudia Springer in her two articles, "The pleasure of the interface" (1991) and "Muscular Circuitry: The Invincible Armored Cyborg in Cinema" (1993). While still taking a psychoanalytically-informed approach, Springer engages more critically with the popular cyborg as a general construct. She effectively demonstrates that "... while popular culture texts enthusiastically explore boundary breakdowns between humans and computers, gender boundaries are treated less flexibly" (Springer, 1991: 308). Rather than the post-gendered ideal of Haraway's cyborg, popular cyborgs represent exaggerated gender.

The popular construction of cyborgs reveals that, as Anne Balsamo notes, "[t]he meaning of an image is never easily won" (Balsamo, 1988: 342). Given the seeming embeddedness of the cyborg in a discourse of triumphant masculinity, it is, at the very least, a difficult metaphor to disrupt. It embraces the paradox of the celebration of disembodiment with the retention of sexuality, and, not coincidentally, of gendered power relations. These writers suggest that this reflects the simultaneous fascination and revulsion with the human body that imbues Western culture.

There is another work which, while not feminist cybertheory, can nonetheless usefully inform the analysis of popular cyborgs. Mark Seltzer's intriguing book, *Bodies and Machines* (1992), explores the discourses of body/machine coupling in late nineteenth century popular cultural forms such as literature, photography, and boy

scout manuals. His thoughtful and critical analysis, while somewhat unsophisticated in terms of his analysis of gender, nonetheless raises the often unexplored connection between consumer culture and the body as artifact.

While a few pieces pay lipservice to issues of gender, much of the SF of cyberculture purports to interrogate the popular cyborg located in cultural sites such as television, film, comic books, and cyberpunk literature. They correctly identify both the issues and the challenge. Thomas Foster, in his self-proclaimed "white male" contribution to the special issue of *Genders* edited by himself, notes:

[e]ven in an environment where the gendered body seems to have been entirely denaturalized by media simulacra, reproductive technologies, and the possibilities opened by genetic engineering and surgical modification, we cannot help but 'remember/if [we're] a boy or a girl,' a necessity that is particularly acute for white male critics like myself (Foster, 1993: 12).

While generally thrilling to the notion of "the very embodiment of postmodern disembodiment" promised by new information technologies, Scott Bukatman does acknowledge that female bodies are more directly bound up in power relations (Bukatman, 1993: 314), that is, he recognizes gender as central to discourses of disembodiment.

Bukatman does not, however, problematize in any way the singularly white, masculine, heterosexual nature of discourses of postmodernism generally, and cyberpunk, cyberspace, and *cyberdrool*, specifically (as Bukatman ironically appropriates the term to denote works less theorized than his own).²⁸ Foster makes an argument for the racist, heterosexist, masculinist, and consumeristic nature of postmodern culture, yet ultimately equivocates on cyberpunk, reiterating the well

worn claim that it offers both a cautionary tale and the seeds for radical, postmodern existence. While notoriously masculinist, racist, and classist, this work does however, serve as a foil to the more critical feminist analyses of many of the same cultural texts.

Issues posed by the popular cyborg include the overwhelming similarity in the portrayal of popular cyborgs -- the Western cultural tradition of "... displacing and projecting fears of overpowering technology onto patriarchal fears of female sexuality" (Springer, 1991: 305); the "banal paradox" of the desire for embodied disembodiment (Whitaker, 1994: 45); the sensualization and sexualization of disembodiment in heterosexual masculine terms; the artifactualization and aestheticization of the body; and the gendered nature of postmodern cultural discourse.

(iii) cyborg as literal being

For couch potatoes, video game addicts, and surrogate travellers of cyberspace alike, an organic body just gets in the way -- Margaret Morse²⁹

The literal is the most underwritten and undertheorized of the three cyborgs. At the same time, however, casual references to its existence abound in writing about information technologies and about cyberculture. Many discussions of "cyberspace", activities on the Internet, and virtual reality suggest that technology is making the physical body irrelevant, that one can wear multiple identities, that women can play as men and vice versa, and that new non-material forms of community are possible (Benedikt, 1992; Heim, 1992, 1994; Stenger, 1992; Rheingold, 1991). What is being

suggested by these writers is that the material conditions to produce what cybertheorists and feminist cybertheorists, in particular, are contemplating as representation and metaphor, cyborg existence, is becoming a reality. Therefore, what distinguishes feminist cybertheorists considering the cyborg as literal being is their focus on the material presence of technology and its embeddedness in social relations.

Certain feminist cybertheorists do take into account technology in their more theoretical or popular cultural discussions. Haraway, herself, is advocating an informed resistance to the power relations of techno-science. In an interview with Constance Penley and Andrew Ross she suggests,

... I know that there's a lot going on in technoscience discourses that's not about the devil, that's a source of remarkable pleasure, that promises interesting kinds of human relationships, not just contestatory, not always oppositional, but something often more creative and playful and positive than that ... even technoscience worlds are full of resources for contesting inequality and arbitrary authority (Haraway in Penley and Ross, 1990: 8).

Thus, her metaphoric cyborg is offered as an attitude to be adopted in the material work of engaging with technoscience.

Other feminist cybertheorists call upon the potential reality of technology/human coupling to demonstrate the relevance of their metaphoric or representational analyses (Springer, 1991; Rayner, 1994). However, most do not question or locate the literal cyborg discourses they are replicating. That is, while they engage critically with the notion of human/technological coupling, they do not problematize the primacy of technology or the cultural processes through which we

accord technology such a position. They problematize the gendered metaphors of the technology, but not the technologies themselves. The limitation of these analyses is their interpretation of technology as artifact, rather than as cultural meaning system. Other thinkers such as Balsamo (1988), Hayles (1993), and Wolmark (1994), while adopting a more sophisticated underlying notion of technology, do not, for the most part, interrogate "literal" cyborgs. This has the effect of reproducing much of the technological acceptance present in the SF of cyberculture.

Allucquere Rosanne Stone in her article, "Will the Real Body Please Stand Up?: Boundary Stories about Virtual Cultures" (1992), flirts with a feminist engagement with the notion of disembodiment, but ultimately replicates Haraway's theoretical position and is unable to offer any empirical evidence from her research in its support. In fact, her examples work against her ambivalent conclusion that notwithstanding the danger of women and people of colour becoming disembodied (and correlatively disempowered), there remains much feminist potential in disembodiment through technology (Stone, 1992: 113). In a more sophisticated piece which begins by looking at Pat Cadigan's cyberpunk novel, *Synners* (1991), and expands to consider the gendered implications of cyberculture, Anne Balsamo in, "Feminism for the Incurably Informed" (1993), notes that while the discourse is one of disembodiment, literal cyborg communication remains embodied (and engendered).

Studies of the new modes of electronic communication, for example, indicate that the anonymity offered by the computer screen empowers anti-social behaviours, such as "flaming" (electronic insults), and border-line illegal behaviours, such as trespassing, E-mail snooping, and MUD-rape (unwanted, aggressive, sexual-textual encounter in a multi-user domain). And yet, for all the anonymity they offer, many

computer communications reproduce stereotypically gendered patterns of conversation (Balsamo, 1993: 695).

Her own primary research, as well as the small amount of other research which she could find, supports her allegations.

Although not specifically invoking the cyborg metaphor (or feminism) to any great extent and while located more in a technical than academic realm, Brenda Laurel's work in the computer games industry lends an interesting contribution to these issues. While she has been criticized for not being enough of an "activist" about her engagements with technology (see Bukatman, 1992), her research certainly contemplates literal cyborgism (Laurel, 1990).

In short, there is much undone work in this area. Interestingly, when Ralph Schroeder is attempting to offer examples of political incarnations of new information technology hybrids, Haraway and Stone are the only examples he can offer (Schroeder, 1994: 520). Escobar has a similar difficulty and only references Haraway and Laurel (Escobar, 1994). The literature of cyborgs as metaphor and as dreamlike fantasies would benefit greatly from more research into the gendered implications of cyborgs as literal beings. A frequent criticism levelled against both recent feminist and postmodernist thought is its distance from the field -- from actual social practices, social institutions, and social relations. While it lies beyond the scope of this particular project, no doubt part of the answer to the feminist viability of the cyborg is to be found in analysis of literal cyborgism, women actually using the relevant technologies.

For the purposes of this analysis, the issues posed by the "literal" cyborg are

how to resist and exist within a world increasingly dominated by technology; the embeddedness of these technologies in consumer culture; the embeddedness of technology in patriarchal culture; and the usefulness of viewing technology as a set of cultural discourses, rather than merely as a set of artifacts. Again, while there is a dearth of writing in this area, I will examine the questions posed, and answers offered, by the writing that contemplates literal cyborgs.

3. Conclusion

While Haraway's ideas seem to offer the genesis of feminist cybertheory, and in many ways suggest a theoretical limit point to the literature, this body of work as a whole engages with, critiques, celebrates, and adapts the cyborg to explore feminist possibility in the context of cyberculture. Manifesting itself as theoretical metaphor for multiple or postmodern subjectivity, as representation of masculinist fantasy or nightmare, and as actual human/technology interface in the realm of cyberspace, the three faces of the cyborg serve as an organizing concept in feminist cybertheory. All share a related concern with feminism, technology, and culture, however, which can serve as a testing ground for feminism's engagement with the relationship between the subject and technology.

Feminist cybertheory is not the only literature, however, which one can usefully analyze as positing a human/technology relationship at its core. I suggest that other social theory also interrogates this intimate coupling, without using the cyborg as its organizing notion. Other models of intimate coupling can be drawn

from the social theory with which feminist cybertheory is engaged. In the following chapter, I construct two alternative models of human/machine fusion which I suggest can be drawn out of social theory since industrialization.

IV. Fictions Mapping Bodies: Building Models

I am making an argument for the cyborg as a fiction mapping our social and bodily reality and as an imaginative resource suggesting some very fruitful couplings -- Donna Haraway³⁰

Western thought has long been fascinated with the notion of body/machine fusion and I suggest that some understanding of this complex relationship between humans and their technologies underlies much social theory, whether implicitly or explicitly. In some writing, this takes the form of thinking technology in terms of the human body, for example, McLuhan's metaphor of the media as the exteriorization of the human senses (McLuhan, 1964). In others', the body is thought through technological terms, such as Wiener's characterization of the human as an automated, but intelligent, system (Wiener, 1971). Finally, in still others', the body and technology are fused into another identity, neither human nor machine; the quintessential example being Donna Haraway's cyborg, "... a kind of disassembled and reassembled, postmodern collective and personal self" (Haraway, 1991a: 163). In short, Western culture and thought have long been fascinated with the limits of the personal body represented in the notion of the monstrous combination of human and machine.³¹ The particular understanding of the individual body -- the subject -- has clear implications for the social body -- the community.

I suggest that each of these positions -- technology as body, body as technology, and body coupled with technology -- has in common an attempt to negotiate the space between the personal body and social body through metaphors of the machine. As I note in my introduction, Hayles asks a question relevant to all

social theory, but which is particularly cogent to my project: "[h]ow does a culture understand and process new modes of subjectivity?" (Hayles, 1993: 153). Her answer forms the subject matter of my inquiry. "Primarily through the stories it tells, or more precisely, through narratives that count as stories in a given cultural context" (Hayles, 1993: 153). What I examine in this thesis are the "stories" that we are telling about personal and social bodies through narratives of technology. These stories can be found in many cultural sites, but among them, social theory. I suggest that theory can be usefully read as narratives which tell stories about our selves and our technology.

Both feminist cybertheory, and cybertheory generally, offer the cyborg as the "... fiction mapping our social and bodily reality" (Haraway, 1985: 66). The cyborg is not the only "story" offered to explore this reality, however. Since industrialization many of the stories mapping our social and bodily reality have used machines as their compass. Escobar suggests that "[t]he boundaries between nature and culture, between organism and machine are ceaselessly redrawn according to complex historical factors in which discourses of science and technology play a decisive role" (Escobar, 1994: 217). This rewriting implicates bodies, organisms, and communities as the boundaries of organic, technical, and cultural are permeated or dissolved.

Like Foucault (1979), I assume the body is invested by, and with, power relations; in his language, what I am examining is the "political technology of the body" -- a knowledge about the body which is more than the science of its functions. It is a knowledge which examines the body as a site of power relations and examines

how knowledge is produced from those power relations (Foucault, 1979: 25-7). It is the embeddedness of the body in technological power relations, and the knowledges that are produced and implicated in that process, that are of interest to me.

Cybertheory is such a body of knowledge. Unlike Foucault, however, I do not necessarily concede the non-sexed, non-racialized nature of the body; the materiality of the body and its relationship to both the ontology, and the epistemology, grounding feminist knowledge remain open questions in my analysis.

Because my ultimate goal is to understand the model of personal and social bodies underlying feminist cybertheory in order to determine what it offers feminist agency, I want to locate that model in a context of, and in dialogue with, other models articulating the space between the social and individual body in an era of machinery/technology. The nature of natural and mechanical metaphors have changed over time, necessitating the redrawing of boundaries between human and machine (Sheehan, 1991: 135). In this chapter, I build and interrogate two of these redrawings, two models of body/machine coupling, which I suggest ground, and are implicit within, differing approaches to social theory. Since industrialization, we have thought our selves in relation to, and often in terms of, the machinery we build. If one accepts, as I do, that technology is gendered, then significant implications result for a culture where one of the prevalent metaphors for individual and social bodies is technology.

I identify two general ideal-type models of the subject generated from differing stances on the relation between bodies and machines. First, what I am calling the

biomechanical model is premised on the position that "man is *like* machine". Second, the *mechanical model* suggests, instead, that "man *is* machine". These models and their notion of the human/technology relationship are significant because it is with these positions and their gendered implications that feminist cybertheory is engaged and which it attempts to rewrite.

My models parallel in some ways, but also diverge from, Bill Nichols' suggested periodization (see Appendix A). He argues that in early capitalism, the human is defined in relation to the animal. In monopoly capitalism the human is defined in relation to the machine world. Finally, in post-industrial capitalism, the human is defined in relation to cybernetic systems, including "... computers, bio-genetically engineered organisms, eco-systems, expert systems, robots, androids and cyborgs -- all of which evoke those forms of ambivalence reserved for the Other that is the measure of ourselves" (Nichols, 1988: 28). I prefer my models for a number of reasons. Among them is my refusal to necessarily associate my models with a political economic periodization (and the causality implicit within that). Because I locate my work in the cultural feminist analysis of technology, I choose as my starting place our cultural understandings of techno-subjects. As well, I intend my models to reflect, not merely the way that the human is defined, but to reflect a larger technological "structure of feeling" which has greater implications than our definitions of our selves. Our understanding of the techno-subject shapes our understanding of the limits of community, and who or what is constituted as monstrous in our society.

In both of my models, the personal body is cast in relation to technology with

resulting implications for the nature of the social body, for the agency of embodied subjects within it, and thus, the potential for both control and resistance. I outline each model and some of its implications for bodies, in particular, the sexed personal body and the gendered social body. Thus, the biomechanical and mechanical models are gendered models of personal and social bodies. The object of my project is to attempt to determine whether feminist cybertheory is premised upon a different model, one which can address the gendered nature of the biomechanical and mechanical models. By examining each of the biomechanical and mechanical models, I develop a framework and context for a critical analysis of feminist cybertheory and its implications for a feminist social body in the late twentieth century.

1. The Models

Labelling the tension between nature and technology as the "body-machine complex", Mark Seltzer demonstrates, through exploring popular culture, the problem of the body in machine culture. By body-machine complex, however, he is attempting to evoke a particular relationship between body and machine. He makes a clear distinction between different ways of mapping the space between bodies and machines, suggesting that bodies can be seen as similar to machines, bodies can be seen as machines, machines can be seen to be like bodies, and finally, bodies and machines can be intimately coupled, something which is qualitatively different than the other relations (Seltzer, 1992: 12-13). Intimate coupling suggests an inseparable combination of identity, something which becomes more than the sum of its parts.

Seltzer offers a number of ways in which the relationship between bodies and machines can be ordered. Specifically, I focus on the perspectives that people can be perceived as like machines, machines can replace bodies and persons, or machines and bodies can be coupled to result in something other than each individually.

I suggest that since industrialization there have been a number of different ideal-type models of personal bodies thought through the language of machine culture. These models are archetypal; they are neither complete, impermeable, nor entirely chronological. I do not intend to suggest that they are historically mutually exclusive, that they have ever been fully realized in practice, nor that they are the only ways in which we have grappled with these issues. However, the models do help to compare and contrast, to focus critique, and to order certain shifts in culture and knowledge. I seek to do this without reliance upon economic and political causality. I do not want to fall back upon the nostalgic construction of "traditional" and "modern" society that imbues Habermas's work (1970) (see Appendices B and C) and which Foucault (1979; 1970) attempts to rewrite. In part for this reason, I do not begin with a "founding" organic model which would seem to precede, in chronological time, the two models that I offer and of which, all subsequent models are a "distortion". Rather, I am interested in how our technological culture shapes, and is reproduced in, the construction of bodies -- social and personal -- through the metaphors and language of technology.

These models do not answer questions of causality, but instead, explore the implications for how societies construct culture/knowledge surrounding community

when one begins with an understanding of the individual body engaged with technology. My models draw heavily from the work of others, but are, at the same time, attempts to both combine and unpack some of the models posed by other authors (see Appendices A, B and D).²² I present the models in their ideal form, reserving sustained critical engagement until subsequent chapters.

The biomechanical model views the subject as *like* machine, maintaining an ongoing tension between the organic and the machinic. In contrast, the mechanical model offers a resolution of the organic/machinic or nature/culture binary in favour of the machine. Notwithstanding the more ambitious claims of cyberneticists and computer scientists, I resist labelling this model "technological"; I do so because the model of the subject and the resulting social system continue to adhere to mechanical/rational principles. In addition, as I will elaborate in Chapter VI, I am trying to retain a critical stance on the technological metaphor of ontology. In the following sections, I elaborate the foundations for, and a number of key elements of, each model and briefly consider their implications for issues of gender.

(i) the biomechanical model

Suspending contradictory practices in relation to each other, and intrinsically promoting a coordination and adjustment of these practices, the naturalist machine operates through a double discourse by which the apparently opposed registers of the body and the machine are coordinated within a single technology of regulation -- Mark Seltzer³³

This model is drawn primarily from the work of Michel Foucault: *Discipline and Punish: The Birth of the Prison* (1979) influences the discussion of the individual

disciplined body and the practices of the larger social body; *The Order of Things: An Archaeology of the Human Sciences* (1970) influences the discussion of knowledges produced through and with certain notions of the Western body and subject; and the lectures on governmentality (Gordon, 1991; Foucault, 1991) influences the discussion of the processes at work on the body. What is attractive about Foucault's work is its privileging of discourse as a shaping influence on Western society, over the material and institutional frameworks in which it manifests. In many ways, however, the biomechanical model also draws on Habermas' (1970) discussion of purposive-rational action and other accounts of the shift from traditional to modern society (see Appendices B and C).³⁴ The model is basically one of modernity.

The biomechanical model takes "man" as its subject and his mind as its organizing metaphor. Foucault suggests that Western man is born as both the subject and object of knowledge in modernity. This "birth" has implications for both the individual body and the knowledges which shape the social body in which it exists. The body becomes private, individualized. It becomes an object of knowledge with scientific status (Foucault, 1979: 24). The body has material status, but is immediately marked, disciplined, counted, by power relations. The body is simultaneously organic, but in many ways, *like a machine*. Lewis Mumford recognizes this tension in his identification of the "New World Man", which he suggests combines at once the "romantic", or natural, and the "mechanical" (Mumford, 1966: 96). The body in this model is the disciplined body; the monster inhabits the undisciplined body (the body *not like machine*).

Personal and social bodies are linked in networks of power which produce certain knowledges:

[o]ne would be concerned with the 'body politic' as a set of material elements and techniques that serve as weapons, relays, communication routes and supports for the power and knowledge relations that invest human bodies and subjugate them by turning them into objects of knowledge (Foucault, 1979: 28).

While the biomechanical body is an organic body, the social body embodies the machine side of the organic/machinic tension. Foucault suggests that the relationship to the machine is written at two levels: the "anatomico-metaphysical", composed of medicine and philosophy, and the "technico-political", where regulation and calculation are used to control and correct the body (Foucault, 1979: 136). The individual organic body is disciplined by the social machine to make it more machine-like, and therefore, more productive. Much of the tension between organic and mechanic is maintained by the simultaneous success of science in explaining the body according to mechanistic principles and its continuing inability to apply machine principles to the working of the mind (Sheehan, 1991: 137).

Foucault suggests that a characteristic of modernity is the "... radicalization of the dividing-line between the organic and inorganic" (Foucault, 1970: 231). Man is *like* machine; certain machine principles could be applied to the disciplining of the body, but the tension remains between body and machine. However, at the level of the social, the machine is an easier metaphor to employ. Thus, the state becomes engaged with technical, rather than practical problems: from the perspective of the state, the subject becomes "calculable man" to use Foucault's phrase, or "statistical

man" in Seltzer's terms. Sciences, human and natural, become the dominant knowledge system: rationality becomes the dominant social ethic. As Mumford states, "[n]othing in life counted except what was countable: units of weight, measure, time, space, energy, money ..." (Mumford, 1966: 100). Escobar also recognizes this tension between organic individuals and machinic institutions.

With modernity many aspects of life previously regulated by traditional norms -- health, knowledge, work, the body, space, and time -- were progressively appropriated by discourses of science and the accompanying forms of technical and administrative organization. Organic and mechanical models of physical and social life gave way to models centered on the production and maximization of life itself, including the coupling of the body and machine in new ways in factories, schools, hospitals, and family homes (Escobar, 1994: 213).

The biomechanical model is gendered in that differential power is accorded bodies according to sex difference. In fact, in many ways, gender is the offspring of the biomechanical model. Numerous scholars have suggested that prior to the Enlightenment, human sciences held a one-sex model of humanity, with the referent being male (Laqueur, 1990; Martin, 1987; Tomaselli, 1993). For thousands of years, biological differences between men and women were thought to lie along a continuum of the male body. For example, the first skeleton of a woman was not assembled until 1769 because the assumption was that the female anatomy did not differ substantially from the male's.³⁵

By the 1800s, however, a shift began to occur, manifesting at two levels: intellectually, as a rejection of the metaphysical for the scientific, as I have previously outlined, and historically, with industrialization, revolution, and social upheaval. The body became the site of fundamental difference between male and female and,

therefore, between men and women.

... [T]he old model, in which men and women were arrayed according to their degree of metaphysical perfection, their vital heat, along an axis whose telos was male, gave way by the late eighteenth century to a new model of radical dimorphism, of biolocal divergence. An anatomy and physiology of incommensurability replaced a metaphysics of hierarchy in the representation of woman in relation to man (Laqueur, 1990: 6).

A need arose for a "science of woman" in addition to the science of man (Tomaselli, 1993) -- a point not recognized by Foucault.

While scholars carefully note that scientific discoveries were not the cause of the shift from a sameness to a difference model of the sexed body, they recognize the value of science as a tool of control in the gendered power relations in which the body is embedded. This is well illustrated by the remarks of Patrick Geddes, a British biologist and writer in the late 1800s opposing the suffragette movement: "[w]hat was decided among the prehistorical Protozoa cannot be annulled by an Act of Parliament" (Geddes in Seltzer, 1992: 41). Because the science of woman was tied to the female body, the cause of the subordination of women shifted from men and God, to women's own bodies. Differential treatment became anchored in the sexed body (produced by nature); gender was born. The biomechanical model is not only the birthplace of *man*, but of *woman*, and more importantly for this analysis, the power relations surrounding that difference as inscribed on the body and legitimated by knowledge, science.

Unlike the mechanical model, where the machine is embraced over the natural, the biomechanical manifests the nature/culture, man/machine tension in a tendency to

code the slip into one half or the other of the binary as feminine. For example,

Andreas Huyssen argues that "... modernist texts tend to equate machines with women, displacing and projecting fears of empowering technology onto patriarchal fears of female sexuality (Huyssen, 1986: 121). This has been recognized by many other authors (Doane, 1990; Bellour, 1991; Dadoun, 1991; Springer, 1991).

Technology which was too powerful was linked to women's bodies, with the solution being firmer patriarchal control. Therefore, in the biomechanical model, both science and technology are constructed gendered knowledges which inscribe and discipline the female body.

(ii) the mechanical model

By making a machine think as a man, man re-creates himself, defines himself as a machine -- J. David Bolter³⁶

The mechanical model is a logical, or rational, extension of the biomechanical model in many ways. The tension between organic and machinic, between the subject and the social, that was present in the biomechanical model, is resolved in favour of the machinic, the social. Grounded in systems theory and cybernetics, this model perceives the ideal human subject, not as *like* machine, but rather, *as* machine. In constructing this model I have drawn upon the work of Norbert Wiener (1971), Gregory Bateson (1972), and Bill Nichols (1988), and upon certain alarmist tales of rationality run amok (Habermas, 1970; Mumford, 1966).³⁷

The techno-metaphor that the mechanical model employs to understand the subject is the robot or automaton. To borrow Evan Watkins' term, the body has been

"technoideologically coded" with the underlying ethic of the body being "performative agency" (Watkins, 1993: 2-4). It is not that natural coding has disappeared, merely that it has lost its explanatory power (Watkins, 1993: 22). Therefore, nature is no longer part of the story that is told to understand personal and social bodies. As a result, the metaphors for subjects, and therefore, for monsters, have changed. The subject is technological, the monstrous disrupts this and returns to the natural.

Mind has triumphed over body; machine over nature. Mumford suggests:

[i]n the pursuit of economy and power, he [post-historical man] would create a society that would have no other attributes than those which could be incorporated in a machine. The machine in fact is precisely that part of the organism which can be projected and controlled by intelligence alone (Mumford, 1966: 118).

The personal body is elided. Again, it has not entirely disappeared, but as a source of identity or the basis for being part of the social body, it has become secondary to the mind. As Stelarc, a techno-performance artist suggests, encapsulating the attitude toward the body: "[w]e're at the time now where we have to start redesigning the human body to match the technology we've created [We] are confronted by the end of the human form as we know it" (Stelarc in Bukatman, 1991: 34).

The social body is also machinic, or systemic -- a macrocosm of the individual machines which comprise it. This is revealed in Bateson's enumeration of the "systems" which are all equally subject to cybernetic analysis: "... organisms in environments, ecosystems, thermostats, steam engines with governors, societies, computers, and the like ..." (Bateson, 1972: 403-4). Society becomes what Mumford refers to as the "mechanical collective" (Mumford, 1966: 124). The metaphor is

machinic rather than organic because individual and social bodies are cast as highly rational (and rationalized) minds.

The metaphoric embodiment of the mechanical model is the computer. As Nichols suggests, "[t]he computer is more than an object; it is also an icon and a metaphor that suggests new ways of thinking about ourselves and environment, new ways of constructing images of what it means to be human and to live in a humanoid world" (Nichols, 1988: 22). Sheehan agrees, suggesting that computers spread so quickly that by the 1960s, they had become fundamental to how we viewed our selves and our society, our "defining technology" (Sheehan, 1991: 138). Nichols distinguishes, however, between the computer and mechanical reproduction. I concede that at a technical level there is a break between these two technologies, but my choice to continue to locate the computer as we currently experience it within the mechanical model is deliberate.

Nichols is using the computer, and indeed, cybernetics, to refer not only to computer technology itself, but experimental fusions of biological and technological technologies.³⁸ This falls outside the mechanical model as the mechanical model represents the triumph of the technological over the natural. I suggest that Nichols is attempting to capture two very different notions in one term; he is returning "nature" to the relationship in the same category which has clearly rejected it. By organizing my analysis around the relationship between human and machine rather than economic periodization, I am able to make a key distinction which Nichols is not. Presently, computers are rational devices. Artificial intelligence is still a goal; it has not yet

been achieved.

Computers are technologies modelled in some ways on the human mind, but designed deliberately to transcend the limits both of mind as organic notion, and of the body. This is not an intimate coupling of machine and human to overcome the limitations of each, rather it is the triumph of machine principles over the human. In short, I do not want to conflate the robot and the cyborg because the implications for the body, and in particular, for the sexed body, are very different. Claudia Springer makes this important distinction well:

[w]hile robots represent the acclaims and fear evoked by industrial age machines for their ability to function independently of humans, cyborgs incorporate rather than exclude humans and in so doing erase the distinctions previously assumed to distinguish humanity from technology (Springer, 1991: 306).

Jean Baudrillard suggests "[t]he robot no longer interrogates appearance; its only truth is in its mechanical efficacy Being and appearance are melted into a common substance of production and work" (Baudrillard, 1983a: 94). Thus, in the mechanical model, productivity becomes the dominant ethic. This is more than the production of the biomechanical model; productivity is production as a measure of both space and time, of efficiency. Work becomes the measure of all things.

Mumford concurs, suggesting that all human activity is reduced to work, where the significant aspect becomes, not the process, but the product -- the worker. "...

[P]ost-historic man seeks rather to personalize the worker, conditioning him and adjusting him so as to fit the impersonal process of production and administration" (Mumford, 1966: 125). These trends of the mechanical model are most readily

apparent in the organization and management theories currently prescribed for the workplace. While many new organization writers (and social theorists) are describing the new workplace models in the language of a non-cybernetic model, in many instances, upon closer examination these models are merely the extension of the ethic of work of the mechanical model into all social spheres (Gerlach, 1994).

This resolution of the dualisms of organic/mechanic, body/mind, and nature/culture in favour of mind, culture, and the mechanical, is touted as liberating. This emancipation does not stem, however, from self-knowledge as machine, but rather, as part of a whole which is self-regulating and capable of long-term stable survival (Nichols, 1988: 45). A notion of politics or agency becomes unnecessary, as emancipation stems from unity, rather than conflict. The social body of the mechanical model functions as a cybernetic system, a closed, self-regulating system with the ability to embrace and incorporate change or risk into its systems functions. I suggest, therefore, that the politics of the mechanical model are functionalist. Systems and individuals have pre-existing informed needs which are then serviced by the system.³⁹ Functionalism does not question the existence or functioning of the system, as a whole. It does not question the goals of the system nor who/what sets them. Nichols asserts that, in addition to the ability to process information and execute actions, cybernetic systems are "... 'cybernetic' in that they are self-regulating mechanisms or systems within predefined limits and in relation to predefined tasks" (Nichols, 1988: 22). Cybernetics and functionalism, both, accept the system as a given and work within the given parameters, always towards the goal

of making the system function better, making the system more efficient.

I suggest that the mechanical model is also premised on a gendered subject, and therefore, a gendered social body. Within the biomechanical model, certain attributes of the subject were coded as masculine and feminine as the shift between a one- and a two-sexed model of humanity occurred. Numerous feminist scholars have demonstrated that in Western thought, culture, reason, or the rational are culturally coded as masculine, while nature, the body, and emotions are coded as feminine, and that this is manifested in popular culture as well as in social theory. Phyllis Rooney's research into philosophy demonstrates that reason (including truth and knowledge) is regularly cast and understood in terms of imagery and metaphors which implicitly and explicitly exclude or denigrate some aspect of the feminine, which is associated with the body, nature, emotion, and so on (Rooney, 1991: 75). The mechanical model offers the triumph of the rational over the emotional, culture over nature, masculine over feminine. This has substantial implications for who is a subject, who is an agent, within the mechanical model. As Rooney notes,

[t]he problem is not simply that a male-female division is set up but that the loci of voice, of agency, of subjectivity, or (rational) power and knowledge are all located with the male node. The dialectic of rational discourse is such that the female is given the minimal agency of interference or simply the voice of silence (Rooney, 1991: 95).

As technology is the ultimate rational discourse, technology has triumphed over nature. Unlike the biomechanical model where culture reflects "[a] certain anxiety concerning the technological [which was] often allayed by a displacement of this anxiety onto the figure of the woman or the area of the feminine" (Doane, 1990:

163), the fear of technology has disappeared in favour of exhilaration, and with it, the active male subject has returned to the realm of the technological. Seltzer suggests that what is currently occurring is "... a transcendence of the natural body and the extension of human agency through the forms of technology that represent it" (Seltzer, 1992: 157). Thus, the turn to machine as model, has a dialectical relationship with the body and gender. On the one hand, the discourse suggests that the body disappears into the machine, but on the other hand, the gendered power relations that rely upon the sexed body for their legitimation, remain. Springer suggests tellingly that

[i]n a world without human bodies, the films tell us, technological things will be gendered and there will still be a patriarchal hierarchy. What this reconfiguration of masculinity indicates is that patriarchy is more willing to dispense with human life than with male superiority (Springer, 1991: 318).

The clearest example of this gendered paradox is in the artifacts, practices, and rhetorics of the computer. Foundational feminist analyses of technology have clearly demonstrated the gendered nature of the social practices in which the computer is embedded, whether it be education, design, or use (Wajcman, 1991; Frissen, 1992; van Zoonen, 1992). The rhetoric of new information and communications technologies is particularly adept at simultaneously disembodiment the user, but ensuring that he remains male. Despite a rhetoric of "disembodiment", "anonymity", and "identity play", many researchers have found that while the actual *body* may not be present, the *bodily* certainly is. Marcos Novak's research suggests:

[t]he course of invention has been to follow the course of desire, with its access to the points of our bodies that have the most nerve endings.

When we enter cyberspace we will expect to feel the mass of our bodies, the reluctance of our skeleton; but we will choose to *control* with our eyes, fingertips, lips and tongues, even genitals (Novak, 1992: 226-7).

The gendered nature of this discourse forces one to ask, whose genitals are intended, however, in the practice of *teledildonics*, the virtual reality research currently exploring sexual prostheses, for example.

Gareth Branwyn, while studying sexual encounters in cyberspace found that anonymity (disembodiment) led to rudeness and sexual harassment, particularly aimed at women (Branwyn, 1993: 768-9). He concludes that "[i]t seems as though computer sex mediates but does not change behaviour, and it may even provide a new space for sexist aggression" (Branwyn, 1993: 788). The Internet has quickly become the new site for unregulated pornographic images and text. Anne Balsamo's research supports these findings and suggests that gendered patterns persist in computer-mediated communication (Balsamo, 1993: 695). As I have noted in Chapter II, not only is the rhetoric of the technology gendered, but so is the critical analysis of it, the SF of cyberculture. It also reflects the problematic paradox of gendered disembodiment. In its sense of adventure, of frontierism, and naive acceptance of all aspects of technological embodiment, women as subjects are ignored, their bodies are objectified by the technology, and issues of gender are disregarded entirely.

In its embrace of the mechanical over the natural, of technological over human, of mind over body, of masculine over feminine, the mechanical model resolves the tensions present in the biomechanical model. However, in the deep-seated paradox of rejecting the body, and yet maintaining experience in embodied

terms, the mechanical model reveals its highly gendered nature. Based upon this paradox, I suggest that in the mechanical model, the body/human has been coded as feminine and rendered unessential, yet pleasurable. The mind/technology, on the other hand, has been coded as masculine and is the desired form of existence. Thus, the bodily becomes the monstrous in the mechanical model, the monstrous feminine.

3. Conclusion

The *biomechanical* and *mechanical* models of personal and social technosubjects are offered as ideal types grounding various approaches to social theory and political agency in the nineteenth and twentieth centuries. Both have generated gendered social practices and theories. Both serve to entrench the masculine/feminine cultural coding of a series of binaries -- culture/nature, technology/human, mind/body, rational/emotional -- with resulting gendered implications for social theory and practices.

Feminist cybertheory suggests that the cyborg offers a route out of the dualisms through which we have understood both personal and social bodies, subjects and sociality. Seltzer suggests that our culture can be characterized by a resolution of the nature/culture binary in favour of culture (Seltzer, 1992: 127), with a concomitant rejection of the body. Certainly the cyborg, without sex, without gender, seems to embody this rejection. The implications for feminism are considerable. Does feminist cybertheory offer a transcendence of dualisms or merely a capitulation to one half of the binary? Is the cyborg vision a rejection of the ontological binaries of

cybertheory, with its cyborg subject, purports to transcend the nature/culture binary and with it, the basis for control and agency embedded within its gendered coding. "Nature and culture are reworked: the one can no longer be the resource for appropriation or incorporation by the other" (Haraway, 1985: 67). This requires the rejection of traditional modes of production and reproduction: instead, the cyborg embraces replication, uncoupled from organic notions of reproduction (Haraway, 1985: 68). Both the subject and the social are divorced from a notion of organicism (Haraway, 1991: 22-3). "The cyborg does not dream of community on the model of the organic family ..." (Haraway, 1985: 67).

The purpose of the transcendence of the nature/culture binary is the ability to exist outside an "origin story" or any resulting claim to organic wholeness. Feminist cybertheory takes as an assumption that all notions of original unity (origins) are based upon, and rooted in, an identification with, or domination of, nature. As I have argued, the biomechanical and mechanical models evidence this. The cyborg community is without origins and, therefore, "[t]he cyborg incarnation is outside salvation history" (Haraway, 1985: 68).

Implicit in this position is Haraway's critique of the limitations of traditional feminist and socialist politics:

[o]ne of my premises is that most American socialists and feminists see deepened dualisms of mind and body, animal and machine, idealism and materialism, in the social practices, symbolic formulations, and physical artifacts associated with 'high technology' and scientific culture. From *One-Dimensional Man* to *The Death of Nature*, the analytic resources developed by progressives have insisted on the necessary domination of technics and recalled us to an imagined organic body to integrate our resistance (Haraway, 1985: 71).

body/machine and nature/culture? My analysis asks: is feminist cybertheory grounded in a qualitatively different model of the subject/technology relationship? Does it have a different story to tell about the nature of personal and social bodies in cyberculture?

In the biomechanical and mechanical models, a story is told about the nature of the subject, the personal body, and the social body. This story is, in each instance, also a story about monsters -- the individual bodies at the limit point of the collective body -- defining the borders of the community. As Susan Leigh Star argues, "[m]onsters are the embodiment of that which is exiled from the self" (Star, 1991: 54). In the biomechanical model, John Bennett, a moralist writing in 1789 suggests, "... an unprincipled woman is a monster" (Bennett in Roberts, 1993: 65). In the mechanical model, the monster is reflected in the invasion of nature into the machine. It would seem, however, that in feminist cybertheory, rather than defining the limits of community, the monster forms the basis for community.

The question to be answered is whether the cyborg community succeeds as a feminist community. The model of personal and social bodies upon which it is based is fundamentally different in both its relation to the nature/culture binary and in its ontological status than either the biomechanical or mechanical models. Yet at the same time, it is still attempting to think the human in terms of a relationship with technology. What must now be determined is "... what is it impossible to think and what kind of impossibility are we faced with here?" (Foucault, 1970: xv).

V. Nature

Despite the fact that women have suffered more than men from the political uses of 'natural', they resist the call to become cyborgs. Most are put off by the thought of evolving into a monster, half machine/half human. After centuries of conditioning, humans hanker for the natural, the organic, the myth of oneness and wholeness, and fear the artificial, the concocted. While psychologically understandable, this reluctance is politically dangerous --
Judith Genova⁴⁰

An integral characteristic of feminist cybertheory is its attempt to transcend the nature/culture binary which Donna Haraway insists hinders most Western social theory and the resulting emancipatory politics. Haraway's *Cyborg Manifesto* serves as both a foundational work in feminist cybertheory and as a foil to other work in this area, including her own. One of its key elements, is its position on nature. The biomechanical and mechanical models control the risk posed by nature through its scientization (machinization) in the case of the former, or the logical extension offered by the latter, its complete elimination. Given the coding by these models of the feminine as natural, both reproduce control over the feminine, and thus, over women. How *woman* is defined in a culture impacts dramatically on the role of *women* as agents in that culture; feminist cybertheory tries to break out of this dualism. What model is it offering, however, as it seems clear that the cyborg is un/natural?

In the following sections, I examine the portrayal of nature in each of the biomechanical and mechanical models and then turn to feminist cybertheory and ask whether it rewrites nature to offer a different model for the personal and social body. To do this, I engage with feminist cybertheory along two axes. First, in its treatment of the nature/culture binary is the binary transcended, or is one side or the other is

favoured? Second, as a result of this position, is the cyborg vested with viable agency, or is it bound up in structures of control? In this way, I interrogate the underlying position on the nature/culture binary to which feminist cybertheory subscribes to determine whether it is a more useful approach for feminist theory than that underlying the biomechanical and mechanical models.

Each of the three incarnations of the cyborg -- the popular/representational, the metaphoric/theoretical, and the "real"/technological -- engages in a silent, or not-so-silent, conversation with the nature/culture binary. I argue in the analysis which follows that popular cyborgs reproduce nature in three ways. First, popular cyborgs purport to engage with the notion of the posthuman yet recuperate the organic through notions of memory, soul, and body. Second, reproduction is often central to these stories; the narrative strategies, while experimenting with different forms of reproduction, again return the function of reproduction to the mother/nature, rather than the father/technology. Finally, the return to the nature/culture binary results in the control of the risk posed in the cyborg as it *naturalizes* patriarchal hierarchy. Popular cyborgs reproduce the biomechanical model.

The metaphoric incarnation of the cyborg resolves the nature/culture binary, not by transcending, nor operating outside of, it, but rather, by surrendering completely to the culture side of the equation. The metaphoric cyborg is a postmodern cyborg, constituted from radical social constructivism and unable to co-exist with any notion of unconstructed nature. It reproduces the mechanical model. The metaphoric cyborg raises the question of the nature of the model of body and

technology underlying postmodernism. Finally, literal cyborg writing is also mechanical: no strategies are suggested or are in place to ensure that the cybernetic future is a feminist future. Both gendered technological practices and the lack of literal cyborg feminist cybertheory attest to this.

The second axis of analysis is whether, given their positions on nature, any of the three cyborgs offers viable feminist agency. Feminist cybertheory suggests that popular cyborgs, after recuperating the natural, reproduce modernist patriarchy through normalizing or naturalizing existing gender hierarchies. Popular cyborg subjects are autonomous, but they are also masculine. The metaphoric cyborg offers the agency of postmodernism, which many argue is inadequate to produce material feminist change. Control is ultimately produced in the metaphoric cyborg through the simultaneous elision and exoticization of difference. As well, the politics of the metaphoric cyborg, based as they are upon a notion of individual choice, seem to slip into liberalism. Finally, in the literal cyborg liberal politics is most clearly manifest, embodying as it does, an individualistic consumption ethic.

1. ***The Silent Conversation: Reproducing the Binary***

In short, the certainty of what counts as nature -- a source of insight and a promise of innocence -- is undermined, probably fatally -- Donna Haraway⁴¹

Each of the biomechanical and mechanical models of social and personal bodies reflects an unarticulated, but nonetheless significant, reaction to the risk posed by nature. While each takes a different approach, the biomechanical attempts to *discipline* nature, while the mechanical tries to *obliterate* it, by defining it out of

existence, both models are in reaction to, and describe, a particular relationship with nature. Unbridled nature constitutes the monstrous in each.

For example, in his critique of the rationalization which grounds both the mechanical and biomechanical models, Jürgen Habermas suggests that the dominance of purposive-rational action is legitimated by, not only the drive towards increasing productivity, but also, the ever-increasing domination of nature (Habermas, 1970: 83). Herbert Marcuse suggests that the scientific method (of the biomechanical model) which enables the increasingly effective domination of nature, proffers the tools and concepts for the increasingly effective domination of man through the domination of nature (Marcuse in Habermas, 1970: 84). In fact, while Marcuse adopts an ontological approach of redefining nature to be subject rather than object, an argument later echoed by Haraway (1992), Habermas falls back on a nostalgic return to the natural in his notion of symbolic interaction and communication (Habermas, 1970: 88).

Marcuse and Habermas argue that domination is perpetuated both through, and as, technology in the act of absorbing culture.

Today, domination perpetuates and extends itself not only through technology, but *as* technology, and the latter provides the great legitimation of the expanding political power, which absorbs all spheres of culture (Marcuse in Habermas, 1970: 84).

What this critique, and the Marxist-informed critique in general, fall prey to, is the conflation of ideology and culture. Ideology is maintained as a notion of class-anchored false consciousness (whether upgraded to hegemony or not) which implicitly (and occasionally expressly) posits a utopian knowledge as its opposite. I suggest that

this reflects the conversation with nature: an organic and natural true knowledge is assumed to exist that is being distorted by ideology/culture. Thus, the nature/culture binary is maintained in the notion of science/ideology.⁴²

This does not mitigate in any way the fact that science and technology are used as methods of control, but their influence is not merely as legitimators of false consciousness for the forces of production. I suggest that our society is imbued with technological culture; it is not false, it is not true, but it does shape, and is shaped by, our interaction in all spheres. Evan Watkins attempts to capture this notion in his concept of *technoideology*. He argues that technoideology is the dominant structuring force of late capitalism. The technoideological coding of dominant politics structures "fields of difference" so that nondominant populations travel the same routes as obsolete technologies. Thus, existence within obsolete circuits is not survival, but rather the hegemony of the dominant ideology (Watkins, 1993: 25). While Watkins draws upon Haraway in an attempt to "resist the temptation to rehabilitate the natural", he employs hegemony to suggest that cyborg resistance plays into the hands of dominant technoideology. Ultimately, however, Watkins is forced by his conflation of all culture to hegemonic ideology, and by his uncategorical treatment of technological change as ideologically and class motivated, to rely upon counter-hegemony for his solution, an underlying assumption of which, I suggest, is that there is a "true knowledge" to oppose to technoideology, a natural knowledge.

For feminism, nature is an insufficient emancipatory ground for a number of reasons, stemming from women's historical and current coding as "natural" in our

culture. First, being defined as closer to nature has rarely, if ever, been a beneficial state for women in terms of gendered power relations. Nature has consistently been devalued and controlled in Western culture, as the biomechanical and mechanical models demonstrate. Further, this not-so-silent dialogue between nature and culture becomes more interesting when one considers that in the traditions of Western thought since Industrialization, nature has traditionally been represented as feminine and the feminine as natural (Rooney, 1991; Grosz, 1993). If one employs a Foucauldian notion of governmentality, then nature poses a risk to the (patriarchal) liberal state. It is difficult to code and calculate nature. If the feminine is conflated with nature, then the domination of nature so well articulated by Habermas and Marcuse could be read as an attempt to control the risk associated with the feminine. Foucault suggests that the human sciences constructed "man"; perhaps it could be argued that the natural sciences, used to control nature were used to construct (and thereby control) women. Certainly foundational feminist critiques of science would seem to support the integral role that natural science played in the definition and control of women's bodies. Arguably the mechanical model finally absorbs the risk associated with nature by writing it out of existence; is it writing the feminine out of existence as well?⁴

Feminist cybertheory in a specific attempt to overcome the limitations of this silent conversation with nature offers instead the cyborg as its subject. It embraces the risk of the cyborg. "The cyborg inhabits a posthuman solar system -- 'posthuman' in biological terms, and in the ideological sense of 'human' as a particular mythos of 'natural' individualism" (Bukatman: 1991: 346). Feminist

cybertheory, with its cyborg subject, purports to transcend the nature/culture binary and with it, the basis for control and agency embedded within its gendered coding. "Nature and culture are reworked; the one can no longer be the resource for appropriation or incorporation by the other" (Haraway, 1985: 67). This requires the rejection of traditional modes of production and reproduction: instead, the cyborg embraces replication, uncoupled from organic notions of reproduction (Haraway, 1985: 68). Both the subject and the social are divorced from a notion of organicism (Haraway, 1991: 22-3). "The cyborg does not dream of community on the model of the organic family ..." (Haraway, 1985: 67).

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Implicit in this position is Haraway's critique of the limitations of traditional feminist and socialist politics:

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While problematizing the binarism of technology/nature, her suggested response of "reading and responding to technology" rather than producing, intervening, appropriating, is highly passive and seemingly accepts technology as an existing state. In her view, what needs to be changed is feminism's response.

Balsamo goes on, however, to make a curious argument which seems to run counter to Haraway's claim for the cyborg. "Its [feminism's] radical potential will not be realized through the appropriation of technological and scientific discourses to a feminist or female agenda" (Balsamo, 1988: 341). Instead, she feels that feminism should focus on the *image* of the cyborg and the struggle over its cultural meaning. Balsamo's analysis unnecessarily limits the sites of feminist intervention in technology and is ultimately disempowering. An examination of the lived experience of technoscience suggests that multiple interventions are required, and the social relations of technology is also a key site.

Allucquere Rosanne Stone's examination of literal cyborgism simultaneously highlights, and reproduces, the naturalized essentialism of the literal cyborg. Her examples include: a man who adopted the identity of a disabled older woman in cyberspace to gain the personal confidences of women under false pretences, the disembodied voices of women telephone sex workers, and the virtually exclusively young male realm of software production. Her examples are striking in the clarity with which they demonstrate the gendered nature of the social relations of technology, literal cyborgism. Her own analysis, however, reproduces this essentialism I suggest, when she unproblematically moves from these examples, to her assertion of the

represent an intensification of corporeality, and in particular, sexed corporeality (Springer, 1991, 1993). Cyberbodies are un/natural in the sense that they are usually represented in terms of grossly exaggerated masculinity or femininity. Related to this, the breakdown of the boundary between body and technology is frequently represented as a sexual act -- almost exclusively from a heterosexual male perspective. While Springer attempts to argue that there is potential for altering sexed subjectivities in the popular cyborg representation, she clearly must struggle to find examples to support her argument (Springer, 1991: 307-12). She does not recognize the irony in the fact that her one example is drawn from a comic book and involves female masturbation -- a typically male genre and a typically male heterosexual pornographic trope.⁴⁴ The focus on the sexual in popular cyborg texts, is arguably, if nothing else, a focus on the organic over the machinic, a return to nature.

Popular cyborg texts, as feminist cybertheorists note, are also notoriously violent, representing a return to the physical. Whereas the mechanical model suggests the elevation of the mental over the physical, the popular cyborg is clearly not based solely upon mechanical principles. Springer suggests that the potential objectification, or I would suggest, mechanization, of the male body is overturned by an emphasis on action or violence (Springer, 1991: 316-17); the male is maintained as the subject in keeping with the biomechanical model.

I suggest that what popular cyborg analyses also reveal, while few state it, is the recuperation of the organic. Whether through the development or rehabilitation of memory (Alex Murphy in *Robocop*), the discovery of compassion (Roy Batty in *Blade*

Runner). the development of self/selflessness (the Terminator in *T2*), the return is from the technological to the *human*. The dualism inherent in the cyborg is ultimately resolved according to humanist ethics, a point Bukatman makes.

Within the fictions of terminal identity, the subject is brought to the limits of self-definition, but the metaphorical solutions to the problems posed by a postmodern existence often recenter subject power as an untested, unchanging, and eternal phenomenon (Bukatman, 1993: 301).

I would add to Bukatman's phrase, "... the metaphorical solutions to the problems posed by a postmodern existence often recenter *male* subject power as an untested, unchanging, and eternal phenomenon." Therefore, while at first glance a different model is suggested, ultimately, through a return to the organic, the masculine humanist subject of the biomechanical model remains fundamentally unchallenged.

Both Anne Balsamo's and Alice Rayner's analyses suggest that rather than an embrace of human/machine fusion, "... cyborgs embody human characteristics that reinforce the difference between humans and machines" (Balsamo, 1988: 333). Rayner suggests that popular cyborgs serve as a mirror for the human, rather than a site for the dissolving of boundaries between human and technology (Rayner, 1994: 125). Through the notion of the "monster", what is unnatural, and therefore, natural, is delimited. And what is natural(ized) is also clearly gendered.

The second way in which I suggest that gender hierarchies are *naturalized* by the popular cyborg is in the portrayal of reproduction. Historically, human reproduction has been associated with the feminine (a labour of women) and technological production has been associated with the masculine (a labour of men) (Springer, 1991: 19). Feminist cybertheory purports to disrupt this. Haraway

suggests that the cyborg *replicates*, rather than *reproduces*, and therefore transcends organic reproduction (Haraway, 1985: 68).

Mary Anne Doane suggests that the nature of reproduction is a frequent issue in SF (Doane, 1990). Many authors have noted the familiar narrative of the masculine scientist attempting to reproduce life through technology, and the catastrophic results of this attempt to dislodge the natural order of things (Seltzer, 1992; Huyssen, 1986; Roberts, 1993; Daduun, 1991; Springer, 1991). Examples abound, from *Frankenstein* to *Metropolis*, from *L'Eve Futur* to *Eve of Destruction*. Mark Seltzer recognizes this trend in the "naturalist machine" of turn-of-the century fiction as patriarchy sought to project an alternative to biological reproduction (Seltzer, 1992: 31-3). The narratives resolve that reproduction is naturally the function of woman, and should this be disrupted, the results are unnatural or monstrous. Anne Balsamo correctly recognizes that "... what we find in supposedly visionary science fiction is but a revamped reflection of ancient beliefs about the proper role and function of women in society and history" (Balsamo, 1988: 335). Doane concurs, arguing that, "... there has also been a curious but fairly insistent history of representations of technology that work to fortify -- sometimes desperately -- conventional understandings of the feminine" (Doane, 1990: 163).

Feminist cybertheory demonstrates that the popular cyborg hardly represents Bukatman's posthuman ideology; rather it is more accurately located on a continuum of modernist, or biomechanical ideology. Alice Rayner agrees: "... current cyborg imagery hardly sustains a progressive or feminist politics" (Fuchs, 1993: 114).

Andrew Ross goes further to note that popular cyborg ideology is a continuation of the Enlightenment project. "This sunny social order, cybernetically wired up, is presented as an advanced evolutionary phase of society in accord with Enlightenment ideals of progress and rationality" (Ross, 1991: 125). This is the "evolutionary", or naturalized, gendered ideology of the biomechanical model.

Both the sexual, hyper-gendered (usually hypermasculine) nature of the popular cyborg and the re/location of reproduction in its "natural" home, the woman, serve to naturalize existing gendered power relations surrounding technology. The male retains his position as subject through control over technology (and over woman). When man tries to go against nature, what is natural, and engage in reproduction, monsters result. Feminist cybertheory effectively demonstrates that the popular cyborg naturalizes existing gendered hierarchies. Clearly the popular cyborg is not a representation grounded in a feminist model of the body/machine relationship; it serves to naturalize the biomechanical model.

(ii) *the postmodern icon: metaphoric cyborgs*

If the popular cyborg represents modernity, then the metaphoric cyborg is clearly a self-proclaimed construct of postmodernity. Annette Kuhn argues:

[i]n Donna Haraway's 'Manifesto for Cyborg', the *jouissance* of the postmodern condition infuses a text which both describes and celebrates the fragmentation of subjectivities and dissolution of boundaries which mark the end of that condition (Kuhn, 1990: 181).

Feminist cybertheorists agree. Claudia Springer suggests, "[t]ransgressed boundaries in fact, define the cyborg, making it the consummate postmodern concept" (Springer

1991: 306). Anne Balsamo goes so far as to suggest that "[c]yborgs are **the** postmodern icon" (Balsamo, 1988: 332). Donna Haraway's classic metaphoric cyborg is a postmodern, personal and collective, self, as well (Haraway, 1991a: 163). Rather than the recuperated masculine subject of the popular cyborg, Haraway's cyborg subject, is,

[t]he knowing self ... partial in all its guises, never finished, whole, simply there and original: it is always constructed and stitched together imperfectly, and *therefore* able to join with another, to see together without claiming to be another (Haraway, 1991b: 22).

Haraway notes in her introduction to *Simians, Cyborgs, and Women* that nature is implicated in the process whereby the "despised metaphors of organic and technological vision" are rejected in favour of "specific positioning, multiple mediation, partial perspective" (Haraway, 1991a: 3). She suggests that nature must be imagined as "truly social and actively relational" (Haraway, 1991a: 3).

Both Jenny Wolmark and Gabriele Schwab assert that the cyborg is a particularly useful metaphor to examine postmodern subjectivity. Wolmark argues that "the question of gendered subjectivity" is part of the postmodern agenda and that the cyborg metaphor is one way to explore postmodern identity (Wolmark, 1994: 11).

The cyborg metaphor emphasizes the increasingly fluid borders between reality and simulation as definitions of the human as cyborg and the cyborg as human become blurred. Where the hyper-reality of cyberspace reifies existing social relations and power structures in its representation of near futures, the cyborg metaphor, by operating with the dynamic of 'permanently partial identities and contradictory standpoints', seeks to confront them (Wolmark, 1994: 127).

Schwab argues that the shift in metaphor between the automaton to the cyborg reflects the shift to postmodern subjectivity, but does not seem to be suggesting, as Wolmark

does, that issues of gender are necessarily evoked.

The human automaton and the cyborg can be seen as collective fantasies used to symbolize a transition in the historical formation of subjectivity. The human automaton, which symbolized the transition between romantic and modern subjectivity, is replaced by the cyborg which symbolizes the transition between modern and postmodern subjectivity (Schwab, 1987: 73).

Implicit within the postmodern identity of the metaphoric cyborg is a silent conversation with, or perhaps more accurately, a rejection of, nature. While Mark Seltzer carefully avoids invoking the language of postmodernism, he describes this as a tendency to "rewrite the natural as the cultural" (Seltzer, 1992: 125). He further suggests that social thought is moving towards replacing the identity of woman as natural with the identification of woman as cultural (Seltzer, 1992: 126). While a certain amount of this discussion will take place when I consider the postmodern abandonment of the sexed body in the next chapter, I suggest that this is what Arthur and Marilouise Kroker mean when they assert that there is no longer a body.

"Indeed, why the concern over the body today if not to emphasize the fact that the (natural) body in the postmodern condition has *already* disappeared, and what we experience as the body is only a fantastic simulacra of body rhetorics?" (Kroker and Kroker, 1987: 22). They suggest there has been a death of the "natural body" and the "discursive body"; however, at the same time, they attempt to recognize the differential impact that this rejection of the natural has on women's bodies (Kroker, 1987: 22-4). The notion of the "death" of nature as an explanatory system, abounds in postmodernist writing. Jean Baudrillard asserts, "[w]e are in a system where there is no more soul, no more metaphor of the body -- the fable of the unconscious itself

has lost most of its resonance" (Baudrillard, 1987a: 50-1).

Therefore, rather than rewriting nature, postmodernism, and its metaphoric cyborg subject, eliminate it altogether. Rather than maintaining a tension between natural and constructed as suggested by the biomechanical model, or attempting to rethink that dualism, the metaphoric cyborg returns us to the mechanical model of radical social constructivism with no balancing notion of something not constructed. Feminist cybertheory pondering metaphoric cyborgism, in its haste to remove itself from the controlling and historically oppressive nature, opts for radical social constructivism.

The bulk of feminist cybertheory does not transcend or rewrite the nature/culture boundary, rather, it uncritically reproduces the postmodernist rejection of the nature half of that binary for the culture half. Haraway is one of the few feminist cybertheorists considering the metaphoric cyborg who *does* consider the implications of her position for notions of nature.

In the belly of the local/global monster in which I am gestating, often called the postmodern world, global technology appears to *denature* everything, to make everything a malleable matter of strategic decisions and mobile production and reproduction processes (emphasis in original; Haraway, 1992: 297).

She rejects radical constructivism and suggests that to avoid it, one must engage in two political strategies: first, "unblinding ourselves from the sun-worshipping stories about the history of science and technology as paradigms of rationalism", and second, "refiguring the actors in the construction of the ethno-specific categories of nature *and* culture" (emphasis in original; Haraway, 1992: 297).

Like Haraway, Judith Genova recognizes the implications of reinventing nature. After realizing that Haraway is not abandoning nature to "the devices of human imagination", she quotes Haraway with approval:

[i]n its scientific embodiments as well as in other forms, nature is made, but not entirely by humans; it is a construction among humans and non-humans. This is a very different vision from the postmodernist observation that all the world is denatured and reproduced in images or replicated in copies (Haraway in Genova, 1994: 6).

Genova suggests that nature needs to be liberated from the distortions of both scientists and humanists (Genova, 1994: 6). She then looks to feminist SF, in particular, that of James Tiptree Jr. (Alice Sheldon), for a bold attempt to rewrite, rather than abandon, nature.

While some might criticize the "daring" of her position in that she focuses on a narrow genre of writing for her rethinking, Genova suggests that "[o]ne does not breach the boundaries only in thought, but in reality. One uses one's mind to transform what one is" (Genova, 1994: 19). While she concedes that this position is only tenable if one first breaks out of the modernist nature/culture binary, she defends her politics by again appropriating Haraway's position: "[m]eanings are applications; how meanings are constituted is the essence of politics. No one can constitute meanings by wishing them into existence; discourse is a material practice" (Haraway, 1989a: 111).

While discourse is certainly material practice, it is not, however, the only material practice. Ultimately, Genova does no more than discuss with approval Haraway's call to rewrite nature. Perhaps it is illustrative of the difficulty of this task

that she seems to be reproducing the "true nature" of nature in her call to "liberate" nature from scientists and humanists. Further, while exploring feminist SF is a valuable thought experiment, how well the nature/culture binary fares in the technological relations of the literal cyborg requires exploration, an exploration Genova does not seem to feel is necessary.

(iii) *getting back to essentials: literal cyborgs*

As I have noted previously, very little feminist cybertheory addresses, in a sustained manner, the potential of literal cyborgism. Haraway, herself, suggests that what she is offering is a myth for women to engage with the relations of technoscience in a new and aggressive manner. In practice, in the cybertheory of literal cyborgs, this seems difficult, and therefore, it is unclear whether or not the underlying model has changed. It would seem not, however, as here the conversation with nature returns us to the essentials.

Some feminist cybertheory of literal cyborgs does not problematize technology as culture, but rather, accepts it as gender-neutral artifacts, noting some gendered practices surrounding the technology. For example, in her early work, Balsamo reads Haraway's literal cyborg prescription in this manner:

I interpret Haraway's ironic choice of cyborg image as an attempt to show how feminism could rethink its politics and intellectual relationship to technology and science. Although feminism often remains skeptical of the patriarchal promise of technological development, women need to develop ways of reading and responding to technology that resist opposing it to an unproblematic 'nature' (Balsamo, 1983: 337).

While problematizing the binarism of technology/nature, her suggested response of "reading and responding to technology" rather than producing, intervening, appropriating, is highly passive and seemingly accepts technology as an existing state. In her view, what needs to be changed is feminism's response.

Balsamo goes on, however, to make a curious argument which seems to run counter to Haraway's claim for the cyborg. "Its [feminism's] radical potential will not be realized through the appropriation of technological and scientific discourses to a feminist or female agenda" (Balsamo, 1988: 341). Instead, she feels that feminism should focus on the *image* of the cyborg and the struggle over its cultural meaning. Balsamo's analysis unnecessarily limits the sites of feminist intervention in technology and is ultimately disempowering. An examination of the lived experience of technoscience suggests that multiple interventions are required, and the social relations of technology is also a key site.

Allucquere Rosanne Stone's examination of literal cyborgism simultaneously highlights, and reproduces, the naturalized essentialism of the literal cyborg. Her examples include: a man who adopted the identity of a disabled older woman in cyberspace to gain the personal confidences of women under false pretences, the disembodied voices of women telephone sex workers, and the virtually exclusively young male realm of software production. Her examples are striking in the clarity with which they demonstrate the gendered nature of the social relations of technology, literal cyborgism. Her own analysis, however, reproduces this essentialism I suggest, when she unproblematically moves from these examples, to her assertion of the

potential in these realms to disrupt gender. She is unable to offer an example in support of her contention.

Further, Stone goes on to assert that. "[t]hese new spaces instantiate the collapse of the boundaries between the social and technological, biology and machine, natural and artificial that are part of the postmodern imaginary" (Stone, 1992: 85). In an uncritical adoption of the postmodernist argument that the postmodern is feminine, she suggests that "... to become the cyborg, to put on the seductive and dangerous cybernetic space like a garment, is to put on the *female*" (emphasis in original; Stone, 1992: 109).⁴⁵ This essentializing manoeuvre again naturalizes certain characteristics in male and female terms. The female is seductive, dangerous, and of course, fashionable. While some might argue that gender in cyberspace or virtual reality is merely a virtual construct, I suggest that it is a cultural coding that arises from, and returns to, the technoscientific relations outside of the virtual space. Cyberspace is still a "real" cultural space where "real" gendered meanings and relations can occur.

Stone asserts that in the late 20th century, "... the character of nature as yet another construct of culture [has] become more patent" (Stone, 1992: 102), and that it is through the meaning system of nature that we define our boundaries with technology. It is how "... we attempt to *keep technology visible* as something separate from our 'natural' selves and our everyday lives" (emphasis in original; Stone, 1992: 102). While Stone is prepared to unpack nature as a construct, she does not adequately problematize the constructed nature of technology. Further, unlike Haraway, she seems unprepared to concede any unconstructed aspect to nature.

In attempting to maintain the radical political potential of the cyborg subject, Stone is forced to do so in a context which is notoriously structured and imbued with patriarchal power relations (as convincingly demonstrated in her survey of the field). Her piece contains not one example of literal cyborgism that could be described as feminist, while she purports to be taking a feminist perspective. Other writers share this difficulty (Balsamo, 1988; Springer, 1991; Bukatman, 1993). The assertion that becoming a literal cyborg allows women to "play at being men" does nothing to address the power differentials embedded in gender, but merely offers an attempt to fantasize being the other. Once again it naturalizes essential gender differences.

Sherry Turkle's work also examines literal cyborg existence in some senses through her primary research into women's experiences with computers. Because, however, her work is also not informed by a larger cultural analysis, it, too, replicates essential, or natural, gender differences. Her work not only identifies differential responses which women have had to computer technology, it asserts these differences on behalf of women because of their sex. Technology is unproblematically construed as essentially masculine and therefore, as foreign and problematic to (feminine) women. The context in which technology and our gendered responses to it are constructed is not examined. Preferable is Vivian Sobchak's analysis of the "cyberculture" offered up in computer/hacker magazines like *Mondo 2000* and Anne Balsamo's recent piece, which effectively illustrate the gendered, racist, and capitalist nature of the environment of the literal cyborg (Sobchak, 1993; Balsamo, 1993). Any attempt to consider literal cyborgism that does not locate the

cyborg in this social context is insufficient. Further, one which recognizes the context, but does not problematize its gendered implications is bound to naively replicate the shortcomings of the cybertheorists examining the metaphoric cyborg, as Stone's analysis clearly does.

A not-so-silent conversation with nature is clearly reflected in the popular, metaphoric, and literal cyborgs interrogated by feminist cybertheory. Nature is not rewritten, but rather, is redeemed, in the popular cyborg. Sexed bodies remain, exaggerated, but not disrupted; male cyborgs discover their souls; and reproduction is firmly situated in the realm of the maternal, the feminine. These factors combine to naturalize gender differences anchored in clearly marked sexed bodies. Metaphoric cyborgs are ultimately postmodern cyborgs, rejecting nature and yet simultaneously relying upon an unstated notion of the natural for the foundation of feminist politics. Haraway's metaphoric cyborg stands out as the exemplary attempt to rewrite nature. How well this succeeds is examined in the following section. Finally, literal cyborg cybertheory dramatically illustrates the limitations of examining the cyborg out of context. Literal cyborgs embody gender differences and are embedded within social structures and discourses which naturalize and essentialize these differences.

2. **Melodramas of Uncertain Agency: Agency and Control**

... the erosion of boundaries that divide persons and things, labour and nature, what counts as an agent and what doesn't. And such an erosion of the boundaries immediately evokes the melodramas of uncertain agency everywhere rehearsed in the work of dividing 'nature' and 'culture' -- Mark Seltzer⁴⁶

As Mark Seltzer notes, issues of agency are necessarily implicated in the attempt to overturn the nature/culture binary, as well as in its maintenance. This agency is embedded within its own binary, however, that of agency/control. Inherent in any position on who or what has agency, is a position on where control lies in community. This becomes clear when one examines the biomechanical and mechanical models I have posed.

Habermas, Foucault, Marcuse, and Watkins each make convincing arguments that at the root of the biomechanical and mechanical models of bodies and community are systems of rational control. Whether manifested in strategies of security to reduce the risk associated with the population in Foucault's argument, or the technoideology, and ideology of science and technology, of Watkins' and Habermas' thought, respectively, these models are models of control. Even Nichols, in his praise of what I call the mechanical model, suggests that ultimately the question is one of control. "Who designs and controls these greater systems and for what purpose becomes a question of central importance" (Nichols, 1988: 35). Mumford asks the key question: *quis custodiet ipsos custodes?* (Mumford, 1966: 119).⁴⁷

In an argument which dovetails with Foucault's analysis of governmentality in many ways, Seltzer argues that "statistical persons" represent technologies of control:

"[w]hat the conversion of individuals into numbers and cases and the conversion of bodies into visual displays correlate are two of the crucial control technologies of machine culture: statistics and surveillance" (Seltzer, 1992: 100). Habermas suggests that the adoption of a technical model for society results in the depoliticization of the population into a mass, the scientization of technology, the replacement of the practical with the technical, and the replacement of society's self-understanding/culture with a scientific model (Habermas, 1970: 103-5).

In his consideration of the "post-historical man" -- man surrendered to the current trends of "capitalism, machine technics, the physical sciences, bureaucratic administration and totalitarian government" -- Mumford suggests that "[t]o survive in this world, man himself must adapt himself completely to the machine" (Mumford, 1966: 117-8). Labelling post-historic man as a "monster", he suggests that the social body, too, will be equally affected. "In post-historic culture life itself is reduced to predictable, mechanical conditioned and controlled motion, with every incalculable -- that is, every creative element removed" (Mumford, 1966: 121). Rather than rejoicing in the taboo fusion of machine and body, "[b]y the perfection of the automaton man will become completely alienated from his world and reduced to a nullity -- the kingdom and the power and the glory now belong to the machine" (Mumford, 1966: 130).

Less pessimistically than Mumford, Nichols invokes metaphors which mirror Haraway's own to point out the simultaneous danger and potential of cybernetics, the foundation of the mechanical model:

... what explosive potential can be located in the computer and its cybernetic systems for the elimination of drudgery and toil, for the promotion of collectivity and affinity, for interconnectedness, systemic networking and shared decision-making, this, too, must be defused and contained by the industries of information which localise, condense and consolidate this potential democratisation of power into hierarchies of control (Nichols, 1988: 25).

When Haraway writes that "[h]uman beings, like any other component or subsystem, must be localized in a system architecture whose basic modes of operation are probabilistic, statistical" (Haraway, 1985: 82), it is very difficult to distinguish this from the mechanical model. Is this not a cybernetic dream come true? Where is the "fruitful coupling" of machine and human? When one turns to feminist cybertheory, one cannot help but wonder whether or not it works as a bold attempt to rewrite the relationship with nature, or whether it is a total surrender to the mechanical.

In this section I examine the agency and control issues raised in the various embodiments of the cyborg given the position of each on "the work of dividing nature and culture". In short, I examine cyborg politics as told by feminist cybertheorists. Haraway asserts that her cyborg,

... exists when two kinds of boundaries are simultaneously problematic: 1) that between animals (or other organisms) and humans, and 2) that between self-controlled, self-governing machines (automatons) and organisms, especially humans (models of autonomy). The cyborg is the figure born of the interface of automaton and autonomy (Haraway, 1989a: 139).

Do popular, metaphoric, and literal cyborgs offer automatons, autonomy, or an interface of the two? Does feminist cybertheory achieve "... a concept of agency that opens up possibilities for figuring relationality within social worlds where actors fit oddly, at best, into previous *taxa* of the human, the natural, or the constructed"

(Haraway, 1991b: 21)?

(i) *controlling for consistency: popular cyborgs*

The tensions between the technological and the human, inherent to the notion of the cyborg are resolved in popular representations in favour of existing humanity and existing social structures. In the following section, I suggest that this is a technology of social control, in that, while other aspects of the future are challenged, gendered power relations based upon patriarchy are naturalized, with a normalizing impact. Many of the elements of the biomechanical model go unchallenged.

The feminist cyborg claims to be an active agent in the fight against patriarchal technoscience. Does this feminist agency manifest in the popular cyborg, however? From the preceding discussion on the recuperation of nature, it would seem doubtful; however, it is not because agency does not accrue to the popular cyborg. Rather, it is in the flip-side of agency, social control, that the potential for the politics of the popular cyborg become problematic. Thus, while Scott Bukatman asserts that the notion of the cyborg overcomes the "particular mythos of 'natural' individualism" (Bukatman, 1991: 346), feminist cybertheorists demonstrate to the contrary.

There is abundant agency in the texts of the popular cyborg. Cynthia Fuchs argues that filmic cyborgs "... reassert the potency of individual action" (Fuchs, 1993: 121). Springer and Rayner both argue that the crisis in masculinity represented in many cyborg texts is, in part, resolved through the notion of individual action and violence. While this individual action is rewarded in the masculine cyborg, feminist

cybertheorists demonstrate that it is frequently the demise of the feminine cyborg (Springer, 1991: 1993; Balsamo, 1988). Thus, agency is portrayed in gendered terms -- female agency is controlled through the narrative destruction of the active female cyborg, the monstrous, and masculine agency is maintained through the reward of individual action, the natural.

Most feminist cybertheorists (Balsamo (1988); Hayles (1993); Rayner (1994)) agree with Springer that, "... while popular culture texts enthusiastically explore the boundary breakdowns between humans and computers, gender boundaries are treated less flexibly" (Springer, 1991: 308). In fact, I would suggest that it is an understatement to say that "[c]yborg imagery has not so far realized the ungendered ideal theorized by Donna Haraway" (Springer, 1991: 309). This is somewhat ironic given that the frequent home of the popular cyborg is the SF text -- a site which, in theory, opens up limitless possibility to play with, disrupt, and alter gender relations. In practice, SF has been notably myopic in postulating future human cultures with altered gender relations. I suggest that this is because in both a biological and an ideological sense, the popular cyborg returns to the natural/naturalized, returns to the biomechanical model with its well-defined two sexes, while only flirting with the potential offered by a more feminist model of a disrupted nature/culture and the uncoupling of agency from this binary.

Feminist cybertheorists exploring the popular cyborg suggest that what is reflected in these texts is a crisis in masculinity, where subjectivity is separated from a close connection to the male body, and is reconstituted. While at first glance, this

might seem to be a progressive shift, Springer suggests that this has the impact of naturalizing masculinity. "...[B]y escaping from its close identification with the male body, masculine subjectivity has been reconstituted, suggesting that there is an essential masculinity that transcends bodily presence" (Springer, 1991: 318). Even in a world without bodies, technology will remain gendered and patriarchy will prevail. In this way, patriarchal agency is made essential; patriarchy is normalized. "[S]ince most cyborgs in popular culture exhibit definite gender difference, it is apparent that, despite its willingness to relinquish other previously sacrosanct categories, patriarchy continues to uphold gender difference" (Springer, 1991: 310).

Patriarchy is naturalized as near- and far-future humanity is postulated, as technohuman hybrids are considered, and yet, the social machinery in which they operate remains unproblematic. Through the rehabilitation of nature offered in the popular cyborg texts examined by cybertheorists, control is maintained by existing power structures. As Judith Genova argues, "[t]he natural has been essentially a term of appropriation, not description; it has normative, not descriptive force" (Genova, 1994: 18-19). As science has constructed nature, science has also constructed the feminine as natural. The power to construct a discourse is the power to delimit and control that discourse. As the individual cyborg subject, at least its popular embodiment, remains caught up in biomechanical notions of the organic/inorganic binary, it normalizes the ideology of the biomechanical model and cannot offer up a feminist politics. As Springer suggests, "[w]hat this reconfiguration of masculinity [represented in the popular cyborg] indicates is that patriarchy is more willing to

dispense with human life than with male superiority" (Springer, 1991: 318).

Notwithstanding the evidence to the contrary embodied in cultural texts, Balsamo and Springer both attempt to rehabilitate the popular cyborg. Balsamo makes the weak argument that while popular cyborgs reproduce cultural stereotypes, female cyborgs do so less because of the initial cultural incompatibility of women and technology (Balsamo, 1988: 335). While this argument replicates an essentialist position on women and technology, it also denies the ways in which the texts delimit and control women's technological agency and the unnatural consequences (control) that result from this fusion. Therefore, I suggest that again, a silent conversation with nature occurs in these texts to ensure that by the end of the narrative, the stereotypical coding of masculine and feminine has been returned to its natural organization.

Springer suggests that,

[w]hat is really being debated in the discourses surrounding a cyborg future are contemporary disputes concerning gender and sexuality, with the future providing a clean slate, or a blank screen, onto which we can project our fascination and fears (Springer, 1991: 322; 1993: 87).

This argument is both unsupported and naive. Her own research, and that of all other feminist cybertheorists examining the popular cyborg, reveal that the debate is unfailingly one-sided and that disputes concerning gender and sexuality are resolved in a manner unproblematic to patriarchal social relations. Further, the suggestion that the future provides a clean slate for future gender relations denies the existence of culture, social structures, and history -- all of which are imbued with existing notions of naturalized gender relations. If the screen is indeed blank, then what is being

written upon it is sadly similar to existing power relations surrounding gender. This "notorious similarity" is recognized even by non-cybertheorists. Bukatman suggests that the distinguishing characteristic of popular cyborgs is their unmitigated similarity.

The obsessive restaging of the refiguration of the body posits a constant redefinition of the subject through the multiple superimposition of bio-technological apparatuses. In this epoch of human obsolescence, however, a remarkably consistent imaging/imagining of both body and subject ultimately emerge (Bukatman, 1991: 343).

Springer cannot recognize this similarity given her untenable starting assumption that the cyborg is produced out of debates over sexuality and gender. This is not true of the popular cyborg. More accurately, as feminist cybertheorists demonstrate, the cyborg is re/produced from debates surrounding technology and the crisis in masculine/human identity. I suggest the popular cyborg is the subject of the biomechanical model attempting to resist the mechanical model, rather than offering a different and feminist model of intimate coupling.

Balsamo asks cogent questions of the popular cyborg, however. "Can the 'feminine' essentialism of fictional cyborgs be transformed into a non-essential image for contemporary women?" and "[i]s there any way that the cyborg image could be used strategically to intervene in feminist theory?" (Balsamo, 1988: 336). While the questions are appropriate, the bulk of popular cyborg cybertheory suggests that, at present, the popular cyborg is not the most likely site of feminist rewriting of nature. As the notion of the human/machine fusion of cyborg subjectivity posed by Haraway is borrowed by the popular cyborg, "[t]his postmodern 'self' [Haraway's cyborg] is caught in time, [and] re-presented through popular cyborg imagery, which challenges

faith in a 'postgender' world" (Fuchs, 1993: 115). Indeed, Balsamo answers her own first question in the negative by suggesting that the popular cyborg "... reinserts us into dominant ideology by reaffirming bourgeois notions of human, machine and femininity" (Balsamo, 1988: 342). The popular cyborg controls women's technological agency, and thereby reproduces the biomechanical model.

(ii) *controlling difference/controlling risk* -- metaphoric cyborgs

The metaphoric cyborg of feminist cybertheory is a political subject; it is a myth of political resistance to the informatics of domination, a world which arguably has embraced the mechanical model as its utopian vision. It lives a feminist existence in this world. "There is a myth system waiting to become a political language to ground one way of looking at science and technology and challenging the informatics of domination -- in order to act potently" (Haraway, 1991a: 181). Donna Haraway asserts that her myth "... is about transgressed boundaries, potent fusions, and dangerous possibilities which progressive people might explore as one part of needed political work" (Haraway, 1991a: 154). Recognizing that her cyborg is a postmodern concept, she nonetheless maintains its politicization, its agency. "This postmodernist identity is fully political, whatever might be said about other possible postmodernisms" (Haraway 1991a: 154).

As I have argued previously, the metaphoric cyborg is a postmodern cyborg, favouring constructed technology over nature. This has implications for issues of agency and control which I suggest manifest themselves in three breaking points in

which the metaphoric cyborg, including Haraway's own, does not succeed in generating a feminist model of body/machine fusion. First, the metaphoric cyborg, embodying as it does the postmodern subject, offers a problematic notion of agency for some feminist thinkers. Feminist cybertheory does not adequately address these debates. Second, the metaphoric cyborg, and the feminist cybertheory in which it is located, elide difference -- differences of gender and race have a problematic relationship with cyborg existence. In part, this arises from the location of the cyborg in postmodernist thought, rather than in the technological relations of cyberculture. Finally, the cyborg's politics are ultimately grounded in individual choice -- a liberal existence.

The postmodern subjectivity of the metaphoric cyborg raises the issue of the nature of postmodern agency; however, the majority of feminist cybertheorists exploring the metaphoric incarnation of the cyborg do not address the implications of this. For example, Anne Balsamo claims, "[t]erms such as gender, self, human, writing, and communication are fractured in the cyborg cosmology; the mythical origins or essences of human-ness and of culture have been dispersed ..." (Balsamo, 1988: 342-3). However, at the same time she concludes by asserting that the epistemology, practice, and struggle in historical opposition to the centralized, rational, human-male perspective has been feminism. While she does not define her term, I can only assume that she means an epistemology, practice, and struggle organized around some notion of gender, the very gender that the cyborg cosmology "fractures". Not only does Balsamo's position conflate feminism and postmodernism,

rendering considerable disservice to humanist feminism of all political stripes, she in no way problematizes or elaborates on her postmodern feminism.

As I outlined in Chapter II, there is a considerable body of feminist writing considering the viability of postmodern feminism. Ranging from rejecting any relationship outright, to recognizing certain value and certain contradictions, to a full embrace, in most instances, the issues explored by this literature find no place in feminist cybertheory. Jenny Wolmark's analysis is, at first glance, however, an exception to this. While she contextualizes her analysis at the "intersection" of feminism and postmodernism and embraces the cyborg as a postmodernist feminist metaphor, her textual evidence of the radical potential of the cyborg is weak⁴⁸ and the feminist position she claims for herself in her conclusion, seems untenable with her earlier willingness to place the body, gender, and subjectivity at issue. She does not illustrate *how* the cyborg renders feminism and postmodernism compatible, she merely states that it does.

In his intriguing juxtaposition of Baudrillard's and Haraway's work as examples of social theory as SF, Istvan Csicsery-Ronay, Jr. refuses to address the self-proclaimed feminist identity of Haraway's cyborg. Noting that Haraway, herself, concedes the problematic nature of cyborg gender,⁴⁹ he argues

[i]t seems certain to me that the cyborg's future is inconceivable in terms of contemporary feminist discourse -- or indeed *any* political or disciplinary discourse -- no matter what its initial conditions of construction may have been (Csicsery-Ronay, Jr., 1991: 402).

While Csicsery-Ronay, Jr. may not give feminist theory sufficient credit, he is correct in his recognition that the postmodern metaphoric cyborg makes problematic, at least,

historical feminist positions, given its reliance upon postmodern subjectivity.

Many thinkers have suggested that postmodernism does not adequately theorize agency (Best and Kellner, 1991: 153). In part for this reason, as I have briefly discussed, many feminists have argued that the decentred subject of postmodernism is incompatible with a feminist project.

Postmodernism expresses nostalgia for but loss of belief in the concept of the human subject as an agent effectively intervening in history, through its fragmentation of discourses, language games, and decentring of subjectivity. Feminism seeks a subjective identity, a sense of effective agency and history of women which has hitherto been denied them by dominant culture (Waugh in Hollinger, 1993: 274).

Some theorists go further to suggest that in order to benefit from any combination of feminism and postmodernism, feminism must be rewritten (Braidotti, 1993; Probyn, 1987). However, most feminist cybertheorists do not. They want to maintain the fluidity and daring of a cyborg subject that they read and write as postmodern, while still maintaining a critical feminist position. I suggest that this is an underthought, if not untenable, position. Haraway is one of the few cybertheorists who attempts a more radical rewriting, but in what follows, I suggest some limitations to Haraway's notion of postmodern/cyborg agency.

The second way in which the postmodern nature of the metaphoric cyborg renders it an unviable feminist agent is in the elision of difference inherent to the postmodern subject. At first glance, this argument seems unlikely given the rhetoric of exploration of otherness suggested in much postmodern and cybertheoretical writing. Accepting the claims made by white male postmodernists such as Huyssen (1984) and Jameson (1984), Anne Balsamo argues that postmodernism offers

unprecedented potential for "otherness" (Balsamo, 1988: 341). She goes on to suggest that given their multiplicity of identities, both "Woman" and "Cyborg" are historically postmodern notions (Balsamo, 1988: 337).⁵⁰ She argues, "... cyborgs offer a particularly appropriate emblem, not only of postmodern identity, but -- specifically -- of women's identity" (Balsamo, 1988: 341).

Various thinkers who have illustrated the tellingly white, masculine nature of much postmodernist writing, would query whether women's identity and postmodern identity can be adequately represented in one "emblem". Even more significant to the argument I am making here, multiplicity of identities, or difference, is offered as evidence of the viability of the metaphoric cyborg as feminist agent. While perhaps engaging in the language of *cyberdrol*, Stephanie Smith does make an appropriate point. "Cybersynaesthetics may sing the body dialectic, but even if pilot and piloted dance fusion, the old operational system, a subprogram with a kick, remains on-line: multiplicity is exoticized" (Smith, 1993: 71). The multiplicity of postmodern identity is exoticized, artifactualized, and commodified in postmodern discourses exploring cyberculture. Feminist cybertheory, unfortunately, is no exception.

Because the metaphoric cyborg is embedded in postmodern, rather than technological theoretical discourses, no one pauses to query about the race, class, and sexuality of the cyborg. How meaningful a metaphor for subjectivity or agency is an existence anchored in technology to individuals and groups who have been traditionally marginalized from access to, participation in, and the culture of, technology? Although this argument somewhat prefigures the second section of the

following chapter on disembodiment, numerous writers point out that the implications for disembodiment seem to strike hardest those whose identities are inscribed on their bodies through gender or race (Stone, 1992: 113). Balsamo asks a number of questions with respect to technology and race which apply equally well to technology and gender and which are irrelevant if the metaphoric cyborg is a postmodern cyborg.

How is technological disembodiment also a comment on the desire to transcend racial identities? How are material bodies race-marked through technological encounters? How are racial identities articulated by myths of technological progress? (Balsamo, 1993: 703).

While many marginalized individuals and groups struggle for the right to write themselves as subject within the terms of the biomechanical model, postmodernism attempts to pull the rug out from under the notion of subjecthood. Postmodernism, itself, in its embrace of nature, of the body, of politics, of history as socially constructed, leaves virtually no ontological basis upon which to ground difference. For example, while Arthur and Marilouise Kroker signal the end of the body, they then, specifically address women's bodies. They do not, however, make clear how, when the body has no materiality, no ontological status, they distinguish women's bodies from other bodies (Kroker, 1987). Balsamo suggests that "... cyborgs fascinate us by technologically refashioning human difference" (Balsamo, 1988: 333). I suggest that if the cyborg is located within the discourses of technology rather than postmodernism, the model for the refashioning is not as "fascinating" as cybertheorists would hope. Mary Anne Doane feels that what is lost in the rejection of origins are "... the very categories of loss, of absence, *and even of difference*" (emphasis added; Doane, 1989: 210).

If one looks at Haraway's cyborg, in particular, it not only risks exoticizing multiplicity in a typical white, upper-middle class feminist fashion, but also recuperates nature as the basis for identity, running counter to the goal of rewriting nature. The quintessential cyborgs, according to Haraway, are women of colour working in the technology industry. She privileges *women of colour* borrowing from the work of Chela Sandoval and suggesting that they hold *oppositional consciousness* (Haraway, 1985: 73). In subsequent writing, she rewrites this claim to embrace Trinh T. Minh-ha's notion of *inappropriate/d others*. She defines this phrase to refer

... to the historical position of those who cannot adopt the mask of either 'self' or 'other' offered by previously dominant Western narratives of identity and politics. To be 'inappropriate/d' does not mean 'not to be in relation with' -- that is, to be outside appropriation by being in a special reservation, with the status of the authentic, the untouched, the allochronic and allotropic condition of innocence. Rather, to be an 'inappropriate/d other' means to be in critical, deconstructive relationality -- as the means of making potent connection that exceeds domination (Haraway, 1991b: 23).

Is Haraway borrowing from race theory to ground her cyborg, or is she, in a compensatory American feminist manoeuvre, privileging women of colour over other women as having first claim to cyborg identity? How is she identifying these individuals without returning to some "reified" notion of the body? What is their day-to-day relationship with technology? In her deliberate choice of affinity over identity as the basis for politics, is she giving adequate voice to members of the cyborgian groups she is embracing? Perhaps some inappropriate/d others base their politics on identity. Joan W. Scott asks cogent questions of Haraway: "[w]hy are Southeast Asian women 'real-life cyborgs? How have 'women of colour' been able to claim

affinity without evoking a 'natural identity'?" (Scott, 1989: 217).

In her privileging of Octavia Butler's writing⁵¹ and women of colour in the technology industry as exemplars of cyborg existence, I suggest that Haraway is inadvertently slipping back into naturalized categories of identity. Her rhetoric suggests otherwise, but her examples seem to recuperate the natural, bodily identity, as a basis for politics, over affinity. She offers no examples of cyborg clusters organized around choice as opposed to immediately apparent, bodily-inscribed identities. In this way, she does not elide difference, as postmodernism would tend towards, rather she reifies it in a recuperation of the natural.

It is in the notion of affinity over identity as a political foundation that I make my final critique of the agency of the metaphoric cyborg, and in particular, Haraway's version of it. Again, she defines affinity as "... related but by choice, the appeal of one chemical nuclear group to another, avidity" (Haraway, 1985: 72). In addition to the fact that one must query how there can be chemical nuclear groups without an ongoing notion of nature, the relations are established by choice, an inherently liberal conception of politics. "The opposition between identity and affinity (the latter -- espoused by Haraway) is subtended by that between nature and choice: one is condemned by nature to an identity but one chooses an affinity" (Doane, 1989: 211). Doane later suggests that this choice "... curiously echoes that between determinism and free will" (Doane, 1989: 211). As well, I suggest that affinity is a passive means of forming political allegiances. By permitting existing structures of dominance to determine identity, and forming political resistance around that identity,

cyborgs draw their basis of affinity, not from themselves as agents, but from a social environment constructed by those of opposing interests. Finally, as a politics from "within the belly of the monster", the eternal question remains of whether, upon making the necessary sacrifices to eke out an existence from within, can one then topple the monster? The American liberal feminist experience would suggest not.

(iii) *spectres or dreams: literal cyborgs*

Across the communications landscape move the spectres of sinister technologies and the dreams that money can buy. Thermonuclear weapons systems and soft drink commercials co-existing an overlit realm ruled by advertising and pseudoevents, science and pornography -- J.G. Ballard⁶²

Embedded as it is within the practices and discourses of cybernetic technoculture, within the belly of the monster, what political options are open to the literal cyborg? Borrowing from the ideas of K.C. D'Alessandro, Claudia Springer suggests that "... cybernetics makes possible the thrill of control over information and, for the corporate executives who own the technology, control over the consumer classes" (Springer, 1991: 306). Who are corporate executives and who are the consumer classes are significant and gendered questions.

While Haraway asserts that the cyborg can be unfaithful to its origins in patriarchal military technoscience, the experience of the literal cyborg would seem to suggest that this remains unlikely. Sarah Diamond suggests, accurately I submit, "[c]yberpunk, even Girl Cyber, fades fast, rife as she is with bourgeois individualism and boy talk" and she warns of the paradigms that are being imported wholesale into cyberspace (Diamond, 1994: 42). N. Katherine Hayles agrees. In simultaneously

examining both discourses of science fiction and science fact, she notes that gender hierarchies are surviving the challenges of the posthuman. Writing of practices as diverse as bionics, medical prostheses, and virtual reality, she argues:

[a]s the sense of its mortality grows, humankind looks for its successor and heir, harbouring the secret hope that the heir can somehow be enfolded back into the self. The narratives that count as stories for us speak to this hope, even as they reveal the gendered constructions that carry sexual politics into the realm of the posthuman (Hayles, 1993: 170).

Literal cyborgs inhabit cyberculture. Estimates suggest that for every ten men on the Internet, there is one woman (Kapica, 1994: D3); it is a highly gendered, racist, and classist environment. Access to the literal cyborg environment requires a computer, modem, and the ability to defray the cost of telephone charges; as a result an overwhelming number of users are affiliated with an institution which assumes that cost. This, alone, has implications for the gender, class, and race of users. Yet writing about cyberculture is giddy about the potential cyber-existence offers "us" (Heim, 1992, 1994; Bukatman, 1993; Benedikt, 1992). Much more work is needed engaging critically with cyberculture to convince those considering literal cyborg existence that we must be careful what paradigms are being, or have been, imported into cyberculture. In one of the few feminist critical analyses of cyberculture, Vivian Sobchak suggests that cyberculture's

... dreams of personal freedom and its utter faith in self-help are grounded in privilege and the status quo: male privilege, white privilege, economic privilege, educational privilege, first-world privilege. Its dreams are grounded in the freedom to buy, and -- especially -- the freedom to sell (Sobchak, 1993: 580-1).

Again, there is agency, but it is a liberal agency based upon individual rights

and individual action. For example, Balsamo illustrates the "bumper-sticker libertarianism" of cyberculture with the following hacker credo:

Information wants to be free.
 Access to computers and anything which may teach you something
 about how the world works should be unlimited and total.
 Always yield to the hands-on imperative.
 Mistrust Authority.
 Do It Yourself.
 Fight the Power.
 Feed the noise back into the system.
 Surf the edge (Sobchak, 1993: 582).

Meredith Bricken's solution to power disparities produced in virtual worlds constructed and operated by users is typical in its liberal individualism.

... I'd propose two laws of cyberspace:

- Any person can access the cyberspace matrix (voluntary citizenship)
- Each person has full control of his or her interactions within cyberspace (human rights) (Bricken, 1992: 379).

Feminist cybertheory considering the literal cyborg does not make sufficiently clear how the cyborg would not succumb to this liberal individualism, how cyborg community is possible.

Donna Haraway correctly recognizes the issues posed by the uncertain agency of the cyborg in its disruption of the nature/culture binary. She suggests that we need a simultaneous recognition of the historical contingency of knowledge and knowing subject, with a critical practice for recognizing our own technologies of meaning making, with a commitment to "faithful accounts of a 'real' world" (Haraway, 1991a

187). Feminist cybertheory does not, at least presently, recognize that self-reflexive agency is a key issue posed by cyborg existence. As a result, it often reproduces ideologies of control and the liberal assumptions grounding existing technoscience.

3. Conclusion

Joanna Russ, a radical feminist science fiction author, suggests that "[t]he Eternal Feminine and the Eternal Masculine become the poetic fancies of a weakly diamorphic species trying to imitate every other species in a vain search for what is 'natural'" (Russ, 1975: 3). Perhaps to break out of existing notions of Feminine and Masculine, we must break out of the attempt to find the "natural", that is, we must change the basis of our definitions of reality in order to change our reality. Feminist cybertheory first attempts this through a rewriting of nature: as I demonstrate, what results is either a return to nature or its complete rejection. Feminist cybertheory also attempts to rewrite reality through reinventing ontology, however.

Feminist cybertheory attempts to relocate ontology outside of nature/culture. As one disrupts the nature/culture binary that grounds Western thought, one also disrupts its ontology. "The transcendent authorization of interpretation is lost, and with it, the ontology grounding 'Western' epistemology" (Haraway, 1985: 70). Given the limitations of historical Western thought for theorizing a feminist subject, community, and social reality, feminist cybertheory is exploring a potent possibility. I query whether feminist cybertheory, in rewriting the ontology of Western epistemology, offers a viable model of intimate coupling.

VI. Ontology

Changes in how we think and act require changes in what we are and vice versa. New thoughts may not require new ontologies, but the latter certainly facilitate the former -- Judith Genova⁵³

Any challenge in Western thought to the existence of a nature/culture binary, any attempt to rewrite nature and science, any consideration of postmodern political emancipation implicates the ontology grounding those efforts. By ontology, I am appropriating the interpretation offered by Algis Mickunas, that is "... the assumed structure of social reality and the nature of 'man'" (Mickunas, 1986: 1), the assumed nature of the human and of social reality. As I note previously, Donna Haraway has suggested that monsters define the limits of community; taking this notion further, I suggest that the notion of the monstrous has served as an ontological limit point in social thought. The nature of who we are and the nature of our existence has been measured by what we define as not within our nature, and not within our reality. What is *real* has often been defined, delimited, and controlled by the *unreal*.

Certainly this is the case with the biomechanical and mechanical models. They offer ontological positions on the nature of man and the nature of community which define both the "normal" and "monstrous" in relation to nature and machines. Feminist cybertheory purports to change this; it offers an existence premised on the monstrous, rather than the non-monstrous, or normal/natural/normative. The unreal has become the real -- only it is a contingent real. Certain issues are posed in this attempt. Questions such as, does the monster remain monstrous if monstrosity is the norm? What is the normative measure? If we have to rewrite reality to exist as

cyborgs (monsters) then what are we, as feminist monsters, fighting against? Are cyborg politics, and indeed any kind of politics, inherently normalizing social practices? Is theorizing a normalizing practice? Can there be a community of monsters? Of cyborgs?

In the following chapter, I engage with some of those questions through examining the feminist cybertheory from which those questions are generated. Again, I employ two axes of engagement. The first is what I describe as the slippery slope to epistemology. I suggest that much of the feminist cybertheory purporting to examine issues of ontology, is in fact, grappling with issues of epistemology, or the nature of knowledge about our selves and our reality. The popular cyborg offers ethics as a substitute for an ontological position: the metaphoric cyborg reduces ontology to epistemology in most instances, eventually replicating the same underlying metaphor of ontology as the mechanical model; and the literal cyborg, operating within a cybernetic field, embodies the ontology and thus, the politics, of the mechanical model.

The second major axis upon which I interrogate issues of ontology in feminist cybertheory is that of dis/embodiment and the location of materiality. Here, the popular cyborg recuperates the masculine body and, with it, entrenches the material basis for gendered power relations. The metaphoric cyborg, in its unproblematic rejection of the body (implicitly the sexualized and racialized body), challenges the existing ontological status of gender. Implicated in this, however, are ramifications for a politics organized around notions of race, gender, sexuality, and their

combinations. Finally, the literal cyborg embodies the discourse of disembodiment, but also most clearly demonstrates two processes which I suggest are at work: the artifactualization and commodification of the body. Through this analysis, I examine whether feminist cybertheory succeeds in rewriting ontology to offer a feminist model of intimate coupling which is neither biomechanical nor mechanical.

1. The Slippery Slope to Epistemology

Through their construction of a cultural politics inscribed by the forces of a technological reason, and through their resistance to the constraints of that reason, the texts promise and even produce a transcendence of the human condition which is also always a surrender -- Scott Bukatman⁵⁴

The problem of the ontological appears differently in each of my models. In the biomechanical model offered by Foucault, "the body" would appear to have ontological status, but it is an abstract concept which only becomes relevant when inscribed by discourse. The primary problem of man is thus, not ontological, but epistemological. Knowledge and the power relations with which it interacts are the most significant issues and, therefore, epistemology is of far greater concern than ontology. Foucault argues that representation has been evacuated in modernity because there is no recourse to the referent; his argument parallels Baudrillard's notion of the simulacra in some ways. I suggest that nature still serves to ground the ontology of the biomechanical model, a nature which when technical principles of science are applied produces scientific knowledge.

In the mechanical model, based as it is upon cybernetics and functionalism, the system grounds the ontology, the technological system. Basing his argument upon

philosophers such as Heidegger (1972), Mitcham (1990), and Medina and Sanmartín (1989), Escobar argues that while science has been used to enframe or control nature, technology has taken on ontological status. Technical rationality is argued by some to be the primary mode of knowing; technology seems to be replacing science (Escobar, 1994: 13). Thus, in the biomechanical model, ontology is given secondary status to epistemology and is ultimately based in nature. In the mechanical model, ontology is largely unproblematic, but is located in the realm of the technological, the rational.

In feminist cybertheory the attempt to problematize ontology is given primary attention. Making an argument for cybernetics, Nichols makes it clear that ontology is an issue in cyborg existence.

If mechanical reproduction centres on the question of reproducibility and renders authenticity and the original problematic, cybernetic simulation renders experience, and the real itself, problematic. Instead of reproducing, and altering, our relation to an original work, cybernetic communication simulates, and alters, our relation to our environment and mind (Nichols, 1988: 30).

Reminiscent of Foucault's suggestion that representation has been evacuated, Haraway suggests that the "... authorization of interpretation is lost, and with it the ontology grounding of 'Western' epistemology" (Haraway, 1985: 70).

To rewrite politics, feminist cybertheory asks us to rewrite the ontological categories that have structured Western thought. "There is no fundamental, ontological separation in our formal knowledge of machine and organism, of technical and organic" (Haraway, 1985: 97). This is, in fact, required by the rewriting of the nature/culture binary.

(i) *nature, action, ethics: popular cyborgs*

While the notion of the cyborg and its invasion of the body's temple with technological prostheses, would seem to implicate the "nature of the human", popular cyborgs often recuperate humanity. As I outlined in the discussion of nature and the popular cyborg, through tropes such as memory, the soul, conscience, sexuality, action and violence, and so on, the popular cyborg is usually *humanized* by the end of the narrative. In its recentring of the human, the popular cyborg also serves to normalize patriarchal gender relations.

Popular cyborg cybertheorist, Alice Rayner, argues that representations of the cyborg serve as clarifying mirrors for humans. Thus, rather than an encounter with "Other," popular cyborgs are an encounter with self (Rayner, 1994: 125-6). Rayner goes on to suggest that Haraway's writing can be read "... as [a] response to the phenomenon of the human encounter with technology as an encounter with self" (emphasis in original; Rayner, 1994: 127). Istvan Csicsery-Ronay, Jr. concurs, noting that "[t]raditionally the cyborg is recuperated for 'humanity', demonstrating -- usually through sentimental nostalgia ("human envy") -- the superior value of God's favourite creature just the way He made him" (Csicsery-Ronay, Jr., 1991: 396).

The gender of both the god and the man is not accidental. Although Csicsery-Ronay, Jr. does not expand the point, the writing of feminist cybertheorists such as Claudia Springer (1991, 1993), Rayner (1994), and Anne Balsamo (1988), demonstrates that the male cyborg is recuperated while the female cyborg, representing the unrecuperable monstrous, is destroyed. The popular cyborg

challenges the nature of neither the human nor the social. The biomechanical model with its modernist ontology and epistemology is not jeopardized.

Alice Rayner makes a case, however, that "the value [of popular cyborgs] is determined not by some ontological status -- what they "are" as beings -- but by the quality of actions and desires" (Rayner, 1994: 134). She suggests that popular cyborg representations do portray "... what might be called an epistemological anxiety toward technological transformation, in which the figure both is and is not itself and the medium IS the message ..." (emphasis in original; Rayner, 1994: 134). It is in the quality of actions and desires that the ethical issues at the core of these representations are located. "The crucial location for ethical contemplation is in the attitude toward rather than in the ontological status of the technological object" (Rayner, 1994: 135).

I suggest that what Rayner's argument works to do is to shift the issue from one of ontology to one of epistemology. The texts she examines suggest that it is through our actions and practices that we know our nature as human (organic) as opposed to machine (inorganic). How we know ourselves is an epistemological issue. Her argument, that "... the guarantor of the human value is in its actions not essences or formal functions" (Rayner, 1994: 140), harkens back to the arguments made by Claudia Springer and Cynthia Fuchs in their consideration of the popular cyborg and its recuperation of masculinity through action and violence.⁵⁵ To adapt their arguments, the nature of man or of patriarchy has not changed, but how we know it, through actions and violence, rather than the body, has changed. Popular cyborgs have slid down the slippery slope to epistemology. Through its focus on action and

ethics. popular cyborg cybertheory suggests that the only way to arrive at the ontological is through the epistemological. The popular cyborg narratives do not examine how their ontological assumptions structure these epistemological positions, and how they structure them. Unfortunately, neither does the feminist cybertheory literature exploring them.

(ii) *elsewhere or just where else: metaphoric cyborgs*

When Donna Haraway suggests that "... the subjects are cyborg, nature is coyote, and the geography is elsewhere" (Haraway in Penley and Ross, 1991: 4), traditional ontology is clearly at risk in feminist cybertheory. Haraway boldly asserts on behalf of the metaphoric cyborg that "[t]he cyborg is our ontology: it gives us our politics" (Haraway, 1985: 66). With the previously discussed rejection of traditional conceptions of nature, the ontological grounding of most, if not all, Western thought and politics is placed in jeopardy (Haraway, 1985: 70). The erosion of the boundary between human and technology is clearly an ontological event.

My analysis queries whether feminist cybertheorists are indeed positing an ontology that is elsewhere, or whether they are more accurately engaging with the production of knowledge, epistemology. Even Haraway's portrayal of the cyborg slips back into issues of epistemology. Is this slippage, however, fatal to the feminist contribution of this literature? Perhaps more significantly, what of ontology?

The metaphoric cyborg is a postmodern cyborg, feminist cybertheorists assert (Wolmark, 1994; Balsamo, 1988; Schwab, 1987; Hayles, 1993). Postmodernism,

rather than rewriting ontology, has defined ontology in such a way as to make epistemology more significant, I suggest. In taking a radical social constructivist position which asserts that there is no reality that we cannot know, or more accurately, that we create reality through the act of knowing, how we produce knowledge becomes far more significant than how we view our nature and the nature of the social, for the conditions of the former determine the latter.

Most feminist cybertheorists who accept the postmodern nature of the cyborg, and/or of woman/women, do not rewrite ontology to embrace non-human agents, a non-totalizing notion of nature, or some notion of a real which is not man-made, as Haraway calls for (for example, Balsamo, 1988). I suggest, that in accepting the postmodern cyborg metaphor, the majority of feminist cybertheorists are not directly engaging with ontology, their concern is with epistemology, which then becomes the site of their intervention. This might explain, for example, why Arlene Balsamo does not advocate intervention by feminists into technological social relations, but instead suggests the rewriting of the representation of the cyborg as image and metaphor. This slide into issues of epistemology is most pronounced in the work of Susan Leigh Star, given that she is specifically attempting to develop a model of multiple memberships not anchored in traditional political identity.

The vision of the cyborg, who has membership in multiple worlds, is a different way of viewing the relationship between standards and multiple selves. And this involves weaving in a conception of multiple membership, of a cyborg vision of nature, along with the radical epistemological democracy between humans and nonhumans (Star, 1991: 48).

She interprets this project as one of epistemology, however, rather than ontology.

Notwithstanding her invocation of the cyborg and a postmodern notion of multiple subject positions, she is not prepared to rewrite her ontological position. While feminist cybertheory may have tumbled down the slope to epistemology, there is, however, an unarticulated ontological assumption at work. While Haraway's work is more complex than most, this assumption is also present in her cybertheory.

In metaphoric feminist cybertheory, in much work in cyberculture in general, and in postmodern thought, the ontological metaphor is technology, with postmodernism as an epistemology which flows from it. The assumption is that our nature, our reality, is man-made. In the biomechanical model which maintained a tension between man and machine, and nature/culture, the epistemology of science combined the notion of nature and the constructed nature of knowledge. Science, premised as it is on some underlying notion of nature (non-man-made reality), is no longer an adequate epistemology. What better way to represent the man-made nature of our selves and our reality than through an ontological metaphor of technology, through a knowledge-producing system embracing radical social constructivism, postmodernism?

The exception to the postmodern cyborg is found in those feminist cybertheorists who recuperate the cyborg for humanity. This occurs in two ways, one through invoking the body (which I will discuss in the subsequent section of this chapter) and the other through invoking the psyche. For example, Gabriele Schwab asserts that the cyborg "... expresses the fears and desires that are derived not so much from technology *per se* as from deeper psychic sources" (Schwab, 1987: 67).

She suggests that technology is a metaphor which structures our imaginations throughout our lives. This process is gendered as well. "The imaginary and socially sanctioned cyborgization is, as far as childhood culture is concerned, a predominantly male enterprise in the most traditional sense" (Schwab, 1987: 69).

Schwab is clearly attempting to maintain a psychically divided, yet in some ways still centred, human being, and is rejecting the notion of complete postmodern identity. At the same time, she makes a convincing case for the ubiquity of the metaphor of technology for defining our selves and our reality. Technology as our ontological metaphor. She suggests that "[t]he human automaton, which symbolized the transition between romantic and modern subjectivity, is replaced by the cyborg which symbolizes the transition between modern and postmodern subjectivity" (Schwab, 1987: 72). She goes on to suggest that the psychological decentredness of the cyborg is bolstered by a social decentredness in that cybernetic programming controls the social and the individual within it, to the point of shaping our "fantasmatic desires". "At this point technology and desire interpenetrate" (Schwab, 1987: 73); at this point technology becomes our ontology.

I agree with Schwab when she argues that

... fantasies of cyborgs seem to suggest that there is a dimension of postmodern subjectivity which can only be accounted for with categories able to grasp the intrusion of technology into or even the technologizing of body, mind, and 'soul' (Schwab, 1987: 75).

However, I begin to part ways with her analysis when she asks, "[d]o we, by internalizing technology, lose ourselves as 'subject of our culture'?" and answers her question by suggesting that, "[s]uch a conclusion would conflate the potential of

technology with a specific cultural use of it" (Schwab, 1987: 81). Schwab begins with the more complex notion that our culture has embraced a metaphor of subjectivity which subordinates human agency to the cybernetic, that we have technologized our souls. In other words, she offers a convincing argument for technology as our ontological metaphor. This argument seems premised upon some notion of technology as culture; however, her conclusion then undermines this when she states that we have merely confused our use of technology with the order of things. Presumably then, all we must do is choose, and then use, technology differently. She ultimately employs a notion of technology as artifact, one to be used according to free will in a culture which has merely been confused over the proper role of technology. Her conclusion reproduces an unsophisticated definition of technology and a liberal notion of political intervention.

Schwab concludes by stating that "[i]t is, then, not the technical media as such but the cultural tendency to mistake the order of the media for the order of things which creates the simulacra of postmodern existence" (Schwab, 1987: 82). While her argument echoes that of "there is no bad technology, just bad people", her analysis demonstrates a cultural process which I suggest is evidenced by feminist cybertheorists' unspoken assumptions, that technology *has* become 'he order of things. The aesthetic and epistemology of postmodernism then flows logically, as Schwab asserts, from this ontological position.

This argument is similar to an argument raised by Evan Watkins (1993), only he suggests that our society has embraced a master narrative which he labels,

technoideology. The technoideological coding of "fields of difference" ensures that nondominant populations become obsolete technologies. He argues that Haraway's proposed existence within the information circuits of the informatics of domination is not survival, not resistance, but control by hegemonic forces (Watkins, 1993: 25).

The limitations of this analysis stem from its Marxism. Watkins' assertion that technoideology is an ideology, unduly limits his basic contention. It does not permit him to explore how our understanding of technology shapes other social meanings and social relations, and how multiple classes and other groupings of social subjects might be oppressed by and benefit from, technoideology at different times. Ideology is too seamless a notion for what I want to capture and hegemonic culture offers too limited an understanding of culture for my purposes. Nonetheless, I think that he, too, is attempting to recognize a similar trend to that which I am labelling the shift to an ontological metaphor of technology, or a techno-ontology.

Their reliance upon this ontology of technology is not recognized by feminist cybertheorists, however. While Haraway, more than other cybertheorists considering the metaphoric cyborg, recognizes some of the implications of her postmodernist position, and attempts to correct for some tendencies which her self-proclaimed socialist politics will not permit, I suggest that she does not correctly identify the ontology of technology. By focusing on epistemology and the production of knowledge, her concerns, while stated as ontological, return to the epistemological.

Like the subject of other feminist cybertheory, Haraway's metaphoric cyborg is postmodern:

[t]he knowing self is partial in all its guises, never finished, whole, simply there and original: it is always constructed and stitched together imperfectly, and **therefore** able to join with another, to see together, without claiming to be another (emphasis in original; Haraway, 1991b: 22).

The self, as constructed, is man-made, it is postmodern. However, hers is allegedly a political postmodernism (Haraway, 1991a: 154). Cyborgs are simultaneously "... wary of holism but needy for connection -- they seem to have a natural feel for united front politics, but without the vanguard party" (Haraway, 1991a: 151).

Therefore, while wanting the constructed, unessentialist, multiplicitous nature of a postmodernist subject, her politics will not let her live with the implications of this. "For political people, social constructionism cannot be allowed to decay into the radiant emanations of cynicism" (Haraway, 1991a: 184). She seeks to combine what others would label an idealist epistemology with a realist epistemology:

So, I think my problem and 'our' problem is how to have *simultaneously* an account of radical historical contingency for all knowledge claims and knowing subjects, a critical practice for recognizing our own 'semiotic technologies' for making meanings, *and* a no-nonsense commitment to faithful accounts of a 'real' world ... (emphasis in original; Haraway, 1991a: 187).

It is too simple a response to merely suggest, on the basis of traditional social science dogma, that this is an untenable position.⁵⁶ I suggest, that the potential of Haraway's vision, bears exploration. However, at the same time, I suggest that there are two ways in which Haraway's elaboration of her model become problematic.

First, as I will discuss in the subsequent section, she rejects the notion of the sexed body as a marker of identity (or affinity), and yet seeks to ground "feminist" science projects and develop a "feminist" objectivity. How she is defining feminism

and how it can survive her position is never made clear. Second, her specific use of the metaphoric cyborg is to explore issues of epistemology, rather than to ground an ontological shift. By choosing the metaphor of the cyborg, she is accepting the ontology of technology, with all its implications, and focusing her re/writing on epistemology. The cyborg reproduces the technological ontological. "High-tech culture challenges these dualisms [of modernism] in intriguing ways. It is not clear who makes and who is made in the relation between human and machine" (Haraway, 1989: 177). Perhaps, if her concern is with rewriting ontology, "it is ... time to switch metaphors" (Haraway, 1991a: 188).

While she correctly rejects the alarmist dualism of realism versus unbridled relativism, her concern is with epistemology. "The alternative to relativism is partial, locatable, critical knowledges sustaining the possibility of webs of connections called solidarity in politics and shared conversations in epistemology" (Haraway, 1991a: 191). Haraway suggests that "[o]ne important route for reconstructing socialist-feminist politics is through theory and practice addressed to the social relations of science and technology, including crucially the systems of myth and meaning structuring our imaginations" (Haraway, 1991a: 163). Her concern is with myth and meaning structuring our imaginations, not the meanings structuring our selves and our realities. In the *Manifesto*, Haraway charges in boldly, the laser beam from her cyborg arm cutting in to the ontological status of Western man (and woman); however, she slips into a return to the epistemological -- perhaps because of her postmodern acceptance of the "fictive" nature of experience, and thus, of social

reality (Haraway, 1985: 65-6). Everything in the digital world becomes a problem in communication, or of text -- a problem of epistemology? Haraway suggests later in the work that "[t]he dichotomies between mind and body, animal and human, organism and machine, public and private, nature and culture, women and men, primitive and civilized are all in question ideologically" (Haraway, 1985: 87). In her use of ideology, is Haraway merely slipping back into questions of epistemology, rooted in the socialist/Marxist binary between science and ideology? She argues: "Communications sciences and biology are constructions of natural-technical objects of knowledge in which the difference between machine and organism is thoroughly blurred; mind, body, and tool are on very intimate terms" (Haraway, 1985: 84). Thus, difference is located in the objects of knowledge, making the essential issue one of epistemology, rather than ontology.

She rejects a sex/gender binary (which she asserts is inherent in the nature/culture binary), and yet wants to be a feminist and continually asserts the constructed nature of knowledge. The cyborg is "... a myth system waiting to become a political language to ground one way of looking at science and technology and challenging the informatics of domination" (Haraway, 1985: 100). If the cyborg is not problematizing the underlying ontological metaphor of technology, indeed if it embodies it, then it offers a problematic basis from which to challenge the informatics of domination, a system of oppression grounded in the ontological metaphor of technology.

(iii) *a problem of coding: literal cyborgs*

What about a being who has learned to live in a world in which, rather than nature becoming technologized, technology is nature? -- Allucquere Rosanne Stone⁵⁷

Feminist cybertheory, in Haraway's terms, suggests that "[h]uman beings, like any other component or subsystem, must be localized in a system architecture whose basic modes of operation are probabilistic, statistical" (Haraway, 1985: 82). The world envisioned is one in which all has been translated into a problem of coding (Haraway, 1985: 83), a problem of cybernetics. The "natural" environment of the cyborg is a world according to cybernetic principles. Bill Nichols suggests that in post-industrialism, the human is defined in relation to cybernetic systems (Nichols, 1988: 28). Alice Rayner suggests that the cyborg is an attempt to graft machine logic onto human identity (Rayner, 1994: 127). "The idea of cybernetic reconstruction of the human organism ... signals how and to what extent the alien bodies of technology have already invaded our minds and taken part in shaping the boundaries of subjectivity" (Schwab, 1987: 73). The cyborg is clearly embedded within, and implicated in, cybernetics.

Some feminist cybertheorists examining literal cyborgism do not see this existence as problematic, particularly not from a gendered perspective. While Haraway recognizes that postmodernism is an insufficient basis in which to ground a politics, she does not seem to have the same concern about cybernetics. She recognizes certain problems, but suggests that feminists merely write them out of existence:

[t]he phallogocentric origin stories most crucial for feminist cyborgs are built into the literal technologies -- technologies that write the world, biotechnology and micro-electronics -- that have recently textualized our bodies on the grid of C³I. Feminist cyborg stories have the task of recoding communication and intelligence to subvert command and control (Haraway, 1985: 94).

As critics have argued, however, the tools of how this is to be accomplished are nowhere present in Haraway's discussion of a cyborg future, nor that of any other feminist cybertheorist. Elspeth Probyn argues, "[t]here are no strategies of how we get from here to there or there to here ... Haraway draws attention to the polyphony arising from the detritus of modernist organization, but the basis for her 'techno-emancipation' is unstable" (Probyn, 1987: 11).

Other feminist cybertheorists toying with literal cyborgism concede the location of the literal cyborg in cybernetic systems. Jenny Wolmark, in an analysis unhindered by empirical examples, suggests:

[t]he cyborg embodies the notion of transgression against the limits and controls of the cybernetic systems within which it is situated. Within the context of the unstable boundaries between the realm and the simulated, human and cyborg, the question of identity becomes highly charged, because it can become a crucial means of contesting what Bill Nichols describes as the 'reification, the commodification, the patterns of mastery and control' that are at the heart of contemporary cybernetic systems (Wolmark, 1994: 127).

Apparently saying makes it so. In an examination which offers as examples, only feminist SF representations of cyborgs, she suggests that the cyborg, in its very nature (its ontology?) contests the control of cybernetics. She further suggests that "the question of identity becomes highly charged" (Wolmark, 1994: 127). An increasing number of feminist analyses of "contemporary cybernetic systems" reflect that while

the question of identity may become highly charged, it is neither highly variable nor feminist (Stone, 1992; Sobchak, 1993; Balsamo, 1993).

Wolmark even concedes a certain ambiguity in the texts which she cites, but goes on to argue that despite their contradictions and ambiguities they do offer a "... critique of the masculine hegemony of cybernetic systems which examines their impact on gender and identity, and asks whether those systems are capable of sustaining other sets of relations and meanings" (Wolmark, 1994: 138). SF of cyberspace writers concur:

[e]very aspect of virtual 'residency' offers a fascinating, fertile ground for examining issues of embodiment and disembodiment, authenticity and artificiality, biological gender and gender role-playing, information ownership and free access. Almost all of these issues converge in computer sex. How compu-sex will evolve is an open question. That it will thrive and develop novel ways of gratifying erotic desires is almost certain (Branwyn, 1993: 791).

While the potential is certainly there, the assertion, implicit in both Wolmark and Branwyn's remarks, is that cybernetic systems open up a clean slate upon which to rewrite issues of gender and identity. This denies the cultural writing and language which is already on the slate. As Hayles suggests, we are taking gender politics with us into the realm of the posthuman. An article discussing various computer bulletin boards in an issue of the hacker magazine, *Mondo 2000*, evidences this when it cautions women:

[f]or women, the boards are a challenge. If you're a data cowgirl riding the aether, you're gonna run into some SHIT. Strangely much of the chatter on these boards consists of d00dz [dudes] discussing how much they *like* women and what they'd do if they ever found one (emphasis in original; d'Fault and Rupture, 1993: 45).

Perhaps not so strange. Gareth Branwyn, after identifying the potential of compu-sex is forced to acknowledge that, "[t]he phallocentricism of the term [teledildonics] is indicative of the way people have so far visualized net-sex as a substitute for traditional 'real-world' intercourse" (Branwyn, 1993: 789). He goes on to suggest that the mediation of the computer does not cause changes in behaviour and may even be creating a new space for "sexist aggression" (Branwyn, 1993: 788).

While fictional cyborgs may offer a critique of the masculine hegemony of cybernetic systems, the literal cyborg would seem to offer only negative feedback. In order to truly consider the potential for feminist intervention into cybernetic systems grounding cyberculture, feminists must engage in more research into literal cyborg existence. At present feminist cybertheory examining literal cyborg existence is based too much on allegations about literal cyborgs justified with metaphorical cyborg rhetoric (such as Springer, 1991, 1993; Wolmark, 1994; Balsamo, 1988).

In addition, there is too little interrogation of cybernetics as a closed informational system. The cybernetic system is intended to be a system of control; Wiener originally defined it as "[t]he theory or study of communication and control in living organisms or machines" (Wiener in Simpson and Weiner, 1989: 188). Allucquere Rosanne Stone suggests that in the *technosociality* towards which humanity is moving, "... the social world of virtual culture, technics is nature. When exploration, rationalization, remaking, and control mean the same thing, then nature, technics, and the structure of meaning have become indistinguishable" (Stone, 1992: 111). The likelihood of sustaining a viable feminist political project in social relations

dominated by cybernetics is unlikely, I suggest. Cybernetics takes as its ontological metaphor, the technological, and therefore, does not rewrite the basis of the mechanical model. Writing of cybernetics, Gregory Bateson suggests: “[a]ll that is not information, not redundancy, not form and not restraints -- is noise, the only possible source of *new patterns*” (emphasis in original; Bateson, 1972: 410). In a cybernetic system, monsters are noisy subjects, the only source of new patterns, and they necessarily live outside of the feedback loop, outside of the system. The cybernetic model does not permit new patterns to exist from inside the belly of the monster. If located in cybernetics, a feminist cyborg politics is, therefore, impossible.

The daring potential to rewrite ontology is, unfortunately, not manifested in the feminist cybertheory exploring cyborg identity in each of its three incarnations. The popular cyborg embraces an ontological grounding of the modernist, biomechanical model. The metaphoric cyborg replicates the techno-ontology of the mechanical model and offers only a challenge to the epistemological realm. Finally, the literal cyborg, at home in current relations of technoscience, not only embraces the technological ontology of the mechanical model, but is a cog in a system of governance and control, cybernetics. Cybernetics is an inherently resistance absorbing system, where positive feedback is eliminated and all information is controlled within the system. When exploration and control are the same thing, then where is the space for resistance?

Many feminists would ground resistance in some notion of the material; many would ground it in a notion of a sexed, racialized body. Materiality is problematic for cyborgs, however. Writing of Haraway's cybertheory, Elspeth Probyn suggests that the "... historical materialism which she rightly emphasizes as inherent in a feminist critique is vaporized in her argument" (Probyn, 1987: 11). Bill Nichols also suggests that the challenge to ontology, is, simultaneously, a challenge to the material body. "In cybernetic systems, though, 'I' and 'you' are strictly relational propositions attached to no substantive body, no living individuality" (Nichols, 1988: 30). The issues of materiality and the disembodied body of the cyborg are explored in the following section.

2. Locating materiality: Embodying Disembodiment

Cyborgs ... open up productive ways of thinking about subjectivity, gender, and the materiality of a physical body -- Anne Balsamo⁵⁸

The biomechanical and mechanical models offer gendered notions of the body. In the case of the former, science defines the two sex model of men's and women's bodies with different social values accruing to each. As a result, the biomechanical model produces and reproduces the sex/gender split. In the mechanical model, the ideal is to eliminate the body altogether as it is natural and hence uncontrollable; it is not rational. However, in cultural representations, the technological body remains sexed as either male or female, depending on whether the feedback is negative or positive, whether nature/emotion/irrationality are under control or not.

Again, it is feminist cybertheory which problematizes the ontological dualisms

that define, among other things, our bodies. "Cyborg imagery can suggest a way out of the maze of dualisms in which we have explained our bodies and our tools to ourselves" (Haraway, 1985: 100). The cyborg body is a genderless body; in fact, the body as we have known it no longer exists. "A cyborg body ... does not seek unitary identity and so generate antagonistic dualisms without end (or until the world ends); it takes irony for granted" (Haraway, 1991a: 180).

Others suggest that it is not so easy. Thomas Laqueur suggests that one cannot get rid of the body, merely by wishing, or writing, it away. "The flesh, like the repressed, will not long allow itself to remain in silence. The fact that we become human in culture ... does not give us license to ignore the body" (Laqueur, 1990: 13). Lyotard even suggests that the body/machine must remain gendered. "We need thinking machines that suffer from the burden of their memory Your thinking machines will have to be nourished not just on radiation but on irremediable gender difference" (Lyotard, 1988-9: 86).

Feminist cybertheory, in its attempts to challenge the ontological status of the male/female, nature/culture, organic/machinic dualisms which structure the mechanical and biomechanical models and most of Western thought, must seemingly concede the ontological status of the sexed body. This throws the emancipatory project of feminism, tied as it is to a unifying notion of gender, into a dilemma. The issue of where to locate the materiality of oppression and resistance, if not in the body, remains.

(i) ***posthuman/postwoman: popular cyborgs***

While many scholars, both cybertheorists and other analysts of cyberculture, argue "the body" is implicated in the discourses of popular cyborgs, Scott Bukatman makes an ironic, yet telling, point:

[t]he obsessive restaging of the refiguration of the body posits a constant redefinition of the subject through the multiple superimposition of bio-technological apparatuses. In this epoch of human obsolescence, however, a remarkable consistent imaging/imagining of both body and subject ultimately emerges (Bukatman, 1991: 343).

I have discussed at some length in earlier chapters the portrayal of popular cyborg bodies as analyzed by feminist cybertheorists. There is a remarkably consistent imaging and imagining of the body as highly masculine or highly feminine, never un- or non- or poly-gendered -- all of which are possibilities in the SF environment which the popular cyborg inhabits. The meanings associated with a highly masculine or highly feminine cyborg and how they are "dealt with" within the terms of the narrative, have very different cultural connotations. Many scholars have noted the displacement of technological fears onto the representation of the female cyborg (Balsamo, 1988; Doane, 1990; Huyssen, 1986; Bellour, 1991; Springer, 1991). Perhaps it is not coincidence that in most popular culture texts, the female cyborg does not find her humanity like her male counterparts but meets with an inevitable, and frequently hideous, death.⁵⁹ Her body is destroyed.

Feminist cybertheorists effectively demonstrate that popular culture narratives suggest that technology allows us to transcend the human body, but they do not allow us to transcend sex or gender. Janet Bergstrom argues that this is because when

human identity is suspect in cultural texts, the representation of sexual identity takes on increased significance (Bergstrom, 1991: 35). This is specifically what the cyborg should allow one to move away from, but unfortunately popular culture texts, "... reveal the gendered constructions that carry sexual politics into the realm of the posthuman" (Hayles, 1993: 170).

What none of the feminist cybertheorists examining the popular cyborg seem quite willing to suggest is that rather than the *posthuman*, what these texts seem to be representing is the *postfemale*. The body that is being transcended through technology is the female body; the masculine body is being recuperated as the natural dominant. Again, Alice Rayner observes that even when the masculine body seems to be transcended or objectified through technology, it is not at the expense of masculinity. Masculinity is recuperated to transcend its bodily limitations. Female bodies which embrace technology are written out of existence, controlled. The only female bodies to survive are natural or human female bodies, uninvaded by technology, which remain as objects in the narrative, frequently sexual objects. The recuperated male body, or at least the recuperated masculinity, is maintained and all gender relations flowing out of that are normalized. In its validation of the male and female body embedded in "appropriate" gendered social relations, the sex/gender and masculine/feminine distinctions which anchor the biomechanical model are reproduced.

(ii) *polychromatic girls and feminists: metaphoric cyborgs*

Yeah, it [the cyborg] is a polychromatic girl ... a bad girl ... really not a boy ... -- Donna Haraway⁶⁰

In the consideration of the metaphoric cyborg, two issues, in particular, arise out of the feminist cybertheory literature. First, the implications of a non- or post gendered world for feminist agency, and second, and related, the implications of a release by feminism of the sexed body as the material basis for constituting subjectivity and the subject. Donna Haraway's cyborg, at least, inhabits a post-gender world.

The cyborg is a creature in a post-gender world; it has no truck with bisexuality, pre-Oedipal symbiosis, unalienated labor, or other seductions to organic wholeness through a final appropriation of all the powers of the parts into a higher unity (Haraway, 1985: 67).

Thus, unlike its popular culture counterpart, the metaphoric cyborg is a non- or post gendered being. Ungendered existence is the feminist vision of the future. "We require regeneration, not rebirth, and the possibilities for our reconstitution include the utopian dream of the hope for a monstrous world without gender" (Haraway, 1985: 100).

If feminism is a political and social movement organized around the relations of gender, can there be feminism in a cyborg world? Is cybertheory feminist theory? If cyborgs are not feminists, are they nonetheless agents? These questions reflect the encounter between feminist thought and postmodernism; however, they take on a particular cogency in a technological environment where gender has become merely another item of identity play in the realm of computer-mediated communication. The

cyborg captures these nuances and permits their exploration, but feminist cybertheory does not offer bold answers.

There is an extensive body of feminist literature considering the notion of sexed bodies and a politics organized around gender. This literature divides into those thinkers attempting to retain a notion of commonality organized around gender and those who feel that the only path to any sort of emancipation is to begin to think and work outside the existing categories of gender or sex.⁶¹ Those theorists retaining the category of gender are prepared to embrace the compromises that must be made to reflect difference within any category of what constitutes women and clearly feel that there are some aspects to being women that they do not wish to surrender. For some feminist cybertheorists considering the metaphoric cyborg, existing power relations cannot be changed from within a gendered framework; transcendence is the only solution. Most cybertheorists, however, do not recognize this issue as presented by the cyborg; their cyborgs are clearly women, clearly feminists. The rhetoric suggests they are prepared to give up being women for something better; however, I suggest that they do so without considering the consequences for gender politics.

Many feminists would likely agree with Bukatman when he suggests that "[t]he discourses of science fiction and philosophy have constructed a metaphorical subject redefined to permit its situation as a biological being within an electronic world" (Bukatman, 1993: 301). They would acknowledge the power of the cyborg metaphor. However, they are not prepared to give up materiality for metaphoric subjectivity. They want to maintain a material basis in which to ground effective agency.

Feminist cybertheorists seem to want the same thing. Anne Balsamo (1988) and Jenny Wolmark (1994), as I have discussed earlier, each while embracing the cyborg as metaphor for postmodern feminist subjectivity, clearly want to retain a notion of gender in which to ground their own feminist politics. Balsamo fully acknowledges that gender is fractured by the cyborg, advocates the use of the cyborg as metaphor for thinking about subjectivity, gender and the body, yet wants to keep her feminism grounded in gender difference (Balsamo, 1988: 342-3). This contradictory position is mirrored in Jenny Wolmark's analysis as well where she employs Haraway's cyborg, but does not rewrite feminism. She recognizes the cyborg is a metaphor for postmodern subjectivity, but at the same time suggests that "... the reasons for assuming that a progressive politics of 'feminist solidarity' would necessarily emerge from a position of 'permanent partiality' are unclear, as are the kinds of theoretical developments or political interventions that could result from such a position" (Wolmark, 1994: 19).

In fairness to feminist cybertheorists responding to Haraway, Haraway's position is also unclear. She recognizes that gender is an issue for her cyborg. She labels her own work feminist, refers to cyborg politics as feminist, and labels her 1985 cyborg as "a polychromatic girl" who is definitely not a boy. Yet they refuse to be gendered, not a neutral choice. "The refusal to become or remain a 'gendered' man or woman, then, is an eminently political insistence of emerging from the nightmare of the all-too-real, imaginary narrative of sex and race" (Haraway, 1991a: 148). In a related argument, Balsamo suggests that the cyborg is a useful emblem for

exploring the issues of otherness. She does identify, however, a dilemma posed by Haraway's writing, particularly in the notion of post-genderedness: "[i]t is difficult to determine if Haraway chooses the cyborg because she believes that women are inherently cyborgian, or because the image is useful and potentially liberating" (Balsamo, 1988: 341). Balsamo inadvertently raises the issue of whether the cyborg is the non-gendered, or perhaps post-gendered, means to a "feminist" end or whether the feminist end is non- or post-gendered. This tension imbues the feminist cybertheory contemplating the metaphoric cyborg.

While oppression continues to be gendered and continues to manifest itself on women's sexed bodies, many feminists argue we are not yet ready for post-gender, or perhaps more accurately, post-feminist politics. Feminist cybertheory is not prepared to call itself post-feminist, but that is a logical outgrowth of its position. However, perhaps it can be argued that feminist cybertheory is beginning the process of *unthinking* -- as Jacobus, Fox Keller and Shuttleworth label it -- "... to imagine other ways of thinking of the social and political body, together, and altogether" (Jacobus, Fox Keller, Shuttleworth, 1990: 10). Feminist cybertheory may be unthinking material social and political bodies. However, in order to retain a politics, there must be some basis for commonality; many would argue that this requires a material foundation.

Where to locate materiality is the second ontological issue posed by the metaphoric cyborg. "A cyborg body ... does not seek unitary identity and so generate antagonistic dualisms without end (or until the world ends): it takes irony for granted"

(Haraway, 1991a: 180). Is feminism a materialist movement? If so, it must address its materiality, the materiality of its underlying organizing notion, the materiality of gender: the sexed body.

Again, the cyborg offers an entry point into this debate in that the embrace of the metaphoric cyborg implicates a surrender of our current understanding of the body. Anne Balsamo suggests, "[t]he high-tech image of the cyborg reminds us to question the assumed naturalness of the body and its function as a marker of difference" (Balsamo, 1988: 339). The metaphoric cyborg both releases its hold on a sexed body, but also revels in the fusion of its body with technology. Haraway suggests, "[i]ntense pleasure in skill, machine skill, ceases to be a sin, but an aspect of embodiment. The machine is not an *it* to be animated, worshipped and dominated. The machine is us, our processes, an aspect of our embodiment" (emphasis in original; Haraway, 1985: 99). Any basis for essentialism has disappeared. "Nothing in a cyborg body is essential" (Rayner, 1994: 115). As we become cyborg "... a visual reading of gender, or any other cultural marker of identity off the surface of the body will be hopelessly confounded" (Balsamo, 1988: 340). Clearly then for cybertheorists, materiality is not grounded in a notion of the body as we know it, but elsewhere, if at all.

The cyborg body has significant implications for feminism. "Feminist embodiment, then, is not about fixed location in a reified body, female or otherwise, but about nodes in fields, inflections in orientations, and responsibility for difference in material-semiotic fields of meaning" (Haraway, 1991b: 22-3). In the metaphoric

elimination of the (hetero)sexed body, feminist cybertheorists are attempting to break difference out of the existing binary structures of sex and gender to allow it to flourish. However, the implications of this for feminism are weighty.

Given the significance of the female body throughout history as a site of the patriarchal oppression of women, many feminists are not only suggesting that it be maintained, but are going further to engage in new ways of thinking about the body (Jacobus, Fox Keller, Shuttleworth, 1990). Even Scott Bukatman, acknowledges, albeit cursorily, that the materiality of the body is an issue of different magnitude for women. "For the female subject 'the body' is no abstract notion ... and is more evidently bound into a system of power relations" (Bukatman, 1993: 314). Elspeth Probyn makes a similar point: "[a]gainst the implosion of the feminine and mass culture we must not forget that the place of the feminine body in mass and everyday culture has been a crucial question for feminism" (Probyn, 1987: 8). Many other thinkers link the sexed body to the viability of a feminist project (Bartky, 1988; McNay 1991; Grosz, 1993; Bigwood, 1991). Mark Seltzer recognizes the gendered implications of disembodiment. The privilege of disembodiment, or "bodies-in-the-abstract" are reserved for white masculine bodies, and in fact, other material bodies must be present against which to measure this privilege (Seltzer, 1992: 64). Evan Watkins would characterize these other bodies as the "throwaways" of our society, travelling the same routes as outdated and obsolete technologies. He too, however, recognizes the differential impact that these processes have on female bodies. As Bill Nichols correctly suggests, "... the ambivalences regarding cybernetic technology

require resolution on more fundamental ground: that domain devoted to a social theory of power" (Nichols, 1988: 45). The more fundamental ground of feminism, I suggest.

Balsamo echoes Probyn's argument in encapsulating the significance of the feminine body to feminism, at least historically.

Feminist theorists have traditionally asserted that female bodies are not one-dimensional surfaces which bear easy-to-read meanings. Indeed feminist writers honor the body as the site of the production and reproduction of fragmented identities and affinities -- in short, the site of material practice. They identify the place and meanings of the female body in mass culture, sometimes to reassert the importance of female sexuality ...; sometimes to propose a radically new form of cultural production ...; and sometimes to articulate the 'side for the coming together of feminist theory and politics' (Balsamo, 1988: 339).

At the same time, however, Balsamo, along with other metaphoric cybertheorists does not adequately consider the bodily implications of cyborgism.

Haraway, herself, is contradictory on this issue. She wants to give up the sexed body, she clearly wants to eliminate gender, yet at the same time she recognizes the bodily nature of knowledge. She suggests:

I am arguing for politics and epistemologies of location, positioning, and situating, where partiality and not universality is the condition of being heard to make rational knowledge claims. These are claims on people's lives; the view from a body, always a complex, contradictory, structuring and structured body, versus the view from above, from nowhere, from simplicity (Haraway, 1991a: 195).

Again, this is an issue that has been the subject of much feminist discussion and writing, discussion and writing which goes largely unrecognized by feminist cybertheory. In particular, recent work has suggested that female embodiment may offer a route to rewriting the ontological basis of feminist theory (Probyn, 1993;

Braidotti, 1993).

Margaret Morse is one of the few cybertheorists who advocates a return to the notion of the bodily as a way of critiquing the metaphoric cyborg. Her question is "[w]hat do cyborgs eat?" "After all, the different nutritional requirements of silicon-versus carbon-based intelligence of the mammalian persuasion are not negotiable in material reality" (Morse, 1994: 87). She suggests that by embracing the metaphoric cyborg, we are actually "wishing the problems of organic life away" (Morse, 1994: 87). In a position that is arguably in response to some notion of a technological ontology, she wants to maintain the primacy of the organic and suggests that we should be more concerned with making cyborgs, meat (organic), rather than making meat into machine (Morse, 1994: 113).

Most feminist cybertheory, in its rejection of a political identity anchored in a material sexed body is not premised upon a model of intimate coupling within the current understanding of feminism. That is not to say that feminism could not be rewritten, or that what is offered cannot still, in some ways, be useful to feminism. However, feminist cybertheory is disappointing in its undertheorized treatment of the issues of material embodiment and the risks the metaphoric cyborg poses to feminist politics.

(iii) *free and easy: literal cyborgs*

... the unitary, bounded, safely warranted body constituted within the frame of bourgeois modernity is undergoing a gradual process of translation to the refigured and reinscribed embodiments of the cyberspace community -- Allucquere Rosanne Stone⁶²

Allucquere Rosanne Stone suggests that while "the discourse of visionary virtual world builders is rife with images of imaginal bodies, freed from the constraints that flesh imposes", this does not erase the fact that consciousness remains tied to a physical body (Stone, 1992: 112-3). She further argues that women and minorities are those that are marginalized when the body is forgotten; with the loss of the body, marginal bodies (and voices) which have historically been denied are forgotten (and silenced) (Stone, 1992: 113). At the same time, however, she maintains substantial hope that the gendered relations in cyberspace will somehow, and she does not say how, be more equitable, given the potential for disembodiment.

All three incarnations of the cyborg, but in particular, the literal cyborg illustrate two problems with the cyborg as a feminist subject different than that offered in the biomechanical and mechanical models. Both arise from the popular cyborg's home in consumer culture; I label them the artifactualization and aestheticization of the body. In his book, *Bodies and Machines* (1992), Mark Seltzer demonstrates that these are not new trends and that they were present in turn of the century North American cultural texts involving body/machine fusion. Seltzer suggests that the coupling of body and machine that has so long fascinated North Americans necessarily implicates social questions, specifically, consumer culture and gender (Seltzer, 1992: 4).

Arguing that this coupling is actually a result of the convergence of market and machine culture, Seltzer suggests that the resulting fusion is consumer culture (Seltzer, 1992: 58). The modernist subject being abstracted to the citizen occurred at the same time as the "making conspicuous" of the body in consumer society, resulting in the abstraction, or aestheticization, of the body (Seltzer, 1992: 63). How we appear to others becomes more significant, and our identity is achieved through the aesthetic of the body as manifested in and through consumption. This in turn, objectifies the body as a consumer artifact. "The privilege of relative disembodiment in consumption is not quite a living beyond the body but rather the body's aestheticization: the body as artifact" (Seltzer, 1992: 136).

Seltzer recognizes the link between body and consumption when he characterizes body/machine coupling as "... the simultaneous invocation and transcendence of the natural and the bodily in the culture of consumption" (Seltzer, 1992: 153). While the cyborg implicitly transcends the *body*, the *bodily* is invoked to portray disembodiment. This is the point that Arthur and Marilouise Kroker are making when they talk about the disappearance of the body. They suggest that ideologically the body is written upon by the fashion industry, epistemologically the body is the false center of subjectivity, semiotically the body is tattooed and serves as a floating sign, and technologically, "... the body is subordinated to the twofold hypothesis of hyper-functionality and ultra refuse" (Kroker and Kroker, 1987: 21). This echoes the argument made by Scott Bukatman that the issues of contemporary subjectivity, which he calls *terminal flesh*, are played out on the surface of the body.

"The surface of the body becomes the arena for the dissolution of the governing instrumental reason of the organism" (Bukatman, 1991: 354). The body as a surface, the body as object, the body as artifact -- these all translate into the body as commodity. This is also an outcome of the literal cyborg's existence in cybernetic systems, a point recognized by Bill Nichols in his discussion of the ownership issues posed by the commodity nature of all cybernetic systems (Nichols, 1988: 39-56).

Nichols asks:

What tools are at our disposal and what conception of the human do we adhere to that can call into question the reification, the commodification, the patterns of mastery and control that the human as cyborg, the cyborg as human, the simulation of reality and the reality of the simulation make evident? (Nichols, 1988: 44).

Specifically addressing the Krokers' argument, Elspeth Probyn suggests correctly, "*the body as metaphor* for a culture where power itself is only fictional ... cannot serve as a site of empowerment because it signifies nothing" (emphasis in original; Probyn, 1987: 2). Reducing the body to culturally inscribed artifact thus pulls the rug out from under a materialist feminist project. I suggest that these processes operate most significantly upon women, and they operate through and on their material bodies, as well as their bodies as discursive sites. As women struggle to be subjects, through their bodies they are again subjected, rendered as objects. Having arguably overcome some of the objectifying practices of science, feminists must now struggle against the objectifying practices of cybernetics and consumer culture.

This aestheticization and artifactualization of the body in consumer culture

manifests in the celebratory discussions of the literal cyborg occurring in SF of cyberculture writing. Meredith Bricken asks virtual reality users:

What will your virtual self look like? How will you sound? You don't need a body; you can be a floating point of view ... you can be what you thought you ought to be all along. You can switch your point of view to an object or a process or another person's point of view in the other person's world (Bricken, 1992: 372).

In cyberspace, "[a]pppearance IS reality. And virtual appearances are completely arbitrary" (Bricken, 1992: 369). Nicole Stenger argues that cyberspace offers unprecedented opportunity for identity play.

Of course don't expect to keep your own identity: one name, one country, one clock. For be it through medical reconstruction or through fantasy, multiplied versions of yourself are going to blossom up everywhere. Ideal, statistical, ironical. A springtime for schizophrenia! (Stenger, 1992: 53).

This writing is noteworthy for its lack of critical interrogation of the aestheticization and artifactualization of the body and the existence that the literal cyborg suggests. Feminist cybertheorists fall prey to the same lack of critique. Allucquere Rosanne Stone notes that "[t]here is talk of renting pre-packaged body forms complete with voice and touch ... multiple personality as commodity fetish" (Stone, 1992: 84-5).

The processes which I am calling the artifactualization and aestheticization of the body are not gender neutral, however, as the above examples suggest. This is recognized by Vivian Sobchak in her scathing class, gender, and race critique of the prospect of turning the body into artifact, an object for consumption (Sobchak, 1993). Engaging with the literal cyborg, Anne Balsamo in her more recent work also

recognizes the double-edged potential of this new relationship to the body. "If on the one hand, new communication technologies such as VR create new contexts for knowing/talking/signing/fucking bodies, they also enable new forms of oppression of the material body" (Balsamo, 1993: 694-5). Even Stone recognizes that the gendered nature of the construction of these spaces and identities is relevant when she asserts that the young turks of the computer industry designing virtual spaces are "... preoccupied with the things with which post-pubescent men have always been preoccupied. This rather steamy group will generate the codes and descriptors by which bodies in cyberspace are represented" (Stone, 1992: 103).

Literal cyborg existence, through cyberspace, involves a "... literal placement of the body in spaces invented entirely by the mind" (Novak, 1992: 240-1). The underlying model is the mechanical, with its choice of mind over body. However,

[e]ven as we are finally abandoning the Cartesian notion of a division between mind and body, we are embarking on an adventure of creating a world that is the precise embodiment of that division. For, it is quite clear that our reality outside cyberspace is the metaphysical plane of cyberspace, that to the body in cyberspace we are the mind, the preexisting soul. By a strange reversal of our cultural expectations, however, it is the body in cyberspace that is immortal, while the animating soul, housed in a body outside cyberspace, faces mortality (Novak, 1992: 241).

This body which faces mortality is, I suggest, a sexed body. The same "knowing/talking/signing/fucking" body which is still located within Haraway's informatics of domination.

To paraphrase Bukatman, the loss of the flesh seems to result in *terminal feminism*. Feminist cybertheorists, for the most part, embrace the notion of disembodiment, yet do not adequately consider the implications of their position for a politics grounded in sex and/or gender identity. The literature equivocates on these issues. The popular cyborg offers a postwoman future; the metaphoric cyborg offers a post-body/post-gendered post-feminism; and the literal cyborg reproduces the process of aestheticization and artifactualization, specifically in and through the objectifying of women through their bodies -- a problematic ontological basis for feminist agency.

3. Conclusion

Donna Haraway asserts in *Primate Visions* that "[m]onsters signify ... [in] an ontology based on mutation, metamorphosis and the diaspora" (Haraway, 1989a: 378). What do cyborg monsters signify in feminist cybertheory? Rather than an ontology based upon mutation, I suggest that what is offered is one based upon technology. Jean Baudrillard suggests that the boundary between human and machine was not in jeopardy with traditional machines, but has only become so in relation to new technological systems.

Am I a man, am I a machine? In the relationship between workers and traditional machines, there is no ambiguity whatsoever. The work is always estranged from the machine, and is therefore alienated by it. He keeps his precious quality of alienated man to himself. Whilst new technology, new machines, new images, interactive screens, do not alienate me at all. With me they form an integrated circuit (Baudrillard in Springer, 1991: 314-15).⁶³

The cyborg as representation, metaphor, and literal being offers a subjectivity to inhabit this integrated circuit. Baudrillard suggests that current technology does not alienate us. Rather than an estrangement, we are intimately coupled with technology in the integrated circuit. Feminist cybertheory suggests that this is a space from which women might resist the oppressive aspects of the integrated circuits; without alienation, we can resist. Because of its continuing reliance upon technology for its metaphor of ontology, the cyborg reproduces the control of the cybernetic system. Agency is elided in the functionalism of cybernetic politics.

To be cyborg requires rewriting our ontology, including our sexed and gendered bodies. It requires us to become monsters which transcend all traditional dualisms. Insufficient cybertheory examines its root metaphors and the risks posed by body/machine fusion, as well as the pleasures. Donna Haraway suggests that "... we are living through a movement from an organic, industrial society to a polymorphous, information system -- from all work to all play, a deadly game" (Haraway, 1985: 80). Materialist feminist practice may be the corpse.

For all its weaknesses, feminist cybertheory attempts to rewrite nature and ontology to offer a different model of the techno-subject than that of the biomechanical and mechanical models. I want to specifically reconstruct the model offered. I identify and evaluate the digital model underlying feminist cybertheory for its viability in grounding cultural feminist interventions into technology, focusing, in particular, on what I suggest are its two most significant paradoxes, as they manifest themselves in feminist cybertheory.

VII. Conclusion

Together, Haraway and Baudrillard might describe how to maintain skepticism and expectation within a technological world in which such phenomena as robots, artificial intelligence, and virtual realities are themselves realities; how to act both within and outside dualistic conceptions by making distinctions; how to support difference without dualism -- Alice Rayner⁶⁴

Donna Haraway and the other feminist cybertheorists who have engaged with both her cyborg and the cyborgs we find around us -- in popular culture, in social theory, and specifically in cyberculture -- are engaged with trying to support difference without dualisms. The biomechanical model supports dualisms, and further, genders them. The mechanical model resolves the dualisms, but in the process, annihilates difference. The biomechanical model reads the *human as like* machine, the mechanical reads human *as* machine. Feminist cybertheory purports to be operating on a different model, *the human coupled with machine*. This coupling is the basis for the model which underlies feminist cybertheory -- the *digital model*. This is the model feminist cybertheory offers up as a feminist model of the human/technology relationship. In this chapter, based upon the preceding two chapters, I draw out what I suggest are the key characteristics of the digital model. I conclude by highlighting the two primary paradoxes contained within the digital model from the perspective of grounding cultural feminist interventions into technology.

1. Mapping the Digital Model

We are living through a movement from an organic, industrial society to a polymorphous, information system -- from all work to all play, a deadly game -- Donna Haraway⁶²

Writing, technology, and the body all occur in the mechanical and biomechanical models of the space where bodies intersect, yet many thinkers have suggested that new information technologies, micro-electronics, and bio-technology are changing our experience of the mechanical. Gareth Branwyn suggests of his title "Flame Wars", for a special cyberculture issue of *The South Atlantic Quarterly*:

[e]ven so, the compu-slang title reminds us that our interaction with the world around us is increasingly mediated by computer technology, and that, bit by digital bit, we are being "Borged," as devotees of *Star Trek: The Next Generation* would have it -- transformed into cyborgian hybrids of technology and biology through our ever-more-frequent interactions with machines, or with one another *through* technological interfaces (emphasis in original; Branwyn, 1993: 564).

Dualisms are being broken down and with them, the foundation for emancipation, but also for oppression. I try to capture the model underlying these various technical, scientific, social scientific, and popular culture discourses in the digital model. This model is drawn primarily from the work of feminist cybertheorists.

In embracing the "potent fusion" of body and machine, the stakes are production, reproduction, and imagination (Haraway, 1985: 66). These could be rewritten as work/public sphere, the body, and culture. The body becomes non- or un-sexed and consequently non- or un-gendered; work becomes play; culture becomes a permeable notion based upon difference and responsibility rather than identity. This occurs through shifting the problem of human being to a problem of human coding.

"The machine is not an *it* The machine is us ..." (Haraway, 1985: 99). Anne Balsamo notes that popular culture suggests that "... electronic technology also makes possible the thrill of escape from the confines of the body and from the boundaries that have separated organic from inorganic matter" (Balsamo, 1988: 306). Thus, unlike the biomechanical model, the line between organic and inorganic has been "deradicalized", and in fact, is dissolved.

The quintessential metaphor/image of the digital model is the cyborg, "... a hybrid of machine and organism, a creature of social reality as well as a creature of fiction" (Haraway, 1985: 65) which "... confounds the dichotomy between natural and unnatural ..." (Hayles, 1993: 152). This technological objectivity becomes the subject, or perhaps more accurately, subjectivity in the digital model. With the death of the subject, the basis for cyborg sociality must change. Community becomes a network of experience-grounded difference, what Haraway labels *affinity*, a communalism based upon "choice" rather than "blood". Cyborgs seek unity without "taxonomic identification" (Haraway, 1985: 72). Monsters make community.

Dualisms between mind/body, organic/machinic, nature/culture are transcended, obliterated, or fused in what is attempting to be a truly different ontological basis for existence: the cyborg. I suggest that it is only in this model that what is offered up is a true human *coupling* with machine, a process which challenges the body, the subject, and identity. The stories which we tell ourselves about the origin of male and female depend upon "... a high-tech view of the body as biotic component or cybernetic communication system" (Haraway, 1985: 89). Haraway

argues that seeing machines as bodies or bodies as machines is "obsolete" and "unnecessary" (Haraway, 1985: 97). The biomechanical and mechanical models produce and reproduce gender and must be rejected in order to overcome gendered and unequal power relations.

Because it is a world without sexed bodies, cyborgs people a world without gender. This is among the most significant attributes of the digital model from a feminist perspective. Cyborg community is a community without gender, a utopian vision without gender. The cyborg is post-gender; it rejects bi-sexuality, psychoanalysis, and any form of "organic wholeness" on those bases (Haraway, 1985: 6-7). Many feminists are concerned with the implications of this for a politics organized around gender. For example, Janet Wolff suggests that, "... politically and experientially, it makes sense for women to mobilize around the social construct of 'woman' for ... modern feminism is landed with the identity of women as an achieved fact of history and epistemology" (Wolff, 1990: 134). Haraway counters this sort of concern by asserting that if the cyborg has no gender, then it also has no origin, and as such, it exists outside "salvation history". Again she suggests, "[t]he refusal to become or remain a 'gendered' man or woman, then, is an eminently political insistence of emerging from the nightmare of the all-too-real. ... imaginary narrative of sex and race" (Haraway, 1991a: 148).

If the biomechanical subject embodies modernity, and the mechanical subject perhaps a hypermodernity, then it would seem that the digital subject embodies postmodernity -- politically, aesthetically, and socially. This argument has been made

by others (Springer, 1991: 306; Balsamo, 1988: 332). Therefore, in many ways, the digital model and its cyborg body dissolve boundaries between nature/culture, fiction/reality, masculine/feminine, human/machine; they do so in a way that places the ontological status of the body and the uniting status of gender in doubt. Csicsery-Ronay, Jr., writing specifically of Donna Haraway suggests that what is offered in what I am calling the digital model, is "... imagining utopia by moving through the heart of dystopia" (Csicsery-Ronay, Jr., 1991: 397). He further argues that, "... Haraway attempts to clear a new path for utopian rationality through the sprawl of instrumental rationalization" (Csicsery-Ronay, Jr., 1991: 397).

I suggest that from feminist cybertheory, and in particular the work of Donna Haraway, one can draw out the digital model, a model which is trying to offer a feminist alternative to the biomechanical and mechanical understandings of the body/machine relationship. In the following chart, I attempt to capture the flavour of my three models for the purposes of comparison. Organizing the characteristics of each model in this manner allows for an understanding of how each ideal-type model compares; however, a chart of this nature is a conceptual working tool only, a graphic summary.

	Bio-mechanical	Mechanical	Digital
Subject	Man <i>man like machine</i>	Robot/Automaton <i>man as machine</i>	Cyborg <i>(hu)man coupled with machine</i>
Gender	masculine	panic: feminine exhilaration: masculine	non-gendered
Structure	politics	system (organization)	network
Model of Social	machinic	mechanical	informational
Politics	biopolitics (liberal)	obliterated (functionalism)	tactics from within (responsibility)
Origin	born/nature	produced/man	constructed/ discourse
Knowledge	biology/human sciences	cybernetics	communication/ biotechnology
Social Process (micro/macro)	discipline/ governmentality	codification/circuitry	difference/ digitization
Site of Resistance	institutional	positive feedback	belly of monster
Sexed Body	origin/primary	obsolete	transcended
Goal	accumulation/ production	productivity/ efficiency	consumption/ pleasure
Ethic	rationality/ discipline	productivity/ efficiency	aesthetics/irony
Object/Metaphor	mind/body	mind or computer	AI/VR
Units of knowledge	scientific data	feedback	information
Foundation of knowledge	epistemology	theory	ontology
Activity	work and play	work	play
basis of sociality	identity	conformity	affinity
Body/Mind dualism	body	mind	transcended
Site of knowledge	subject	object	metaphor

2. Continuation, Sacrifice, Transcendence, Surrender?

The body must become a cyborg to retain its presence in the world, resituated in technological space and refigured in technological terms. Whether this represents a continuation, a sacrifice, a transcendence, or a surrender of 'the subject' is not certain -- Scott Bukatman⁶⁶

Glancing down the column of the digital model, certain concerns arise for a feminist project. My analysis of feminist cybertheory reveals some of the inherent contradictions and unresolved paradoxes inherent in the digital model. I have addressed these in detail in Chapters V and VI; however, I suggest that two primary issues flow out of this analysis which, while perhaps not fatal to the digital model and its cyborg subject, at least suggest that more sustained theoretical and empirical work is required in its development. The two issues are the digital model's rejection of sexed bodies and its underlying reliance upon an ontological metaphor of technology.

Both of these issues flow out of the nature of the cyborg as a postmodern discursive construct. Drawing upon the work of Best and Kellner (1991), Anne Balsamo in her more recent engagement with cyborg issues, suggests that postmodernism leads to a radical presentism. Presentism flattens out historical experience and consciousness. Further, Balsamo goes on to argue that,

[p]resentism augments two ideological practices of the information age: the construction of social theories narrated by disembodied virtual minds, and the construction of technological histories without women, without workers, and without politics (Balsamo, 1993: 699).

Specifically, I want to focus on Balsamo's idea of "social theories narrated by disembodied virtual minds" and what I rewrite as "the construction of technological histories, *presents*, and *futures* without women, without workers, and without

politics".

Inherent to the digital model's call to rewrite nature/culture and its rejection of the body is a choice of mind over body, or of disembodied minds. As the ultimate representation of postmodernism, "... the cyborg is a creation of the culture of artificial immanence, of exteriorization of knowledge with respect to the knower ... in which the creations of the intellect are directly translatable into technological embodiment" (Csicsery-Ronay, Jr., 1991: 395-6). Therefore, while the essential unity of the personal body, and a community organized on that basis, is rejected, the essential unity of the mind is maintained. New information and communication technologies are key to this triumph of mind over body, because with the computer, "... there arises the possibility of a mind independent of the biology of bodies, a mind released from the mortal limitations of the flesh" (Bukatman, 1993: 208), the virtual mind.

What must concern feminists is that in a culture where the body is coded as feminine and the mind as masculine, this represents a recuperation of the masculine. The very real bodies at stake in the feminist intervention into technology are forgotten. "Simply put, the body is not a requisite for the survival of the technocratic system" (Bukatman, 1993: 16). Therefore, technological histories, presents, and futures are written without women and without their politics. I suggest that in order to maintain an effective, grounded feminist politics from which to engage with technology, an understanding of gender as a subjectivity grounded in a material, sexed body is necessary. Haraway might "... rather be a cyborg than a goddess" (Haraway,

1985: 101), but I would rather be a feminist than a cyborg.

I would prefer to be a feminist than a cyborg because as my examination of feminist cybertheory illustrates, it is presently difficult to be both. I acknowledge the value of a bold and disruptive metaphor whose goal it is to empower women in their engagements with technology; however, in its rejection of the sexed body as the material site of the feminist subject, I suggest that the digital model locates its materiality in technology. It locates the basis for sociality in technology. It embraces a technological metaphor to understand the nature of our selves and of our social reality: the digital model is anchored in techno-ontology. This is a problematic basis for a politics of resistance as Arturo Escobar recognizes.

Technological innovations and dominant world views generally transform each other so as to legitimate and naturalize the technologies of the time. Nature and society come to be explained in ways that reinforce the technological imperatives of the day, making them appear the most rational and efficient form of social practice. In the modern age, this mutual reinforcement has resulted in the universalization of the European techno-scientific imaginary (Escobar, 1994: 221).

Nature is rewritten in the digital model, yet technology is accepted "as is". My construction of the biomechanical and mechanical models suggests that as much as nature, technology has operated to define our ways of being since industrialization. The need to, and basis upon which we might, reinvent technology is not elaborated upon in feminist cybertheory. The digital model, in both its elision of nature and its embrace of techno-ontology, is, in many ways, a logical extension of the cyberneticist mechanical model. Cybernetics, or the mechanical model offers histories, presents, and futures, which are all technological, but are without women and without politics.

Instead, the system absorbs difference, elides agency, and controls its informed cyborg subjects.

Feminism is ultimately a political movement, a community of people striving to rewrite, rethink, and redo, the gendered power inequities in and through which women live. Haraway, herself, states that "[f]eminism is about a critical vision consequent upon a critical positioning in inhomogeneous gendered social space" (Haraway, 1991: 195). To retain that critical position from which to engage with technology as culture, while resisting technology as ontology, I suggest that feminism must remain "... a game for those who still have flesh" (Sterling, 1986: 180). It is feminists, rather than cyborgs, who are monsters in a world embracing techno-ontology.

At the same time, however, feminists must recognize that the cyborg has become a powerful metaphor in our society, manifesting in popular culture representations, in social theory, and in the technological/technologized relations surrounding new information and communications technologies. As Bill Nichols suggests, however, as this metaphor spreads throughout our culture, we must ask ourselves who benefits from it and who suffers.

We have to ask what is at stake and how might struggle and contestation occur? What tools are at our disposal and what conception of the human do we adhere to that can call into question the reification, the commodification, the patterns of mastery and control that the human as cyborg, the cyborg as human, the simulation of reality and the reality of the simulation make evident? (Nichols, 1988: 44).

Through relocating the digital model and its cyborg subject from its postmodern environment (with its disembodied virtual minds writing social theory and history

without women) to a theoretical and empirical research tradition which reads technology as a significant cultural metaphor, feminists can begin to interrogate the ontology of technology which grounds not only the digital model, but also the biomechanical and mechanical models. Only in this way can we begin to unpack the tendency identified by Escobar of the mutual reinforcement of dominant world views and technological progress. I accept the position that "... any technology represents a cultural invention, in the sense that it brings forth a world; it emerges out of particular cultural conditions and in turn helps to create new ones" (Escobar, 1994: 211). If one of the worlds that emerges out of this cultural invention and context is to be feminist, then feminist cybertheorists must begin by first, embodying themselves as women and feminists, forming communities on that basis, and finally, recognizing their role in the construction and continuation of techno-ontology. As presently theorized in and through feminist cybertheory, the digital model of the relationship between the subject and technology is social theory produced by, and reproducing, disembodied virtual minds which does not offer a qualitatively different or effective feminist model for interventions into technology in the late twentieth and twenty-first centuries.

ENDNOTES

Chapter I

- 1 Warning label on a computer cited at p. 79, Steve Woolgar, 1991, "Configuring the user: the case of the usability trials" in *A Sociology of Monsters: Essays on Power, Technology and Domination* (John Law, ed.), London: Routledge, pp. 58-99.
- 2 P. 125, Alice Rayner, 1994, "Cyborgs and Replicants: On the Boundaries" in *Discourse* 16.3: 124-143.
- 3 Donald Schön uses the term, *generative metaphor*, to refer to a metaphor which has become culturally significant in defining our reality. He suggests that rather than offering solutions, generative metaphors set the problem to be solved. The solutions seem to flow automatically from the terms in which the problem has been defined. He offers examples drawn from American social policy. (Donald Schön, 1993, "Generative Metaphor: A Perspective on Problem-Setting in Social Policy" in *Metaphor and Thought* (2nd ed.) (Andrew Ortony, ed.). Cambridge: Cambridge University Press, pp. 137-163.)

I am using the term here to suggest that Donna Haraway's cyborg has set the problems and that other feminist cybertheorists (and other cybertheorists) using the metaphor then accept the problems as she has defined them. In part, this may help to suggest why no feminist cybertheory responding to Haraway offers a more sophisticated theorization of the cyborg than she.

- 4 Since approximately 1990, academic interest in cyberculture has thrived. Duke University Press has been the leading institution publishing in this area. Examples include, Larry McCaffery's edited collection, *Storming the Reality Studio: A Casebook of Cyberpunk and Postmodern Fiction* (1991), Durham: Duke University Press; Scott Bukatman's *Terminal Identity: The Virtual Subject in Post-modern Fiction* (1993), Durham and London: Duke University Press; Mark Dery's edited special issue of *The South Atlantic Quarterly* (92:4), published as *Flame Wars: The Discourse of Cyberculture* (1993). In the winter of 1993, *Genders* offered a special issue entitled "Cyberpunk: Technologies of Cultural Identity" edited by Thomas Foster; *Discourse* 9 in the Spring-Summer of 1987 offered a special issue "On Technology: Cybernetics, Ecology, and the Postmodern Imagination" and an upcoming special issue of the SAGE journal, *Body and Society*, examines, cyberpunk, cyberspace, and cyberbodies.

- 5 This work emanates from a wide array of academic disciplines, for example, comparative literature, cultural studies, women's studies, sociology, film studies, history of science, science fiction studies, communications, and anthropology. This contributes to the difficulty in trying to pull this body of work together as a more coherent unit.
- 6 For the purposes of demonstrating only an historical fascination with body/machine fusion, I am not distinguishing between robots, replicants, androids, and cyborgs. Subsequently, however, I separate these according to their construction (the nature of the body/machine fusion they represent). Alice Rayner (1994) offers an interesting discussion of the distinction. See my discussion of this on p. 80.
- 7 A welcome contribution to the study of the fictional development of body/machine fusion is the recent collection edited by Peter Haining entitled, *The Frankenstein Omnibus*. Organized into three sections, "The Prototypes," "The Films," and "The Archetypes," this is the most complete collection of work on this theme that I have encountered. In particular, it contains several works from the mid-1800s to about 1920 which are difficult to find in translation. It would be an interesting project to conduct an analysis of these fictional works employing the models that I construct.
- 8 "Cyberpunk" is a term coined to refer to a body of near-future, techno-laden science-fiction writing which developed and became popular in the 1980s. The "cyberpunk manifesto" is undisputedly William Gibson's 1984 novel, *Neuromancer*. Others writing cyberpunk fiction include, Bruce Sterling, Walter Jon Williams, and John Shirley. Only one woman is generally acknowledged to have entered the cyberpunk canon, Pat Cadigan (Clute and Nicholls, 1993: 288-9). With a film noir aesthetic, this work projects a near future dominated by micro-technology and the hero is usually a loner social misfit with a gift for manipulating computer technology.

The collection, *Mirrorshades* (1986) edited by Bruce Sterling is seen as one of the central collections in the area and Sterling's "Preface" offered what subsequently became the defining parameters of this genre. Sterling's remarks make it clear why cyberpunk writing often figures in discussions of the cyborg and vice versa:

"For the cyberpunks ... technology is visceral. It is not the bottled genie of remote Big Science boffins; it is pervasive, utterly intimate. Not outside us, but next to us. Under our skin; often, inside our minds. ...

Certain central themes spring up repeatedly in cyberpunk. The theme of body invasion: prosthetic limbs, implanted circuitry, cosmetic surgery genetic alteration. The even more powerful theme of mind invasion: brain-computer interfaces, artificial intelligence, neurochemistry -- techniques radically redefining the nature of humanity, the nature of self (Sterling, 1986: xiii).

The postmodern nature of the cyberpunk world and the problematic relationship this has with gender has been explored in detail (for a few examples, see Hollinger, 1991; Csicsery-Ronay, Jr., 1991b; Gordon, 1991; Nixon, 1992).

The term has also moved into broader social use and is now often used to refer to computer hackers and various other participants in cyberculture. Arguably, it has contributed to the individualistic, masculine, techno-aesthetic that is rampant in cyberculture.

- 9 Because the sexed body is necessarily implicated in the notion of body/machine fusion, gender issues are integral. They are not a factor solely relevant to women, nor are they something that can be added on after a "complete" analysis has already been conducted. Race, too, as it is so intimately inscribed on the body, must also be theorized into the basic body machine relationship. In this project, I focus on issues of gender, given that is where my theoretical background and personal experience lies. In doing this, I do not mean to imply that race is not an equally significant axis around which to interrogate the cyborg. In fact, this work is very much needed. The issues of race which arise in the examination of cyberculture bear much further work and analysis. I do not, however, have the expertise to do so: as well, I want to leave a space for those to whom the issue is more personal to make their contributions.

Donna Haraway purports to address race in her analysis, but is the only feminist cybertheorist who really does so. Her relationship to issues of race and technology is outlined in most detail in her conversation with K.K. Bhavnani (see Bhavnani, K.K. and Donna Haraway (1994), "Shifting the Subject: A Conversation between Kum-Kum Bhavnani and Donna Haraway, 12 April 1993, Santa Cruz, California" (transcribed by Justine Meyers) in *Feminism and Psychology* 4(1): 19-39). Her treatment of race in the *Cyborg Manifesto* itself is simplistic, I suggest later in the work. To address some of the issues posed by Haraway's treatment of race in the metaphorical cyborg work, I suggest, as does Anne Balsamo (1993), that more research needs to be done into the relationship between technology and race; like technology and gender, this is a developing area of research.

Many of the same questions need to be asked of the cyborg, as I ask with respect to gender -- if one elides or transcends the racialized body, what of the politics and community which are currently organized around race? Can the cyborg body be a black body? a brown body? As it is grounded in the ontology of technology, is it most likely to be a white cyborg?

- 10 I do not mean by this to suggest that there are not many other knowledge systems associated with these ideas. I am focusing particularly on these three, however, because it is at their intersection that the cyborg as subject of social theory is produced.
- 11 I offer a more detailed engagement with Judy Wajcman's discussion of technology as culture in Chapter II at pages 25-6 and 28-9.

Chapter II

- 12 P. 71, Nicholas Mosley, 1991, *Hopeful Monsters*. London: Minerva.
- 13 This was, of course, related to the rise of second wave feminism in the United States and its institutionalization in the academy at the time.
- 14 This collection has been immensely successful and was revised in 1976. More recently a significant revision was undertaken by the collective resulting in *The New Our Bodies, Ourselves* (1984). Special issues are now available for both younger and older women.
- 15 I do not intend to suggest that poststructuralism and postmodernism are interchangeable terms. For a cogent discussion of the differences between them in the context of feminist engagements, see Michèle Barrett (1992). At the same time, however, from a feminist perspective there is a certain amount of overlap of issues. Also, much of the valuable debate in feminist theory about postmodern feminism or feminist postmodernism occurs in the context of feminist engagements with the work of Michel Foucault, who is more accurately labelled a poststructuralist than a postmodernist. For the purposes of my brief overview, however, it is the issues posed by both feminist engagements with Foucault, other poststructuralists, and postmodernist thought that are relevant.
- 16 "Potent fusions" is a phrase Haraway employs to describe the eroding boundaries between humans and both animals and machines -- a condition which she feels characterizes our age.

- 17 In her piece on eccentric subjects, de Lauretis uses the lesbian as an "eccentric subject", or a subject outside heterosexual constructions. Her article makes an interesting companion piece to Haraway's. See Teresa de Lauretis, 1990, "Eccentric Subjects: Feminist theory and historical consciousness" in *Feminist Studies* 16(1): 115-150.
- 18 See p. 6 for Escobar's definition of cyberculture.
- 19 Ralph Schroeder (1994) also identifies two directions in this thought. He labels these cyborg post-modernism and cyberculture. His terms are not well defined, however, and in my view they focus on the subject matter, rather than the perspective of the analysis for their distinction. I think it is more useful to categorize the work in terms of the approach it takes as the content can often be similar.

Chapter III

- 20 P. 342, Anne Balsamo, 1988, "Reading cyborgs writing feminism" in *Communication* 10: 334-44.
- 21 The resolution of the thorny issue of whether or not men can be feminists is beyond the scope of this thesis, and I suggest, would not offer a significant political or theoretical contribution in any event. It is interesting, however, that this issue comes up in Constance Penley's and Andrew Ross's interview with Donna Haraway (1990, "Cyborgs at large: Interview with Donna Haraway" in *Technoculture*, Minneapolis: University of Minnesota Press, pp. 1-20).

In discussing the response of male/masculine readers to the *Cyborg Manifesto*, Ross suggests that one response might be "I'd rather be a cyborg than a 'sensitive man'" (18). Penley then suggests to Haraway that, "Maybe it would have been better to say, 'I would rather be a cyborg than a male feminist' ". Ross responds, "Mmmmm, Yes, well that's a different can of worms" (19) at which point Haraway suggests that *her* cyborg is definitely female (20).

- 22 I must confess to being quite surprised that the Editorial Board of *Genders* would ask Thomas Foster, a self-proclaimed white male, to edit a special issue of a journal exploring issues of gender. Not that I mean to imply that men do not "have gender" but at the same time, in terms of a critical academic project such as a special issue on technology and cultural identity, one has to query whether or not turning to those who are struggling over their cultural identity might not have been more appropriate.

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- While he is at first glance engaging critically with the issue of whose technologies of cultural identity, cyberculture's technologies are, the irony of the question is manifested in his controlling and senior role in the consideration of the issues. His self-reflexivity consists of acknowledging his gender and his colour -- an in-depth consideration of how these subjectivities (and others he is not acknowledging) might affect his relationship with technology and his role as a social critic is not undertaken.
- 23 In fact, after this project was completed, I became aware of a forthcoming special issue of Sage Publications' *Body and Society* entitled, "Cyberpunk, Cyberspace, and Cyberbodies." It is my hope that the analytical structure and categories which I have developed in my thesis would offer a useful means to interrogate the contributions to that collection and subsequent writing in this area.
- 24 I have suggested that "the father" of the cyborg is techno-science, to recognize (as Haraway does) that the cyborg is an image and idea embedded, in part, in militaristic uses of science and technology. It also recognizes the historically masculine nature of techno-science. In suggesting that postmodernism is "the mother" of the cyborg, I am trying to both reflect the unproblematic assumption of many feminist cybertheorists that the cyborg is a postmodern notion, as well as to raise the issue noted by Elspeth Probyn (1987) that postmodernist thought tends to use the feminine as a metaphor for mass, for the body, for aesthetic. In addition to noting Craig Owens' conflation of feminism and postmodernism, she evidences Andreas Huyssen's article, "Mass culture as woman: modernism's Other" (1986). At the same time, theoretically and politically, this work conflates feminism with the feminine and thereby depoliticizes feminism.
- 25 P. 185, Donna Haraway, 1991a, *Simians, Cyborgs, and Women: The Reinvention of Nature*. New York: Routledge.
- 26 Although these merit only brief mention in Smith's piece and while she does not expressly use these terms, she does recognize some of the implications of the embeddedness of these discourses in patriarchal capitalism. I offer a more detailed discussion of these processes in Chapter VI.
- 27 P. 306, Claudia Springer, 1991, "The pleasure of the interface" in *Screen* 32(3): 303-323.
- 28 Scott Bukatman coins the term, "cyberdrool" to refer to emerging discursive patterns surrounding cyberspace which are undertheorized and over rhetoricized (Bukatman, 1993: 189).

- 29 P. 86, Margaret Morse, 1994, "What do Cyborgs Eat? Oral Logic in an Information Society" in *Discourse* 16.3: 86-123.

Chapter IV

- 30 P. 66, Donna Haraway, 1985, "A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s" in *Socialist Review* 80: 65-107.
- 31 By monster, I am attempting to capture the notion of the "flip-side" of the subject in each of my models, in terms of how the bodily is represented. The monster represents that which falls outside of the realm of control of the model in question. The cyborg exists at the margins of community and defines the point at which one is no longer natural/normal/subject in the community. Susan Leigh Star defines the monster as, "... the embodiment of that which is exiled from the self" (Star, 1991: 54).
- 32 I have included in the appendices a number of other "models" and "charts" offered by other thinkers considering similar shifts in socio-historical processes. My models engage with, and incorporate, some of the elements from those contained in the appendices. What I suggest distinguishes my models is that they are premised upon the notion of beginning with the understanding of body/machine relationship in culture.
- 33 P. 44, Mark Seltzer, 1992, *Bodies and Machines*. New York: Routledge.
- 34 By no means are these the only works that one might use to draw out this model. Other works which have a contribution to offer, but which I have not used for the purposes of this project include: *The Technological Society* (1964), New York: Vintage Books by Jacques Ellul, *The Condition of Postmodernity* (1989) London: Oxford University Press by David Harvey, *The Protestant Ethic and the Spirit of Capitalism* (1976) New York: Charles Scribner's Sons (originally published in 1958) by Max Weber.
- 35 For example, a late eighteenth century homily runs:
- though they of different sexes be,
yet on the whole they are the same as we,
For those that have the strictest searches been,
Find women are but men turned outside in* (Press in Laqueur, 1990: 4).

- 36 P. 33, J. David Bolter, 1984, *Turing's Man: Western Culture in the Computer Age*. Chapel Hill: University of North Carolina Press.
- 37 Again, these are clearly not the only sources which could contribute to this model. Others that could have been used include: *Technics and Civilization* (1934), New York: Harcourt Brace Jovanovich, by Lewis Mumford; Ellul's *The Technological Society* (see endnote 33); *In the Age of the Smart Machine: The Future of Work and Power* (1988), New York: Basic Books by Shoshana Zuboff; *White Collar* (1956), New York: Oxford University Press, by C. Wright Mills; *The Principles of Scientific Management* (1939), New York: Harper & Row (originally published in 1911) by F.W. Taylor.
- 38 Gregory Bateson, more than other cyberneticists, maintains a notion of nature in his model of cybernetics. It is not his more complex understanding of the mechanical model which has influenced the growth and development of cybernetics and the systems flowing out of it, but rather Wiener's more mathematical and technical notion.
- 39 I am borrowing the term "informed" from Shoshana Zuboff in her work, *In the Age of the Smart Machine: The Future of Work and Power* (1988). She develops the term to refer to the place of the worker in the modern organization. She suggests that workers have been informed, that is translated or coded into information in the system of information management that constitutes the modern organization. Workers are valued, measured by, and understood as, information. The actions of workers become information in the data sphere created by the technologized corporation. Perhaps Foucault would suggest these are the ultimately statistical people; they are understood solely for their informational qualities. In appropriating this term, I, too, am trying to reflect the notion that the subject has come to be valued, thought about, and defined in relation to information. Subjectivity has been informed.

Chapter V

- 40 P. 22, Judith Genova, 1994, "Tiptree and Haraway: The Reinvention of Nature" in *Cultural Critique* Spring 27: 5-27.
- 41 P. 70, Donna Haraway, 1985, "A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s" in *Socialist Review* 80: 65-107.
- 42 There is a valuable discussion of the issues of knowledge v. ideology in Michèle Barrett, 1991. *The Politics of Truth*.

- 43 This argument obviously requires much more analysis and is only raised as a possibility here.
- 44 Claudia Springer offers as an example of a progressive text, the masturbation of a female character who is white and whose body is almost childlike in its underdevelopment. While Springer recognizes that this is a standard trope of male pornography, she suggests this is recuperated because the masturbation does not culminate in a heterosexual act. In fact, she rejects the advances of a male character. I suggest that, at best, this example is ambiguous. It is also the only example Springer can find. She is unable to offer another popular cultural text which does not polarize gender along the lines of a hyper-coded, gendered, male/female sexuality.
- 45 The problems with this argument are explored in Probyn (1987) and Balsamo (1993).
- 46 P. 21, Mark Seltzer, 1992, *Bodies and Machines*. New York: Routledge.
- 47 Translation: *who controls the controller?*
- 48 Wolmark's examples of fiction in support of her argument are Elizabeth Vonarburg's 1990 novel, *Silent City*, Marge Piercy's *He, She, It* (1991), and Rebecca Ore's *The Illegal Rebirth of Billy the Kid* (1992). She also briefly discusses Pat Cadigan's writing (as the only woman cyberpunk writer). I have only Vonarburg's and Piercy's novels and so cannot comment on Ore's work; however, *Silent City* does not contain nor explore issues of cyborg existence. There is science and technology, but after all, it is a science fiction novel. The metaphor employed is that of the shape-shifter, rather than the cyborg. I have often wondered whether that might be a more appropriate metaphor for feminist theory.

Wolmark's reading of *He, She, It* is quite critical from a feminist perspective and suggests that Yod, the "cyborg" of the novel, is representative of masculinity and ultimately the narrative disempowers the feminine protagonist who is human (and a mother). An alternative reading might read Yod more as a more complex construction; for instance, perhaps Yod, given his construction offers a transcendence of gender -- he is man, and woman, and therefore neither. Perhaps the protagonist's relationship with Yod has elements of homoeroticism, given her recognition that he is more feminine than most men. Perhaps issues of gender are problematized, in the way that the cyborg problematizes gender.

- While Wolmark does offer a more complexly theorized argument than is usually encountered in writing in this area, her textual readings are somewhat superficial and therefore do not contain the strength of her theoretical arguments.
- 49 Istvan Csicsery-Ronay, Jr.'s recognition of the problematic nature of gender in Donna Haraway's cyborg relies upon the interview she gives to Penley and Ross, see my endnote 20.
- 50 Arguments like this do not adequately problematize history in their position. If *woman* came into being with modernity, then how can she be a postmodern notion? At what point in history did woman become postmodern? Woman as a cultural construct precedes postmodernity/postmodernism. As well, I suggest that this argument reflects the conflation of the feminine and the postmodern discussed in Probyn's article (1987) (See endnote 23).
- 51 Octavia Butler is the preeminent African-American woman science fiction author in the United States and has been so for twenty years. Her writing is again, one of the very few examples available to Haraway which problematizes the notion of race. Haraway unfairly criticizes Butler for not also problematizing heterosexuality in her writing. I suggest that this does not respect the fiction of Butler as fiction. It also reproduces the double standard that writing which goes so far as to problematize gender or race should also problematize sexuality.
- 52 P. 96, J.G. Ballard, 1985, *Crash*. New York: Vintage Books (originally published in 1973).

Chapter VI

- 53 P. 25, Judith Genova, 1994, "Tiptree and Haraway: The Reinvention of Nature" in *Cultural Critique* Spring 27: 5-27.
- 54 P. 352, Scott Bukatman, 1991, "Postcards from the Posthuman Solar System" in *Science-Fiction Studies* 18(3): 33-57.
- 55 I discuss Fuch's argument at pp. 111-12.
- 56 I suggest that this is one of the weaknesses of Christine Crosby's critique of Haraway (1989, "Commentary: Allies and Enemies" in *Coming to Terms: Feminism, Theory, Politics* (Elizabeth Weed, ed.). New York and London: Routledge, pp. 205-208). Without specifically interrogating which epistemological positions are being combined and the viability of what results,

she assumes from the outset that differing epistemological positions cannot be combined.

- 57 P. 102, Allucquere Rosanne Stone, 1992, "Will the Real Body Please Stand Up?: Boundary Stories About Virtual Cultures" in *Cyberspace: First Steps* (Michael Benedikt, ed.). Cambridge, Mass.: The MIT Press, pp. 81-118.
- 58 P. 343, Anne Balsamo, 1988, "Reading cyborgs writing feminism" in *Communication* 10: 334-44.
- 59 As opposed to the Terminator in the film of the same name, Roy Batty in *Blade Runner*, and Murphy in *Robocop*, Priss in *Blade Runner*, Eve in *Eve of Destruction*, and the robotic Maria in *Metropolis* all die strikingly violent and horrific deaths. Priss is shot, mid-cartwheel and her death spasms are memorable to say the least; Eve is shot through her eye by her creator (and physical double); and Maria is burned at the stake. All highly symbolic and violent deaths. These can be compared to the masculine cyborgs, all of whom discover their souls, memory, or humanity.
- 60 P. 80, Donna Haraway, 1985, "A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s" in *Socialist Review* 80: 65-107.
- 61 For example, Carol Bigwood (1991) maintains that in order to develop a feminist epistemology and politics which continues to challenge the patriarchal social order, feminists need to maintain concepts of gender. Michèle Barrett has been one of the most eloquent and sophisticated thinkers arguing that in order to remain politically effective, feminism must continue to employ gender as an organizing and analytic principle. She is not ready to abandon humanism, yet suggests that "... we shall have to reopen [it] in new and imaginative ways" (Barrett, 1992: 216-17). Nancy Fraser (1989) also argues to maintain gender as a category to ground feminist critique and political action, while still recognizing some value in the work of poststructuralism. Finally, Janet Wolff suggests that notwithstanding the value of postmodernist and poststructuralist thought, "[a]t the same time, politically and experientially, it makes sense for women to mobilize around the social construct of 'woman' for ... modern feminism is landed with the identity of women as an achieved fact of history and epistemology" (Wolff, 1990: 134).
- 62 P. 109, Allucquere Rosanne Stone, 1992, "Will the Real Body Please Stand Up?: Boundary Stories About Virtual Cultures" in *Cyberspace: First Steps* (Michael Benedikt, ed.). Cambridge, Mass.: The MIT Press, pp. 81-118.

- 63 Springer is quoting Baudrillard from a work entitled, *Xerox and Infinity*, 1988, (translation Agitac). Paris: Touchepas, however, I have been unable to locate this source even after extensive interlibrary loan searches of libraries in North America and Europe.

Chapter VII

- 64 P. 135, Alice Rayner, 1994, "Cyborgs and Replicants: On the Boundaries" in *Discourse* 16.3: 124-143.
- 65 P. 80, Donna Haraway, 1985, "A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s" in *Socialist Review* 80: 65-107.
- 66 P. 247, Scott Bukatman, 1993, *Terminal Identity: The Virtual Subject in Postmodern Fiction*. Durham and London: Duke University Press.

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Appendix A

This table is reproduced from Bill Nichols' "The Work of Culture in the Age of Cybernetic Systems" at page 27.

Entrepreneurial Capitalism	Monopoly Capitalism	Multinational Capitalism
steam and locomotive power	electricity and petro-chemical power	microelectronics and nuclear energy
property rights	corporate rights	copyright and patents
nature as Other/conquest of nature	aliens as Other/conquest of Third World	knowledge as Other/conquest of intelligence
nationalism	imperialism	multinationalism
working class vanguard	consumer group vanguard	affinity group vanguard
Tuberculosis - contamination by nature - isolation of self from threatening environment - vulnerability to invasive agents - heightened individuation	Cancer - contamination by an aberrant self - isolation of aberrant tissue from self - vulnerability to self-consumption - heightened schizophrenia	AIDS - deficiency of self (collapse of immune system that distinguishes self from environment) - isolation of self by artificial life support - vulnerability to systemic collapse - heightened sense of paranoia
realism	modernism	postmodernism
film (mechanical reproduction)	television (instantaneous broadcast)	computer (logico iconic simulations)
reproducible instances	ubiquitous occurrences	processes of absorption and feedback
the copy	the event	the chip (and VDT display)
subtext of possession	subtext of mediation	subtext of control
image and representation	collage and juxtaposition	simulacra

Appendix B

Model compiled from Habermas' discussion of traditional and modern society at pp. 90-2.

Traditional Society	Modern Society
Gemeinschaft	Gesellschaft
mechanical solidarity	organic solidarity
informal groups	formal groups
primary groups	secondary groups
culture	civilization
traditional authority	bureaucratic authority
sacral associations	secular associations
military society	industrial society
status group	class
traditional	modern
affectivity ⁺	affective neutrality ⁺
particularism ⁺	universalism ⁺
ascription ⁺	achievement ⁺
diffuseness ⁺	specificity ⁺
communicative/symbolic interaction - consensual norms	purposive-rational action - technical rules and strategies

⁺ Values orientations that Habermas draws from Parsons

Appendix C

This table is reproduced from Habermas's "Technology and Science as Ideology" at page 93.

	Institutional Framework Symbolic Interaction	Systems of Purpose- Rational (instrumental and strategic) Action
Action-orienting rules	social norms	technical rules
level of definition	intersubjectively shared ordinary language	context-free language
type of definition	reciprocal expectations about behaviour	conditional prediction, conditional imperatives
Mechanisms of acquisition	role internalization	learning of skills and qualifications
Function of action type	Maintenance of institutions (conformity to norms on basis of reciprocal enforcement)	Problem-solving (goal attainment, defined in means-end relations)
Sanctions against Violation of Rules	punishment on the basis of conventional sanctions: failure against authority	Inefficacy: failure in reality
"rationalization"	emancipation, individuation, extension of communication free of domination	growth of productive forces; extension of power of technical control

Appendix D

This chart is reproduced from Donna Haraway's "A Manifesto for Cyborgs" at p. 80.

Representation	Simulation
Bourgeois novel, realism	Science fiction, post-modernism
Organism	Biotic component
Depth, integrity	Surface, boundary
Heat	Noise
Biology as clinical practice	Biology as inscription
Physiology	Communications engineering
Small group	Subsystem
Perfection	Optimization
Eugenics	Population control
Decadence, <i>Magic Mountain</i>	Obsolescence, <i>Future Shock</i>
Hygiene	Stress management
Microbiology, tuberculosis	Immunology, AIDS
Organic division of labour	Ergonomics, cybernetics of labour
Functional specialization	Modular construction
Reproduction	Replication
Organic sex role specialization	Optimal genetic strategies
Biological determinism	Evolutionary inertia, constraints
Community ecology	Ecosystem
Racial chain of being	Neo-imperialism, United Nations humanism
Scientific management in home/factory	Global factory/Electronic cottage
Family/Market/Factory	Women in the Integrated Circuit
Family wage	Comparable worth
Public/private	Cyborg citizenship
Nature/culture	Fields of difference

Cooperation	Communications enhancement
Freud	Lacan
Sex	Genetic engineering
Labor	Robotics
Mind	Artificial Intelligence
World War II	Star Wars
White Capitalist Patriarchy	Informatics of Domination

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