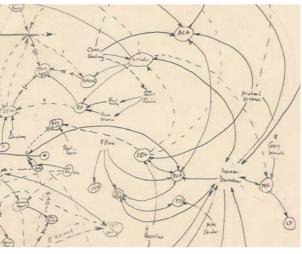
## Manager A Nest of Nodes and Lives

New York City, 1999. I'm in an art gallery looking at pencil-and-paper network diagrams drawn by Mark Lombardi, elegant documentation of famous conspiracies. Turning to a gallery employee I say, "I wonder what a computer version of these would be like." His response: "Then it wouldn't be art."



Courtesy Pierogi, Brooklyn

I couldn't blame him for thinking that way. For years the technologies for analyzing networks have been the province of physicists and mathematicians, not artists. The challenge of displaying networks on screen had been the subject of hundreds of computer science papers before Lombardi started sketching, and that work had remained comfortably within the realm of science and technology.

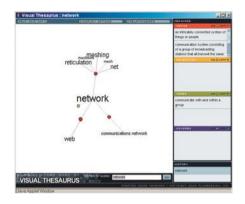
Yet just as scientists have discovered the power of networks is enhanced by interactive tools, so too have artists. Bringing a network to moving, changing life unleashes surprising emotional power. Thought itself is often considered as a network—of neurons, of literary references—and the fleeting nature of thought is well represented by the ephemerality of

software. Consider the *Visual Thesaurus*, launched a year before Lombardi's New York debut, which is a kind of living portrait of our model of language. When viewers first encounter the *Visual Thesaurus*, they don't think about usefulness, they think beauty and wonder. This is no software tool, it is a poetic view of how language works.

Such maps of the mind can turn in on themselves, inviting recursion and infinite loops.

Every network diagram is a paranoid's view of the world, bristling with hidden connections. It is no coincidence that Lombardi's work focused on conspiracy theories. Indeed the first social network diagram I ever saw was a purple mimeographed image given to me by one of my school teachers, a man whose hobby was mapping the forces behind John F. Kennedy's death.

As they say, just because you're paranoid doesn't mean they're not out to get you. Today we hear how government intelligence services—themselves the usual suspects of conspiracy theorists—pore over these same

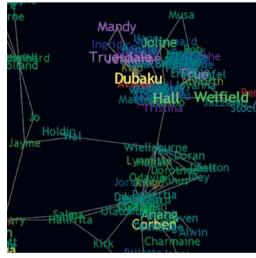


maps, using them to make life or death decisions, to peer into hidden lives. When I read in *Newsweek* that Saddam Hussein's hunters created a huge network diagram, I knew that the technology had become a tool of war as well as science. That is part of the impact of Josh On's *theyrule.org*, which makes visible the associations between the business-

world elite: the frisson of seeing a sculpture that contains real live ammunition, coupled with the beauty of a black belt in Judo using his opponent's own force to win a fight. But one shouldn't dwell on the violence to be found in networks, because they are also images of friendship and love. Sometimes all too literally, as in the cartoon world of Friendster.com or a recent Nature article on "the web of human sexual contacts," but sometimes more poetically. Several researchers who have created tools for mapping the web of a person's email contacts have told me how their subjects immediately begin telling stories when they see their own networks, seeing intense personal meaning in a nest of nodes and lines.

The ability of a network diagram to evoke meaning has led to a new kind of artistic cartography of abstract spaces, as artists seek to understand the new electronic networks that have become part of our daily existence. The I/O/D 4 Web Stalker was an early portrait of the World Wide Web; more recently other, less visible networks have been mapped—the Minitasking software, for instance, is a telescopic view of the Gnutella network. All these works combine a sense of discovery of new beauty with a political undertone, the idea that the world has become less hierarchical, more connected.

In some sense these works are the conceptual descendants of paintings of the American wilderness by the Hudson River School: they seek to use the beauty of a newfound world to convey newfound moral hope. The recurring message is of a world growing closer, traditional barriers between people collapsing in the blink of a cursor. And this is where



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art and science meet again, in the fascination with how tiny these networks are, the idea that the "degrees of separation" between any two nodes is, on average, very small. In recent decades first psychologists, then mathematicians and computer scientists, have formalized the idea that many real-life networks are "small worlds"—and at the same time artists have had to reckon with globalization in all its forms.

So to return to the conversation I had in that New York gallery: how is it that computerized network diagrams became art? What makes this something to put in a museum rather than a mathematics classroom? The answer, I believe, is that network diagrams are both more powerful and less powerful then people think. Scientists looking at a diagram of a network may use it for analysis, but they surely also feel the hint of madness or the sense of utopian hope. The emotional power is always there. Yet the analytical power is, I believe, overrated. Mark Lombardi's drawings give you a sense of secrets and dread—but they don't unravel the conspiracy. The *Visual Thesaurus* is beautiful, but I still hit Shift-F7 in Microsoft Word when I need a synonym. And that weakness, paradoxically, is what makes network diagrams art: they reveal that there is a mystery, but they don't solve the mystery itself.