



While inaccurate, of course, the assertion at least has more time depth and validity than current media attributions to Barabasi and Gladwell.

This batch of social network software applications are largely aimed at organizations who want to track who is talking with whom. Besides the corporate uses, several government spy agencies are doing social network analyses. I know of organizations using it to see the impact of mergers on relationships and, of course, to develop subterranean communication and influence patterns.

The activity is somewhat reminiscent of the dot.com boom of the 1990s, albeit in a lower key. I know one social networker working for Metalogix, another has been consulting to Spoke Software, Realize Networks is just getting going, while Visible Path has been visible at recent social network conferences. Non-organizationally, Friendster, claiming 2M members, creates personal profiles and publicly identifies friends who also use the service, enabling folks to browse the profiles and links of friends of friends.

[David Pescovitz, "The Best New Technologies of 2003." *Business 2.0*, Nov 03. The magazine's own site requires payment; the text of the article (but not the pix of Stan Wasserman, Duncan Watts, Stan Milgram and Kevin Bacon) are available at [www.spoke.com/news/b20\\_73956.pdf](http://www.spoke.com/news/b20_73956.pdf).]

## NETWORKS OF SCIENCE

*It's in the Structure:* It's the 50<sup>th</sup> anniversary of the discovery of DNA by Watson & Crick (& Franklin). Or is it? It turns out that DNA was discovered in the late 1800s. What W, C & F discovered was DNA's twisted shape and double helix structure.

*It Isn't in the Structure:* "Skeptics... question the ability of the drug discover market to handle a sudden influx of hundreds, possibly thousands, of new structures.... Each of the major

pharmaceutical companies have only a few drugs in the pipeline at any 1 time.... Critics ... wonder if producing hordes of new structures is good science. Scientists don't know what most proteins do. 'It is useless to have a structure if you can't tell the function' notes Thomas Steitz" (Yale). [David Ewing Duncan, "The Protein Hunters," *Wired*, Apr 01: 166.]

*It's in the Loops:* In loop quantum gravity, "reality is built of loops that interact and combine to form so-called spin networks -- first envisioned by English mathematician Roger Penrose in the 1960s as abstract graphs. ... The nodes and edges of these graphs carry discrete units of area and volume, giving rise to 3-dimensional quantum space.... Markopoulou Kalamara [asked]: ... Why not start with Penrose's spin network, mix in some of the results of LQG, and see what comes out. The result was networks that do not live in space and are not made of matter. Rather their very architecture gives rise to space and matter. In this picture, there are no things, only geometric relationships. Space ceases to be a place where objects such as particles bump and jitter and instead becomes a kaleidoscope of ever changing patterns and processes." [Amanda Geffer, "Throwing Einstein for a Loop," *Scientific American*, Dec02:40-41.]

*It's in the Simulation:* "Several model-building biologists suspect that what most strongly affect how a cell behaves in response to a drug or disease is not whether any particular gene is turned up or down, and not whether any single protein is blocked, but how all the genes and proteins interact dynamically." Bernhard Palsson, head of the genetic circuits group at U Cal - San Diego "combs the literature to reconstruct as much of the biochemical networks [of *Helicobacter pylori*, the ulcer germ] as they can. 'Then we subject them to constraints they must abide.' Mass must be conserved. Electrical charges must balance. Thermodynamics makes many reaction irreversible." [W. Wayt Gibbs, "Cybernetic Cells," *Scientific American* Aug 01: 57.]

*It's in the Connections:* "While humans have only 20 to 30 per cent more neurons than great apes, they have 300 or 400 times more fine neural connections linking these brain cells." [Stephen Strauss, "Smart Food," *Toronto Globe and Mail*, 1June03: F7].

*It's in the Mating:* To see which proteins link with whom, Myriad Genetics is adopting "a shotgun approach, throwing together collections of bait and prey to see what falls out." Tens of thousands of reactions are repeated, "and the bulk of the interactions will reveal themselves.... If the human proteome contains 300K-400K proteins, each of which interacts on average with an estimated 5-10 protein partners, it should take 3 years to generate a comprehensive map. At that point, the problem becomes ascertaining which of these interactions are biologically meaningful. 2 proteins may be physically able to interact but may never actually meet up in a cell." [Karen Hopkin, "The Post-Genome Project," *Scientific American*, Aug 01: 16.]

*It's in the Emergent Properties:* "Nothing is known of the emerging properties of animal societies.... Despite its small size (64 individuals), the Doubtful Sound community of bottlenose dolphins has [emergent properties]. The connectivity of individuals follows a complex distribution that has a scale-free power-law distribution for large  $k$ . In addition, the ability of 2 individuals to be in contact is unaffected by the random removal of individuals. The removal of individuals with many links to others does affect the length of the information path between 2 individuals, but unlike other scale-free networks, it does not fragment the cohesion of the social network. These self-organizing phenomena allow the network to remain united, even in the case of catastrophic death events." [David Lusseau, "The Emergent Properties of a Dolphin Social Network." 17 July -03. <http://arXiv.org/abs/cond-mat/0307439>. via *Complexity Digest*.]

*It's in the Collectivity:* "The behavior of condensed matter is collective. The details of indi-

viduals molecules hardly matter; the system's properties emerge from the act of aggregation. When water freezes, the molecules do not change, but the collective behavior does, and the laws that apply to liquids no longer do." [George Musser, "Frozen Stars," *Scientific American*, July 02: 21.]

*It's in the Database:* The Cambridge (UK) Structural Database is compiling an inventory of molecular structure, with 3D atomic coordinates on the shapes/conformations which molecules like to adopt. There is also information on which types of molecular functionality likes to interact with which other types, and in what geometries. [Steve Maginn, "World Turns to Cambridge Database." *Bioinformatics World*, Jan 02: 8-10].

## SHORT SHTICKS

*It's in the Internet:* Oxford UK real estate agent reports that access to broadband has become a major factor for people looking to rent homes. [*Oxford Times*, 12Sept03: P1].

*Conspiracy Graphs as Art:* The delicate filigree drawings of terrorist networks of the late artist Mark Lombardi is at the Drawing Center, NYC, to 17Dec03. "Solid and broken lines, circles and squiggles enmesh the names of organizations and individuals in webs of often surprising interconnections." One links the Vatican Bank, the Mafia, and firearms traffic. Virginia Commonwealth U art historian Robert Hobbs says the drawings "exists between what is known – the people, the organizations, the court judgements – and the unknown." [Eleanor Heartney, *NY Times*, 26Oct 03 ].

*FrieNDA* is "the verbal nondisclosure agreement one gives to a friend or trusted associate before sharing juicy insider gossip or confidential business information." [*Wired*, Nov00: 114]. Just yesterday (1Nov03) a prospective student in a graduate course told me that he would require NDAs from me and his fellow students before he did a presentation or handed

ed in his term paper. A computer science student, of course.

*Crows Go Kin:* The Northwestern (US) crow is passive when it attempts to take food from kin but aggressive when it tries to take food from non-kin. These crows clearly can discriminate kin from nonkin. [ *ScienceDaily*, 12Mar03, via *Complexity Digest*].

*From Guanxi to Social Support:* "Existing support networks of East Asian students could be mobilized to encourage [depression] sufferers to seek professional help. This traditional network could help guarantee that an institutional memory or social schema of depression as a problem is integrated into various Harvard communities of Asian nationals. From this would emerge a 'virtuous circle' (as opposed to a vicious circle) in which older students would, in effect, translate depression and its treatment to newcomers." [Xiaojian Hu & Miguel Salazar, "Sociology Students Shed New Light on Depression," *Harvard University GSAS Newsletter*, Summer 01: 18]

*Tracy & Kristine Get What They Deserve:* Grad students Tracy Kennedy (Soc, U Toronto) & Kristine Klement (Soc & Pol Thought, York U, Toronto) won the 2003 best student paper award from the American Sociological Association's Communication and Information Technology section. Their "Gendering the Digital Divide" shows that while similar percentages of North American men and women

use the Internet, women use it more to socialize (email) while men use it more to seek information (web). The gendered division of labor has implications for the Internet. While women with children use the Internet less, this is not true for men. The final paper is published in *IT & Society* 1, 5 (Summer), with me as a third author of the final, published article.

*The McKinsey Mob* is the colloquial UK term given to partners and ex-partners of the McKinsey consulting firm.. "The firm, of course, doesn't use such crude terminology for its former partners: the 'alumni network' is its preferred phrase.... One source says, 'The network isn't openly exploited, but the firm maintains a database of members and holds an annual reception for the alumni.' [The firm] can count more former partners running Britain than anyone else." Plus Jeff Skilling, ex-Enron CEO. [Clayton Hearst, *The Independent on Sunday* (UK), 20Jan02.]

*The Illusionist* is a novel by Colson Whitehead depicting a slightly alternative universe in a city like NYC, where there is a major fight within the guild of elevator inspectors. The *Empiricists* plod thru their inspections one material criterion at a time, while the *Intuitionists* take a more gestalt approach to detecting safety flaws. Sounds like cultural studies to me. You don't crash in an Intuitionist-inspected elevator, you only think you do.