

5.22.2002**Human Mediated Communications**

I want to start by teasing you with my packet sniffer.

- Go to sniffer

For all of you unfamiliar with packet sniffers, they're software programs that analyze—that is store and represent—traffic traveling through a local area network. Right now, you're seeing all the packets addressed to and sent by my computer.

Now, some of you may think that your computer only sends and receives data at your request. That you are that all powerful user that Microsoft invoked to sell its Internet Explorer. Sell it by asking you “where do you want to go today?” As you can see, however, your computer wanders without you—it constantly sends and receives, receives and stores—that is reads—packets. Packets whose payloads, in this case, probably just ask and respond to the question “can you read me?” Packets that must be translated in order for you to read them—if, your operating system allows you to do so, something that macs not running OSX do not. Screening this traffic focuses your attention on the text and images pulsing from your screen, rather than on the ways in which you too are represented and circulated. Represented and circulated numerically, invisibly, nonvolitionally.

Look at what happens when I intervene on this ongoing conversation by requesting the *NY Times*:

- Go to *NYTimes*

In this flurry of activity, my computer did not simply request a page from the *Nytimes*. It also contacted doubleclick and sent these servers my IP address, hostname, language preference, browser type, cookie information. Now, I could have easily put this sniffer into “promiscuous mode”

- Put computer into promiscuous mode

and thus accessed all the traffic going through this cable. Significantly, promiscuous mode does not alter my Ethernet card's normal reading habits—Ethernet cards read in all packets and then discard those not addressed to it—demonstrating quite nicely the fact that data is cheap and reproducible in ways that seem to defy, rather than support, private property. This tendency of digital devices to automatically store what they read, to conflate the actions of reading and writing, makes resilient our digital traces. Unlike our Ethernet card, many digital devices—especially those owned by private companies, government and educational institutions—do not actively erase data. They keep backup everything ostensibly because our machines always fail us, because we always erase things we regret later, because we never know when information will move from the mundane and useless to the invaluable—or at least the valuable... and so the possibility, and I want to stress here that it is only a possibility, the possibility exists that someone or some machine can re-trace our steps. That is, of course, if our traces have been stored to begin with.

Now, many of us may be surprised by the vulnerability, promiscuity and gregariousness of our jacked-in computers. However, rather than being surprised at how exposed and how *not* in control we are, we should be surprised that we ever thought otherwise. How has such a compromising form of communication been bought and sold as empowering? And why does revealing the fact that, in order for a remote machine to send us the information we may have requested, it needs to know where to send it and how to format it—why does such a revelation count as a revelation at all?

Moreover—given that computers *generate* visuals rather than either reveal what's actually there—why do we so readily believe that my packet sniffer is actually analyzing network traffic? Indeed the current obsession with transparency—especially at the level of product design and theoretical discourse—would seem to be a compensatory gesture. As our machines increasingly read and write without us, as our machines become more and more unreadable so that seeing no longer guarantees knowing, we the so-called users are offered more to see, more to read. The computer, that most non-visual and non-transparent device, has paradoxically fostered “visual

culture” and “transparency”. If the medium is the message, the message is not transparency, nor is it obscenity or pure circulation. Contrary to Baudrillard’s generally insightful and provocative analysis of media, an analysis that keeps reiterating McLuhan’s aphorism—the medium is the message—high speed communications do not make everything “immediately transparent, visible, exposed in the raw and exorable light of information of communication.” Or, if they do, they do so via operations that are anything but visible and they do so by sending information shooting through glass tubes through which we can no longer see. Also, contrary to Baudrillard, it is not only viruses that save us from the “true omnipresence of all networks, a total transparency of all data”—noise is endemic to the system, it is generated from our very wires—and failure is always expected. If we receive a signal, it is due to a massive and noisy network of devices that constantly threatens to supplant our own message.

Importantly, addressing questions of constitutive vulnerability does not mean endorsing paranoid narratives of global spy systems and malevolent corporate cookies. Dreams of big brother are the obverse not the opposite of the internet as agency-enhancing marketplace, since they too seek to mark as volitional, controllable and unfailing interactions that are fundamentally nonvolitional and contingent. And I am continually amazed by the number of people whose computers crash on a regular basis, whose floppy disks have become unreadable, who have accidentally re-written important files, whose emails disappear into the ether, honestly believe in a world-wide surveillance network in which no piece of data is ever lost. Even the NSA admits it cannot store and analyze everything, which is why it automatically stores encrypted packets. This phenomenon is the obverse to the challenge to visibility I mentioned earlier. The NSA may not be able to read these packets—they may never be able to read them—but the fact of their encryption means that they are stored and that, at the very least and until TCP/IP version six comes online, they can determine the destination and sending addresses.

But, to return to our reaction to my packet sniffer, what is at stake in these promises, surprises and revelations? Although, we don't have enough time today to answer these questions, we hopefully have enough to unpack them.

OK. So what is at stake in the inflated unfulfillable promises of the mid- to late 1990s, promises that were usually accompanied by knowing disappointment? In scholarly work, this promise usually posed as the claim that electronic texts literalized a theoretical ideal. For instance, early hypertext work argued that hypertext epitomized Roland Barthes' writerly text, almost every major museum claimed and still claims that its website is Andre Malraux's museum without walls. According to some early analyses of MOOs and MUDs, cybersex supposedly cemented Foucault's claim that sexuality is becoming more and more discursive and every angst-ridden boy passing as the girl of your dreams proved that gender is performative. In an interesting cross-over, Etrade.com proudly echoed Foucault's claim that knowledge is power.

In most popular analyses, the internet however was touted as finally solving the problems of X by fulfilling its promise. Almost every television commercial advertising the internet in the mid to late-1990s showed it as finally substantiating a marketplace of ideas by eradicating all physical markers of difference and thus—so their logic went—eradicating the discrimination that supposedly *stemmed from* these differences. According to Bill Gates, the internet took the antagonism out of the marketplace by creating a “friction-free capitalism.” The internet also supposedly brought about a global village, a global village—that, unlike Marshall McLuhan's apocalyptic description of it—was a happy global village.

Now, we should resist the urge to dismiss these promises as mistaking propaganda for reality, or as being simply untenable after September 11th. We should resist this urge because, for one thing, these promises were surprisingly resilient in the face of contradictory experiential evidence: the same corporations selling the internet as a form of empowerment participated in dialogues about the digital divide; the fact that dot.coms had no revenue—the fact that there seemed to be no viable market in cyberspace—did not affect rhetoric about the new economy.

Indeed, the dot.coms turned into dot.bombs through a “fact”—their unprofitability—that had always been known. And this fact calls into question thinking that clings to the idea that better accountability will ensure better actions, that all we need is better information, more transparency. Indeed, if anything, this idea that better information means better knowledge which in turn means better action, is that on which the dream of the Internet as ideal democratic public sphere was founded and foiled. So the dream went like this: the Internet was supposed to resuscitate the bourgeois public sphere by enabling—finally—the democratic exchange of information. And this exchange was supposed to be good, enlightening even. If mass media such as television had delivered us more information and yet we seemed no more enlightened, the US judiciary amongst others argued, it was because television had imprisoned us on the other side of the podium. The internet, however, by enabling everyone to post, was supposed to create a marketplace of ideas in which the strongest naturally evolved and the worthless disappeared.

After 9/11, the belief that the democratization of information—and cryptography—would make the world a happier place no longer seemed defensible. In a *Newsweek* article listing the ways in which both the terrorists and survivors both used cell phones and the Internet, Stephen Levy for instance argued that “modern technologies that add efficiency, power and wonder to our lives inevitably deliver the same benefits to evildoers. The internet is no exception.” The fact that the ringing cell phones of suspected terrorists led directly to their detainment and that the terrorists—contrary to *USA Today*’s musings—did not use cryptography or steganography to transmit their plans over the internet did not impact these soulful introspections—or the subsequent revocation of civil liberties and public information—any more than revenues effected stock prices in the late 1990s. So, it would seem that these “reassessments,” reassessments seemingly grounded in a more technically intelligent understanding of the medium still resist a rigorous engagement with the medium

Now, another problem with these reassessments is that they obscure the work that these supposedly “false” promises and ideals do. With respect to the myth of the Internet as a happy

public sphere—as I argue elsewhere in my analysis of race and cyberspace—the debate over the Internet as a democratic public sphere displaced debate over the Internet as a pornographic badlands. In 1995, cyberporn dominated the news in the United States—and it wasn't so clear then that the Internet would enlighten rather than expose—and it wasn't so clear that people would ever be willing to send their credit cards over the net. 1995, after all, was the year of Sandra Bullock's *The Net*, which revealed the ways in which your entire life could be ruined if you ordered pizza online.

- Show slide

It was the year that magazines from *Vogue* to *Time* published pieces on the dangers of cyberporn and cyber-stalking.

- Show slides

Needless to say, debating over whether or not the internet is an ideal public sphere is far more inducive to sending one's credit card number over the line than whether or not the internet is an invasive, pornographic medium. It is better to deal with jaded customers, who can now congratulate themselves on “seeing through” Internet propoganda than with no customers at all.

At this point, I want to return us to the question of visibility and exposure. To why visualization, visuality has persisted in the face of such an unreadable machine? Or, to phrase it slightly differently, why language and reading have persisted in such a non-linguistic machine?

There is, literally, no such thing as computer literacy. As evidenced by our packet sniffer, computers do not read or write with letters. Machine language is catachrestic—a result of our literal desire to give our machines tongues and digits. Computer reading does not distinguish between the literal and the figurative, between reading as mere repetition and reading as understanding—their reading does not even distinguish between reading and writing. Moreover, as Friedrich Kittler argues, there is no software→everything comes down in the end to voltage differences. Software cannot be physically separated from hardware—only ideologically. You cannot see software and there is no intrinsic reason why software, or any form of information

should have any value. Indeed software initially referred to any part of a computer configuration that could be altered, such as the plug configuration of cables. Now Kittler, finessing his statement slightly, states that there would be no software, if computer systems were not surrounded by an environment of everyday languages, everyday languages of letters and coins, books and bucks. Whereas Kittler, in his brilliant anti-humanist critique is interested in the ways in which humans are basically bottlenecks in the system and the symbolic is the world of the machine, I want to dwell on the persistence of human reading, the persistence of software as an ideological phenomenon—or to be more precise as a phenomenon that mimics or simulates ideology perfectly.

In a **formal** sense, computers understood as running software are ideology machines. They fulfill, almost perfectly, every formal definition of ideology we have—thus perhaps revealing the limitations to our understanding of ideology.

Consider, for instance, the common idea of ideology as false ideology—as some false interpretative apparatus that those other people have been duped into believing and that we can somehow move away from. This view and its dovetailing with software was visualized quite succinctly in the movie *The Matrix*, where humans were quite literally duped by software.

- Show clip from the *Matrix*

In this clip, Neo—the hero of the movie—is re-introduced to the “matrix”—a software program under which he had been living most of his life. [note to translator: I will be discussing this clip a little more in the actual talk]

Consider Louis Althusser’s definition of ideology as an imaginary relation to the real conditions of our existence.” Software, or perhaps more precisely operating systems, offer us an imaginary relationship to our hardware—we are not offered a representation of the motherboard or other electronic devices, but rather a relationship based on desktops, files, and recycling bins. Without OS, of course, we would have no access to hardware, which is essentially unrepresentable. Without OS, we would have no actions, no practices, no user. Each operating system interpellates a “user”—calls it and offers it a name or image with which to recognize itself. So, mac users “think

different,” linux users are free-ware open-source power geeks, and windows users, well windows users are mainstream, functionalist types who are, perhaps as Eben Moglen argues, comforted by the fact that their computers crash on a regular basis. Importantly, operating systems limit what is visible and invisible, imaginable and unimaginable through the “choices” it offers us. For instance, UNIX allows you to have multiple desktops and to share them—something neither mac nor windows does yet. As well, Microsoft allows you to trash their internet explorer icon, but not move it off your desktop. But you’re not necessarily aware of how software constantly constricts and creates you—in the guise of being “user-friendly” unless you find yourself frustrated with their defaults, which are rather remarkably referred to as *your* preferences, or if you use multiple operating systems or navigational software. Even the term “user-friendly” as Natalie Jerijemenko has pointed out, makes human users seem inert and interchangeable and our software active and animate.

Users are indeed the product of software, and the term user—resonating with the “drug user”—reveals the dream of programmers everywhere—to create a product so compelling that those using it are addicted to it. Users are produced by benign software interactions—from sounds that reassure us that the computer has just saved our files—to folder names, such as “my documents,” that emphasize the fact that we should own our computer. Computers are shameless in their use of shifters—pronouns like “my” and “you” which address us—and everyone else—as individual subjects. Software operates by making us read, by offering us more relationships, and ever more visuals. And I don’t mean reading here only in terms of reading letters, but also the non-literary and archaic uses of reading as guessing, interpreting, counting and repeating. If we believe that our communications are private and invulnerable, it is because software and advertising together seek to tell us that we are behind—not in front of the window—as they shamelessly represent and circulate us. Even when we are “lurking,” when we think we are sending nothing, we are doing something→it seems impossible to resist subjectivity by doing nothing. Although I don’t have time here to elaborate, I just want to mark the fact that sex and sexuality have emerged

as master tropes for contamination, disruptive contact—for all forms of connectivity that does not respect our transparent boundary. From male to female plugs that figure all information exchange to heterosexual sex to debates over cyberporn.

Now, if software and ideology seem to fit each other perfectly, it is because both try to understand—to map—the material effects that something immaterial can have→and through this try to understand and posit the immaterial through material cues. Of course, what makes this parallel unsatisfactory is the fact that software as ideology obfuscates the question of power—a question central to any serious study of ideology. Indeed, insisting on software as ideology par excellence is an excellent way of draining ideology of any meaning and to reduce it to acts of programming, which can easily be re-programmed by individuals (this is the message that the movie *The Matrix* disseminated). Constructing software as ideology also gives hardware—and indeed networking protocols--a permanence that they do not have. Software as ideology makes us believe that somehow hardware is real. I suppose that, in a Baudrillardian moment, we could say that software as ideology exists in order to cover over the fact that ideology no longer does. According to Baudrillard, “ideology only corresponds to a corruption of reality through signs; simulation corresponds to a short circuit of reality and to its duplication through signs.” Perhaps. But in this case, I’m not so certain that we have either a short circuit or a duplication.

Regardless, I’m increasingly alarmed by the ways in which software as ideology has emerged as a heuristic device. As Moglen notes, “the division between hardware and software... has become a new way to express the conflict between ideas of determinism and free will, nature and nurture, or genes and culture. Our "hardware," genetically wired, is our nature, and determines us. Our nurture is "software," establishes our cultural programming, which is our comparative freedom.” Importantly, software’s uncanny paralleling of ideology reveals not only reveals its dream of recruiting users, but also its struggle to emerge as something in its own right. And its use as a heuristic, in addition to the multi-billion dollar software industry, testifies to its success.

Now, software—and user interfaces—may usually involve us in a game of interpretation and habit that cover over vulnerability, but this is not the end of the story. As Thomas Keenan argues, reading opens up the possibility of responsibility—the imperative to respond when our codes fail us, when we don’t know exactly what to do. And this structure of responsibility—of a certain type of reading—can be implemented at all levels of digital media, and through forms of reading that have been formally discounted as mere repetition (importantly, this repetitious reading calls into question deconstructive insistence on “reading” versus reading).

So, I want to end by listing some examples of this type of reading/writing: the work of the electronic disturbance theatre in support of the Zapatistas. Taking advantage of the physical limitations of servers and the call and response structure of TCP/IP, they engineered “virtual sit-ins” as a form of civil disobedience. Virtual sit-ins which, of course, only count or register if they are picked up by another media news outlet—given the current state of technology, the fact that the U.S. or Mexican government website is unavailable is not in itself significant. Another example of an effective use of technology is peer-to-peer networks such as gnutella. They break the server-client metaphor by taking advantage of the fact that every computer that can receive information can also serve it. The last example I want to discuss is Mongrel’s reworking of software. Mongrel’s heritage gold software re-writes photosho menus in order to get us to think through issues of racism.

- Show Heritage Gold

They have also created an alternative search engine called “Natural Selection.” This search engine piggybacks on existing search engines and, when you type in an innocuous word, it gives you normal results. When you type in a “flag” word, such as “black,” it puts you into their alternate universe of sites that parody the KKK and other racist sites. In a related move, quite a few Internet activists have started to copy the “meta” tags of popular pornographic or racist websites, so that you see their sites when you type in a racist or pornographic word.

It is through such projects—such reading engagements—that we can better understand and deal with the ways in which the internet treats us as public figures, exposes us to the glare of publicity. It is through such actions that we can dispel dreams of super-agency and super-control offered by those very companies who track our information and who seek draconian sentences for those electronic trespassers, who seek only to reveal our fundamental vulnerability. Lastly, it is through such actions that we can begin to understand the ways in which our computers seem to be writing us in what perhaps can no longer be called computer-mediated, but now should be called human-mediated communications.