



Read any good books lately?

LOW-CARB diets. *The Da Vinci Code*. That must-have Christmas toy that your little cousin just can't live without. If you doubt the power of fads, look no further.

But how do fads start? And once they've started, how do they propagate, infecting more and more people until they reach into every nook and cranny of society? In a November issue of the journal *Physical Review Letters*, a group of researchers working in California and France, including graduate student Thomas Gilbert of the Haas School of Business, describe how they teased apart the complex influence of word of mouth and advertising in the market.

The researchers investigated the sales trends of popular books on the online retailer Amazon.com. By looking at sale histories, they were able to trace how a book's popularity spread through the "complex network" formed by the "social system of interacting buyers."

They found two very different kinds of behaviors. The first, termed an "exogenous shock," starts when a book is given a large publicity kick from a newspaper article or from mention on a television talk show, for example. The sales histories of these kinds of books show a sharp spike followed by a longer decline in sales.

"Endogenous shocks," on the other hand, result purely from word of mouth and a grassroots-up swelling. The sales histories of these books build up progressively until they reach a peak, and they then relax over a longer timescale than for exogenous shocks.

For both types of shocks, the scientists found that the data was best fit by a model where each purchaser convinced, on average, one other person to buy the book.

Besides being of interest in marketing circles, the research may be important for those who study other types of complex networks such as the stock market or the chain of events that lead up to and follow earthquakes.

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