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## **We Are Borg: Cyborgs and the Subject of Communication**

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The 1990s may well be remembered as the beginning of the cyborg era. (Kunzru, 1997, p. 156)

The figure of the cyborg, it appears, has thoroughly invaded and infiltrated the contemporary scene. From the novels of Philip K. Dick, Stanislaw Lem, and Vonda McIntyre to the cinematic images of *RoboCop*, the *Terminator*, and the Borg of *Star Trek: The Next Generation*, contemporary culture seems to be saturated with images of complex cybernetic organisms that threaten to disrupt and disturb the boundaries that have traditionally defined the human subject. The cyborg, however, is not mere science fiction. For many, it is not only a real possibility, but a *fait accompli*. In her "Cyborg Manifesto,"<sup>1</sup> for example, Donna Haraway suggested that the cyborg constitutes not merely a subject of fantasy, but also a contemporary social reality. "By the late twentieth century," she writes, "we are all chimeras, theorized and fabricated hybrids of machine and organism; in short we are cyborgs" (Haraway, 1991, p. 150). In the wake of this influential essay, there has been an increased interest in the cyborg,<sup>2</sup> especially in the fields of information technology and computer-mediated communication. Indeed, in January 1997, *Wired* magazine uploaded Haraway's position into the mainstream of cyberculture, declaring ominously that "We are (already) Borg" (Kunzru, p. 154).

How are we already cyborgs? In what ways are we always and already assimilated into this theorized and fabricated hybrid of machine and organism? What does this hybridization mean for the subject of communication? What are the consequences of this figure that is both more and less than human for the discipline that takes human communication as its subject matter and the individual human subject as its fundamental unit of analysis? What, in other words, does the cyborg mean for the concept of the communicative subject and the subject matter of communication studies? Does it announce the end of life and the study of communication as we have known it, or is it otherwise?

The cyborg, it will be argued in the following, does not constitute a new object to be investigated and comprehended according to the established methods and techniques of the discipline of communication. Rather, it comprises a reconfiguration of the subject that not only undermines the concept of human subjectivity but also threatens and promises to transform the very subject matter of the study of human communication. To dissimulate the apocalyptic tone of the Borg of *Star Trek: The Next Generation*, one could say that the cyborg announces the end of the subject of communication as we have known it. Unlike the Borg, though, this termination does not take place as an external threat or catastrophe that could be avoided or resisted through strength. Rather, the cyborg, true to its thoroughly monstrous configuration, has always and already infiltrated and determined the subject that it subsequently appears to threaten. Consequently, the subject of communication, it will be argued, is not only disrupted by but constitutes a privileged site for investigating and understanding the cyborg.

The demonstration of these apparently monstrous assertions will be divided into two parts. The first explores Haraway's potentially disturbing proclamation that "we are already cyborgs," questioning not only how and why we are already implicated in this theorized and fabricated hybrid but also inquiring about the scope and limitations of the pronoun. In other words, the first part asks the deceptively simple question, Who are we?, and attempts to deal with the not-so-simple responses. The second part takes up the conclusions of the first and, assuming that we are to some extent already implicated in the figure of the cyborg, explores the consequences of this reconfiguration of subjectivity for the theory and practice of communication. In taking this approach, the second part deploys and exhibits the double meaning of the phrase, "the subject of communication," investigating the repercussions of the cyborg not only on the communicative subject but also within the subject matter of communication studies.

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### **The End of Man**

Man is an invention of recent date. And one perhaps nearing its end. (Foucault, 1973, p. 387).

The neologism *cyborg* originated in an article by Manfred Clynes and Nathan Kline published in the September 1960 edition of *Astronautics*. This short, rather speculative essay entitled, "Cyborgs and Space" addressed the future of manned space flight, arguing that "altering man's bodily functions to meet the requirements of extraterrestrial environments would be more logical than providing an earthy environment for

him in space” (Clynes & Kline, 1995, p. 29). Within the course of this argument, Clynes and Kline (1995) proposed the word *cyborg* to name any “exogeneously extended organizational complex functioning as an integrated homeostatic system” (pp. 30–31). Since its introduction, the word cyborg has come to be employed to name any integrated synthesis of organism and machine into a hybrid system.<sup>3</sup> Consequently, as Gray, Mentor, and Figueroa-Sarriera (1995) argue in the introduction to the *Cyborg Handbook*, “there are many actual cyborgs among us in society. Anyone with an artificial organ, limb or supplement (like a pacemaker), anyone programmed to resist disease (immunized) or drugged to think/ behave/feel better (psychopharmacology) is technically a cyborg” (p. 2). Understood in this fashion, N. Katherine Hayles (1995) estimates that somewhere around 10% of the current U.S. population are literally cyborgs. She writes,

A much higher percentage participate in occupations that make them into metaphoric cyborgs, including the computer keyboarder joined in a cybernetic circuit with the screen, the neurosurgeon guided by fiber optic microscopy during an operation, and the teen gameplayer in the local videogame arcade. (p. 322)

There is, however, a more fundamental and conceptual level at which the cyborg makes its appearance. This conceptual cyborg, or what Brasher (1994) calls a “cultural cyborg” (p. 813), constitutes simultaneously an extension of the concept developed by Clynes and Kline and the ideological ground upon which their work first becomes possible. This formulation of the cyborg is introduced in Donna Haraway’s “A Cyborg Manifesto.” According to Haraway, “A cyborg exists when two kinds of boundaries are simultaneously problematic: (a) that between animals (or other organisms) and humans and (b) that between self-controlled, self-governing machines and organisms, especially humans” (Gray et al., 1995, p. 1; Haraway, 1991, pp. 151–152). These boundary breakdowns, as Haraway illustrates, are particularly evident in contemporary, postmodern culture:<sup>4</sup>

By the late twentieth century in United States’ scientific culture, the boundary between human and animal is thoroughly breached. The last beachheads of uniqueness have been polluted, if not turned into amusement parks—language, tool use, social behavior, mental events. Nothing really convincingly settles the separation of human and animal . . . [Additionally] late twentieth century machines have made thoroughly ambiguous the difference between natural and artificial, mind and body, self-developing and externally designed, and many other distinctions that used to apply to organisms and machines. Our machines are disturbingly lively, and we ourselves frighteningly inert. (Haraway, 1991, pp. 151–152)

Nowhere is this *dual erosion* of the conceptual boundaries of the human more evident than in the Human Genome Project (HGP), a multinational effort to decode and map the totality of genetic information comprising the human species.<sup>5</sup> This project takes deoxyribonucleic acid (DNA) as its primary object of investigation. DNA, on the one hand, is considered to be the fundamental and universal element determining all organic entities, human or otherwise. Understood in this fashion, the difference between the human being and any other life-form is merely a matter of the number and sequence of DNA strings. Geneticists, for example, now estimate that there is a mere 1% variation between the ape and human genomes (cf. Kevles & Hood, 1992). Consequently, HGP's emphasis on DNA, the presumed universal substrate of all organic life, effectively dissolves the rigid boundaries that had once distinguished the human from the animal. On the other hand, HGP, following a paradigm that has been central to modern biology, considers DNA to be nothing more than a string of information, a biologically encoded program that is to be decoded, manipulated, and run on a specific information-processing machine.<sup>6</sup> According to the general methodology of HGP, the DNA sequences that comprise a particular genome constitute what Leroy Hood and Daniel J. Kevles call *The Code of Codes*. This procedure allows for animal bodies to be understood as nothing more than information-processing devices. For this reason, Haraway (1991) concludes that "biological organisms have become biotic systems, communications devices like others. There is no fundamental, ontological separation in our formal knowledge of machine and organism, of technical and organic" (pp. 177–178).

The cyborg, if we follow Haraway's formulation, is not just an enhanced or augmented human being. It is simultaneously more and less than what has been traditionally defined as human. It is the product of an erosion of the concept and definition of the human. This erosion promotes communication between the terms of a categorical distinction, resulting in a thorough contamination of the one by its other. For this reason, the cyborg is neither human nor its dialectically opposed other, that is, that in opposition to which the concept of the human has been initially defined and delimited (i.e., the animal and the machine). On the contrary, the cyborg comprises a monstrous hybrid, or what Siivonen (1996) calls an "oxymoronic undecidability" (p. 227) that, like the feminist "metiza" of Gloria Anzaldúa (1987) or Trinh's (1991) postcolonial "inappropriate/d other," is situated in between conceptual opposites<sup>7</sup> or, as Derrida (1979) might articulate it, is "living on border lines." In this way, the cyborg, in affinity with other figures and strategies of postmodern criticism, short-circuits binary logic, which constitutes one of the cornerstones of Western thought. "Western systems of

meaning,” explains Mark Dery (1996), “are underwritten by binary oppositions: body/soul, other/self, matter/spirit, emotion/reason, natural/artificial, and so forth. Meaning is generated through exclusion: The first term of each hierarchical dualism is subordinated to the second, privileged one” (p. 244). The cyborg names a monstrous practice that deliberately fosters contamination across the boundaries that have divided and distinguished these binary oppositions. It constitutes an undecidable oxymoronic operation that promotes communication between the two terms of a categorical distinction, resulting in a thorough contamination of the one by its dialectical other. In occupying this median position, however, the cyborg does not constitute a simple synthetic or dialectical resolution of the traditional opposition. Rather, it comprises a kind of illegitimate and ironic practice that, as Haraway (1991) explains it, holds incompatible things together without either resolving into larger wholes (p. 149) or seeking unitary identity (p. 180). In doing so, the cyborg constitutes an irreducible and indeterminate third term that not only exceeds comprehension by the restricted, dualistic logic of Western metaphysics, but offers an alternative to either/or formulations that resist all forms of identification and dialectical mediation, whether Hegelian, Marxian, or other. The cyborg, therefore, intimates a way out of restricted dualistic thinking and dialectical reasoning. As Haraway (1991) proposes, “cyborg imagery can suggest a way out of the maze of dualisms in which we have explained our bodies and our tools to ourselves” (p. 181).

Generally speaking, the cyborg exceeds the concept of the human. It does not remain a mere enhancement or augmentation of “human nature,” as Clynes and Kline proposed and continue to argue (cf. Gray, 1995a). Rather, it comprises an ideological implosion of the concept of the human. Consequently, as Claudia Springer (1996) points out, “the cyborg undermines the very concept of ‘human’” (p. 33). For those schooled in, supported by, and empowered through this concept, such a conclusion only can present a dangerous loss of everything held near and dear. Indeed, at stake is one’s very humanity. It is for this reason that the cyborg almost always appears under the guise of “dehumanization.” As Haraway (1991, p. 154) points out, following the analysis of Zoe Sofia, “from one perspective, a cyborg world is about the final impositions of a grid of control on the planet, about the final abstraction embodied in a Star Wars apocalypse waged in the name of defense” (p. 154). Popular conceptions of the cyborg as deployed in science fiction film and literature generally conform to this apocalyptic and dystopic configuration. From the mythical golem to *RoboCop* and the Borg of *Star Trek*, and from Mary Shelley’s *Frankenstein* to the *Terminator* and the replicants of *Blade Runner*, cyborgs have customarily been represented as a catastrophic counterforce to human dignity and survival.<sup>8</sup>

Although the cyborg necessarily provides the appearance of dehumanization, it may carry an alternate significance. As Nietzsche reminds us in light of that other, potentially terrifying “catastrophe” situated at the end of the 19th century, the death of God, such threats always have the potential to be otherwise:

These initial consequences, the consequences for ourselves, are quite the opposite of what one might perhaps expect: They are not at all sad and gloomy but rather like a new and scarcely describable kind of light, happiness, relief, exhilaration, encouragement, dawn. (Nietzsche, 1974, p. 280)

The cyborg does indeed announce something like the “end of the human.” However, this termination is only a degeneration and loss if viewed from a perspective that still values and deifies the concept of the human and the traditions of humanism. From another perspective, this ending constitutes a kind of liberation that could supply interesting possibilities that exceed the limitations and restrictions of Western humanism. This perspective is not simply nihilistic or misanthropic. Rather, it constitutes a strategic position for alternative and oppositional approaches. “It is crucial to remember,” Haraway (1991) writes, “that what is lost . . . is often times virulent forms of oppression, nostalgically naturalized in the face of current violation” (p. 172). Indeed, for some time now there has been a general suspicion surrounding the concept of the human and the values of humanism.<sup>9</sup> Martin Heidegger (1977) succinctly articulates this skepticism, which constitutes one of the main threads of postmodern criticism, in his “Letter on Humanism”:

You ask: “How can we restore the meaning of the word humanism?” This question proceeds from your intention to retain the word “humanism.” I wonder whether that is necessary. Or is the damage caused by all such terms still not obvious? (p. 195)

Humanism and the concept of the human have a definite ideological history and have been informed and supported by specific political and sociocultural presuppositions. Recent work in critical theory (cf. Foucault, 1973; Fraiberg, 1993; Vitanza, 1997), feminism (Braidotti, 1994; Haraway, 1991; Grosz, 1994), and postcolonial studies (Trinh, 1989; Shome, 1996), for example, have criticized the traditions of humanism and the concept of humanity for their alimation with and justification of all kinds of sexist, ethnic, and racial violence. Justifying her employment of the cyborg in an essay on AIDS, for example, Allison Fraiberg (1993) makes the following argument:

By using the cyborg as a starting point, I’m saying that—and this is by no means an astounding observation—rhetorics of humanism and organicism have produced, are

currently producing, and, I dare say, will probably always produce, radical material inequities for the vast majority of people. (p. 65)

It is for this reason that Haraway (1991) proposes the cyborg as a means to interfere with and eventually avoid contributing to the concept and legacy of humanism. "Perhaps," she suggests, "we can learn from our fusion with animals and machines how not to be Man, the embodiment of Western Logos" (p. 173).

For Haraway (1991), therefore, the cyborg appears under the sign and promise of liberation (p. 149), offering compelling alternatives to the hegemony and logic of Western humanism. As a result, the cyborg has often been situated in alliance with postcolonial theory and practice. Like the cyborg, postcolonialism, as explained by Shome (1996), "is about borderlands and hybridity. It is about cultural indeterminacy and spaces in between" (p. 44). This association is deployed and operative throughout Haraway's "Manifesto." Not only is Haraway's cyborg compared to figures of postcolonial theory (i.e., Anzaldúa's "mestiza" or Trinh's "inappropriate/d other"), but, as Andrew Ross points out, it is women of color, especially Asian technology workers, who seem to be "privileged as cyborgs" (Penley & Ross, 1991, p. 12) in Haraway's text. This conclusion, however, is rather problematic, as Haraway candidly admits in response to Ross's comment.

My narrative partly ends up further imperializing, say, the Malaysian factory worker. If I were rewriting those sections of the Cyborg Manifesto I'd be much more careful about describing who counts as "we," in the statement, "we are all cyborgs." I would also be much more careful to point out that those are subject positions for people in certain regions of transnational systems of production that do not easily figure the situation of other people in the system. (Penley & Ross, 1991, pp. 12-13)

In other words, the alternative, posthuman subjectivities introduced by the cyborg cannot, without precipitating a kind of neocolonial violence, be applied to cultures and peoples who have, in the customary estimations of Western humanism, never been fully human in the first place. Consequently, the "we" of Haraway's "we are all cyborgs" (as well as the "we" in the title of this essay, which appropriates Haraway's phrase) should be understood in a highly restricted sense, applying exclusively to those privileged peoples who always already reside within and are empowered by the systems of Western humanism. Consequently, the cyborg should not be understood as a new, universal category that can simply replace that of the human. Rather, it should be understood as a highly specific and strategic intervention simultaneously aimed at and situated within the history and ideology of Western thought. Elsewhere, Haraway (1991) calls this kind of strategic and intentionally restricted

operation “situated knowledge” (p. 183). Although there is a certain affinity between Haraway’s cyborg and the various figures and operations of postcolonial theory, they cannot be and never will be simply identical.

The cyborg signifies a crisis in and dissolution of the concept of the human situated within the horizon of Western humanism. It would, however, be inaccurate to say that the cyborg causes this crisis and dissolution. Rather, cyborgs come into being as the result of conceptual erosions that are always and already underway within the horizon of Western science and the tradition of humanism. Within the intellectual traditions of the west, the relation between the human and the animal and the animal and machine have been “border wars” (Haraway, 1991, p. 150). These border wars have been going on for quite some time. As Bruce Mazlish (1993) demonstrates in the *Forth Discontinuity*, the “concern about Man’s animal and mechanical nature came forcefully together in the west in the seventeenth century and did so in terms of a debate over what was called the *animal-machine*” (p. 14). In the *Discourse on Method*, for example, Descartes (1988) had argued that animals were machines, making the famous comparison of animal bodies to the movement of clockwork mechanisms. By the early 18th century, this mechanistic argument had been extended to human beings in La Mettrie’s *L’Homme-machine* [The Man Machine], which argued that “the human body is but a watch” (Mattelart, 1996, p. 23). The controversies and debates surrounding these determinations characterized a great deal of scientific and philosophical discourse in the early modern period (cf. Mazlish, 1993; Mattelart, 1996). Haraway, therefore, does not produce or invent the boundary breakdowns that comprise the cyborg. Rather, she traces the contours and consequences of border skirmishes or untenable “discontinuities” (Mazlish’s term) that have been underway within and constitutive of Western intellectual history. The cyborg, therefore, does not cause the conceptual erosion of the human; it merely provides this dissolution with a name.<sup>10</sup>

This boundary breakdown of the concept of the human is particularly evident and operational within the discipline of communication studies. Consequently, the discipline constitutes one of the privileged sites of cyborg hybridization and conceptual dissolution. As generally acknowledged, the modern science of communication originates with an important paper on communication theory published immediately after the second World War. As John Fiske explains in his *Introduction to Communication Studies* (1994), “Shannon and Weaver’s *Mathematical Theory of Communication* (1949) is widely accepted as one of the main seeds out of which Communication Studies has grown” (p. 6).<sup>11</sup> Shannon and Weaver’s “ground-breaking research” addressed telephonic systems and their mathematical theory was devised as a means by which to calculate and improve the transmission rates of copper wire. Conse-

quently, if we follow Fiske's characterization, one of the seeds out of which the study of human communication has grown (the organic metaphor is not accidental) is research in and theoretical perspectives derived from telecommunication technology. This conclusion has two related consequences. First, the study of human communication originates in and grows out of research in the technology and mechanisms of telecommunications. This curious genealogy situates machinic communication at the genetic center of a supposedly human activity. The influence of this mechanistic foundation can be perceived in the proliferation of telecommunication terminology in texts addressing the theory and practice of human communication—terms like transmission, coding/decoding, sender/receiver, signal/noise, etc. Second, the technology of telecommunication can no longer be understood as a technical supplement to supposedly natural forms of human communication. The "natural" in this case is already defined and delimited by a technological system. This curious situation conforms to what Derrida calls "the logic of the supplement." "The strange structure of the supplement appears here: by delayed reaction, a possibility produces that to which it is said to be added on" (Derrida, 1973, p. 89). In the development of communication studies, telecommunication technology comes to produce the "natural" form of human communication onto which one will want to say that it is added.

Communication studies as a discipline not only participates in but initially promotes cyborg hybridization. It is an endeavor that practically participates in the erosion of the distinctions that had separated the human organism from the machine. In other words, communication, through its very disciplinary genesis, is always and already part of a cyborg program. Within the discipline of communication, therefore, the cyborg does not constitute an external catastrophe that threatens a previously well-defined and pure concept of human communication. It does not, like the Borg of *Star Trek: The Next Generation*, appear on the view screens of this human enterprise as a big black box approaching from the frontier at ever-increasing speeds. Rather, the cyborg already constitutes that which it subsequently appears to threaten. Consequently, the cyborg is not something that can be opposed or resisted with any amount of strength. As the Borg reiterate, "Strength is irrelevant. Resistance is futile. You must comply." Resistance is futile not because the cyborg is that much stronger or better equipped than the human, but because, in the field of communication, the cyborg already constitutes the position from which and for which one would establish resistance in the first place. Strength is irrelevant and resistance is futile because the very possibility of strength and the purpose of resistance has been established and substantiated by the cyborg itself. We have, therefore, always and already been assimilated. We are already Borg. This

a priori dissolution of the concept of the human necessarily renders traditional, humanist presumptions ambiguous and questionable. As Mark Dery (1996) concludes, the “trespass across the once-forbidden zone between the natural and artificial, the organic and inorganic render much of what we know—or thought we knew—provisional” (p. 244). This realization requires not only a rethinking of the technology of communication but also a reorganization and reorientation of the subject of communication.

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## The Subject of Communication

Consciousness is really only a net of communication. . . . (Nietzsche, 1974, p. 298)

The study of human communication, despite its diversity of methods and approaches, has traditionally privileged and organized its subject matter around a specific understanding of the communicative subject. As Briankle Chang (1996) argues in *Deconstructing Communication*, “despite its differing formulations, the central challenge facing all communication theories is the question how is individuality transcended?” (p. 39). Consequently, as Lannamann (1991) demonstrates in his study of the ideology of interpersonal communication, “the starting point for the observation of communication is often reduced to the individual” (p. 187). This “individualist reduction” (Lannamann’s term) is not only evident in Shannon and Weaver’s model of communication, which privileges the intentional activity of the information source or sender (p. 4), but also is present in Aristotle’s theory of rhetoric with its emphasis on the orator as an “autonomous individual” (McGee, 1982, p. 29) and, as Lannamann demonstrates, a majority of recent developments in communication theory. “Communication models,” writes Lannamann (1991), “based on Osgood’s (1969) semantic differential, Fishbein’s (1967) attitude hierarchy, Kelly’s constructivism (Delia, 1977; Kelly, 1955), and Thibault and Kelly’s (1959) exchange theory share the common starting point of the individual” (p. 188). This fundamental, individualist orientation manifest in the various models and theories of communication is initially derived from a specific concept of human subjectivity that, as Chang (1996, p. 5) and Lannamann (1991, p. 188) argue, is indebted to Western metaphysics and the enlightenment concept of the unitary, solipsistic self. Under this rubric, communication has been understood as an activity that is intended and substantiated by a pre-established and unquestioned solitary subject. As Chang (1996) concludes:

The postulation of the solitary communicative subject thus becomes the precondition for theorizing about communication, for it legitimizes raising the question of communi-

cation to begin with and at the same time anticipates possible answers to it under the condition set by the problematic. (p. 44)

The cyborg, however, threatens and promises to undermine this restricted formulation of human subjectivity and its communicative activity.

The problematic of communication has always occupied a privileged position in the evolution of the concept of the cyborg. Early cyborg research, for example, sought methods and protocols for interconnecting technological apparatus and organic systems. The cyborg, as defined by Clynes and Kline (1995), depended upon technologies that incorporate “sensing and controlling mechanisms” capable of responding to and acting on the physiology of the organism (p. 31). Facilitating and developing systems for this kind of machine-organism interface was definitive of cyborg research from the late 1950s through the early 1970s. The Pilot’s Associate Program of the US Air Force, for example, sought to design “communication links” that would foster an “intimate integration of the human with the machine” (Gray, 1995b, p. 105). Similar efforts were espoused by J. C. R. Licklider (1960), who advocated the development of “very close couplings” (p. 1) between humans and electronic systems in his seminal “Man-Computer Symbiosis,” and by Patricia Cowing, who developed NASA’s Autogenic Feedback System for physiological monitoring (Eglash, 1995, p. 94). These practical efforts in communications engineering, however, were made possible on the basis of a more fundamental and essential interconnection. The organism and machine communicate, in the first place, through a common, general concept of communication. “We have decided,” wrote Norbert Wiener in the introduction to *Cybernetics* (1961), “to call the entire field of control and communication theory, whether in the machine or the animal, by the same name *cybernetics*” (p. 11). Under the rubric of cybernetics, communication is posited as an isomorphism common to both organic entities and technological systems.<sup>12</sup> Because the cyborg, in whatever form it takes, names this interconnection of the organic and mechanistic, it exists in terms of communication. As Haraway (1991) concludes, “the cyborg is text, machine, body, and metaphor—all theorized and engaged in practice in terms of communication” (p. 212). Communication, therefore, is not one operation among others in which the cyborg participates. Rather, it delimits theoretical and practical terms under which cyborgs are generated.

Consequently, the cyborg does not constitute a preestablished individual subject that actively engages in the process of communication. Rather, it is itself subject to and initially activated by communicative interactions. In this way then, the cyborg introduces fundamental alterations in the concept of subjectivity, the activity of communication, and their perceived relationship. First, the cyborg does not constitute a sub-

ject in the Western metaphysical sense of the term. It is not a self-determined, autonomous, and active agent. Rather, cyborg subjectivities, always in the plural and always in flux, are initially formed in and by the flow of information. Cyborg subjects, therefore, tend to be relational, variable, and essentially insubstantial. As Mark Poster (1995) argues: “if modernity or the mode of production signifies patterned practices that elicit identities as autonomous and rational, postmodernity or the mode of information indicates communication practices that constitute subjects as unstable, multiple and diffuse” (p. 32). The cyborg, consequently, shifts the emphasis from an individual subject to the social and material conditions under which subjects are first created and made possible (Lannamann, 1991, p. 192). Second, the communicative interactions productive of these polymorphic and relational subjectivities cannot be reduced to actions intended and deployed by some preconstituted subject. Hence, communication is not simply a matter of intentionality, which assumes an individual and solipsistic subject that then decides to communicate. Rather, it consists of a complex of unintentional signals that are always and already circulating throughout a particular social network. In this way, communication necessarily takes on the appearance of noise.<sup>13</sup> However, unlike the negative concept initially developed in communication theory, noise no longer constitutes the mere opposite of an intended and meaningful signal. It is not, as Shannon and Weaver (1963) suggest, “something added to the signal that was not intended by the information source” (p. 7). Rather, following subsequent developments in cybernetics and self-organizing systems, “‘noise,’ which had been seen as a ‘disturbance,’ is now seen as a ‘virtue’” (Mattelart & Mattelart, 1992, p. 45). Cyborg subjectivities, therefore, do not exclusively originate or intend meaningful communicative interactions, but are themselves the product of indeterminate exchanges.

This fundamental alteration in the status of and relationship between the subject and the activity of communication finds precedent in poststructuralist theories of language. In the essay entitled *Différance* (1973), for example, Derrida, following the insights of Ferdinand de Saussure, argues that

the subject (self-identical or even conscious of self-identity, self-consciousness) is inscribed in language, that he is a “function” of the language. He becomes a speaking subject only by conforming speech . . . to the system of linguistic prescriptions taken as the system of differences. (pp. 145–146)

In other words, language is not simply a faculty or tool that is possessed and employed by a sovereign and self-determined speaking subject. Rather, “it is also a figurative, structuring power that constitutes the subject who speaks as well as the one that is spoken to” (Poster, 1990,

p. 14). As Carey (1990) argues, following Burke's (1966) suggestion, "language is not merely a vehicle of communication in the narrowed sense of a transmission system . . . . Language realizes a mode of consciousness and being" (p. 23). This understanding of the construction of subjectivity and the function of communication is not only substantiated by recent work in communication (Coward & Ellis, 1977; Lannamann, 1991; Biesecker, 1997) but has also been the practical experience of those who employ computer-mediated communication (e.g., Stone, 1995; Turkle, 1995; Hayles, 1997). In all cases, it is argued or discovered that subjectivity is not a preconstituted and individual essence that is subsequently communicated. Rather, subjects, plural and alterable, initially take form within complex networks of communicative exchange. As Barbara Biesecker (1997) explains:

In this view the sovereign or self-positing subject is displaced by a notion of identity as wholly or irreducibly relational: the self is only given by its structural position within a larger field of discursive forces or symbolic practices, the totality of which is indeterminate yet determining. (p. 75)

This formulation, however, does not imply that cyborgs simply overturn subjectivity for a kind of objectivism or indeterminate relativism, as a number of recent works, including Biesecker (1997) and Rushing and Frenzt (1995), have argued. Rather, cyborg subjects, true to their hybrid form, occupy a position that neither supports nor simply opposes traditional forms of subjectivity. Grey and Mentor (1995) argue:

This is what makes the cyborg subject so interesting: on the one hand, it participates in a decentering of traditional subjectivity, of the metaphysics of presence, of the organic or essential identity and body; on the other, it offers a physical and bodily experience of what some feminists call strategic subjectivities. (p. 229)

Consequently,

the cyborg is a meeting place between those unwilling to give up notions of strategic subjectivities and those bent on the liberatory projects that assume the destruction of masterly, coherent selves, "achieved (cultural) or innate (biological)." And the cyborg especially can be a place to learn a new conception of agency, what Judith Butler calls "an instituted practice in a field of enabling constraints." (Grey & Mentor, 1995, p. 232)

The cyborg, therefore, does not constitute the mere destruction or annihilation of the subject but delimits a postmodern subjectivity that *deconstructs* the presumptuous, sovereign individual of modernity without resolving into either naive objectivism or simple relativisms.<sup>14</sup>

This inversion and displacement of the traditional relationship situated between subjectivity and the process of communication has been dramatized in *Star Trek: The Next Generation's* "The Best of Both Worlds."<sup>15</sup> In this, the final episode of the 1991 television season, Captain Picard is kidnapped by the Borg and transformed into the cybernetic organism Locutus of Borg. According to the structure of the narrative, the *Enterprise* and the entire ensemble called Star Fleet epitomize the traditional, humanist perspective and its validation of the individual, self-determined subject. Indeed, the *Enterprise* is comprised of a confederation of individuals (Picard, Riker, Data, Troi, Crusher, etc.), each possessing their own characteristic strengths and weaknesses. As Picard, in characteristic modernist form, exclaims in response to the initial Borg threat, "My culture is based on freedom and self-determination!" The Borg, on the contrary, comprise a network of indeterminate and fluid proportions. Individual Borg entities are nothing more than functions of or nodal points within the matrix. Borg subjectivities, therefore, are not conceptualized as preexisting, selfsame, or self-determining individuals. Rather, they are relational subjects constructed and reconstructed based on the vicissitudes of the network. To paraphrase Mark Poster (1990), Borg subjects float, suspended between points of objectivity, being constituted and reconstituted in different configurations in relation to the discursive arrangement of the occasion (p. 11). Locutus of Borg, for example, is no longer the self-determinate, individual subject called Captain Picard. As the Borg network explains it, "the entity you knew as Picard is no more." On the contrary, Locutus of Borg is delimited as nothing more than a temporary locus in the Borg network, a locus that serves the transitory requirement of locution. "It has been decided that a human voice will speak for us in all communication. You have been chosen to be that voice." From the perspective of the *Enterprise*, a perspective that is thoroughly grounded in the traditions of humanism and modern science, the Borg can appear as nothing less than monstrous, dangerous, and terrifying, for they interrupt and undermine the assumptions of individual subjectivity and agency, assumptions that are central to both modern science and the traditions of humanism. However, from another perspective, the Borg represent new affiliations and dangerous possibilities that have the potential to alter the way Westerners think about themselves and their technology.

This altered perspective necessarily introduces transformations in the way one considers the subject of communication, which by now should be understood in its double significance as both the communicative subject and the subject matter of a specific discipline. Once again, however, it would be a mistake to conclude that the cyborg intends or causes this alteration. For the cyborg does not threaten a pure and previously well-established concept of human communication as some external catas-

troupe that could be resisted or avoided through strength. Rather, it names a monstrous deformation of the subject of communication that has, ironically, always and already been underway within the discipline. The cyborg, therefore, does not necessarily introduce or advocate any new or revolutionary ideas. Instead it constitutes and names a nodal point that collects and coordinates a number of seemingly unrelated interventions that have questioned and criticized the subject of communication. First, by shifting the emphasis from the individual subject to the social and material conditions by which various subject positions become possible, the discipline of communication overcomes what Lannamann (1991) terms “the ideological pitfalls of individualism, subjectivity, and subjective intentionality” (p. 195). According to Lannamann, “a subjectivist approach to interpersonal communication emphasizes subjective experience at the expense of recognizing the powerful influences of material conditions beyond the interpretive and rational control of the subject” (p. 190). Under the individualist reduction, which is rooted in Western metaphysics, communication studies risks restricting itself to the ideological assumptions and necessary limitations imposed by the modernist concept of the rational, solipsistic self. As Lannamann points out, “the danger of an uncritical acceptance of the subjectivist stance is that it limits research to a derivative of social process (the intrapsychic) while reifying the ideological belief that individuals are free subjects who are in control of their experience” (p. 192). The cyborg provides an alternative formulation of the subject of communication that both defines communicative subjects “as cultural, not individual, manifestations, inseparably connected to social and historical processes” (Lannamann, 1991, p. 187) and accounts for the “unintentional consequences of social interaction” (Lannamann, 1991, p. 195).

Second, the technology of mediated communication has generally been understood as supplementary to or an extension of natural forms of human concourse. Consequently, the subjectivist orientation and ideology have customarily been imported into the study of media and communication technology. As a result, the various technologies of communication are customarily understood as artificial aides extending the human subject’s “natural” faculties. One is reminded, of course, of the slogans popularized in the work of Marshall McLuhan: “the wheel is the extension of the foot,” “the telephone is the extension of the ear,” and “electronic media constitute an extension of the human nervous system” (cf. McLuhan, 1995). Consequently, technical devices have traditionally been regarded as prostheses for enhancing a particular human faculty, and their relative worth has been evaluated according to the pragmatic logic of efficiency. Lyotard provides a succinct formulation of this approach in the *Postmodern Condition* (1984):

Technical devices originated as prosthetic aids for the human organs . . . . They follow a principle, and it is the principle of optimal performance: maximizing output and minimizing input. Technology is therefore a game pertaining not to the true, the just, or the beautiful, etc., but to efficiency: a technical “move” is “good” when it does better and/or expends less energy than another. (p. 44)

For the cyborg, however, technology does not remain a mere prosthetic aid for an already formed individual to deploy to his or her advantage or disadvantage. Rather, technology participates in describing and constructing the very subject positions that come to be occupied by the cyborg. As Poster (1995) argues,

what is at stake in technical innovations is not simply an increased “efficiency” of interchange, enabling new avenues of investment, increased productivity at work and new domains of leisure and consumption, but a broad and extensive change in the culture; in the way that identities are structured. (pp. 23–24)

From a cyborg perspective, therefore, the fundamental question informing the consideration of communication technology and media is not “What can technology do for me?” but “How does technology enable and empower the very identity of this, or any other, subject position?” Consequently, “the machine is not an it to be animated, worshipped, and dominated. The machine is us, our processes, an aspect of our embodiment” (Haraway, 1991, p. 180).

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## Conclusion

I affirm at the same time: that existence is *communication*—that all representation of life, of being, and generally of “anything,” is to be reconsidered from this point of view. (Bataille, 1988, p. 98)

The cyborg designates nothing less than a radical alteration in the subject of communication. Although originally proposed as a project for “man in space,” the cyborg has become a potent conceptualization for alternative arrangements and understandings of subjectivity and the process of communication. In particular, the cyborg comprises a highly situated hybrid that does not adhere to the categorical distinctions by which the human subject would be distinguished and quarantined from its opposites. It is, therefore, a devious monstrosity that not only challenges the boundaries that had differentiated the human from the animal and the animal from the machine but also intentionally deforms the structure of all binary oppositions that construct and sustain Western episte-

mologies. The cyborg facilitates this by deconstructing the subject of communication, inverting and displacing the causal, hierarchical relationship customarily situated between the communicative subject and the activity of communication. As a result of these “noisy and illegitimate fusions” (Haraway, 1991, p. 176), the cyborg calls for and encourages a thorough reevaluation of the humanist presumptions and values that have informed and delimited traditional systems of knowledge, including the discipline of communication. The cyborg, therefore, does not constitute a new object to be submitted to the discipline and study of human communication, but rather describes a fundamental transformation in the very subject of communication.

This transformation, on the one hand, cannot help but appear to be a kind of disciplinary crisis because the cyborg undermines the very foundations of the study of communication, subverting not only the human subject but deliberately short-circuiting the humanist assumptions and values that have oriented and directed the subject matter of the discipline. Consequently, the cyborg appears as an apocalyptic figure that announces nothing less than the end of life as we have known it. Despite such appearances, however, this critical intervention does not necessarily denote the termination of the subject of communication. On the contrary, the cyborg, which exists in and by communication, occasions alternative approaches that exceed the restricted and closed systems of Western humanism. As Haraway (1991) suggests, “the entire universe of objects that can be known scientifically must be formulated as problems in communications engineering or theories of the text. Both are cyborg semiologies” (p. 163).

Therefore, on the other hand, the cyborg announces other approaches and schematics for understanding the subject of communication, proposing alternative conceptualizations purged of humanist pretensions and presuppositions. Under this formulation, the cyborg does not constitute a sad and gloomy twilight figure but, as Nietzsche (1974) described, designates “a new and scarcely describable kind of light, happiness, relief, exhilaration, encouragement, dawn” (p. 280). It is through the paradoxical figure of the cyborg that the subject of communication begins to disengage itself from the limited presuppositions and restricted possibilities imposed by the traditions of humanism and modern science. Consequently, this fundamental alteration cannot help but affect and infect every aspect and corner of the discipline, eventually requiring a wholesale reassessment and reconceptualization that will encompass the entire subject of communication. In the end, however, it will not be a matter of simply choosing the latter, apparently optimistic perspective over the former. The tension situated within the figure of the cyborg is neither a variable that is influenced by choice nor a dialectic that could be resolved through some kind of synthetic operation. Rather, following

the precedent established by the cyborg, one must learn to see from both perspectives simultaneously. This kind of monstrous double vision, which deforms and defies traditional forms of logic, is both fundamental and necessary for understanding the implications and consequences of the cyborg. As Haraway insists, “single vision produces worse illusions than double vision or many-headed monsters” (p. 154).

Finally, although it is tempting to blame (or even credit) the cyborg for this apparently monstrous alteration and fundamental (re)configuration, such an attribution would constitute a mistake and a grave misunderstanding. For the cyborg, as has been demonstrated, does not confront the subject of communication as some newly introduced problem or external catastrophe. Unlike the Borg of *Star Trek: The Next Generation*, the cyborg neither threatens the human subject from the frontiers nor approaches as an external threat that could be thwarted or avoided. Rather, the cyborg, true to its thoroughly monstrous configuration, always and already inhabits and deforms the subject of communication. Functioning according to an ironic logic that Derrida names supplementarity, the cyborg already comprises and defines the subject of communication that it subsequently appears to threaten and denature. The cyborg, then, is not an external catastrophe that could be resisted with any amount of strength or resolve. Rather, it merely provides a name for an event that has always been underway within and definitive of the subject of communication from the beginning. It is for this reason that cyborg assimilation is unavoidable and resistance is futile. We have, to paraphrase N. Katherine Hayles (1999), always been cyborg (p. 291).

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<sup>1</sup> Donna Haraway’s “A Cyborg Manifesto: Science, Technology, and Socialist Feminism in the Late Twentieth Century” was first published under the title “Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s” in *Socialist Review* (1985), 80, 65–108, and subsequently republished in her 1991 collection of essays, *Simians, Cyborgs, Women: The Reinvention of Nature*. A detailed explanation of the text’s genesis and development is provided in a footnote appended to the latter. In the year of the essay’s reprinting, Haraway discussed the development and impact of her work in an interview with Constance Penley and Andrew Ross. Summarizing the manifesto’s initial context, Ross provides the following gloss:

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**Notes**

One of the most striking effects of the Cyborg Manifesto was to announce the bankruptcy of an idea of nature as resistant to the patriarchal capitalism that had governed the Euro-American radical feminist counterculture from the early 70s to the mid-80s. In the technologically mediated everyday life of late capitalism, you were pointing

out that nature was not immune to the contagions of technology, that technology was part of nature conceived as everyday social relations, and that women, especially, had better start using technologies before technology starts using them. (Penley & Ross, 1991, p. 6)

Although Haraway does not dispute this characterization, her reply indicates that she understands the context and effect of the “Cyborg Manifesto” otherwise. She answers Ross:

That is an interesting way to put it. I'm not sure what to say about that. What I was trying to do in the cyborg piece, in the regions that you're citing there, is locate myself and us in the belly of the monster, in a technostrategic discourse within a heavily militarized technology. (Penley & Ross, 1991, p. 6)

Whereas Ross understands the manifesto to be a specific reply to and argument against the anti-technology trend of a kind of goddess-worshipping feminism, Haraway understands the piece to have a much larger scope. For her, the manifesto constitutes a general intervention in a technoscientific episteme that has already interpellated who and what we are. As she explains in the short essay appended to the interview as a postscript, “the cyborg manifesto 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, p. 21).

<sup>2</sup> Since the publication of Haraway's essay, the cyborg has materialized in a number of seemingly unrelated fields, e.g., feminism (Stabile, 1994; Howell, 1995; Sandoval, 1995; Balsamo, 1996), film studies (Pask, 1995; Rushing & Frentz, 1995; Springer, 1996; Larson, 1997; Bukatman, 1997), environmental studies (Bennet, 1993), literary criticism (Brown, 1996; Lindberg, 1996; Clayton, 1996; Williams, 1998), composition (Winkelmann, 1995), philosophy and religion (Taylor, 1993; Driscoll, 1995; Brasher, 1996; Davis, 1998), interdisciplinary studies (Shanti, 1993; Porush, 1994; Biro, 1994) science fiction studies (Dunn & Erlich, 1982; Casimir, 1994; Harper, 1995; Davidson, 1996; Siivonen, 1996), anthropology (Downey, Dumit, & Williams, 1995; Downey, 1995; Dumit, 1995; Williams, 1995; Hess, 1995; Escobar, 1996), sociology and cultural studies (Featherstone & Burrows, 1997; Frailberg, 1993), and computer-mediated communication and information technology (Taylor & Saarinen, 1994; Stone, 1995; Turkle, 1995; Kramarae, 1995; Mitchell, 1995; Dery, 1996; Reid, 1996; Hillis, 1996; Ito, 1997). The fact that the figure of the cyborg has become so thoroughly disseminated in this fashion and oftentimes has been employed in these various contexts in different if not contradictory ways is a symptom of and consequently anticipated by Haraway's characterization in the “Cyborg Manifesto.” Because the cyborg constitutes an ironic and hybrid figure that blurs boundaries and occupies the space in between logical, categorical, and ideological distinctions, it is only fitting that the cyborg constitute a site of difference, struggle, and controversy.

<sup>3</sup> For a survey of the development of the concept of the cyborg in the wake of Clynes and Kline's influential article, see Halacy, 1965, and Rorvik, 1971.

<sup>4</sup> Although these boundary breakdowns are particularly evident in postmodern culture, it has been argued that the definition of the boundary of the human has always been contested. For this reason, Halacy (1965) argues that “the cyborg's history . . . begins around 1,000,000 B.C.” (p. 34).

<sup>5</sup> For a critical investigation of the Human Genome Project, see Haraway (1997). For a critical examination of the recent concern with DNA in the biological sciences, see Doyle (1997).

<sup>6</sup> Mattelart provides a brief account of the history of this approach in *The Invention of Communication* (1997):

When, in 1948, Claude Shannon formulated the first mathematical theory of information and communication while in the service of Bell Telephone Laboratories, he borrowed heavily from biology's discoveries about the nervous system. Six years earlier, in a famous book titled *What Is Life*, Erwin Schoedinger (1887–1961) had introduced into this branch of the life sciences the vocabulary of information and coding in order to explain the models of individual development contained in the chromosomes. The landmark discovery of DNA, the molecules present in the nucleus of each living cell, led to a further progression of the analogy . . . . To account for biological specificity, that is, what makes each individual unique, specialists in molecular biology used the communication model developed by Shannon. François Jacob, author of *The Logic of Life* (1970) and holder of a Nobel Prize in medicine and physiology obtained jointly with François Lwoff and Jacques Monod for their work on genetics, described heredity in terms of programs, information, messages, and codes. (p. 302)

<sup>7</sup> Although there is an affinity between the cyborg and the other interventionist figures of

postcolonialism, feminism, and postmodernism, it would be erroneous simply to conclude that they are *identical*. Haraway is careful to distinguish the homogeneous tendency of identification (which reduces differences to an essential unity and, as a result, can engender violent exclusions and appropriations) from critical affinities (which permit collaboration and coalition across irreducible, heterogeneous differences). For Haraway (1991), the primary task for oppositional consciousness is “affinity not identity” (p. 155).

<sup>8</sup> For an analysis of the figure of the cyborg in science fiction literature and film, see Dunn and Erlich (1982), Shapiro (1993), Pask (1995), Harper (1995), Witwer (1995), Rushing and Frentz (1995), Boyd (1996), Davidson (1996), Harrison (1996), Springer (1996), Bukatman (1997), and Larson (1997). In examining the cyborg, the serious investigation of science fiction should not be underestimated. Haraway (1991) not only recognizes that this genera constitutes one of the privileged sites in which cyborgs make their appearances (p. 151), but also suggests that science fiction writers are the “theorist[s] for cyborgs” (p. 173). It is, therefore, in science fiction literature and film that the boundary breakdowns between the human, the animal, and the machine are dramatized, theorized, and explored. It is for this reason that the second section of this essay turns to an analysis of an episode from the 1991 season of *Star Trek: The Next Generation*.

<sup>9</sup> For a critical history of humanism, the concept of the human, and the development of anti- and posthumanism, see Tony Davies’s *Humanism* (1997). For a philosophical critique of humanism, see Charles Hartshorne’s *Beyond Humanism* (1969) and Luc Ferry and Alain Renaut’s *French Philosophy of the Sixties: An Essay on Antihumanism* (1990).

<sup>10</sup> Mazlish’s *The Fourth Discontinuity* (1993), unlike Haraway’s “A Cyborg Manifesto,” does not advocate the employment of a new, hybrid concept like the cyborg. Rather, this text engages in a kind of *paleonymy* that retains the name “human” while opening the concept to a general expansion and slippage in meaning. “I shall be arguing that human nature is not fixed, not a kind of Platonic ideal, but is rather an evolving identity” (p. 7). Although retaining the word “human,” Mazlish traces a conceptual erosion that differs from the cyborg only in name. “My hope is that readers of this book will henceforth be persistently conscious of the machine question and will thoroughly and constantly perceive the meaning in their own lives of the interconnected nature of humans and machines. More pointedly, my aim is that readers will then feel deeply that they are that particular evolutionary creature whose origins are to be found in both the animal and the machine kingdoms, with the animal and mechanical qualities together incorporated in the definition of human nature” (Mazlish, 1993, p. 8). N. Katherine Hayles advocates the employment of another neologism to name this reconfiguration of the human being. She proposes the term “posthuman,” which is derived from the work of Ihab Hassen (1977). In *How We Became Posthuman* (1999), Hayles not only repeats a number of gestures and concepts associated with Haraway’s cyborg, but also provides an extensive account of the role of cybernetics in constructing posthuman subjects. It would, however, be inaccurate to conclude that the posthuman constitutes a synonym for Haraway’s cyborg. For the cyborg, according to Haraway, is the result of a dual erosion of the boundaries that define and delimit the human. It is the product of a blurring of the boundaries that had attempted to distinguish the human from the animal and the animal from the machine. Although Hayles’s posthuman also comprises a border identity, it is restricted to only one of the two boundary breakdowns described by Haraway. Specifically, Hayles (1999) defines the posthuman as the product of an erosion of the border that had differentiated the human organism from the cybernetic mechanism:

[T]he posthuman view configures human being so that it can be seamlessly articulated with intelligent machines. In the posthuman, there are no essential differences or absolute demarcations between bodily existence and computer simulation, cybernetic mechanism and biological organism, robot teleology and human goals. (p. 3)

Consequently, the posthuman articulates and is limited to only one of the two boundary breakdowns that describe and constitute Haraway’s figuration of the cyborg. For this reason, the posthuman addresses only one aspect of the complex reconfiguration that is introduced by the concept of the cyborg.

<sup>11</sup> This remarkable sentence from Fiske’s *Introduction to Communication Studies* (1990) may require some clarification. In stating that Shannon and Weaver’s text is “accepted as one of the main seeds out of which Communication Studies has grown” (p. 6), Fiske is neither claiming that this text constitutes the exclusive origin of the discipline of communication nor asserting that the

statement itself is necessarily and unquestionably true. Rather, what his carefully constructed sentence does indicate is that Shannon and Weaver's *Mathematical Theory of Communication* has, for better or worse, been acknowledged by communication scholars as *one* of the central forces shaping the theory and practice of communication studies. In citing Fiske, therefore, I intend neither to prove nor to disprove the statement, which would require nothing less than a critical history of the discipline of communication. Rather, I employ the sentence as a general symptom, indicating how the field of communication studies has, in the latter half of the 20th century, come to understand and conceptualize the development of its own disciplinary structure and practice.

<sup>12</sup> Although communication comprises an isomorphism common to both organic and machinic systems, it would be a mistake to conclude that it constitutes *the* isomorphism. The science of cybernetics began, as Wiener has explained, with two, communication and control. Subsequent developments in the science eventually added a third, computation. Although there have been attempts to reduce all of cybernetics to communication (Wiener, 1988), control (Berger, 1986), or computation (Morevac, 1988), the fact is that none of these three can be said to be fundamental.

<sup>13</sup> The relative position of the concept of noise in cybernetics has been the subject of significant internal debate and development. When Norbert Wiener initially introduced the science in his seminal text of 1948, he identified Claude Shannon, who formalized the *Mathematical Theory of Communication*, as one of the founding influences in the development of cybernetics (Wiener, 1961, p. 10). The acknowledgment of Shannon's influence is reaffirmed and elaborated in Wiener's subsequent publication, *The Human Use of Human Beings: Cybernetics and Society*. In this sequel, which attempts to make the ideas of cybernetics "acceptable to a lay public" (Wiener, 1988, p. 15), Wiener credits both Shannon and Warren Weaver with having assisted in making the nascent science of cybernetics a legitimate field of study: "Since then [1948] the subject has grown from a few ideas shared by Drs. Claude Shannon, Warren Weaver, and myself, into an established region of research" (Wiener, 1988, pp. 15–16). In Shannon's work on communication theory, which was eventually published in 1949 (along with a lengthy introduction by Weaver), noise was formulated as a negative concept that is diametrically opposed to and disruptive of signal. Because of the lineage articulated by the "father of cybernetics," early forms of cybernetic research approached the issue of noise in ways that were consistent with Shannon's formulations. Subsequent developments in cybernetics, however, began to consider the concept differently. As early as the Seventh Conference on Cybernetics, an alternative approach was espoused by Donald MacKay. MacKay's work suggested that noise was not the mere opposite of signal, but that it comprised the essence of information. These two different approaches to the concept of noise eventually resulted in two different directions for cybernetics—homeostasis and reflexivity. For an account of the historical developments and significant internal debates of cybernetics, see N. Katherine Hayles's *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (1999).

<sup>14</sup> All too often the distinction between these two operations is simply collapsed, rendering deconstruction a sophisticated form of destructive analysis. As a result, theorists like Lannamann (1991) inappropriately assume that deconstruction must necessarily be followed by a kind of "reconstruction" (p. 195), which, as demonstrated by Rushing and Frenzt's proposal to reconstruct a "larger aspect of the human self" (p. 25), always runs the risk of reestablishing the very concept that was to have been criticized. Deconstruction, however, does not mean "to take apart." It does not, as Carey (1990) and others erroneously presume, signify "to break up," "to un-construct" or "to disassemble" (p. 22). These operations are designated by another name, analysis. Analysis (from the Greek) connotes "to break apart" or "to loosen up." Deconstruction may include something like an analytical moment, but it will be nothing more than a moment. Analysis, therefore, does not exhaust deconstruction, which is always more and less than analysis. On the contrary, deconstruction comprises an irreducible *double gesture*, or what Biesecker (1997) calls "a two-step that, contrary to intellectual gossip, affirms rather than deplores radical possibility" (p. 16). As characterized by Derrida (1982), this double gesture, or what is also called a *double science*, is comprised of both inversion and displacement. "Deconstruction cannot limit itself or proceed immediately to a neutralization: it must, by means of a double gesture, a double science, a double writing, practice an *overturning* of the classical opposition *and* a general *displacement* of the system. It is only on this condition that deconstruction will prove itself the means with which to *intervene* in the field of oppositions that it criticizes" (p. 329). The cyborg exemplifies this double gesture in its deconstruction of the traditional relationship situated between the intending, human subject and the activity of communication. First, the cyborg inverts the traditional structure that

privileges the intending, speaking subject by placing its emphasis on the common, material condition that first makes subjectivity possible. It does not, however, simply remain at this phase of inversion, which would comprise nothing less than a mere exchange of positions in the established system. At the same time that the cyborg deploys this initial inversion, it also displaces this simple revolution by introducing a new concept of subjectivity, which one could call, following Butler, “performative subjectivity,” which “can no longer be, and never could be included in the previous regime” (Derrida, 1981, p. 42). For a detailed treatment of the strategy and implications of deconstruction, see Derrida (1974 and 1981), Chang (1995), Gunkel (1997), and Biesecker (1997).<sup>15</sup> This illustration, which investigates only one moment in a single episode of *Star Trek: The Next Generation*, is not intended to be a thorough case study of the Borg. Such an examination would require a perspicacious reading that would trace the development of this character from its initial introduction in *Star Trek: The Next Generation* through the television sequel *Voyager*, the *Star Trek* novels, and the motion picture, *Star Trek: First Contact*. For a detailed investigation of the Borg and their complex development as a character within the *Star Trek* universe, see Bernardi (1998), Goulding (1995), and Harrison et al. (1996). For a detailed analysis of the “Best of Both Worlds” episode, see Witwer (1995).

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