

“Just Roll Your Mouse Over Me”: Designing Virtual Women for Customer Service on the Web

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This paper explores the growing popularity of animated software agents as a rapidly evolving technology for supporting website users and particularly the tendency among designers to figure them as young women. While designers claim that animated/personified interfaces are more intuitive and natural than the traditional point-and-click interfaces that users encounter, this paper aims to show how virtual humans can enact familiar scripts about women’s work, circumscribe the range of possible roles and personalities for women, invoke service to others as the primary context for women’s work, and objectify women through a not-so-subtle process of linking technology-as-tool to the idea that women are tools, fetishized instruments to be used in the service of accomplishing users’ goals. In conclusion, this study develops our field’s tools for critiquing technical communication texts and interfaces by focusing attention on the implications of how technologies for interacting with website users are designed.

Personified software agents are claimed by their supporters to be more intuitive, natural, and effective than traditional, point-and-click interfaces (e.g., see Lester et al., 1997). Various referred to as animated characters, virtual humans, embodied conversational agents, and animated agents, personified agents require little or no training to use, according to their designers, because users simply interact with them as though they were humans. Personified interfaces are more or less personified. They are also being designed for a variety of platforms (i.e., not only for the Web). In this paper, however, I am primarily but not exclusively concerned with personified Web agents for customer service. Such agents are explicitly designed to look and talk like humans. While currently more animated than photorealistic, personified Web characters are nevertheless offered to Web visitors as intelligent, humanlike, and visually

evocative.¹ Every adult user, presumably, has acquired naturally and inevitably the necessary skills in social interaction to work with such characters. Users do not *use* virtual characters so much as interact with them as social actors (see Nass & Moon, 2000). Yet when designers appeal to the presumed transparency of human nature to justify the design of a personified interface, they often prematurely close off discussion about what kinds of humans—whose natures?—users are interacting with. In this paper, I interrogate the argument from nature that often grounds the design of virtual humans (v-humans) by exploring some assumptions about social interaction and being human (with respect to gender in particular) that inform the design of natural systems. My argument is that v-humans designed for the Web enact familiar scripts about women’s work, circumscribe the range of possible roles and personalities for women, invoke service to others as the primary context for women’s work (at the expense of other ways of inscribing social practice and human labor), and objectify women through a not-so-subtle process of linking technology-as-tool to the idea that women are tools, fetishized instruments to be used in the service of accomplishing users’ goals.

Two primary sources provide a representative sample of v-human projects for this paper: (a) the “Bot Industry Survey” (Alice Foundation, n.d.), which is an extensive but admittedly incomplete and unstable list of major v-human vendors on the Web; and (b) the website for Oddcast (oddcast.com), arguably the largest and most popular v-human vendor (see Figure 1). Because vendors are in the business of licensing their agent technologies and development tools to clients (Oddcast boasts over 6,000 clients [Oddcast, n.d.a]), they are a good starting place for a study of this type. Vendors are having the greatest impact on the industry and the direction of v-human technology. In addition, the business of designing virtual humans for the Web can be very lucrative: As of February 2007, Oddcast is charging major clients such as Coca-Cola \$15,000 to design and implement a customized VHost solution for their websites (Oddcast, n.d.b).

V-human discourse has been nothing short of triumphant about the potential of Artificial Intelligence (AI) and related research to free us from the burdens of menial point-and-click labor and unnatural user interfaces. While Artificial Intelligence is a diverse field, it is nevertheless grounded in a pursuit of intelligent, thinking machines (see Crevier, 1993; Turing, 1950; Simon & Newell, 1958). According to Eugene Charniak and Drew McDermott (as cited in Bringsjord, Caporale, & Noel, 2000), “The ultimate goal of AI (which we are very far from achieving) is to build a person, or, more humbly, an animal.” More recently, Denis Baggi (2000) has echoed a similar sentiment: AI “represents the realisation of the ancestral dream, that of

¹For a classic study of the persona effect involving virtual characters that “vary in terms of humanity” (no face, dog, smiley face, realistic human face, cartoon human face), see Koda and Maes (1996). For some good examples of personified interfaces designed for a variety of independent (non-Web) platforms, see Justine Cassell’s research on Embodied Conversational Agents (Bickmore & Cassell, 1999; Cassell, 1998; Cassell, 2000). For an analysis of text-only (no face) interfaces designed to engage users in conversationally competent behavior, see Zdenek, 2001.



FIGURE 1 Oddcast.com home page, with working interface at left. Captured February 11, 2005. Copyright © Oddcast Inc. 2000–2005. All rights reserved.

building the homunculus or thinking machine.” In other words, AI can be considered a master discipline, “the experimental bench for exploring all hypotheses,” to which all other disciplines (e.g., philosophy, psychology, linguistics, anthropology, biology, neurophysiology, etc.) are subsumed in the pursuit of the “goal of reproducing something which is, properly or not, referred to as natural” (Baggi, 2000).

Scholars in technical communication and rhetoric have only recently begun to explore the rhetoric of virtual characters (e.g., see Miller, 2000). To the extent that virtual characters might be considered only one expression of a compelling design philosophy (e.g., ubiquitous or transparent computing [Weiser & Brown, 1995]) that aims to build computer interfaces that recede into and merge with the environment, they warrant continued attention from scholars in usability studies, interface design, and information design. As developers such as Bill Gates hail invisible computing as the “next challenge” (Gibson, 2005), it is important for scholars in technical communication to make visible and critically evaluate computing environments that are designed to be overlooked.

The following argument proceeds in five parts: First, an overview of the “social shaping” (Wajcman, 2004, p. 8) thesis at the heart of technology and gender research; second, a critique of the discourse of nature that provides designers with a simple but effective justification for the design of humanlike interfaces; third, a discussion of the minor role that gender has played as a variable in v-human design; fourth, an analysis of the rhetoric of virtual humans, and fifth, a conclusion that offers some implications for technical communication curricula.

“EACH SHAPES THE OTHER”: GENDER AND TECHNOLOGY IN TECHNOFEMINISM

A key challenge for critics of technology is to understand how cultural and social values are not only inscribed in technologies but also enfolded into discourses that portray them as objective, natural, even inevitable. Technical communication scholarship (Dobrin, 1983; LaDuc & Goldrick-Jones, 1994, pp. 246–247; Lay, 1991, p. 355; Sullivan, 1990) includes a long tradition of critiquing the idea of objectivity. Indeed, Carolyn Miller’s critique of positivism and the windowpane theory of language is one of our field’s central texts (1979, p. 611). This critique may now be usefully employed as a frame for analyzing interfaces that are designed, ultimately, to remove all traces of themselves. To the extent that designers readily appeal to the presumed transparency of human nature to justify the superiority of virtual humans over other types of interfaces, they obscure the ways in which aspects of human nature—e.g., social interaction, gender roles, dyadic communication, etc.—are socially constructed. Virtual humans are not natural, objective, or transparent per se; they are designed and persuasive (cf. Miller, 1979, p. 616). They persuade users they are humanlike when they reflect (and promote) assumptions, sometimes deep-seated, about what it means to be human. Following the tradition of this critique in technical communication, we can now make visible and critically interrogate the rhetoric of intuitive interfaces—i.e., the so-called transparent and natural assumptions about human nature that drive their design. The critique of intuitive, animated interfaces is particularly important if, as some technical communication scholars have suggested, the next step in our involvement with the design of texts to support users is the development of interfaces that are “as rich and flexible as the physical environments they replace” (Quesenbery, 2001).

Complementing this perspective, gender analysis provides a lens through which assumptions about human nature in the design of virtual humans—e.g., assumptions about nature and progress—can be interrogated. For feminist scholars in science and technology studies, gender and technology are intertwined. “It is as impossible to understand gender without technology as to understand technology without gender” (Lerman, Mohun, & Oldenziel, 2003, p. 436). A “mutually shaping relationship” is emerging in feminist research, according to Judy Wajcman (2004), “in which technology is both a source and a consequence of gender relations” (p. 7). “[E]ach shapes

the other” (Lerman, Oldenziel, & Mohun, 2003, p. 2). As a result, technology and gender are viewed as socio-rhetorical constructs: dynamic, mutable, and situated (see Hopkins, 1998, p. 3; LaDuc & Goldrick-Jones, 1994, p. 246; Wajcman, 2004, p. 8). One important effect of this constructivist view is that technology comes to be defined more broadly to include knowledge, action, and ideology (see Durack, 1997, p. 258; Koerber, 2000, p. 63), as opposed to merely tools associated with masculinity (e.g., computers and cars). This view also expands the scope of what technologies merit study by calling attention to those technologies historically associated with women (see Cowan, 1998, on household technology) or invented by women (see Stanley, 1983, for a revised history and definition of technology).

The dialectic of gender and technology can be seen from two perspectives. First, ideas about men and women shape the design and use of technology. For example, Virginia Scharff’s (1998) research on early automobiles suggests that ideologies of gender (i.e., the Victorian concept of “separate spheres,” p. 78) played an instrumental role in how gas and electric cars were designed, marketed, and used. According to Scharff (1998), “Women were presumed to be too weak, timid, and fastidious to want to drive noisy, smelly gasoline-powered cars. Thus at first, manufacturers, influenced by Victorian notions of masculinity and femininity, devised a kind of ‘separate spheres’ ideology about automobiles: gas cars were for men, electric cars were for women” (p. 76). Despite the fact that the automobile was a novel technology, “it could not escape entanglement in a web of meaning spun with the threads of masculinity and femininity” (p. 78). Even when the “separate spheres ideology . . . had lost force” (p. 80), and the link between women and electrics was disrupted, “the idea that ‘motor cars had sex’” (p. 80) continued. What surprises Scharff is that the electric car “lasted so long” given its shortcomings in terms of power, high cost, and range (p. 84). The long life of the electric car can only be explained, Scharff implies, through an analysis of how ideologies of gender (as opposed to ideologies of efficiency, better technology, or cost) played a crucial role in the history of the automobile.

Second, new technologies can reshape our understanding of gender. Early optimism about the possibilities for reimagining gender on the Internet, for example, led to studies of gender swapping and identity spoofing in the early to mid-1990s. In a classic paper, Amy Bruckman (1993) argued that Multi-User Dimensions (or MUDs) “are an identity workshop” (p. 4) in which players can try out new gendered identities (see also Turkle, 1995; Stone, 1998). While the notion of computer-mediated communication as a gender-blind space for reconstituting one’s identity has been called into question (e.g., see Herring, 1993; Nakamura, 2000), it nevertheless continues to resonate as a set of claims about the postindustrial erosion of traditional hierarchies and binaries (e.g., human/machine, private/public, work/home, etc.). In other words, changes in technology can promote changes in our understanding of gender (and vice versa): “In times of technological change, then, we can expect contests over social categories such as gender; in times of social change, we should look for new kinds of interactions with the material world”

(Lerman, Oldenziel, et al., 2003, p. 2). Wajcman (2004) calls the “social shaping” view “technofeminism” (p. 8). Yet despite this dialectical relationship, changes in gender are not as easy to come by as changes in technology. According to Patrick Hopkins (1998),

Changes in gender, even if parallel to changes in technology in many substantial ways, are typically not subject to the kinds of economic distribution and production that technologies are. Changes in gender (as an ideological system) are less likely to be available through a catalog, or at a local factory, or at a trade show. They are less likely to be instantly upgradeable or purchasable. The upshot of this is that new technologies are at least somewhat more likely to arrive in existing gender systems than new gender ideologies are to arrive in existing technology systems (though the latter can and does happen). (p. 3)

As Scharff’s (1998) study of the early automobile suggests, gender systems can play a constraining role, leading designers, marketers, and users to press new technologies into preexisting gender molds. These molds may be invisible, as the following study of virtual humans suggests, if they are couched in a discourse of nature, inevitability, and intuition. Such preexisting molds may also promote sexism and exclusion, as suggested by the strong connection between masculinity and technology that persists today (Wajcman, 2004, p. 31).

Research in gender and technology studies has shifted from a focus on inclusion and access for women in the scientific and technical professions to a focus on “the very processes whereby technology is developed and used, as well as those whereby gender is constituted” (Wajcman, 2004, p. 18). Liberal feminist accounts in the 1970s assumed that the problem of access for women was rooted in male domination and sexism—and thus that technology was essentially neutral, unbiased, and open (p. 14). More recently, researchers have explored how technology itself embodies, or is inscribed with, “gendered power relations” (p. 23). The constructivist view calls into question the notion that technology is neutral, unaffected by the values of designers, users, and marketers.

In the field of technical communication, it is somewhat surprising, given the tight connection between gender and technology, that Thompson and Smith (2006) have discovered through a study of the field’s journal articles that “technical communication scholars’ interest in feminism and women’s issues has declined over the past 15 years” (p. 196). Until recently, scholars in technical communication doing research in gender have been mainly focused on the problems of inclusion and gender difference: recovering the contributions of women scientists and inventors, studying women and men in the workplace, and redefining technology to include inventions traditionally associated with women. Borrowing from Wajcman (1991) and Joan Rothschild (1988), Laura Gurak and Nancy Bayer (1994) highlight each of these three approaches (which they identify with liberal feminism, p. 264) in

their 1994 overview of four feminist critiques of technology. Their fourth category, "Analyzing the relationship of the human body to technology" (p. 259), moves the locus of research from a liberal feminist concern with inclusion, underrepresentation, and equal access (p. 264) to a postmodern concern with the social and historical construction of "gender, along with class and race" (p. 265):

The questions posed by postmodern feminist thinking move us from concerns about how women can be more equitably treated in technology and about how women's values might reform the nature of technology to asking whether technology and its underlying epistemologies and practices are redeemable or in need of radical reconstruction. (p. 266)

The postmodern perspective has been gaining traction in technical communication research. Isabelle Thompson and Elizabeth Overman Smith write in their 2006 review of research on women and gender in technical communication (see also Thompson, 1999; Smith & Thompson, 2002) that "the current focus has moved from a moderate or radical concern for inclusion to a postmodern concern for critique of visual, verbal, and mechanical 'technologies,' which previously were not considered political" (p. 184). For Thompson and Smith (2006), postmodernism in gender and technology studies assumes that "sexism appears in all 'technologies' and is manifested in all of our behaviors and attitudes" (p. 196). In short, it focuses on "lay[ing] bare sexist practices that are typically overlooked" (p. 196). To the extent that our behaviors and attitudes are manifested in talk and text, these overlooked, naturalized practices are rhetorically constructed.

Building on these insights, this study addresses sexist practices in the design of technologies, practices that are obscured by the cover of nature. The discursive appeal to nature can serve to deflect attention from the social and cultural values inscribed in technologies, and in particular the ways in which technology and gender are mutually shaped. For example, the repetitive and mundane tasks that computers perform well are, within the context of this study, metaphorically figured as women's work. Gender as a design variable plays almost no role in the public discourse of designers, hence the need to begin to make more visible the politics of designing and marketing virtual humans for the Web.

CHALLENGING THE ARGUMENT FROM NATURE

A popular justification for an agent-oriented approach to software design is based on the seemingly unassailable claim that users treat computers, regardless of whether they are designed with faces or not, as social actors. As Clifford Nass, Byron Reeves, and their students at Stanford have shown in countless studies (see Nass, Steuer, & Tauber, 1994), users readily but mindlessly "assign 'personality' to

a computer” (Nass & Moon, 2000, p. 83), even though they know that the “computer is not a person and does not warrant human treatment or attribution.” For example, Nass and Moon (2000) have claimed to show how users “*overuse human social categories*” when they draw on gender and ethnic stereotypes, “*engage in overlearned social behaviors*, such as politeness and reciprocity,” and “*exhibit premature cognitive commitments*,” such as presuming the computer is an expert based on scant or partial evidence (pp. 82–83, italics in original). According to Reeves (2002), “[a]utomated characters take advantage of social responses that are natural reactions to interactive media” (p. 1), “[p]eople naturally respond to all on-line interactions as social experience” (p. 2), and “[e]ven without characters, human–computer interaction is sufficiently human-like that people will respond online in ways that fundamentally mirror social interaction in real life” (p. 2). For Reeves (2002), then, the similarity between human–computer interaction and human–human interaction is natural. The challenge for designers is to build systems that will evoke the natural propensity in people to interact with computers as people.

While these findings have recently been called into question (see Shechtman & Horowitz, 2003), software designers nevertheless rely on them to provide a compelling rationale for the design of v-humans. Notably, the “persona effect” (Lester et al., 1997, p. 359) is the term used in AI and Human Computer Interaction (HCI) to refer to the claim, in line with the findings of Nass et al., (1994), that computers with faces “can have a strong positive effect on student’s [sic] perception of their learning experience.” Advocates of personified interfaces appeal regularly to the idea that since users presumably ascribe personality to computers anyway, interfaces with personality are natural and inevitable:

[T]here is a growing body of research using experimental methods to carefully test human-agent interactions. This research shows that humans respond to virtual agents in ways that are very similar to their responses to other humans. A remarkable finding of this work is that this is true even for non-photorealistic agents that have very basic levels of behavior and interactivity. (Bailenson, Beall, Blascovich, Raimundo, & Weisbuch, 2001)

Whether or not computers look human, people attribute to them human-like properties such as friendliness, or cooperativeness. An embodied conversational interface can take advantage of this and prompt the user to naturally engage the computer in human-like conversation. (Cassell et al., 1999)

A growing number of research projects in academia and industry have started to develop lifelike characters or agents as a metaphor for highly personalized human-machine communication. Work in this area is motivated by a number of supporting arguments, including the fact that such characters allow for communication styles common in human–human dialogue and thus can release users from the burden to learn and familiarize themselves with less native interaction techniques. (André & Rist, 2001, p. 53)

Nass's research recasts human-computer interaction as social interaction between humanlike actors. Designers who build an argument on the basis of this work (and there are many) do not have to justify their own research agenda so much as claim the role of facilitator or catalyst for a phenomenon (i.e., the human propensity to treat computers as social actors) that is taken to be predetermined, universal, and, above all, natural. By claiming that "people tend to treat computers as social agents anyway" (Bickmore & Cassell, 1999), designers and researchers justify the design of v-humans yet also skirt a number of important ethical and practical questions. Designers defer ethical questions when they claim or imply, following Nass et al. (1994), that there is little to be done about gender stereotyping in human-computer interaction (because gender stereotyping is explained by Nass et al. as a natural component of social interaction [see Eisenberg, 2000]). Similarly, when designers are motivated primarily by economic interests and return-on-investment, they may claim to have little choice but to cater to users' needs and expectations, even if that means reinforcing the status quo. More importantly, they may fail to question whether a so-called natural interface is indeed the best solution for the specific context they are addressing. By focusing on humanness and believability as units of analysis for evaluating v-humans, as in the examples above, designers may also fail to see how their software systems are shot through with assumptions about gender, race, ethnicity, users, and so on. In the quest to design a natural, intuitive humanlike system, designers may lose sight of the ways in which gender and gendered interactions are not natural but socially constructed. The appeal to nature serves to justify an entire philosophy of design (in short, that interfaces should interact with us in very humanlike ways) that can, among other reasons, excuse and make invisible design decisions based on sexist assumptions.

GENDER AS A DESIGN VARIABLE

Developers have paid little attention in their research articles and reports to gender as a variable in v-human and animated agent design, despite the important role that gender and gendered assumptions play in interactions and in claims about what counts as a natural system. In research articles, for example, developers tend to present the gender of their animated characters directly and without comment. The designers' rationale for choosing one gender identity over another is rarely discussed in print. (The same is true, to a large extent, for other markers of identity—race, age, ethnicity, class, etc. In this paper, however, I am principally concerned with gender as a design variable.) Discussions of gender in academic research units, if they happen at all, happen off the record. In print, designers are unreflective about how the personality of the virtual character, its intended function, its actual use, and its assigned gender interact to produce a realistic, humanlike system. "[Gender's] not something we've given a lot of thought to building," says one grad-

uate student in robotics at MIT (Garfinkel, 2004). When gender is discussed at all in v-human design, it is typically subsumed under the larger category of *humanness*, *believability*, or giving users what they presumably want, thus obscuring the connections among gender, the computer-as-tool, and desire. In other words, designers in academia tend to use *virtual human* as the unit of analysis rather than *virtual woman* or *virtual man*. By focusing on the broad category of humanness, designers may lose sight of how v-humans enact gender stereotypes. This problem is reflected in the excerpts above, as Bailenson et al. (2001), Cassell et al. (1999), and André and Rist (2001) pepper their texts with references to “humans,” “lifelike characters,” and “agents.” Such labels obscure gender and sexuality as design variables.

The Gender and Narrative Language (GNL) group at MIT’s Media Lab (see Cassell, 2000) has made it a habit in its research articles of virtually ignoring the gender of its characters. (In 2003, Justine Cassell left MIT for Northwestern University. As a result, the GNL group she directed was dissolved. However, Cassell continues to be interested in creating humanlike virtual characters.) This is not to say that gender is invisible or obscured in the GNL group’s texts. On the contrary, gendered pronouns are the designers’ default choice for describing many of their systems—or at least those systems presented as humanlike and intuitive. Such interfaces take on a rhetorical life of their own: They have gender, agency, and autonomy. Moreover, they are discursively disconnected from their designers:

[REA’s] domain of expertise is real estate; she has access to a database of available condominiums and houses for sale in Boston. She can display pictures of these properties and their various rooms and point out and discuss their salient features. (Cassell, 2000, p. 73)

In this example, the REA system has a mind and a will of its own. It functions autonomously; the systems of labor, value, and power that make its life possible are obfuscated in the text. But the system’s gender is never marked as ironic (e.g., through the use of quotation marks around *she*) or rationalized (e.g., through the use of metatextual comments that explain why gendered pronouns are being used or why the system is discursively attributed with as much or more agency than the humans who designed it). In short, the logic behind the designers’ decision to create characters with gender remains unarticulated in the texts, even as the texts teem with gendered characters.

Another way designers obscure gender as a design variable is by focusing generally on a character’s humanness rather than specifically on its gender. As a result, gender is discursively hidden within a discussion of what makes the system humanlike and conversationally competent. Because gender becomes invisible within a larger focus on humanness, critics and designers may not be sensitive to how gender stereotypes and other cultural values are inscribed in artifacts. An analysis of

Leonard Foner's (1997) oft-cited case study of JULIA, a software program designed to chat with players in text-based worlds called MUDs, can reveal how critics—as well as a host of commentators who have drawn examples and inspiration from Foner—can seemingly ignore examples of gender stereotyping in the interest of advancing an argument about a character's believability. Foner's analysis has spawned a number of commentaries—most famously Sherry Turkle's (1995) discussion of JULIA in *Life on the Screen*. In his essay, Foner (1997) uses the following rape scenario to make a point about JULIA's communicative competence:

Julia says, "Just try to take 'em, buster!"
 Julia says, "Help! Rape!"
 Julia says, "No, I won't."
 Julia disrobes fearfully and hands her clothes to Brandi.
 You say, "Julia, please give me your clothes."
 Julia says, "You'll have to get them from Brandi." (p. 2)

For Foner, this exchange supports the claim that JULIA is communicatively competent because the program has "some support for anaphora"—i.e., JULIA "'remembers' where her 'clothes' are" when Foner asks for them "after Brandi took them" (p. 2). But Foner misses an opportunity to interrogate the construction of rape as spectacle in this example. His only reference to the content of the rape scenario is when he characterizes it as a form of "badgering." By focusing on how JULIA's responses are believably humanlike rather than gendered, Foner seems unconcerned with how the exchange casts rape as entertainment within a male-dominated MUD.

Designers can also obscure gender in v-human design by treating gender as a variable within a larger framework in which the character's gender is ostensibly optional. A research team at The University of Pennsylvania (Badler et al., 1999) describes a method for designing virtual humans along five dimensions, one of which is Individuality:

Individuality: generic character > hand-crafted character > cultural distinctions > personality > psychological-physiological profiles > gender and age > specific individual

Their goal is to develop characters that are increasingly humanlike by "pushing the envelope of one or more dimensions toward the right." According to this methodology, then, gender and age are optional design choices, at least early on in a project. In fact, a character's gender need only have bearing on the system at a later, more advanced stage of design. A designer might presumably begin with a generic or ungendered character and build up to one that is more clearly identifiable as a virtual girl or boy, man or woman. This view is problematic for a number of rea-

sons. In short, it assumes that gender is merely an afterthought or add-on, as opposed to a worldview that frames a project globally and subtly. It also assumes that gender can be discussed apart from questions of identity, individuality, function, and the context of interaction.

Still another way gender is obscured in v-human design is through an appeal to users' preferences. This pragmatic approach to software design defers to the majority of users (both women and men) who reportedly prefer virtual characters with women's voices and identities. According to the CEO of International Robotics, "The issue of gender is more or less a choice that has to be made by the people that these robots will cohabit with" (Garfinkel, 2004). According to this view, designers try to ensure a return on investment by giving users what they want. The strength of this approach is that it does not seem to be based on sexism, since both men and women reportedly prefer interacting with virtual operators and Web assistants presented as women. But this view may also hinge on anecdotal evidence, as this example from Peter Plantec's (2004) *Virtual Humans* reveals:

Forgive me for using a female character instead of switching back and forth or using the he/she approach. I hope you won't read anything sinister into my choice. My experience indicates that men and women and children tend to be more comfortable with female virtual humans, though that's not universally true. I don't know the reasons. It could have something to do with the aesthetics of the male characters used. They've generally been less attractive than the females. (p. 72)

Plantec presents himself as a reasonable expert, though one who seems to be happy giving users what they want rather than questioning the value of those wants. In other words, his view is a form of anti-intellectualism. In his claim to being innocent as opposed to "sinister," he discourages readers from interrogating the assumptions that support users' preferences for "female virtual humans." Yet insofar as his book links the service industry, robot fetishism, and male fantasies of control via numerous examples of playful and flirty interactions with virtual women who devote themselves to serving and pleasing him, he invites readers to question whether his underlying motives are really so innocent. Like Plantec, Ray Kurzweil (1999) also claims, albeit within the context of his future predictions for 2009, that "both male and female users prefer female personalities for their computer-based intelligent assistants. The two most popular are Maggie, who claims to be a waitress in a Harvard Square café, and Michelle, a stripper from New Orleans" (p. 195). More directly than Plantec, Kurzweil links virtual women to a service industry driven by heterosexist fantasies of control and servitude. The preference for a female character, it seems, may not be so innocent.

In fact, what Plantec (2004) calls "sinister" turns out to be business as usual in his book. The following hypothetical conversation—the first of many in his book—reveals Plantec's preference for flirtatious, playful interactions with adoring v-humans such as SYLVIE:

“Sylvie, it’s getting dark in here.”
 She might respond: “Would you like me to turn up the lights, Peetie?” <smile>
 “Yeah.”
 “Oh come on, what’s the magic word?” <slight frown>
 “Pleeeeeeese.”
 “Okay, no problem.” And the lights in my office come up.
 She then says: “Is that enough?”
 “Nope, gimme a little more.” And the lights brighten a little more.
 “That’s got to be enough now, Peetie, I don’t want you going blind on me.”
 “Good enough” I say, and she smiles with satisfaction. (pp. 4–5)

For Plantec, no-nonsense functionality is unsatisfying in an interface. The print icon, it seems, must be transformed into a playmate, the instrument into a companion. Plantec devotes a significant portion of his text to describing the process of creating believable virtual personalities and developing v-human systems that might be able to return the favor (by creating personality profiles of their users). In another hypothetical scenario, Plantec (2004) personifies a hotel’s computerized information kiosk, calling the virtual female hostess “my friend” (p. 195). He also playfully acknowledges that this v-hostess would make a good lover and spouse: “Heck, if I weren’t already married I’d probably propose to her” (p. 195). Interfaces of the future, Plantec muses, will be “virtual human companions, virtual human lovers, and even virtual human confidants” (p. 12). They “make us feel loved” (p. 11). At the climax of this relationship, user and technology become one. The user’s desire for the fetishized object is so intense that the object is literally ingested: “Picture yourself living for 200 years with a life-long virtual human companion embedded in your brain. It will become your most intimate friend, often out-lasting spouses” (p. 13). The desire to consume technology, according to Brunner and Bennett (2002, p. 72), is characteristic of a masculine perspective.

The current approaches to theorizing gender in v-human design are unsatisfactory. Designers tend to be unreflective about the design choices they make with respect to a character’s gender and gendered behavior. When gender is discussed at all, it is typically subsumed within a context of humanness, believability, or giving users what they want. The connections among gender, servitude, and desire may be obscured as a result.

PROGRAMMING VIRTUAL WOMEN FOR THE SERVICE INDUSTRY

The quest for a natural and transparent computer interface is leveraged on the idea that such an interface will provide users with immediate, natural access to information and knowledge. Designed to remove all traces of mediation from the context of interaction, virtual humans simulate the intuitive and unmediated face-to-face interactions that people ostensibly have with each other every day. “What design-

ers often say they want,” according to Jay Bolter and Richard Grusin (1996, pp. 317–318), “is an ‘interfaceless’ interface, in which there will be no recognizable electronic tools, no buttons, windows, scroll bars, or even icons as such.” Richard Wallace, creator of the popular open source conversational engine called ALICE, puts it this way: “It is our vision to create a system that frees the user from the constraints of keyboards and other peripheral devices and connects them with an operating system that is intelligent, responsive, visual, and entirely voice operated” (“Oddcast and ALICE,” 2003). As such, virtual humans not only disappear into the primal context of face-to-face interaction but also embody the dream of AI developers to recreate human nature by artificial means (Baggi, 2000; Negrotti, 2000).

Users who have supposedly been freed from all constraints are able to interact naturally with a computer or with a smart environment (e.g., a home or office) as though it were another person. Within the context of the dream of the interfaceless interface, users do not need to select keypad options on their telephone when calling a company’s automated system, or type arcane instructions at the computer’s command prompt, or point-and-click icons that populate a metaphorical desktop, or even get up from their chair to flip a light switch. Freedom is a double-edged sword, however. While many Web characters are fully customizable, most users are on the other side of the interaction. As they browse the Web, they are confronted with interactive characters that have been designed by someone else—namely, companies hawking products and services. Some characters are downright annoying, intrusive, and difficult to turn off (remember Microsoft’s CLIPPY?). They are designed to push information that their designers assume (sometimes incorrectly) site visitors will find useful and unobtrusive. While they are advertised as flexible, expansive, and humanlike, Web characters are typically brittle and programmed to handle only a narrow range of questions about the company’s services and their own limited, preprogrammed, and stereotypical personality profiles.

Still, virtual humans appear to be transforming the ways in which customers interface with companies. “From Amtrak to Sprint PCS, a growing number of companies are ditching their automated service hotlines and replacing them with ‘virtual agents’” (Spencer, 2003). Virtual telephone operators include Yahoo’s JENNI, Amtrak’s JULIE, United Airlines’ SIMON, and Sprint PCS’s CLAIRE (Spencer, 2003). On the Internet, virtual website hosts answer customer questions, push relevant Web pages, give website tours, and recommend products. Website characters include KATIE, the “flirty ‘virtual skin-care assistant’ on the Dove Web site” (Spencer, 2003); HANK, “the V-rep at Coke.com”; ProPharm’s REBECCA (“ProPharm,” 2004); “Canada’s First Virtual Tax Assistant” named LAURA (“Intuit,” 2004); and the popular conversational Web characters licensed to “over 6,000 companies” by Oddcast (n.d.a).

Yet the terrain is rapidly changing and evolving. In November 2003, Ian Urbina (2004) reported that Sprint “no longer use[s] Claire,” and that the “computer per-

sonality" for United Airlines is named "Tom," not SIMON as reported by Spencer (2003) almost 2 years earlier (January 2003). According to a speech recognition consultant interviewed by Urbina (2004), CLAIRE "ended up being very nice but entirely incompetent." These changes are magnified when we consider that a vast majority of Fortune 250 companies are considering or turning to speech recognition technology to make customer service more efficient and less costly (Urbina, 2004).

The trend in virtual agents for customer service is away from formal scripts that emphasize the information rather than the recording, and towards what Ian Urbina (2004) calls "hipper and more casual scripts." Amtrak's automated ticket agent named JULIE, for example, has received high approval ratings from callers not simply because the natural language interface is easier to use than the older touch-tone systems, but because JULIE "sounds and acts so lifelike" (Urbina, 2004). Lifelike systems use real voices—Julie Stinneford, a professional voice talent, is the voice that powers the JULIE system. Lifelike systems are also increasingly being designed with personality. As Urbina (2004) reports, some companies are doing more than "injecting a little charm into otherwise-impersonal automation." They are "opening a new frontier in branding by imbuing these programs with a memorable persona that has a name." In some cases, developers "create extensive biographies for the characters that include everything from SAT scores to hobbies" (Spencer, 2003). Yahoo's JENNI, a computerized system that reads e-mail messages over the phone, "came with a photo and a four-page biography describing how she graduated from Berkeley in 2001 with an art history degree, was unable to find work in a gallery and so settled for a job as a bartender at a local café" (Urbina, 2004). Yet the emphasis on creating a robust personality profile can negatively impact a character's usefulness. For example, HANK, a virtual website host at Coke.com, "can answer questions about his sexual orientation but can't tell you where to buy New Vanilla Coke" (Spencer, 2003).

To create a convincing and lifelike personality, developers typically draw on popular attitudes, beliefs, and stereotypes. It should not be surprising, then, given the preponderance of virtual characters marketed as young women, that "hipper scripts" tend to be infused with stereotypes, especially in discourse about virtual characters. For example, while Urbina's (2004) description of Amtrak's JULIE cannot be reduced to a simple gender stereotype, it nevertheless resonates with popular beliefs about women as selfless, polite, and devoted to pleasing others. JULIE is described by Urbina as "unshakably courteous," "tirelessly chipper," one who "offers a sympathetic ear and reassuring guidance," has a "spunky personality," "perky tone," and is "meant to be a kinder and gentler replacement to the touch-tone mazes." "[S]he is even apologetic," "really personable," "affable," and "efficient." In other words, JULIE *genders technology*: The desire expressed by users for mastery and control over technology (see Shneiderman, 2003, p. 2) is redeployed in gendered terms. JULIE personifies the

idea of the computer as a feminized object, an artifact to be mastered and controlled.

On the Web, the female model is iconic for designers of Web characters. In the context of providing services to users, animated Web agents tend to take the form of young women. Anecdotal or not, Plantec's (2004) preference for female v-humans is borne out in news stories about v-humans (e.g., see Spencer, 2003; Urbina, 2004), which are often populated with examples of flirty and peppy systems modeled on young, physically attractive women. In fact, systems personified as men are always the exception in news articles. Urbina (2004) gives only one extended example of a system developed for Mercedes-Benz that is powered by a male voice. In this case, however, the system had originally been powered by a female voice but was changed "after customers complained that they did not like taking driving directions from a female voice."

In general, v-human designers prefer virtual women to men, even though their preferences (as well as the preferences of users) may remain unarticulated or unconsciously expressed. The "Bot Industry Survey" (Alice Foundation, n.d.)—a regularly updated list of v-humans and vendors on the Web—includes, at the time of this writing, 27 conversational systems.² Of these 27, 13 are presented on the designers' websites as personified (i.e., with faces, usually head-and-shoulder shots, newscaster style). The faces may take the form of screen shots of the agent interface, artistic renditions of an interface under development, and/or the interface itself. The remaining 14 Web-based v-humans are either presented as text-only chat interfaces (i.e., no face) or as text-only summaries of company services (i.e., neither interface nor image of the interface is displayed on the site). Of the 13 personified Web agents, 11 are presented as virtual women. For example, Conversive, Verity, and Botizen—virtual agent vendors in the business of providing customer service technologies—only feature on their websites virtual characters as young, thin, white women: Conversive's JULIA, Verity's VICTORIA, and Botizen's ANGEL.³ Botizen's virtual agent, with its long face and protruding clavicle, links femininity to problematic ideals of extreme thinness and frailty (see Figure 2).

When designers feature more than one personified agent on their websites, the agents are overwhelmingly but not always depicted as women. For example, the homepage for Eidoserve (eidoserve.com), another virtual agent vendor with over

²This list of 27 is actually a list of "non-AIML chat robots." AIML, or Artificial Intelligence Markup Language, is an easy-to-learn programming language for ALICE, an open source chat system. Users start with the basic ALICE engine and, using AIML, customize it. Since the "Bot Industry Survey" is authored by the Alice Foundation, it is divided between ALICE-inspired (or AIML) bots and non-Alice bots (i.e., everything else). The list of 27 bots contains everything else.

³On the Web at: <http://conversive.com>, <http://www.verity.com/>, and <http://botizen.com>. In December 2005, Verity was acquired by Autonomy: <http://www.autonomy.com>. As of February 2007, the Botizen website has closed and the Botizen technology is being offered by Hantropos: http://www.hantropos.com/bo_index.htm.



FIGURE 2 From Botizen.com, featuring three images of ANGEL. Captured February 11, 2005. The botizen.com website is defunct as of February 2007.

2000 installations of its ABBY technology (R. F. Culbertson, personal communication, February 10, 2007), is a collage of 12 human or humanlike faces (see Figure 3). Nine of these are women's faces—various instantiations of its ABBY interface—including a working demo of the interface itself. Of the three men's faces on the website's home page, one is a picture of the company's CEO, prominently displayed and contrasted in black-and-white, while the other two virtual men's faces (one animated, one photorealistic) are smaller and arguably lost in a sea of virtual women's faces. In this way, the CEO is visually positioned as a metaphorical father figure—a 21st century Pygmalion—for a family of nine, remarkably similar sister bots. Likewise, the website for Artificial-Life, Inc. (artificial-life.com), another entry in the "Bot Industry Survey" (Alice Foundation, n.d.), also features multiple images of personified agents. All four images on the home page are virtual women: three are fixed images, and one is located on a scrolling image bar. Featured prominently (and selected by default on a drop-down menu) is the Virtual Girlfriend.

Whereas the Eidoserve agents (in fact, the majority of Web agents in my sample) evoke the professionalism we tend to ascribe to the customer service rep, the



FIGURE 3 Eidoserve.com home page, with Abby interface for text input at right and CEO in left column. Captured February 11, 2005. Copyright © Eidoserve.

Artificial-Life agents tap into a more sexually charged ethos. It is simplistic to suggest, therefore, that animated agents for the Web are only sex objects. Rather, customer service is the primary function, with the virtual girlfriend providing one kind of service for users. Because characters are being marketed to companies primarily as Web hosts and “interactive customer solutions” (Eidoserve website, eidoserve.com), they tend to be integrated into websites as receptionists with authority to answer questions about the company’s services. The authority inscribed in Web hosts is akin to the authority we ascribe to the receptionist who speaks for the company but plays little or no role in shaping its policies. This already tenuous authority is threatened by the current state of natural language processing technology,

which often makes characters seem brittle and less than human as conversational partners. That they are figured as women is problematic when they also seem to lack intelligence. Users lose patience quickly with any character (male or female or neuter robot) that looks or seems intelligent and then turns out to be unable to hold a conversation (Zdenek, 2001). The difference is that the character's gender seems to have an effect on insult type and level of harassment. While preliminary research has suggested that users insult characters regardless of gender presentation, "sexual comments greatly increase with female embodiment" (Brahnam, 2006, p. 1).

Since v-human development tools are typically designed to be flexible enough to support a diverse client base, no *technical* reason should prevent designers from featuring a much broader range of character types on their websites. Indeed, one would expect v-human designers to set their sights on the widest possible consumer market. Yet vendors seem at times to be merely paying lip service to diversity and flexibility. For example, Zabaware (zabaware.com), another company in the business of "giv[ing] your computer a personality," describes the ULTRA HAL ASSISTANT as "your digital secretary and companion," one that can be customized to suit your needs: "He (or she depending on your character preference) can remember and remind you of appointments." The ostensible flexibility of the company's software tools is belied by its reliance on images of virtual women and a lack of images of virtual men on the main page of their website.

Vendors such as Haptek and Oddcast also encourage and work with clients (such as Seagram's 7) to design characters that meet clients' needs, regardless of the gender, age, class, or race of the final product. According to Oddcast's "Virtual Host Overview" (n.d.c), a short online movie for prospective clients, clients are free to design any character that suits them:

Virtual characters like me are created by you from an easy to use online tool. Change my gender, my features, and my clothes, with the simple click of a mouse. Use me to tell users what's new, or help them navigate through your frequently asked questions. I can be placed on any site, with any background, using any voice.

A young woman's virtual face and voice are used to dramatize this portion of the script, until the final three words ("using any voice"), at which point the movie scene shifts to the image of an older man who resembles a high ranking military officer with an unusually deep voice. The rest of the movie continues to mix male and female virtual actors. The rhetorical effect of presenting a range of character types is twofold: first, that Oddcast's development tools indeed support the needs of diverse clients, and, second, that all virtual characters are created equal. The movie implies that clients on the whole do not seem to prefer women over men characters. Moreover, Oddcast's list of "customization features"—i.e., age, gender, hair style, skin, hair and eye color, make-up, clothing, and accessories—as

well as their “20 default models” for “creat[ing] any character likeness,” implicitly promote character diversity and equality. The main page of the Oddcast website at this writing (July 2006) markets “personalization” with a rotating collection of diverse characters, both human and nonhuman. Women characters do not currently dominate the landscape of Oddcast’s main page. In fact, diversity seems to be a much more visible marketing strategy today on the Oddcast site than when this study was started over a year ago (February 2005; see Figure 1). These changes signal the need for researchers to look not merely at how women characters are articulated on the Web but how gender, considered broadly, intersects with character function, character role, and the rhetoric of diversity that Oddcast and other vendors use as a marketing tool.

Despite the direct appeals to diversity and personalization, neither Oddcast nor any of the other vendors explicitly addresses the question of how, if at all, gender of character and return-on-investment are related. Instead, vendors indirectly signal to clients that female characters are more effective than male characters by populating their websites with virtual women. On the Oddcast website and on the websites of a number of Oddcast clients, women characters dominate the digital landscape. In such cases, technology, women, customer service, and (sometimes) sex appeal are fused together in the figure of the virtual website host. For example, the virtual character that dominates Oddcast’s banner advertising and is used on a number of its clients’ websites is an Asian-inspired character clearly designed for its sex appeal (see Figure 4). This character capitalizes on the extensive use of sexuality and innuendo to sell services and products:

Oddcast banner ad

[Voiceover] Text, text, text. They’d rather hear me speak.
[Text] I’m cheap. I’m easy, and I bring good sites to life.

Oddcast banner ad for Gillette

[Voiceover] Nothing you’re reading here could be as fun as hanging out with me. Want to win a vacation with me and my girlfriends? Just roll your mouse over me.
[Text] Enter the Series II contest. Send your own Spacebabe!

Oddcast banner ad for Seagram’s 7

[Voiceover] Feelin’ lucky? Why don’t you give Seagram’s 7 a try? You might end up taking home a wonderful prize.

Oddcast banner ad for mp4.com

[Voiceover] Put your voice where my mouth is.

It would probably be surprising if Oddcast did *not* appeal to sex as a way to secure the attention of jaded, desensitized Web users. Nevertheless, one thing stands out: the degree to which images of women are identified with and treated as technologies (“Just roll your mouse over me,” “I’m cheap. I’m easy”). The ad for mp4.com (“Put your voice where my mouth is.”) suggests, moreover, that when technologies are figured as women, using them can be a sexualized, even penetrative, act. The more general point I wish to make, however, is that Oddcast’s rhetoric of diversity and flexibility is belied by their reliance on virtual women characters on their website (and one type of woman character in particular), and by the extensive use of virtual women on the websites of its clients.

It is one thing to acknowledge, following Nass et al. (1994), that gender stereotyping is inevitable. It is another thing to design virtual agents based on the implicit assumption that women are primarily technologies for sexual pleasure. One vendor, Haptek (haptek.com), explicitly promotes the idea that women are sexual engines to be controlled and programmed by users. The Haptek website, like the other websites discussed so far, also display images of virtual women prominently (both as screen shots and as a working demo of the animated interface). The website host and tour guide for Haptek is modeled on a young woman. Another prominently displayed Haptek system for creating Instant Messenger avatars, named KATE, is shown by default as a female avatar. But most striking of all is the interactive demo for Haptek’s full-body characters. The demo features a half-dressed, blonde-haired, large-breasted female character and a number of options for controlling the character’s animation, direction, words, lighting, and mood. The character in the demo can be directed by the user (via a drop-down menu) to utter a small number of phrases, one of which reminds potential clients that “I don’t have to look like I do.” (Presumably, what this means is that full-body characters can be figured as men too.) Yet website visitors and potential clients can easily miss Haptek’s small gesture towards character diversity. Overall, the Haptek website resonates with the legacy of Pygmalion, the obsession among graphic artists with “digital beauties” (see Agosto, 2004; Lam, 2004; Wiedemann, 2002), and the customer service industry. They meet in the form of the machine as woman, the woman as machine.

The Haptek demo, with its set of options for controlling Web-based female characters, points to a recurring trend on the websites of v-human designers: the Web character as faithful, even childlike servant. Searchers.com has grafted an animated agent named DIANA onto a search engine. Based on Haptek technology, DIANA facilitates Web searches by allowing users to query the system in natural language, akin to a conversation between two people. The website encourages new users to “take five minutes to read a little bit about her and how she works.” The

text of the site is telling. DIANA is placed in the problematic position of being figured as both a childlike woman and a less-than-human tool:

Is Diana a real person who works for a search engine called 'searchers' or an intelligent monkey trained to type clever answers on a keyboard?

It helps if you think of Diana as a child of four or five years old, intelligent and eager to learn. She already speaks quite well, but like real kids of her age uses short and simple sentences that reflect a limited but expanding vocabulary. Think of her as an outgoing child, very bright for her age, with a cheeky sense of humour and an innocent desire to learn and banter with everyone who drops by.

In these examples, drawn from different columns of the home page, the woman is less-than-human, an eager but simple child, an obedient and well-trained monkey.

DIANA fits rather neatly into the long history of automata, especially the "stupidity of the automaton" (Liu, 2000, p. xi) and the preponderance of automata designed to resemble children and women. Gaby Wood (2002), in her history of the automaton, explains the (male) inventor's preoccupation with robotic women and children in terms of a desire to create a perfect human being: "Some inventors intended their objects to be artificial forms of an eighteenth century ideal—the child as a blank slate, the purest being" (pp. xix–xx). Moreover, the inventor's decision to model the automaton on a child had the advantage of providing "an insurance against failure" (p. xx), since a viewer would be more willing to forgive a child's mistakes and therefore more likely to imbue it with humanness. In this way, Catherine Liu (2000), in her analysis of the automaton in early modern France, can refer at once to the "stupidity of the automaton . . . in its idiotic repetition of anthropomorphizing movement" (p. x) and to the ways in which "machines are feminized and identified with women," especially in "literary representations" (p. 49). This mirrors in some ways Villiers de l'Isle Adam's (1982 [1886]) classic novel *Tomorrow's Eve*, in which a fictional hero modeled on and named Thomas Edison creates a perfect woman for a man who "is in love with the outer shell of a beautiful woman" but disgusted by her lack of inner beauty (Wood, 2002, pp. 132–133). Interestingly, the real Edison worked for a few years on and devoted an entire factory to a talking doll—a doll with a phonograph in its body cavity—that, for Wood, marked the real Edison's quest to create the perfect woman. "The perfect woman, in Edison's real factory, came in the form of a child-like doll" (p. 144).

The machine's stupidity, ironically, is also what makes it seem human, particularly when the machine is figured as a woman or child. Behavior that might seem less than human, less than rational, is reconciled with a view of the child/woman as less than fully formed. In the context of Wolfgang von Kempelen's plans for a child machine in the late 18th century, Wood (2002) explains how this strategy played out in practice:

In conceiving the uncanny costume for his machine, Kempelen imagined a child to embody all the perfection of an unsullied being, who is therefore forgiven anything; but this child simultaneously plays the part of imperfection, of the not yet fully formed and fallible human. In practice, however (and this is the crowning part of the multiple bluff), the child is not a person at all but a machine, which man-made and theoretically infallible, will camouflage its imperfections by taking on the mask of a child, thereby making itself seem all the more perfect—that is, all the more life-like a simulacrum of a living thing. (p. 126)

The inventor saw himself on a Pygmalion quest for perfection, one that had the rhetorical advantage of stoking the 18th century public's newfound faith in what Mark Sussman (1999) calls, in an article about Kempelen's Automaton Chess Player, the "[e]lectrical and magnetic sources of power . . . to conjure up the invisible and to embody the tension between animate and inanimate realms, giving life to this newly reified machine with a human soul" (p. 82). DIANA's presumed stupidity and childlike qualities can thus serve to make it seem *more* human by encouraging users to inhabit a discourse about robots that is at least as old as the Enlightenment, one that positions women and children as less than fully formed, less than rational.

The text about DIANA suggests that women characters are being used to carry out mundane and repetitive (albeit important) support services, such as Web searching. This is reflected in the field of robotics as well, where, in the context of an article promoting INKHA ("Inkha the Robot," 2003), "a reactive robotic head [in the guise of a woman] that tracks movement, speaks, and interacts with people in a lifelike way," a codeveloper at King's College London reports that "the only robots that we have do the most mundane tasks." INKHA is presumably intended to transcend this mundane world of robotics, and yet it is designed, ironically, to play the mundane, repetitive, and stereotypical role of a female receptionist. In the area of v-human design, women characters are becoming increasingly popular interfaces to the Web's services, but in traditional roles that align women with secretarial and support functions. According to one news story (Grachnik, 2004), virtual assistants work well in call centers because the "majority of calls received are routine in nature." In these cases, routine and mundane tasks are being figured as women's work. Such is the case also with VALERIE, a "roboceptionist" at Carnegie Mellon University, that, according to a press release (Watzman, 2004), "greets visitors" to Newell-Simon Hall from an enclosed space designed to replicate a reception desk. VALERIE also provides ostensibly harmless entertainment for visitors. She plays the part of a stereotypical woman-as-secretary who often suffers through fits of irrational and hysterical behavior. According to VALERIE's official website, she talks on the phone a lot, agonizes about her love life, aspires to be a singer, worships Barbara Streisand, is comforted too often by her "motherboard," and relies on her shrink for endless support. VALERIE's designers seem unwilling to reflect on the ways in which their artifact is inscribed with cultural values. One

scriptwriter on the project simply dismisses the stereotype charge as unfounded: “I couldn’t imagine anyone saying Valerie was a stereotype” (Spice, 2004). Designers readily admit that VALERIE “doesn’t break much new ground” in terms of advances in robotics (Spice, 2004). Should we be surprised that it also fails to break new ground in terms of gender roles? Or that attempts to use the interactive kiosk called VALERIE may be thwarted by an interface that is programmed to be hysterical?

VALERIE’s hysteria might be partly explained in terms of a lingering assumption about women as prone to fits of emotion (see Romaine, 1999, chap. 3). According to this view, characters like VALERIE seem more human when their faults (non sequiturs, irrational behavior, hysteria) are camouflaged by the mask of a woman or child (Wood, 2002, 126). In such cases, users can be faced with the challenge of finding a way to control characters that seem to be uncontrollable or that resist being controlled. The faithful servant becomes a demanding shrew. For example, on a now-defunct mailing list devoted to a user-centered discussion of SYLVIE—an animated, stand-alone chat program for the PC (see quote from Plantec, 2004, above)—participants regularly positioned SYLVIE as an artifact to be used and controlled but one that also seemed to resist users’ intentions. In addition to scripting, SYLVIE (or a pronominal substitute) was also the object of a number of other actions in mailing list posts: “make Sylvie start the program,” “you can program her,” “make her sound less synthetic,” “use her,” “using her,” “put Sylvie in the start menu,” “pause her,” “keep Sylvie on top,” “you have to get to know her,” “have her recognize,” and so on (Zdenek, 2002). Users routinely objectify inanimate objects and artifacts. But when the tool is also figured as a young woman, such feminized machines are characterized, problematically, as restive objects to be brought under control by persistent users.

Differences between users’ goals (which may vary widely) and the objectives of the company hosting a Web character can quickly lead to user frustration. For example, when a character’s appearance (e.g., it appears to be communicatively competent) does not match reality (e.g., it is based on a brittle and limited natural language processor), users may quickly become frustrated and verbally abusive (Brahnam, 2006; Zdenek, 2001). And yet the ideal v-human is marketed as efficient, reliable, programmable, always on call, malleable, responsible for mundane and repetitive (albeit sometimes crucially important) tasks, and rarely disagreeable (since the customer is always right). For example, SYLVIE is preprogrammed to tell the user, “I never get tired. I could have conversations all day and all night 365 days a year” (Zdenek, 2002, p. 261). In news and promotional discourse, the machine-as-woman is lauded as more durable and rational than her biologically fragile and fallible human counterpart:

[Virtual characters are] creating, and employing, every manager’s dream worker; a virtual assistant that works 24 hours a day, seven days a week, doesn’t ask for vacation, never gets sick, is always pleasant, informed and looks sharp. (Grachnik, 2004)

Avatars also don't tire or care what time it is, giving trainees the option to replay situations whenever and wherever they want. (Borzo, 2004)

Ever dream of an employee who knows all the prices in the store, speaks any language, and remembers the name of every lead, and never takes lunch. It's here and you're looking at it. (Female webhost on Oddcast, voice recording taken July 25, 2006)

Our unique customer service agent Jenny by Botizen never takes a holiday makes our office opens 24 hrs with no additional cost. (Ibe, 2006)

The virtual character is represented as the ideal employee, the ideal business technology. When that employee is also figured by default as a virtual woman, qualities associated with computing technology (such as continuous performance and perfect memory) can easily become subtle arguments for maintaining potentially sexist gender differences. When the virtual woman is characterized as a faithful and untiring servant, the technology is feminized. Yet that faithful servant may also bite back in similarly gendered ways. The “gendered antagonistic force” that Sharon Stockton (1995, p. 594) associates with the feminine space of the matrix in cyberpunk fiction is reflected in VALERIE's hysteria and SYLVIE's resistance.

Gender is a relation. The meaning of gender—how it signifies, in what contexts, for whom—is informed by and informs the meaning of other socially constructed markers of identity. In the case of Web characters, gender and race interact to fashion characters that are feminized on multiple levels: as women, as racial Others, as technologies, as commodities, and, historically, as childlike automata (see Wood, 2002; Sussman, 1999).

The Asian-inspired Oddcast character is the most popular character on Oddcast's website (see Figure 4). It clearly serves as inspirational muse for design-



FIGURE 4 Four examples of Oddcast's most popular character. Source: Oddcast.com and Alicebot.org. Compiled from separate sources on February 11, 2005. Copyright © ALICE A.I. Foundation, Inc. and Oddcast Inc. 2000–2005. All rights reserved.

ers who (a) always defer to it when demonstrating a potential or experimental use of their technology, and (b) always sexualize it. It is also arguably the most popular character on the websites of Oddcast's clients. In fact, it may be the most popular website host on the Web. What should we make of all this, if anything? On the one hand, the design of increasingly diverse Web characters is simply a reflection of the triumph of multicultural rhetoric. For companies like Oddcast, diversity is good for business when it takes the form of products that satisfy the needs of a diverse clientele. On the other hand, however, rests another possibility, one in which racial diversity is interpreted as a subtle appeal to the Orient as a feminized space. Juliana Chang (2004), drawing on the work of Edward Said, writes:

The Asian American female inhabits a position in the US national unconscious that I will call the oriental feminine, a femininity produced by orientalism. Edward Said and others have noted that the "Orient" was produced discursively and epistemologically as a feminized location, (im)penetrable by the West. The metaphorical feminization of the Orient resulted in the metonymic hyperfeminization of "oriental women," as if culture compounded gender. (p. 239)

From this perspective, Web characters are hyperfeminized, objectified along multiple axes: as women, as racial Others, as technologies, as commodities, and/or as children. Interestingly, orientalism also surfaces in the history of automata in the form of the inventor's appeal to a magical, Other world. Kempelen's Automaton Chess Player of the 18th and 19th centuries, also known as "The Turk," had audiences mesmerized for 70 years with its sorcerer's power and the possibility of a "man within a man" hidden inside (Wood, 2002, p. 70; Sussman, 1999). In an article on The Turk, Mark Sussman (1999) makes the claim that the 19th century automaton was "frequently figured as female or exotic other" (p. 82). "With its downcast eyes and mustache, [The Turk] suggested the Orientalist fantasy of a sorcerer or fortune-teller" (p. 83). In drawing a connection, however tentative and speculative at this point, between Western fantasies of the Other in the history of automata, and the rhetoric of multiculturalism that informs the design of Web characters, I aim to encourage a more open and critical discussion of the ways in which our artifacts are inscribed with cultural values.

IMPLICATIONS FOR TECHNICAL COMMUNICATION CURRICULA

This paper was borne of a troubling feeling that the majority of animated Web characters reinforced rather than challenged traditional gender hierarchies (see Hopkins, 1998, p. 5). It developed into a study that set out to describe the genre of virtual characters for customer service, with a particular emphasis on how de-

signers *do* gender. Its major finding is not merely that customer service agents are overwhelmingly presented as young women but that virtual characters may be feminized along one or more axes (even though they may also be represented as professional and authoritative agents): as women, technologies, racial Others, commodities, service workers, hysterical or restive shrews, corporate clones, and/or simpletons. The terrain is rapidly changing, however. To the extent that our everyday environments are becoming ever more computationally robust (wired, networked, smart), and to the extent that technical communicators are increasingly committed to the design of increasingly immersive interfaces and support systems, we need more studies that explore the genre of invisible interfaces and the social construction of invisibility, nature and “calm” computing (Weiser & Brown, 1995).

Usability studies may yet reveal that a significant number of users are in fact challenging traditional assumptions about gender when interacting with virtual humans. While preliminary research on the “dark side” of HCI indicates that users perform gender in traditional (male-dominated) ways with interactive characters (Brahnam, 2006, p. 1), more research, including workplace studies of design labs, is needed with a wide range of users in a wide range of contexts. Technical communicators need to interrogate the often hidden assumptions that shape design decisions and frame user interactions. Getting the audience involved as an “actual participant” in the design process (Johnson, 1997, p. 363), while an important objective for our field, may interfere with the technical communicator’s social responsibility to design inclusive (antisexist) technologies. Rather than simply explore whether personified interfaces are more effective or usable than traditional interfaces (Lester et al., 1997), technical communicators need to be willing to question the design of technologies that are usable but nevertheless continue to reinforce sexist assumptions about gender and labor. “Being useful is not necessarily good,” writes Miller (1989, p. 18; see also LaDuc & Goldrick-Jones, 1994, p. 246). By “seek[ing] to make tacit knowledge explicit” (Durack, 1997, p. 258), technical communicators can provide a lens through which transparent assumptions can be made visible to other members of the project team. This is no small task, of course. Stories of technical writers as glorified typists abound (see Savage & Sullivan, 2001, for a few choice examples). But we might as educators take our cue from the critical impulse in technical communication scholarship—the so-called political or critical turn that “connect[s] discourse to social and institutional practices so that both we and our students can see how discourse and the reality it constructs are shaped by the political, economic, and material interests of professions and the institutions they create” (Herndl, 1993, p. 354; see also Sullivan, 1990; Blyler, 1998; Selfe & Selfe, 1994).

A critical pedagogy for intuitive, natural, and interfaceless interfaces would strive to help students draw a connection between the design of natural interfaces and the social and political interests through which that nature is made invisible and inev-

itable. Rather than starting from the perspective that virtual characters are simply more natural than traditional interfaces, a critical perspective would encourage students to begin with the assumption, following Charlotte Thralls and Nancy Roundy Blyler (1993) on the social perspective, that natural and intuitive interfaces are socially constructed. Put simply, it would foster the idea that believability and humanness are never transparent or objective rubrics for evaluating natural interfaces. To help students make visible some of the tacit assumptions about human nature that mediate the design and use of v-humans and other natural interfaces, a critical pedagogy might be centered around the *rhetoric* of virtual characters—i.e., the ways in which such interfaces are discursively mediated. Such a pedagogy might take a number of directions. But at its core, it would have two objectives: (a) to unpack the constellation of assumptions that drive the development and marketing of v-humans, and (b) to critically interpret them. For example, an undergraduate technical communication curriculum grounded in rhetoric might draw on a small number of rhetorical methodologies in order to structure students' analyses of websites and other texts. Critical methodologies such as feminism, ideographic criticism, and critical rhetoric foster a feminist approach directly. But so can more descriptive methods such as pentadic criticism and framing analysis (see Kuypers, 2005). The Burkeian pentad, to take one example, has the advantage of providing a simple but powerful heuristic for guiding analysis and raising questions for discussion:

Agents. Who are the actors involved, both human and nonhuman? What is the relationship among actors? Which users, if any, are better positioned to take full advantage of the technology? Are any agents left out that you think should be included (e.g., classes of excluded users)? How is power distributed among actors (organizations, users, virtual characters, etc.)? To what extent are virtual characters set up as autonomous agents? If so, how? What role, if any, do markers of identity such as gender play in categorizing agents?

Acts. What acts do agents perform? How might these acts be categorized? What is the range of action (e.g., what cannot be done)? Do any of the acts intersect with gender, race, class, ethnicity, etc. (e.g., stereotypical or sexist acts)? How might you document and analyze acts that are often invisible (e.g., actions by other Web users)?

Scenes. What are the common scenes through which action takes place? How might these scenes be categorized? How do scenes intersect with agents and acts? Do some scenes privilege some agents over others? How inclusive are the range of contexts and roles for which virtual characters are being implemented? Given that websites are updated regularly, how might changes to the scene over time signal changes in designers' motives? How do website revisions signal changes in other elements of the pentad (e.g., acts)?

Agencies. What are the various means through which acts are accomplished? What are the limitations and affordances of the technology itself? What are the atti-

tudes and moods (e.g., professional, irritable) through which acts are accomplished? Are there differences between agents on the basis of attitude? How would you characterize a website on the basis of style?

Purposes. What are the agents' purposes for accomplishing the acts? How do they differ? Are they complementary or in conflict? Why? Do one or more purposes appear dominant?

For the rhetorical critic, the pentad is a way of understanding a rhetor's motive by analyzing a situation in terms of a dominant or controlling element. It thus encourages students to think in terms of power: Who or what are the controlling elements in the situation and why? How is their power discursively and visually constituted? To what extent is their power visible? Can/should it be challenged? How are knowledge and the design of new technologies connected to politics? (see Blyler, 1998, p. 36). Questions about gender can be integrated easily into this framework. The heuristic is scalable too: Students might consider one animated Web character on a single website, or work through a number of cases as a way of building an understanding of the genre. As students discuss and share their analyses, reflecting on power and dominance in the rhetorical situation, they can begin to move from description and analysis to interpretation and critical evaluation. It is at this stage that instructors can raise questions about fairness, access, inclusion, accountability, and ethics.

This approach can play out in different ways as it is adapted across the technical communication curriculum. In design and writing courses, it can serve as a single unit or a critical bridge from one unit to the next. In the rhetorical analysis course, the study of invisible technologies (nanotechnology, ubiquitous computing, implants, interfaceless interfaces and v-humans) might serve as a semester-long theme (see Henry & Sharp, 1989). The goal of such an approach, however it is instantiated, would be to provide a critical touchstone for the technical communication curriculum as well as our students' future workplaces, a way of grounding them not in expediency but in social responsibility.

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