

MEDIA COLUMN

In addition to longer reviews for the media column, we invite you to watch for and submit short snippets of instances of women in mathematics in the media (WIMM Watch). Please submit to the Media Column Editors: Sarah J. Greenwald, Appalachian State University, greenwaldsj@appstate.edu and Alice Silverberg, University of California, Irvine, asilverb@math.uci.edu.

Sabermetrics and *The Simpsons*

Andrew Nestler, Santa Monica College

A recent episode of the television comedy series *The Simpsons* was centered around sabermetrics, the statistical analysis of baseball. The name comes from the acronym SABR, which stands for the Society for American Baseball Research.

In the episode “MoneyBart” (Season 22, Episode 3, Original Airdate October 10, 2010), young Lisa Simpson agrees to fill in as coach for her older brother Bart’s Little League baseball team. She discovers that one of her scientist heroes, Professor Frink, and some of her father’s former college classmates are passionate about sabermetrics. As the professor explains, “The field was developed by statistician Bill James,” who replies in a cameo appearance, “I made baseball as much fun as doing your taxes!” They loan Lisa a large number of textbooks with titles including *Moneyball* and *Schrödinger’s Bat*, and one with Euler’s equation as its title.

Lisa becomes obsessed with using statistical results to coach her team toward victory.

Lisa: Bart, this guy has walked the last two batters, and if he walks you, we win the game. Don’t swing at anything.
Bart: But I’m on a hot streak!
Lisa: Hot streaks are a statistical illusion!
Bart: I wish you were a statistical illusion!
Lisa: Well there’s a 97% chance I’m not, so do what I say!

Later, Lisa cuts Bart from the team for disobeying her coaching based on sabermetrics.

Ralph: When is Bart coming back?
Lisa: He’s not. He thought he was better than the laws of probability. Anyone else think he’s better than the laws of probability?

[One player raises his hand.]

Lisa: Well, you’re not!

When a player is unable to play for health reasons, Bart returns and is determined to play his favorite sport based on instinct. Lisa gets caught up in the excitement of his outrageous attempt to steal home. Though the team loses the championship game, she confides in her brother, “You made me love baseball, not as a collection of numbers, but as an unpredictable, passionate game, beaten in excitement only by every other sport.”

The episode features several staples of *Simpsons* episodes, in particular Lisa’s proclivity for logic and quantitative reasoning, and comedy based around math and science but not at the expense of those who study those subjects. For more information on math and *The Simpsons*, visit SimpsonsMath.com.

The title of the episode refers to the title of Michael M. Lewis’s book, *Moneyball: The Art of Winning an Unfair Game* (W.W. Norton & Co. Inc., 2003), which details the efforts of the Oakland Athletics’ general manager Billy Beane to use a sabermetric approach to create a competitive team. A feature film based on the book and starring Brad Pitt is filming now for a 2011 release.

BOOK REVIEW

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Delusions of Gender: How Our Minds, Society, and Neurosexism Create Difference, Cordelia Fine, W.W. Norton & Company, New York, 2010, ISBN 978-0-393-06838-2

Reviewer: Judy Roitman, University of Kansas

A Facebook friend recently linked in his status to an article in sciencedaily.com (December 22, 2010) in which primatologists discovered that some little girl chimpanzees nurtured sticks as if they were babies—they even built little nests for them—while little boy chimpanzees didn’t, thus proving that sex differences in behavior are innate. “Interesting, no?” my friend wrote. “Interesting? No.” I responded.¹ In the same week another friend told me about a compelling radio report in which a transsexual taking testosterone suddenly became interested in trucks, and another taking estrogen

¹ If you read the sciencedaily.com article, you’ll understand my skepticism; the details did not support the conclusion, as even the authors semi-admitted.

suddenly became interested in makeup, thus proving that gender preferences are hormonally based.

Oy.

Why do people take such pleasure in biological justifications of gender stereotypes? And why is their automatic reaction when you point out the rather large leaps in their “reasoning” to say: “Oh, you feminists just don’t want to accept facts”?

So it has been a great pleasure, this winter vacation, to read Cordelia Fine’s *Delusions of Gender: How Our Minds, Society, and Neurosexism Create Difference*, which carefully and with great precision demolishes the nonsense that pervades the popular and technical literature pretending to be scientific fact, exposing it as truthiness which is nowhere close to truth.

To set some context, consider the industry—that’s the only word for it—that has grown up pushing purported sex differences in public policy. One example, would it were the only one, is the Gurian Institute, which Fine refers to a number of times in her book. The Gurian Institute churns out workshops and books on the difference between male and female brains, among adults, children, and even infants, promotes child-rearing, educational, and business strategies which differentiate by gender, and enrolls schools and entire school systems in their project (such schools are known as Gurian schools). Fine deftly exposes the shoddy scholarship (rather, “scholarship”) behind all this, but I had to wade through 14.5 glowing pages of Google search before I found a link questioning the Gurian party line (from women’s e-news). This kind of gender essentialism comes in neurological dress-up, making it even more insidious than hormone-based models—for what is our mind if not a neurological substrate? Or so the contemporary myth goes. Fine calls this conflation of mind and brain applied to gender “neurosexism.”

She has four major weapons in her deconstruction of gender differences: careful explication of social psychology experiments in which small manipulations of the environment change gender performance (thus showing the subtle and remarkably flexible ways in which gender plays out in our lives); painstaking reading of the scientific literature, in which we discover that works cited for certain findings in fact do not support what they were cited as supporting; careful examination of the influences small children (including babies) deal with as they construct gender—it is our blindness to this construction and its cultural constraints that leads to the failure of imagination that makes us think that what is must forever be; and history.

A book as rich and carefully constructed as *Delusions of Gender*, which discusses hundreds of studies, cannot be fairly

summarized in a relatively short review, so I will give an example of each of the major techniques used.

Careful explication of social psychology studies: One of the most robust findings about gender difference is male superiority in mental rotation. The subject is shown a drawing of a three-dimensional shape and asked to match it to a rotated version (multiple choice with distractors). Mental rotation superiority is often cited as one reason for male superiority in science and mathematics (although, as Fine points out, the chain of reasoning here is suspect). Men always do much better on average in mental rotation than women. Or do they?

In 1994, Sharps, Price, and Williams told one group of participants that mental rotation is associated with success on male tasks; as usual, the men did much better than the women. But another group of participants was told that mental rotation is associated with female tasks: needlepoint, sewing, flower arrangement.... Suddenly the men did not do so well. In case you’re not convinced by this study, Fine gives you three other studies of the effect of social context on mental rotation. (And, to give an idea of the density of this book, she does this in less than two pages.)

As Fine puts it: “Pick a gender difference, any difference. Now watch very closely as—*poof!*—it’s gone.” (p. 26)

Painstaking reading of the scientific literature: Remember the chimpanzees with which I began this review? Citation of what non-human non-adult primates do in play is, apparently, a bulwark of the belief that, as Fine quotes (p. 125), “biologically based sex differences in activity preferences significantly influence sex differences in childhood object choice” and provide “another nail in the coffin for the idea that similar preferences in human children are entirely due to culture.”

How can one argue with primate studies? Fine doesn’t argue, instead she looks carefully at them. Here we describe just one. In 2002, Hines and Alexander studied the play of vervet monkeys. They gave them two boy toys, two girl toys, and two neutral toys. Male vervets divided their time equally, but female vervets spent more than a third of their time with the girl toys. Impressive, yes? But, wait, one of the girl toys was a pan. To quote Fine, “Although it is true that primatologists regularly uncover hitherto unknown skills in our nonhuman cousins, the art of heated cuisine is not yet one of them.” Just exactly who is gendering the toys here? Furthermore, if instead of gendering toys in human terms you categorize them as animate vs. inanimate, there were no differences between the sexes.

Those coffin nails are starting to look rusty.

Careful examination of gender construction: It starts early.

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In 2004 a McGill research team analyzed hundreds of birth announcements. Parents of boys expressed pride. Parents of girls expressed happiness. Furthermore, a 2002 study by Jost and colleagues found that, although 51% of all births were boys, 53% of all birth announcements were about boys. These babies have barely left the hospital and already their world is gendered. No wonder small children expend so much mental energy on gender.

History: Take the notion that pink is for girls. This is so embedded in North American and Australian society that the Australian child psychologist Dr. Michael Carr-Gregg “sagely” (Fine’s word) explains it as follows: “The reason why girls like pink is that their brains are structured completely differently to [sic] boys.” (p. 208). But, as Fine points out, before the end of the nineteenth century small boys and girls both wore white dresses. Color was encouraged in the early twentieth century, as well as pants for boys, to help small children learn gender distinctions (and she notes how interesting it is that people thought this had to be learned), but the colors were pink for boys and blue for girls. It wasn’t until the mid-twentieth century that we began to solidify the process which led to any contemporary North American or Australian toddler knowing that girls are pink and purple, boys are blue and camouflage. Or, as my granddaughter patiently explained to me at three, when I asked her if she would lend her Dora blanket to a hypothetical boy who needed one at naptime: boys use Spiderman blankets, not Dora ones. Why? Because boys do not use Dora blankets (said slowly to me as one speaks slowly to someone one believes to be an idiot). One wonders which structure in the female brain has Dora-receptors.

Her discussion of neurosexism is worth special mention. Fine is a psychologist whose previous book is *A Mind of Its Own: How Your Brain Distorts and Deceives*. This positions her well to note the leaps of faith inherent in neurological explanations of human behavior, and the facts they ignore, as follows: 1. Contrary to what you may have heard, mind is not brain. 2. Different physical substrates can be used by different people to accomplish the same tasks. (She doesn’t mention hydrocephalics in this context, so I will: some children whose brains were physically damaged by hydrocephalus in the days before shunts led reasonably normal lives, even though they had hardly any frontal lobes at all.) 3. When we see parts of the brain lighting up onscreen, those aren’t the parts that are active, they are the parts that are *more* active; we have no idea which parts of the brain are doing what. 4. Brains are shaped by environment as well as genes. 5. And, finally, as one

might expect by now, she looks carefully at the data and finds that, in fact, just as mental rotation is not a robust gender marker, neither is the corpus callosum, or the left or right hemisphere, or....

One last example, to give you the flavor of her writing:

Some researchers recently scanned an Atlantic salmon while showing it emotionally charged photographs. The salmon—which, by the way, “was not alive at the time of scanning”—was “asked to determine what emotion the individual in the photo must have been experiencing.” Using standard statistical procedures, they found significant brain activity in one small region of the dead fish’s brain while it performed the empathizing task, compared with brain activity during a “rest.” The researchers conclude not that this particular region of the brain is involved in postmortem piscine empathizing, but that the kind of statistical thresholds commonly used in neuroimaging studies ... are inadequate because they allow too many spurious results through the net. (p. 150)

Did I mention that Fine is, as the product description on Amazon has it, “wickedly funny”?

When I first heard about this book it was clear, even before reading it, that this is the book we’ve been waiting for. Now, having read it, I can assure you that it is even better than I thought it could be.

But reading Fine’s author’s note I had the sobering remembrance that this is not the first book we’ve been waiting for. Ruth Bleier’s *Science and Gender* came out in 1984, Anne Fausto-Sterling’s *The Myths of Gender* in 1985. They might not have been as encyclopedic or written with as much panache, but the outlines of the story are there, and have been for at least 25 years. Bleier’s and Fausto-Sterling’s pioneering work had a huge effect on many people, including me, but, apparently, not on enough of us. I wish a better fate for *Delusions of Gender*. As I write this, its Amazon rank is 28,305 (down from about 17,000 a few days ago). That’s not good enough. Buy it. Get your friends, your colleagues, your family members to buy it, or buy it for them. Get it to your local school board. Make it required reading, not only in gender studies, but in freshman sociology, biology, education and business courses. Get it on the *New York Times* bestseller list. Too late for Oprah...

Our culture is saturated with sloppy self-reinforcing non-thinking about gender. It will take a monumental effort to get it off those tracks. *Delusions of Gender* is an excellent place to start.