

The Bride Stripped Bare to Her Data: Information Flow + Digibodies

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In a class I taught in 2001 entitled “New Technologies and Communications Media,” I presented excerpts from a twentieth-century film in order to foster discussion of the cultural position of information historically within the Western imaginary. The romantic comedy, *Desk Set* (1957), depicts a research library in the center of the large “Federal” corporation, and is perhaps the first film depicting an IBM-like “EMERAC” machine as it spews out the credits.² Katherine Hepburn plays Bunny Watson, the head of the all-female reference division of the company, a woman who can spontaneously answer any question asked of her or find the answer almost as quickly. From reciting “By the shores of Gitche Gumee” by Longfellow to answering inquisitive calls about which issue of the *New York Times* contained which report, she is an information maven. However, Spencer Tracy arrives as the character Richard Sumner, an “efficiency engineer,” seemingly determined to replace the human knowledge of the research division with the overstuffed, ballroom-sized IBM computer.

Bunny’s troubled romantic relationship with her boss, Mike Cutler, puts gender politics of the workplace at the forefront of the romantic comedy, and the film is rife with troubling sexist remarks and behavior. Every time the women know the answer to a difficult query, the narrative counters this “untraditional” knowledge by reinscribing the feminine: the female characters seem to be always applying lipstick, ordering dresses, watering plants, or showing each other their new clothes for the upcoming dance. In this way, although there is an attempt to depict a “single-woman work culture” in the 1950s, this culture is focused around their interactions with men.³

Unexpectedly, it is Bunny’s methodological and meticulous, almost machine-like command of knowledge that allows her to beat the very machines sent to replace her. Her knowledge is vast, crisp, and helpful at all times. At the same time the EMERAC is installed in the reference area (with a new female operator), one is installed in Payroll and promptly generates pink slips for everyone in the company. Still, Bunny beats the machine in an uncanny way, saving the day with her genuine human knowledge, her way of connecting events and facts in a sensible order; she becomes a metaphoric “bride” defeating the efficient machines of her bachelor suitor. The machine spins out of control, while Bunny

remains cool and knowledgeable. In the end, Bunny shares her space with the machine yet controls it; she is then enfolded into a new and seemingly more equitable heterosexual relationship.

Desk Set is one of many media examples that depicts data, technological change, and information in ways which tie them directly to women's bodies. Although Bunny is allowed to possess knowledge and information, her dangerous knowledges are tamed by bouts of overemphasized femininity. Bunny repeatedly costumes herself in the film; she holds up glamorous gowns, hoping to transform herself literally at "the ball"—while underneath, keeping her "suits" of knowledge for the domain of the anonymous reference call. Although *Desk Set's* Bunny ultimately triumphs over technology, images of women today produced by our technologically driven media forms are not necessarily invoking such images of equity and mastery, and are still conspicuously bound up in a heterosexual system of representation.

Representing data is not only a big business and the focus of countless classic professions; as we see from this example of filmic representation of the role of data, the practice has political and cultural implications and has historically been tied to the representation of women's bodies. With the emergence of contemporary ways of gathering, storing, and defining information, the complex relationship between information and the human body has evolved in interesting ways. Virtual bodies tend toward the hyperreal—characters such as (my favorite), Lara Croft from the *Tomb Raider* series, Kasumi in *Dead or Alive 2*, or Sarah Kerrigan in the *Starcraft* games are all, in one way or another, hyperreal, exaggerated "hyperbodies."⁴ These hyperbodies seem to be slowly giving way to even more "realistic" representations as technology permits and audiences consume. Digital media are now working toward building a unique aesthetic for perfection—note the most suprahuman model yet created, the "down-to-the-eyelash-follicle-perfect" rendering of the brilliant and beautiful Dr. Aki Ross in the 2001 film *Final Fantasy: The Spirits Within*. From virtual sets for television which create 3D backgrounds in real time, to virtual newscasters and characters themselves, the field of information design as an area of graphic design has quickly evolved into an area of biological design. Information today is enacting its own etymology: information, from the Greek word *morph*; in Latin "morph" became "form," to the Latin *informare*: to bring something into form.

As mentioned in previous essays by myself and others, computationally rendered graphics and the systems, machines, and traditions that produce them are powerful yet problematic for a number of reasons.⁵ Virtual spaces are conscious creations produced by a numeric process, a process produced primarily through programming code. N. Katherine Hayles has noted that "even though information provides the basis for much of contemporary society, it is never present in itself."⁶ But a symbolic system that has allowed computer code to come into an existence of its own is indeed taking shape. The merging of data production with digital media has much significance and immediately conjures

up questions from the domain of semiotics. In fact, the dictionary definition of “virtual” was possibly written by the founder of the American branch of modern semiotics, Charles Sanders Peirce.⁷ Bodies are acting as conduits for information; with the general move to make bodies perfect yet believably “realistic,” strange eruptions occur, signaling gaps within our current system of signs.

This chapter explores the evolution of electronic media representation of information, from charts and graphs which represent data, to information’s new form: virtual and organic flesh. Our connection with and interfaces to the computer change daily. Among human–computer interface (HCI) researchers, computer-generated “personalities” are seen as the evolutionary form of the icons used in next-generation graphical user interfaces.⁸ In this essay, I want to explore the nodal points around which information bodies can be organized, and their system of signs. However, the essay focuses not on language but on the embodied code of virtual characters. I map this embodied data through phenomena—the world’s first virtual newscaster, Ananova, a character-based live information interface, Motorola’s Mya data service, and Syndi, the “celebrity portal” search engine that purports a subjective search experience through a character—to explore the ramifications of data embodiment. Specifically, in this chapter, I look to virtual characters developed to represent data and news in online environments as the site of a monumental shift in digital cultural consciousness. Where older models such as those represented in *Desk Set* contain data in the female form, present embodiments have left the real female body behind in a significant way. Embodied data through phenomenon such as virtual newscasters and other data agents are becoming commonplace, but what are the implications of making information biological? If our data must now be embodied, what is the impact on how we understand data in the form of human bodies, especially female-shaped bodies that act as conduits for information flow? What is the role of the female in this representation, and what are the social implications of embodied data?

I. Duchamp, Technology, and Gender

A representational review is in order to reflect on the visual coupling of woman and technology, code and bodies, for it is at the female body that the formation and contestation of digibodies is occurring. Notions of the machinistic successes of the nineteenth-century industrial revolution resulted in shifts in art, such as that produced by cubists and futurists, to the industrio-sexo-mechanical metaphors churned out by Marcel Duchamp. Duchamp, one of the influential thinkers of the time, represented the shift from the industrial to postindustrial Western cultures repeatedly in his work through the figure of woman. After his groundbreaking “Nude Descending a Staircase #2” (1912), Duchamp expressed ideas about time, work, and technological innovation in his artwork, and throughout his career veered away from representational forms (in this, he furthered Delaroche’s proposal, for Duchamp believed that representational

forms themselves were dead).⁹ Problematic as Dadaist and Surrealist representations of women were, there are a number of similarities between contemporary cultural change and the shift that occurred in the earlier part of the twentieth century. In trying to read our current semiotic shift, I look to Duchamp because he also briefly broke the system of representation between gender, the body, and technology. If de Saussure established semiotics as a system of signs within society and focused meaning as defined by the relationships of one sign to another, and if Peirce described the science of signification and the sign as an “object,” Duchamp was the radical who turned popular semiotic conventions upside down, moving away from both representation and cultural references, breaking the link between his works and the “objects” they supposedly represented.

Scholars have debated the nature of historical and contemporary linkages between the figure of woman and technology. For example, as Andreas Huyssen notes in his book *After the Great Divide: Modernism, Mass Culture, Postmodernism*, technology and woman have historically been linked: “As soon as the machine came to be perceived as a demonic, inexplicable threat and as the harbinger of chaos and destruction . . . Woman, nature, machine had become a mesh of signification which all had one thing in common: otherness.”¹⁰ We can also look ahead and see how negative images of women played out in Weimar Germany’s technological and industrial shift.¹¹ In twentieth-century culture struggling to find a place for photography and film within the traditional arts, it was in part through Duchamp’s challenges to artistic definitions and institutions that it became possible to contextualize the creative act using mechanical reproduction paradigms—especially in the 1920s, when there was a major shift in both technology and in visible/virtual culture.

At around nine feet high and over five feet wide, Duchamp’s famous 1923 painting *The Bride Stripped Bare by Her Bachelors, Even* depicted “the bride” as an engine to symbolize twentieth-century progress (see Figure 8.1). “The Large Glass,” as it is also called, is considered to be his most major work and took eight years to evolve.¹² As Jean François Lyotard noted in his book, *TRANS/formers*, although Duchamp’s ideas are inspired by technology and image making materials such as time lapse photography, he continued to move away from representational form—as Lyotard calls it, Duchamp worked in an “a-cinematic” form.¹³

Although Duchamp’s bride is all about desire, women, and machines, the visual representation in the work itself is far from typical. Although the bride is a self-sustaining mechanical character in perpetual motion, her nine bachelors, who, in Duchamp’s notes on the work, are said to survive on coal and the fuel of sexual tension, are positioned below their mistress. In her domain atop the painting, the bride issues her commands, orders, and authorizations, acting as a kind of motor; Duchamp’s bride could be read as erotic, and she is in complete control. She is both passive (allowing herself to be stripped) and in control as an active (moving and desiring) subject, inhabiting an electric space

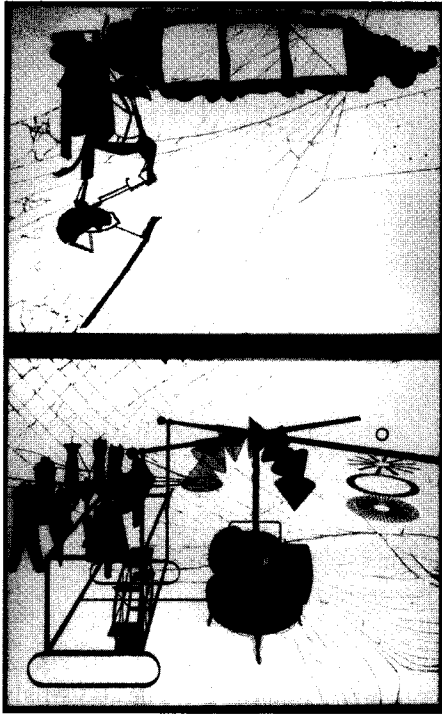


Fig. 8.1 Marcel Duchamp, *The Bride Stripped Bare by Her Bachelors, Even (The Large Glass)*, 1915–1923. Oil, varnish, lead foil, lead wire, and dust on two glass panels, 109 1/4" × 69 1/4". Succession Marcel Duchamp, ARS, N.Y. / ADAGP, Paris.

that Lyotard claims is “transcribed in a plastic way: the Bride-machine is not placed in the same space as the Bachelor workshop,” but rather in the space of electronics (144). The large, cloudlike shape at the top of the glass is the halo of the bride, a type of veil, an access point or network in which the bachelors desire to participate. Unlike digital characters, which are “powered” by logical code, the mechanical bride of Duchamp is fueled by “Love Gasoline.”¹⁴

The idea that this bride is passive through her permitting herself to be stripped, and active because she is desiring and controlling, is important, for such discussion positions the bride in a duality: She is in total control, has her own electronic, erotic autonomy, and is not bound by stereotypical representation. Machines, bodies, and time are blended together and fused with concepts of gender roles and their relationship to information. The technological woman, the mechanical bride, like the Internet, is self-generating, bringing about technological change.

Duchamp's work is read through both through its visual representation on the glass, as well as in various notes and boxes, which contain calculations, scribbles, theories, and other information which mediates the experience of viewing the glass so that, according to Duchamp, the experience of the piece aesthetically will be interrupted. As he noted, the painting itself "must not be 'looked at' in the aesthetic sense of the word. One must consult the book, and see the two together."¹⁵

The erotic logic of such an artificial and mechanical system is both anti-representational and illogical; Duchamp makes many notes in his "The Green Box" about his "hilarious" picture, noting that rather than an image, the work is the whole of an illogical process and antirepresentational presentation. As Tzara argued, "The beginnings of Dada were not the beginnings of an art, but of a disgust" with traditional art forms.¹⁶ Like the internet's tendency toward hiccupping downloads and the now popularly described "lag" phenomenon of the Internet experience, Duchamp called his Large Glass a "delay in glass," playing with moments of "in between time."¹⁷

Read within his play of logic, Duchamp's vision of the coupling of technology within a consciously marked gendered construction offers an interesting position on the combination of woman and machine. Valued for his play with gender, Duchamp bridges the problematic mind/body split by foregoing representation of the mind or the body, moving to a third, conceptual space.¹⁸ In this way, Duchamp avoids scripting both negative representations variously depicted as phallogentric or patriarchal, and he also avoids locating the figure of woman as a passive innocent that we cannot represent. Some of Duchamp's analysts, however, raise questions about his depiction of women. Lyotard argued that "the whole Duchamp affair goes via women" and asks, "[s]hall we say that women are the principle of the a-mechanizing cunning, that they have no soul . . . their bodies being mechanically reducible . . . won't that be their whole morality: either married or prostituted?"¹⁹ He goes on to argue that, in his work and in his masquerade as Mademoiselle Rose Selazney, Duchamp goes beyond sex by reconciling sexual difference (115).

Duchamp's conceptual erotic, dimensional machines are not based in representation but in delay: the bride is neither naked nor clothed, leaving us in an in-between state where "there is no art, because there are no objects" (20). Reading Duchamp clues us into the possibilities of the absence of representation; it confuses other semiotic systems, disrupts the formal models we use to create meaning, and opens up a third space for the digibody.

II. The New Woman: Prototype Digibodies

The Bride can represent for us progress, technology, desire, and control. Duchamp's bride both is passive and yet, controlling "progress." But in the next century after this monumental work, with subtler, nonmechanical technological change influencing every aspect of our everyday lives, the conceptualization of



Fig. 8.2 National Taiwan University scan of human faces (face of Mary Flanagan) (2001). Created in custom software. Screen capture taken by Mary Flanagan. Courtesy CML lab, directed by Ming Ouhyoung.

gender and technology has manifested in a way closely related to Duchampian thought. Researchers around the globe are looking to computer-generated “personalities” as the next evolutionary form of the graphical user interface. Humanlike faces are already beginning to replace buttons and icons (think of the Microsoft prototypical paper clip). At National Taiwan University, researchers are designing personal secretaries for PDAs by scanning real human faces to make the virtual secretaries more appealing; researchers note that they “want to go for a friendly interface” (see Figure 8.2).

VR communications agents put a skin on our current fascination with stock and business news and helpful applications, and at the time of this writing, digital agents and news sources have all been depicted as female. Rather than doling out commands to her bachelors in Duchamp’s painting, these brides have instead manifested as 3-D graphic characters on the World Wide Web, doling out news and other kinds of always-updated streaming information. While Duchamp resisted the aesthetic to convey his fascination with information and the symbolic, this century’s digital characters collapse the real and the virtual into one system, foreclosing any possibility of critical distance in our interactions with them. Moreover, interactive design has taught us that critical distance is precisely the thing designers are taught to avoid, especially at the interface.

To understand the phenomenon of digital characters within the context of interactivity and service functions (as opposed to, say, game characters that carry a related yet different set of concerns), we should briefly look at the current state of the merging of broadcasting, information design, and visualization, for these are the areas that traditionally have provided information flow and established representational norms of the information itself.²⁰ Outlets for this material include broadband, Web, and mobile computing solutions, all of which compete for users' time and attention.

As a discipline, information design historically has investigated different issues than media forms such as broadcasting, news or the traditional areas of film and print—instead of telling stories in time, information designers need to depict stories in space—and generally, this space has been a flatland that graphic designers have worked to dimensionalize. Leading information design guru Edward Tufte is one of the innovators in visualizing information in graphic form so that everything from day-to-day matters to important security systems are easily understood, arguing that through good information design we are able to “change the way people see.”²¹ Interfaces, like signs in semiotics, stand for other things: icons and indices give way to the heart of the content. A sign does not function as a sign unless it is understood by the user as a sign, however. In computer applications, this system relies on a rich tradition of graphic design to create understandable user interfaces.

Information design is nowhere more significant than in the interface between humans and computers. Historically, interface surfaces have been unreal: imaginary buttons, unnatural keyboards, molded extensions of our palm, and stick controllers. Many designers agree with Donald Norman, a leading design specialist, that user interfaces should blend with the task in order to make tools, the apparatus of production invisible and keeps technology as the means and not the goal. Accordingly, computer interfaces should not call attention to themselves; characteristic buzzwords include “intuitive,” “adaptive,” “supportive,” and “easy to use.” Norman admits, however, that there may be no natural relationship between one design and other designs or objects. In other words, design is a purely artificial ideal, and interfaces are sites of artifice designed with human physiology, cognition, and habit in mind.

It should not come as a surprise, then, that the latest computer interfaces, or portals, are artificial computer generated characters. Digital hosts are manifestations of digibodies, following on the emphasis on game characters and pop culture animations.²² Part material and part symbolic, virtual characters, be it a mobile or Web-based network, are now hosting everything from cell phones to game shows to DVDs. Here, we should turn to real world examples of this embodied data manifest in interactive virtual characters.

1. *Syndi*

Especially in the area of information retrieval, virtual characters put a human face on the front of real time, up-to-date flows of data. Not only are they the

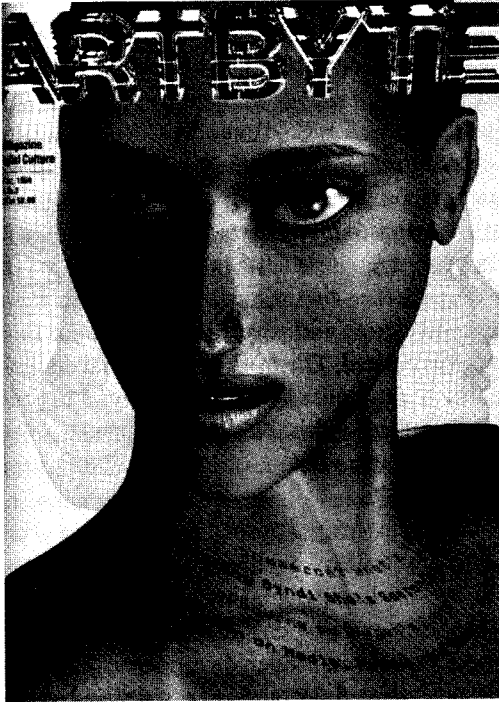


Fig. 8.3 Jim Anderson, *Syнди* (1999). September/October 1999 issue of *Artbyte Magazine*, Courtesy Artbyte Magazine.

conduits for a flood of information, but they are also a flow of signs, representing and reinforcing our myths, stories, and ideologies. Signifying uncertainty about the meaning of embodiment, these characters represent a shift in digital cultural consciousness. “As the net cools, information begins to self-organize. Applications become attention windows. Attention windows become celebrity portals.” So begins a conversation with Peter Seidler, Chief Creative Officer of Razorfish as he discussed the company’s research effort, a search engine with “subjectivity.”²³ Seidler wrote a cover story for *Artbyte* in 1999, “My Syn,” which detailed the abilities of Syнди, a proposed “celebrity portal” search engine created by Razorfish. Syнди is able to learn about the necessities, tastes, and interests of users (see Figure 8.3). Unlike her ancestors, text boxes or strings of data, Syнди is a three-dimensional polygonal model, taking the form of a woman with pulled back brown hair, huge green eyes and a long, tanned, thin face.

Syнди, if built, would be one of the first “native” species of cyberspace. Working on specific tasks based on detailed personal user profiles, these agents come from a long line of traditional “AI” projects began in the 1950s and 1960s from

programs such as the Eliza and Julia engines. As her creators note, “Syndi’s existence depends on her capacity to fit into her environment” and she appears the way she does because “commodification creates a need for distinction.”²⁴ In this way, the agents are distinguished only by their constructions, not by their abilities or services.

It is significant that the female databodies like Syndi are generally composite bodies: by composite bodies I mean a mixture of presumed “normal” female characteristics (combined with supermodel and superbodystyling) and constructed with presupposed racial characteristics. We could look to many historical markers in order to contextualize markers of race in representation, but I choose a rather recent set of circumstances because this example had significant impact on graphic design and advertising, two major vectors along which virtual characters were created. The work of influential designer Tibor Kalman (1949–1999) and his design house M&Co. are essential in order to contextualize the creation of digital characters. This group created many influential works in Benetton’s spinoff magazine *Colors*, which pushed an editorial emphasis on shocking images and politics.

Many M&Co. and *Colors* images pushed the boundaries on race representation in the early 1990s, especially layouts such as the “What if . . . ?” spread from Issue #4, “Race,” in 1993.²⁵ Using digital imaging programs, *Colors* changed the races of several iconic men and women. Queen Elizabeth was made to look black and Spike Lee white, and Kalman offered readers an Asian Pope John Paul II. These experiments investigated the taboo of racial switching and performance, setting standards for pop culture, advertising, and media that we still see today in digital character creation. For example, many digital stars, including Lara Croft, have ambivalent racial composite faces, hair, bodies, and skin color, with a problematic tendency toward a “Caucasian blend.” This composite takes on more significance as we begin to see the role of the construction, of the artificial, in ideologies that construct these characters. Even though the intent of Kalman’s group was to cause readers to reflect on racial inequity, the *Colors* overall effect was to depoliticize the representation of racial hybridity. In the realm of graphic design, race became a design element with this use of morphing and imaging technologies. In turn, digital characters reflect this apolitical representational practice.

To return to digital characters and the creation of the character Syndi, we are tempted to understand Syndi’s personality. Her makers say her “brand attributes” control what she appears to feel like for the user, and she is intended to evolve: her makers focusing on her subjective evolution of consciousness and beyond, to the domains of the “digital superconsciousness.” However, she has not evolved very far—information about Syndi after the interview with Seidler is very difficult to find, even in her native habitat, but her design speaks to the overall goals and desires of dot.com entrepreneurs.

Seidler’s article did not address the naming of the Razorfish character, but Syndi’s name could be a reference to Pat Cadigan’s 1991 cyberpunk novel

Synners. In *Synners*, Visual Mark and Gina are “synners,” that is, synthesizers who work together to create immersive music videos through a direct neural connection to cyberspace. At last, Visual Mark finds a way to download himself into the network and “lose the meat.” Mark becomes the first net-born synth-human, existing only in cyberspace. Cyberpunk fiction has long predicted artificially created network beings. Syndi offers users a similar promise of the escape of the flesh. Although she wears a halo suspiciously close to Duchamp’s bride, hers is a cloud of zeros and ones as her veil, her neck ringed with strings of binaries, black and white, zeros and ones . . . a human genotype: the genetic code of the digital character, worn closely as she gazes at her bachelor-users. Unlike Duchamp’s bride, however, Syndi’s makers offer us a representational body to go with her networked dataconsciousness.

2. *Ananova*

The world’s first functioning virtual newscaster, Ananova, is the “human” face serving a real-time information and news system. A little more realistic in design functionality and commercial expectations, Ananova appeared on the Internet on April 19, 2000 with her enthusiastic, “Hello World! Here is the news and this time it’s personal.” Ana Nova was designed to be the interface for real-time news, and she can also handle transactions.

Although the choice to use a female face for the conduit of information was not informed by rigorous research (Ananova says they decided to make their bot female “because people tend to respond better to getting information from a woman”), her face is a composite of what designers thought were attractive and useful features: useful, because they function within technical constraints. For example, the character’s mouth had to be large in order to showcase the company’s innovative lip synch technology on screens of all sizes, and her clothing is said to be “figure hugging” in order to “make her easier to animate.”²⁶ The choice to give Ananova a bright shock of green hair was made in order to make her stand out on advertising as well as on mobile devices such as WAP phones.

Ananova news services are similar to any online news service (such as international competitor CNN.com), and can be browsed in a similar fashion or can be read, with theme music and images, by the Ananova character. She comes in low and high bandwidth streams to your desktop in pixelly chunks, slowly reading the news to users. The “personalized” aspects do not come from the agent but rather from the user, who can customize his or her news preferences. Although she has received marriage proposals and fan mail (as well as generating a large movement of “Ananova lookalike” groups on the web), the value of the human head to read news to users from the Internet remains unknown.

3. *Mya*

Mya “debuted” in March 2000 in an advertising spot during the annual Oscars, slipping over the video screen in her hip silver jumpsuit to the event. Mya is

a 24-hour, voice-driven digital personal assistant that reads out websites over user's mobile telephones. Motorola gained much publicity for their 60-second commercial in which they promoted their fashionable cyber guide to the vast Infobahn. Visually seamless, digibodies like Mya appear quite realistic, although as a visual representation only pops up in advertising—while using the Mya service, the character is still a computer-generated, disembodied voice. However, the quest for ultrarealism in images of Mya is strong: Mya was created and was fashioned after a human model hired by media makers Digital Domain. Visual effects supervisor and animation director Fred Raimondi notes that he first focused on realistic hair and cloth “but not necessarily a photo-realistic woman,” instead focusing on aspects we normally look for as clues that the character is computer generated, such as hair and clothes modeling and rendering.

Logging into a Mya demo online, we hear a slightly mechanically buzzing young woman's voice tell us dreamily, “My world is a world without boundaries without limits” (said without a comma, as well).²⁷ For now, Mya's is a real voice, but mechanically enhanced to give the illusion of the digital. Mya is, by far, the best-rendered and most self-assured of the digibodies, and her voice, human or not, is the most haunting; in fact it is her voice that is the most researched and promoted for wireless WAP systems.

Although she does not appear powerless, writer Tobey Grumet calls Mya “virtually submissive” because she is created only to serve users.²⁸ Mya “isn't a Web browser, this is someone who can speak to you” says Geoffrey Frost, a VP at Motorola.²⁹ The company decided to “give her a face, a name and a personality . . . humanize her.”³⁰ The creation myth extends to her production team: “It was so exciting for me to finally see the cloth tests, for instance. It was kind of like meeting God, because you've never seen it before,” said her art director.³¹

Although an ultrarealistic look in images of these women characters is very strong, after seeing several one can begin to see a definite trend in their representation. All of the digibodies found online or under design are women, and all either sport short or severely pulled-back hairstyles. Animation details, such as hair, eyes, and movement, are key areas where artists work especially hard to make a convincing digibody. In Mya's case, her creators noted that it was very difficult to create her in a way that she looked “alive.” They focused on movement and her eyes, noting that she needed specular highlights and eye blinks to bring her to life.

Repetition is key to believing in virtual characters. Judith Butler notes that “[a]s in other ritual social dramas, the action of gender [and sexuality] requires a performance that is repeated. This repetition is at once a reenactment and re-experiencing of a set of meanings already socially established; and it is the mundane and ritualized form of their legitimization.”³² Repetition not only legitimizes and naturalizes the character's gender, but also reestablishes our relationship of power with the virtual character and allows the virtual body to function as a “material-semiotic object,” that is, naturalizing the function and

visibility of the body into one presence.³³ Therefore, Mya's appearances at events such as the Oscars and her ubiquitous mobility make her a "real girl" by virtue of sheer repetition (a mantra without boundaries without limits as advertising and media infiltrate into cars, phones, mobile phones, and clothing), and through the merging of the material and technological. Whether or not the real body plays into the picture, data embodied through Ananova, Synda, and Mya, as well as other digital bodies that embody information flow, fascinate us.

Looking at these characters through a semiotic lens, we run into some rather difficult questions. If the images of bodies stand for "real" human bodies as interface experts claim, and the ideas they convey are data, or news, how is the meaning of the data associated with these bodies? What do they construct? One immediately looks to all newscasting and storytelling forms wherein the human body stands as a transmitter to the receivers. A data body is not just data—when virtual bodies are created and represented they acquire additional meanings. Signs, the popular saying goes, are never innocent.

This indicates that there are three separate and simultaneous "writings" of the character in virtual spaces: one is the animation embodied as the character itself, one is realized through interacting with the character, and one is witnessed through the character's curious voice. How does the visual regime cope with the addition of voice to these virtual characters? The role of the human sounding voice and its synchronization with the digibodies onscreen has become an important aspect of virtual characters and hosts. Since the invention of the telephone, women's voices have been the standard, "soothing" voice of information, and virtual female bodies are still acting in this role. Whether it is the frequency range or social allusion to woman as providing helpful services remains a question, for the popularity of women's voices' embedded in mechanical devices includes most subway systems, airline recordings, and the like. What is not in question, however, is the haunting, surreal quality voices have, and in particular, the recorded or synthesized voices of virtual characters. Although most computer game characters have short dialogue lines and grunts, virtual hosts are always talking: offering weather updates, stock tips, and round the world news.³⁴ In his book, *A Lover's Discourse*, French philosopher Roland Barthes explores the idea of texts that speak, and the speaking voice itself is preserved within written media. He asserts, "we do not know who is speaking; the text speaks that is all." For Barthes, the text is enough; the living quality we assign to voice is simply another fiction. To him, the voice is the terrain of death and signals absence, the past, silence—the living quality of the voice is a false illusion:

It is characteristic of the voice to die. What constitutes the voice is what, within it, lacerates me by dint of having to die, as if it were at once and never could be anything but a memory. This phantom being of the voice is what is dying out, it is that sonorous texture which disintegrates and disappears. I never know the loved being's voice except when it is dead, remembered, recalled inside my head...³⁵

By reading Barthes, we understand that voice can be tragic, for it refers to a once living or vanished object, leaving a recording to remain in a dying state, only in human—or computer—memory. As a result, virtual characters' voices are specters, created from data alone, and thus they refuse the human aspect of speaking and transfer it to an a-human space.³⁶ Perhaps the “unreal-ness” gives the subject a breathing space, room to acknowledge inadequacies and lacks through the lack in the virtual character. Or perhaps the virtual voice acts to further jar the semiotic system away from assigning symbols to signs.

Here I am reminded of the African American women who were brought into studios to dub in the singing voice of white stars in popular Hollywood films of the 1940s.³⁷ Although Hollywood tried to problematically eliminate the representation of African American female body, it seems that digital entertainment goes even further, working to efface all women's bodies. Swapping representational practices and effacing bodies has always held political consequence.

III. Mappings

As fascinating as they are, Mya, Ananova, and Syndi are only part of a much larger system of encoding the virtual woman. From striptease Web news programs (stripping and nude women reading the Webcasts at nakednews.com) to geographical and medical imaging, the human body undergoes multiple mappings.³⁸ Although realistic digital agents command WAP devices such as phones and even automobiles, these same devices can also track the body; as new technologies enhance our ability to monitor and locate human bodies around the world, and this ability does have an impact on the physical body. The use of surveillance, global positioning systems (GPS), and health/bank/credit records to chart human movement is widespread and not as shocking or outrageous to citizens as one might expect. Taipei and other large, international cities have long had automatic “speeding-ticket” cameras trained on major streets. The use of Internet cookies is also widespread; as artist David Rokeby notes in his description of his 2001 installation “Guardian Angel,” a work that uses surveillance to track, record, and recognize human faces,

Cookies are convenient. It is strangely pleasant to be recognized on arrival at a web-site you have used before. I shop on-line. I fill in forms in exchange for free software. I use my bank's debit card for purchases (though I swore I never would!) . . . It is highly inconvenient not to “trust” on-line corporate entities.³⁹

GPS systems, and surveillance systems have implications for certain kinds of bodies over others: mapping the body in space and time has particular significance for women. “Nannycams” and networked pornography have made the surveillance and/or web cam primarily the domain of the image of woman. This kind of voyeurism has taken hold with reality television, as well as god games such as *Dungeon Keeper* or *The Sims*, and the proliferation of Webcams.

Whether it is because users are attempting to find themselves reflected in others, or they are interested in the feeling of connection that comes from such voyeuristic acts, the female body lies at the center of such interaction. Brian Curry, founder of the Webcam company Earthcam.com, notes that in a few hours of watching, Webcammed situations, voyeurs “create an affinity with the people they’re looking at.”⁴⁰

As in space, a second mapping occurs within the body. Although we can encode data to create female forms such as our example agents, there has been a long tradition of “mapping” the interior of the human body. Control paradigms, subjectivity, and imaging technologies have traditionally reduced the category of “woman” to symptomatic images. For example, studies of Charcot’s nineteenth century images of “hysterical” women to the recent “visible woman” project explored by Kate O’Riordan and Julie Doyle in their essay, “Virtually Visible: Female Cyberbodies And The Medical Imagination” show problematic historical and contemporary medical representations of the body through new digital imaging technologies such as CT and MRI.⁴¹ In the visible woman project, the first phase of identification is to orient and segment the human body data points. Normative notions of gender both mark and form the imaged body. O’Riordan and Doyle argue that the body is represented through its relationship to technologies, but do not incorporate an experience of the flesh. In addition, many women artists explore this interior body mapping as a particular concern for women. Montreal-based Char Davies is an artist who has produced series of images known as the *Interior Body Series* and in her VR (virtual reality) work extends her exploration to include bodily organs, blood vessels and bones. In a way she is turning the gaze of medical imaging upside down by creating the interior of the body as an aesthetic rather than material object.

Third, the rise in popularity of digital characters has coincided with an increased fascination with bodies and body parts on the part of the medical establishment, which desires to map the body genetically. In February 2001, scientists announced the completion of the human genome. Even though the 20,000–40,000 human genes are closer genetically to fruit flies than to other creatures, we rush to have our own DNA trademarked in an effort to achieve immortality. In the sequencing phase, researchers identified the approximately 3.5 billion chemical letters (A, C, G, T) that make up human DNA, comprising “the most important, most wondrous map ever produced by humankind.”⁴² If biology is now information, then information design must also be considered as an organic endeavor. Although the study of morphologic form (e.g., the anatomical forms of organisms) is no longer a popular discipline, the study of biological information in DNA or RNA is the heart of present biological interest. Although entertainers and media producers seek to turn data into human bodies, research scientists such as those working on the human genome project seek to turn the body into data. Information has substituted for form as the preferred key to the fundamental problems of biology.

The human genome project is problematic for many because of the privacy, social, and modification issues that are inherent to such an undertaking. Most striking are issues raised by genetic screening, and the ideas of “norms” created by such prospects. Bioethical issues such as how we think about normality and abnormality arise instantaneously. And again, women are at the center of this debate, “because of their central role in reproduction and caregiving”; women are affected “differently but also more significantly than men by the information emerging” from the results of the Human Genome Project, potentially devaluing their roles.⁴³ With new possibilities arising from the ability to alter our genetic code, we need to look at the inevitable transformation of human kind in light of the virtual revolution in the critical light that authors such as N. Katherine Hayles, Robert Cook-Deegan, and others propose.⁴⁴

IV. Virtual “Breakups,” Virtual Desire

We have considered how we trace bodies in space, peer at them internally, and design and track them numerically with genetic code. Digibodies are mapped with the desires of their creators, and their creators are on a quest for a great Real. What is this real? How do we know it when we encounter it? And why this desperate need to know, to look at the face of the real? The balance between real and unreal is perhaps nowhere more striking than in the realm of VR experiences. To look at databodies in order to understand them in a larger cultural context we must examine their construction and their “femaleness,” as these data conduits; the fact that almost all examples are inscribed as female makes obvious the significance of gender in this type of information representation and user relationship. With the possibility of deconstructing and reconstructing the bodies, the way in which an understanding of gender is drawn out, mapped, and manifested in these networked characters is essential.

Images of women’s bodies, fictional or otherwise, have pervaded popular media for a century of North American culture. The body’s surface has been written and inscribed in media and popular culture: segmented, distorted and distended for selling consumer goods through sexual enticement. Bodies evolve into datasets: even in animation the face and body are segmented to create “talking heads.” The moving parts are conceptually and technically separated from the lesser-moving aspects of the head and body. The Internet’s incorporation of bodies, however—from pornography to online games to news sites—has a particular significance for women’s bodies.

First, let us explore the means of production of digital images. These segments that create virtual characters are not simply components of a whole, but discrete parts in and of themselves. As an everyday example, the ubiquitous Adobe Photoshop logo has, for almost the last decade, always included the long-clichéd eye collage on its box, and the eye as its famous application icon. In 2001, the photographic eye and associated collage was switched to a nonphotographic representation. Such a shift in this particular year is important, for it showed

the current sense of fluidity between photographic and computer-generated imagery. Digital media has quickly and directly dispensed with photographic images as the primary focus for representation, instead investigating the depth, manipulability, and maneuverability of 3D and vector based images.⁴⁵ In other words, artificial signs that have no link to the visible, “natural” world are replacing our previous preferences for photo realism. It is not only logos or packaging which have signaled this shift from the photographic, from the whole to its parts. Software applications themselves have increasingly offered users not only control of images but of image parts in both time and space. The use of layers, symbols, and other elements easily separated and individualized has been an invaluable part of each software upgrade in the most popular programs. In addition, and perhaps more importantly, segmentation has become a philosophy in processes related to media production and object oriented programming, software segmenting objects, elements, and processes, allowing us to create believable scenes asynchronously.

At National Taiwan University’s computer science department, an innovative project utilizes simple photos of the human in order to “bring the virtual character to life.” Movement was one of the first areas focal areas in popular software packages so that relatively untrained users could, for example, create inverse kinematic animation to simulate human movement without parsing stream after stream of real user body data. At NTU, teams use custom software to choose areas such as the mouth, eyes, and face of simple 2D photographs and use algorithms to mathematically control the 2D image so that it can be lip synched to voice information. Consequently, not only is a former whole segmented, proportioned, and divided, but the focus remains on these segmented elements. The digibody—its movement, voice, and expressions—can be created mathematically from a simple photograph. This process, however, is being superseded by accurate 3D modeling and scanning techniques that offer us a new body while losing the referential link to the material world through alternating a few data points.

Virtual bodies are easily mastered and in many examples in computer games show that one can derive great pleasure from controlling virtual bodies. Web sites with controllable characters create a tension between dichotomies such as inside and outside, knowing and controlling, recognition and anonymity, mastery and submission, and this tension continues to draw users back with a desire to interact. The interaction with the characters is ritualized—we are told when to click, generally we repeat actions such as opening and closing windows, and our roles are limited, defined. The characters quickly become a familiar interface while possessing seemingly infinite sequences or combinations of logical elements. Based on the fragment, the layer, and the repeated action, sequence or word, their role is to generate and maintain a system of expectations.

Virtual information service scenarios are quite unlike television news programs. TV news traps the anchors in the “head and shoulders” frame, rarely

allowing movement. However, U. S. TV news conventions dictate establishing shots of the set, and this exposes the apparatus of the production that produces the illusion. Virtual newscasts, however, efface the means of production. We do not see a real woman behind the voice of Mya, for example; we do not see the development of the character or the context of its production. The processes and code are hidden, or if they are exposed they are bound ritualistically in “behind the scenes” movie clips and special “making of” add on products. This effacement is counter to Duchamp’s proposition in the large glass; Duchamp’s bride woman is not a doll, for dolls can have moving parts hidden from view: “if the woman in the top of the Glass was in separate parts, her construction did not make a mystery about it.”⁴⁶ When the digibodies do not have evidence of the labor that goes into their development and the bodies are segmented into products themselves, they become fetishes.

Two models offer examples for virtual body fetishism: the Marxist commodity fetish and a psychoanalytic model. First, Marx claims that a commodity’s form mystifies the labour, the actual work involved in an object’s production, so that the object acquires mystical (if distorted) properties and becomes a “commodity object.” Because virtual stars are products created by the latest technology, delivered on hot commercially important computer objects, this approach offers us one way to look at virtual desire. Second, the user’s desire of the virtual character can be read as a form of sexual fetishization. Like Barthes’s comparison of a reader to a lover, a participant who desires to control, devour, and name the object of desire, the interest in virtual bodies from consumers is sustained from the appeal of the unanticipated and mysterious or by focusing on parts in order to control, comprehend, and conquer. Both of these approaches classify the fetish as an object possessing a special energy and power. The role of fetishism, particularly the fetishization of the woman, in digital media is of great interest to any critical understanding of this new landscape, for digibodies are created from discreet elements and are positioned within a command and control paradigm of desire. Thus what is proposed here is that the means of this particular kind of 3D artifact production allows the body to be thought of as segmented and zoned. The breaking up of the female body into discrete elements, i.e., the creation of the image of woman as series of objects, is in terms of fetishistic scopophilia, focusing on the object or body part used for sexual enjoyment. The fetish is a specificity—as Haraway terms it, the “thing-in-itself.” It signals, above all else, perfection, isolation, and containment.

As the databodies are both objects in and of themselves and simultaneously self-referential, we must wonder about this seemingly enclosed system that serves to abstract and yet manifest them again, forever a process of regurgitation and digestion. Barthes’ effective stretching of semiotics to include images, codes, and cultural systems prefigures cyborg methodologies and allows us to examine this hybrid creature—a creature we can define as one not of materiality or even as a human and machine combination, but rather one of referential and

non-referential elements. Digibodies, constructed from text, create a text-based shape: “the text itself . . . can reveal itself in the form of a body, into fetish objects, into erotic sites.”⁴⁷ Yet the resemblance to the physical human tempts us to draw this link. We measure characters at first on their proximity to the real: her movement is realistic, or her hair is not very realistic; then we move inwards, tripping down a chain of code signifiers. Whatever body part is chosen by animators as significant or nomadic, or thought by the audience as realistic or not, the character is replaced by a series of costume objects which become mobile disguises, fetishes. Even if the fetish is based on a “natural” phenomenon—a birthmark, for example—it positions participants into an artificial situation. By the very nature of its artifice the fetish erases the means of production of its own illusion.

The act of seeing the body in discreet pieces has its roots in the desire that Jean Baudrillard discusses as seduction. Seduction is founded upon the artificial; and while Baudrillard is problematic for feminists, his work offers an interesting argument for our desire to watch, control, and interact with digibodies. For Baudrillard, the shift from the real to the hyperreal occurs when representation gives way to simulation, and he insists that women’s power relies on their capacity for artifice, disguise and seduction.⁴⁸

Virtual characters—specifically online news and game characters—are popular, hyperreal pleasures. Such popular manifestations of pleasure are not founded on classic ideas of “quality art,” but rather popular desires. Roland Barthes differentiates between desire and pleasure in *The Pleasure of the Text* (1975) and insists that current consumer culture lives for desire (to him, the absence of pleasure); he then compares popular pleasures to sexual desire, and our postmodern experience of them akin to a kind of sample or demo, hallmark notions of the digital age: “I impose upon the fine surface: I read on, I skip, I look up, I dip in again.”⁴⁹ The segmentation, control, and maneuverability of VR characters, their surfaces, are navigated in a ballet of pieces, moments, fragments. Whether playing games like *The Sims* or *Black and White*, or simply just getting the news, humans are mesmerized by virtual characters: their movement, their unchanging steadiness in the face of our distractions beg the question of what interaction could bring to them. We click all over them like ants to honey, wanting them to react and offer stock quotes, a fast news fix, a protest, a wink. Sometimes, they react too slowly, voices steady, appearing calm, effacing the processing and framerates that generate them wherever, whenever we want them. These agents are also constructed by the surroundings in which they are birthed into their digital universe, on the frontier, organisms that are extensions of the network itself. And they are real, but a kind of real we are not accustomed to categorizing.

We users have a particular fascination with exposing the real, of seeing behind the scenes, uncovering detail. Reality has become dislocated, homeless, and it floats free as a hyperreality is created in its place, able to exist through the breakup of the body parts while the seduction of the partial ensnares the

users. But what is a way to reject the formation of the body as a fetish or commodity object, if our way of discovering the body object is still through a visible system? The female digibody has become a pure signifier which does not carry meaning beyond its appearance—or does it? The idea of gender as performative, rather than a naturalized or inherent biological entity, is useful when considering gender and the digibody. With virtual personae, the character and creator are indeed separated, and the relationship is open to change, multiplicity, and radical identity shifts. But a curious thing happens with digital characters: the manifestation of the female characters are so far down the chain of signification that their connection to any real female body becomes blurred. Here, Barthes' study of Bunraku theater is a useful resource for our examination of virtual characters, for he examines the idea of performed gender within artificial surroundings and character-agents external to the flesh body. Barthes' notes that men playing women characters in Bunraku do not "copy Woman" but rather work to signify her; their performance is "not bogged down in the model, but detached from its signified; femininity is present to read, not to see."⁵⁰ The conjoining of both sign and passivity thus create the figure of woman as a semiotic figure, an "ideal woman agent" (60).

V. Social Implications of Embodied Data

The question of the Real continues with the investigation of gender, for both are inextricably intertwined. The semiotic distance Barthes proposes does not address issues of culture, and historical context. In further discussion of theatre, Barthes insists that the use of a "real" woman in the role of a woman character would actually be detrimental, for this would appear as an attempt at realistic representation and would lose the possibility for true "expressivity" (89). From a feminist perspective, however, such a copy of woman is problematic for it is created and defined by media creators within a cultural context of patriarchy; under such careful control, it seems as though there will be limited innovations and changes to the power structure; to the ways in which the digital woman is created, packaged, and the kinds of powers she will truly possess. Claims that female digibodies have, in fact, a slim indexical link to the idea of woman suggest that if these images are not really like real women, they do not have to be taken seriously.

Digital characters, however, are in fact encoding methods that inscribe both gender and cultural norms. If we compare them to the way we generate letters to form words, the equivalent tie is between the word and the idea. This gap, Barthes proposes, is like theatre in which characterizing "Woman" transcends nature and image to become an idea, "and as such, she is restored to the classifying function and to the truth of her pure difference" (91). This brings us to the key point in thinking about women digital characters: media makers continue to create eruptions such as Ananova's green hair, reminding us with such markers and eruptions that these characters are digital, that is, distinct from the real.

Do we desire the markers of difference on virtual characters?⁵¹ Such markers have helped avoid the inevitable questions about representation and virtual characters; game makers, for example, easily dismiss stereotypical depictions of women in games because they are, after all, fictional, exaggerated characters. The social implications of embodied data have the potential to be politically reductive. *Tomb Raider* fans note, for example, that if one were “to see women built like this in real life . . . it would be kind of scary.”⁵² This kind of discursive distance has kept games and game characters in the realm of either the joke (i.e., Lara Croft is as exaggerated as a blowup doll) or the technology fetish (the graphic technology that produces the character is in itself the interest). But what happens when this critical distance is erased, the markers of difference elided by a new type of life form? This process is beginning to develop with the *Final Fantasy* film, for example, and will continue to be perfected.

The nature of the digital medium is peculiar: at once it is networked and fluid, yet at the same time individual, tailored, and fetishistic. It seems that virtual characters are based on Western, human norms of acting, conventions of news giving, and conversations. As her Oscar debut suggests, even Mya wants to be on a talk show. Barthes would argue for us to embrace the plastic, embrace the artifice, and be one with the code.

VI. Code Shapes

With the rise of digital media and its capacity for interactive systems, information design at the interface has become an important site for meaning creation, especially to interface gurus Ben Schneiderman, Donald Norman, and Jacob Neilson, among many other high-tech industry workers and consumers of digital products. A visual interface surrounds almost every user of technology, creating a semiotic home for all users, ideally meeting their task, entertainment, and social needs. Interfaces must be easy to use, even “intuitive.” Systems and interfaces, however, can be created more or less usable for regular consumers. For idealistic interface guru Donald Norman, the human is clearly the preferable system: “We are analog beings trapped in a digital world, and the worst part is, we did it to ourselves.”⁵³ Norman explores what he calls “the horrible mismatch between requirements of these human-built machines and human capabilities.” He cites a long list of dichotomies between machines and humans: “Machines are mechanical, we are biological. Machines are rigid and require great precision and accuracy of control. We are compliant. We tolerate and produce huge amounts of ambiguity and uncertainty, very little precision and accuracy . . . Analog and biological” (15). Digital systems still do not excel in processing ambiguity and imprecise situations.

The interface research conducted at Xerox PARC during the 1970s established most of the visual and functional conventions of present graphic user interfaces, and these conventions helped make the screen reality into a lived reality.⁵⁴ New media theorist Terry Harpold notes, “[a] subtle thing happens

when everything is visible: the display becomes reality.”⁵⁵ In other words, the distance between the real and the virtual, much discussed in cybercircles, collapses into itself. The creation of digital characters and digibodies makes the display the object of our desire. New creatures are created from texts, and by virtue of their computational environment, are machines of the eventual erasure of the symbolic. From the physical aspects of the computer (keyboard, mouse) to the internal interfaces (Web page, application graphical user interface) computers offer themselves through signs. When we write text, for example, that will appear in a book such as the one you are holding, the signs we produce to create ideas are a common currency. In the computer, ASCII text represents the letters in the word “sign” (already a meta sign) as “115 105 103 110.” This chain of signifiers continues down the line in the various processes a program runs via the processor. However, an interesting thing happens when we reach through the operating system to machine code. At the machine code level, things are different: machine code exists and controls in and of itself, a place where the sign system is replaced by impulses, 0s and 1s, jolts. It is a place, to use Baudrillard’s words, where “truth, reference and objective causes have ceased to exist.”⁵⁶

If we consider data and information, even computer code, as texts, Barthes might suggest we derive our pleasure from the collision of a text’s figurative aspects with its informative functions. No longer does an object have to be material to exist. We follow an object oriented programming model here: at the simple invocation of an instance of an object—Plato’s shadow, if you will, in relationship to the object—the object exists, even if only in code. Thus although Harpold sites a problematic shift at the graphic itself, perhaps the root of the issue lies at a much more conceptual level. Code is shaping our consciousness and our culture.

Uncertain signs are unstable territories, and we work to fix them to the familiar. Good examples of this principle come from N. Katherine Hayles’s observations that along with the mechanization of language, there has been a one-to-one correspondence with language to action or object; unlike computer actions, which can, through their abstract association with a particular text or action perform the insignificant to the monumental with the touch of a button (such as the “send” on a fiery email) typewriter keys or printing press blocks, are directly related to the script they produce.⁵⁷ However, virtual portals are appearing all over the Internet. They represent a critical moment of the virtual age; Arthur and Marilouise Kroker write that we are in an era “typified by a relentless effort on the part of the virtual class to force a wholesale abandonment of the body, to dump sensuous experience into the trashbin, substituting instead a disembodied world of empty data flows” (see Figure 8.4).⁵⁸

The move toward mobility of information means the shape of the machine must better adapt to our own bodies, to complete the merger of network and embodiment. In fact, our desire for the latest information, our wish to have a personal helper, our secret dream of the “genie in the bottle” manifests online; we are living in an age when that which “was previously mentally projected, which

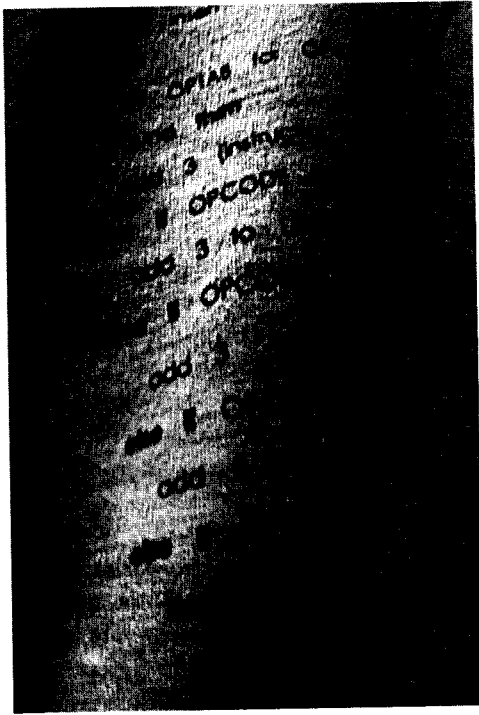


Fig. 8.4 Chen Ding Yun's clothing is covered with code, showing the tension between the physical and the code environment. 2001. Photograph by Mary Flanagan with the cooperation of CML lab, directed by Ming Ouhyoung.

was lived as a metaphor in the terrestrial habitat is from now on projected, entirely without metaphor, into the absolute space of simulation.⁵⁹ In this case, the blurring of the virtual body with these bride bodies by their means of distribution and task (erupting off of our desktops from websites with news for us in little boxes) can tell us a great deal about our relationship with virtual characters and desire. For as technology has taken a shape, it has taken a shape the creators of the technology desire, morphed into a form (information), creating a body.

There are several implications of this shift. First, these pleasurable character/services offered by industry equate womens' bodies with service and ubiquity; these women are "scattered into x number of places, that are never gathered together into anything she knows of herself."⁶⁰ The ubiquity poses the question about the social importance of ubiquity and access, and the more accessible, the less valuable. Another implication of this trend is towards the loss of the body, which numerous writers continue to postulate. The body's racial, aged, and sexual categories are interconnected, but in virtual characters, these combinations

are constructed as personality features rather than historical or culturally specific categories. Rather than focus on this erasure, however, this essay asks more about the virtual body and its own lived reality and its consequences on biological women's bodies.

Who is this third creature, this creature of code? Bukatman has called digitally created bodies a "literal hollowness," creatures of mathematical persuasion that are as deep as a surface, not as an interior. In his analysis, all elements of the image are reduced to digital bits, which are reformed before our eyes as the masquerade of the solid, of the real, while there is, in fact, "nothing inside."⁶¹ But perhaps nothing has turned into "the thing-in-itself;" like the relationship of puppet performer and puppet, perhaps our virtual puppets have "no more strings. No more strings, hence no more metaphor, no more Fate; since the puppet no longer apes the creature, man is no longer a puppet in divinity's hands, the *inside* no longer commands the *outside*."⁶² Does the text have a human form, is it a figure, an anagram of the body? asks Barthes. Clearly, "information" has taken over where "form" used to suffice. This shift represents a semiotic transfer, a way in which the flow of information has become re-imagined and embodied. In *The Pleasure*, Barthes writes, "Text means tissue. We are now emphasizing, in the tissue, the generative idea that the text is made, is worked out in a perpetual interweaving; lost in this tissue—this texture—the subject unmakes himself, like a spider, dissolving in the constitutive secretion of its web."⁶³

I return now to N. Katherine Hayles's idea that information "is never present in itself." Perhaps the digital bodies discussed in this essay do have a presence in and of themselves. On the surface, these hyperbodies seem to be slowly giving way to more "realistic" representations as technology permits us to visualize more of the body than ever before. Digital media has been working toward creating multidimensional perfection. Blurring the real, their perfect bodies are unable to contain the strange eruptions of shiny plastic skin, of green hair, of almost slithering movement. Like melodrama and pornography before them, digibodies must manifest the excess of the perfect in hyperreal "bursts," a product of the overproduction of signs of the feminine and the virtual. Because of his apt writing about media personalities, Steven Whittaker might help us see that female digital characters turn into a kind of same-sex transvestite, so overproduced that they would become a kind of camp spectacle of a woman.⁶⁴

Indeed, Baudrillard would describe this seduction of the collective consciousness, when we could be one not only with the data but with the digibodies, in terms of seduction: "There is no active or passive mode in seduction, no subject or object, no interior or exterior: seduction plays on both sides, and there is no frontier separating them."⁶⁵ The experience is undeniably exhilarating:

Anyway, feel a million flurries of now, a million intangibles of the present moment, an infinite permutation of what could be... the thought gets caught... You get the picture. In the data cloud of collective consciousness, it's one of those issues that just seems to keep popping up.⁶⁶

Without the link to the signified, digibodies are electric phantoms, almost haunted flesh, shells which have no link to the material or physical form of the sign. They are a semiotic flesh, a coded flesh, code changed to flesh, code itself. We are in a quest for perfection by way of the development of our noiseless music, through our data, our carefully scrubbed genes—our numeric flesh. The fields of human computer interaction, graphic design, genetic engineering, and computer science must confront the merger that has already happened between code and bodies; many of us no longer need look at the face of the real and know it, recognize it, and have no urge to look further, to assign extra meanings, signs, readings. We need new critical practices which recognize this new body form and to create ethics for this new body form. If our thoughts, actions, and communications have literally become digital signal and binary image, it is important that we look around us in the offline sense. Digital bodies can deny the situations of real bodies, real women, real class, and poverty issues in the focus on seduction.

Meanwhile, real physical bodies are reflecting the semiotic shift. Images of broken, pierced, incomplete, amputated, ruptured and fragmented “horrible” bodies proliferate in American culture just as our media strives to allow containment, control, and artificial perfection, a closed circuit where signs replicate and mutate into other phantom realities and pseudolives. As Barthes noted, “Imagine an aesthetic (if the word has not become too depreciated) based entirely (completely, radically, in every sense of the word) on the *pleasure of the consumer*, whoever he may be, to whatever class, whatever group he may belong, without respect to cultures or languages: the consequences would be huge, perhaps even harrowing.”⁶⁷

Notes

1. I would like to thank Meg Knowles for introducing me to *Desk Set*, Roy Roussel for reintroducing me to Barthes, Cal Clements for bringing in Duchampian dimensions, Frank Miller, the students at National Taiwan University for involving me in their digital embodiment projects: Perng Guo Luen, Carol Chia Ying Lee, Wei Ru Chen, Alex Wan-Chun Ma, I Chen Lin, Cindy, Super Yeh (Jeng Sheng), Wei Teh Wang (bearw), Murphy, Joyce, Jun Wei Yeh, Cindy Chi Hui Huang, Kan Li Huang, and Eugenia Yijen Leu and Professor Ming Ouhyoung for his warm welcome and invitation to visit NTU’s Communications and Multimedia Laboratory, where this article was written.
2. Although the name EMERAC is a fictional name play on the real ENIAC activated at University of Pennsylvania in 1946, the real IBM logo plays a prominent role in *Desk Set*, especially in the credits sequence.
3. The characters also display an ambiguity about what a shift to marriage would mean.
4. Mary Flanagan, “Mobile Identities, Digital Stars, and Post-Cinematic Selves,” in *Wide Angle: Issue on Digitality and the Memory of Cinema* 21 (1999): x.
5. Vivian Sobchack and Scott Bukatman offer criticisms of computer graphics images in the 2000 collection *Meta-Morphing: Visual Transformation and the Culture of Quick Change* (Minneapolis: University of Minnesota Press, 2000). In my own essays, I specifically look at systems that produce 3D space. See “Navigable Narratives: Gender and Narrative Spatiality in Virtual Worlds,” *Art Journal* 59 (Fall 2000): 74–85.
6. N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: The University of Chicago Press, 1999), x.
7. Peter Skagestad, “Peirce, Virtuality, and Semiotics” *Paideia*, <http://www.bu.edu/wcp/Papers/Cogn/CognSkag.htm>. Accessed May 2001.

8. Daniel Gross, "Merging Man and Machine: The Future of Computer Interfaces Evolving in Japan," *Computer Graphics World* 14 (May 1991): 47–51.
9. French history painter Paul Delaroche is particularly remembered for his much-quoted remark, on seeing the Daguerreotype, that "from today, painting is dead!" However, he was a staunch supporter of photography, particularly the Daguerreotype. See Robert Leggat, <http://www.rleggat.com/photohistory/history/delaroche.htm> (1999).
10. Andreas Huyssen, "The Vamp and the Machine: Fritz Lang's Metropolis," in *After the Great Divide: Modernism, Mass Culture, Postmodernism* (Bloomington and Indianapolis: Indiana University Press, 1986), 70.
11. Klaus Theweleit's study of Weimar Germany is a text I find myself returning to again and again, for the proliferation of images of women and technology is truly formidable. See Theweleit, *Male Fantasies: Women, Floods, Bodies, History*, Two Volumes, trans. Chris Turner (Minneapolis: University of Minnesota Press, 1987).
12. Dalia Judovitz, *Unpacking Duchamp: Art in Transit* (Berkeley: University of California Press, 1995), 52.
13. Jean-François Lyotard, *Duchamp's TRANS/formers*, trans. Ian McLeod (Venice, CA: The Lapis Press, 1990), 161.
14. As Francis Naumann notes in his exposé article about Marcel Duchamp's intimate life, Duchamp rather imagined himself as one of his Large Glass bachelors, and many years after the work was completed, he found the bride: surrealist sculptor Maria Martins. Francis Naumann, "Marcel & Maria," *Art in America* 89 (April 2001): 99.
15. Duchamp, in Pierre Cabanne, *Dialogues with Marcel Duchamp*, trans. Ron Padgett (New York: Da Capo Press, 1988), 42–3. To the artist, the ideas presented in the work were more important than the realization of the work, especially Duchamp's interest in the fourth dimension which he explores with the tactile love metaphor between bride and bachelors.
16. From Tristan Tzara, "Dada Manifesto of 1918," <http://www.english.upenn.edu/~jenglish/English104/tzara.html>. Accessed 2001. Similar to other Dada artists, Duchamp worked with logical systems towards the abolition of logic.
17. Judovitz, *Unpacking Duchamp*, 60.
18. Many artists and art historians value Duchamp because of his exploration of gender. In the "In a Different Light" show organized by curator Lawrence Rinder and artist Nayland Blake, the curators focus on Duchamp's work as they track queer sensibilities through various art movements. See Michael Duncan, "Queering the Discourse: Gay and Lesbian Art, University Art Museum, Berkeley, California," *Art in America* 83 (July 1995): 27–31. The authors of the exhibition catalog argue that Duchamp, more than other artists, "opened a space for queers to formulate points of resistance to the monolithic structure of culture"; see Nayland Blake, Lawrence Rinder and Amy Scholder, *"In a Different Light" Exhibition Catalog* (San Francisco: City Lights Books, 1995), 14.
19. Lyotard, *Duchamp's TRANS/formers*, 114.
20. See note 3.
21. Michael H. Martin, "The Man Who Makes Sense of Numbers: Yale Professor Edward Tufte Dazzles Business People by Making Rational the Data that Rule Their Work Lives," *Fortune* 136 (27 Oct 1997): 273–6, paragraph 4.
22. See, for example, Horipro's 1996 launch of virtual persona Kyoko Date and more recent incarnations of characters such as Cyber Lucy, the virtual host of the children's game show *Wheel 2000*.
23. See <http://www.highgrounddesign.com/design/conv99frame.htm>.
24. <http://www.highgrounddesign.com/design/dcessay995.htm>, paragraph 3.
25. The "Tiborocity: Design And Undesign by Tibor Kalman 1979–1999" exhibit at the New Museum of Contemporary Art in New York featured these controversial images.
26. http://www.ananova.com/about/story/sm_128668.html?menu=about.whyyerehere.
27. See <http://www.motorola.com/MIMS/ISG/voice/myademo/myademo.htm>.
28. Toby Grumet, "Digital Dame" *Popular Mechanics* (10 January 2000) <http://popularmechanics.com/popmech/elect/0011EFCOAM.html>. Accessed 1 April 2001
29. From Press Release, published by Digital Domain www.digitaldomain.com, 04/25/2000: "Motorola hopes a Computer-Generated Character Will Link the Real World with the Virtual One."

30. Iain Blair, "Say Hello to Motorola's Mya" *Post Industry* (April 28, 2000), <http://www.postindustry.com/article/mainv/0,7220,109815,00.html>, paragraph 2.
31. Blair, "Say Hello," paragraph 11.
32. Judith Butler, *Gender Trouble: Feminism and the Subversion of Identity* (New York: Routledge, 1996), 178.
33. Donna Haraway, *Modest_Witness@Second_Millennium: Femaleman Meets Oncomouse: Feminism and Technoscience* (New York: Routledge, 1996).
34. Their constancy makes this author wish for fast forward buttons: for me, the nonlinearity of digital media has been a blessing of time. Skimming has taken on new meaning with the ability to cover multiple windows and multiple news sources on one desktop in a matter of seconds.
35. Roland Barthes, *A Lover's Discourse: Fragments*, trans. Richard Howard (New York: Hill and Wang, 1978), 114.
36. Animated characters are only identified by voice when shown in noninteractive form such as cinema or major television programs; online characters and game characters' voice talents are rarely identified and publicized. Films such as *Toy Story* and *Antz*, and programs such as *The Simpsons* clearly identify the voices of the actors.
37. Patricia Mellencamp, "Making History: Julie Dash," *Frontiers* 15 (Winter, 1994): 76–102. Julie Dash's *Illusions* is a sensitive film that addresses the issues of race, gender, and feminism.
38. Tamsen Tilson, "Bare Fact: News Site is a Real Hit," *Variety* (5 Feb 5 2001), 32.
39. David Rokeby, "Guardian Angel," <http://www.interlog.com/~drokeby/angel.html>, paragraph 11.
40. Chris Taylor, "Looking Online," *Time* (26 June 2000), 60.
41. Kate O'Riordan and Julie Doyle, "Virtually Visible: Female Cyberbodies and the Medical Imagination," eds. Mary Flanagan and Austin Booth, *Reload: Rethinking Women in Cyberculture* (Cambridge, MA: MIT Press, 2002).
42. Quote of U. S. President Bill Clinton, from CNN Online, "Human Genome To Go Public," (February 9, 2001), <http://www.cnn.com/2001/HEALTH/02/09/genome.results/index.html>.
43. See Mary B. Mahowald, Dana Levinson, Christine Cassel, Amy Lemke, Carole Ober, James Bowman, Michelle Le Beau, Amy Ravin, and Melissa Times, "The New Genetics and Women," *Milbank Quarterly: A Journal of Public Health and Health Care Policy* 72 (1996): 239–283.
44. N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (London and Chicago: Chicago University Press, 1999); Robert Cook-Deegan, *The Gene Wars* (New York: W.W. Norton & Co., 1994); *The Human Genome Project: Deciphering the Blueprint of Heredity*, ed. Necia Grant Cooper (Mill Valley, CA: University Science Books, 1994).
45. Early CD ROMs featured important work such as the CD "I Photograph to Remember"; such photoreal media would unlikely be produced today.
46. Lyotard, *Duchamp's TRANS/formers*, 182.
47. Roland Barthes, *A Barthes Reader*, ed. Susan Sontag (London: Fontana Press, 1982), 410.
48. Jean Baudrillard, "Fatal Strategies," in *Jean Baudrillard: Selected Writings*, ed. Mark Poster (Stanford: Stanford University Press, 1988), 185.
49. Roland Barthes, *The Pleasure of the Text*, trans. Richard Miller (New York: Noonday Press, 1980), 11–2.
50. Roland Barthes, *The Empire of Signs*, trans. Richard Howard (New York: Hill and Wang, 1982), 53.
51. I am very much informed while writing this article by the computer science students at NTU (mostly male), many of whom have images of cute Japanese girls as their monitor background images. In this case, the image of woman is twice removed: first, by her "Japanese" ethnic differentiator, very much a desirable "other" in the eyes of young Taiwanese men. Then, the images themselves; the photos make them all look a little plastic, a bit too shiny and smooth, much like Mya's artificial lighting. In fact, since I could not tell if the stars were real humans or not, I had to ask. To some of the students, it did not really matter.

52. "Quote of the Day: True Love: Possible Justification for Liking Video Game Babes? Or Argument Against It? *IGN For Men*, <http://formen.ign.com/news/12182.html>, 16 November 1999.
53. Donald Norman, *The Invisible Computer* (Cambridge, MA: The MIT Press, 1998), 1.
54. The attribution of the interface always causes a lively argument; here I am backed up by Patrick J. Lynch in his paper, "Visual Design for the User Interface Part 1: Design Fundamentals," *Journal of Biocommunications* 21 (1994): 22–30; <http://info.med.yale.edu/caim/manual/papers/gui1.html>.
55. Terry Harpold, "Thickening space: On Reading & the 'Visible' Interface"; conference paper posted on web site no longer available, 2000.
56. Jean Baudrillard, trans. Paul Foss, Paul Patton, and Philip Beitchman, *Simulations* (New York: Semiotext(e), 1983), 6.
57. N. Katherine Hayles, "Virtual Bodies and Flickering Signifiers" *October* 66 (Fall 1993): x.
58. Arthur and Marilouise Kroker, "Code Warriors," 1996, <http://www.ctheory.com/article/a036.html> paragraph 9; accessed 2 May 2001.
59. Jean Baudrillard, *The Ecstasy of Communication*, ed. Sylvère Lotringer; trans. Bernard and Caroline Schutze (New York: Semiotext(e), 1988), 16.
60. Luce Irigaray, *The Speculum of the Other Woman*, trans. Gillian C. Gill (Ithaca, New York: Cornell University Press, 1985), 227; see also the science fiction novel *Virtual Girl* by Amy Thompson, who chronicles an AI's attempt to reconcile her computational and human aspects in a female body.
61. Scott Bukatman, "Taking Shape: Morphing and the Performance of Self," in Sobchack, *Meta-Morphing*, 245.
62. Barthes, *The Empire of Signs*, 62; italics in original.
63. Barthes, *The Pleasure of the Text*.
64. Steve Whitaker, "Face To Efface With The Pout," *Ctheory*, June 2000, <http://www.ctheory.com/article/a087.html>.
65. Jean Beaudrillard, *Simulations*, 81.
66. Paul D. Miller (DJ Spooky), "Material Memories: Time and the Cinematic Image," <http://www.ctheory.com/article/a094.html> 2 May 2001.
67. Barthes, *A Barthes Reader*, 413.