But when you call me Bayesian
I know I’m not the only one

Andrew Gelman
Department of Statistics and Department of Political Science,
Columbia University

If the election were held today, who would you vote for?

Barack Obama

Mitt Romney

Other

Not sure
“This week, the New York Times and CBS News published a story using, in part, information from a non-probability, opt-in survey sparking concern among many in the polling community. In general, these methods have little grounding in theory and the results can vary widely based on the particular method used.”

— Michael Link, President, American Association for Buggy-Whip Manufacture Public Opinion Research
Michael W. Link is Chief Methodologist for Research Methods at The Nielsen Company. He has a wide base of experience in survey research, having worked in academia (University of South Carolina, 1999), not-for-profit research (RTI International, 1999-2004), government (Centers for Disease Control and Prevention, 2004-2007), and the private sector (Nielsen, 2007-present). He received his Ph.D. in Survey Science from the University of South Carolina. Michael’s research centers around developing methodologies for confronting some of the most pressing issues facing survey research, including techniques for improving survey participation and data quality (use of address-based sampling, use of call screening technologies), methodological issues involving use of multiple modes in data collection (mail, CATI, field, mobile, meters), and obtaining participation from hard-to-survey populations (e.g., isolated, racial and ethnic groups). His numerous research articles have appeared in *Public Opinion Quarterly* and other leading scientific journals.

An AAPOR member since 1993, Michael served as AAPOR Conference Chair in back-to-back years (2009 & 2010), a member of both the Cell Phone and Online task forces, an instructor for an AAPOR short course, a reviewer for the student paper competition on several occasions, and currently a regular reviewer for *Public Opinion Quarterly*. He is a member of SAPOR, serving from 2011 to 2014 as President, Conference Chair, and Student Paper Competition Organizer and also a member of the Research Methods Committee.

In 2011 he, along with several research colleagues, received AAPOR’s Warren J. Mitofsky Award for their work on address based sampling designs. His current research focuses on new technologies, such as mobile and social platforms, as vehicles for measuring and understanding attitudes and behaviors. He will be teaching a short course on “The Role of New Technologies in Augmenting, or Replacing Traditional Surveys” at the 2012 AAPOR conference.
Nielsen feels the heat of competition as it flubs its ratings of news broadcasts, putting ABC ahead of NBC

In spite of the goof, its global president took time to slam rival Rentrak, which collects different kind of data from viewers

NEW YORK DAILY NEWS / Sunday, October 19, 2014, 2:00 AM

MEDIA

TV Ratings by Nielsen Had Errors for Months

By BILL CARTER and EMILY STEEL OCT. 10, 2014

Nielsen, the television research firm, acknowledged on Friday that it had been reporting inaccurate ratings for the broadcast networks for the last seven months, a mistake that raises questions about the company’s increasingly criticized system for measuring TV audiences.
Xbox estimates, adjusting for demographics:

Two-party Obama support

Nate Silver, *New York Times*, 6 Oct: “Mr. Romney has not only improved his own standing but also taken voters away from Mr. Obama’s column.”
Xbox estimates, adjusting for demographics and partisanship:
Jimmy Carter Republicans and George W. Bush Democrats:

Non-Monotonic Age Curve in 2008
The Formative Years

Age-Specific Weights ($w$)

- Posterior Mean
- 50% C.I.
- 95% C.I.
Stan is a probabilistic programming language implementing full Bayesian statistical inference with

- MCMC sampling (NUTS, HMC)

and penalized maximum likelihood estimation with

- Optimization (BFGS)

Stan is coded in C++ and runs on all major platforms (Linux, Mac, Windows).

Stan is freedom-respecting, open-source software (new BSD core, GPLv3 interfaces).

Interfaces

Download and getting started instructions, organized by interface:

- RStan v2.5.0 (R)
- PyStan v2.5.0 (Python)
- CmdStan v2.5.0 (shell, command-line terminal)
- MatlabStan (MATLAB)
- Stan.jl (Julia)
Adjusting for known differences between sample and population:

- Include more predictors
- Multilevel regression
- Poststratification
2008 election: McCain share of the two-party vote in each income category within each state among all voters (black) and non-Hispanic whites (green)

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Polarization on abortion by party

- Democrats
- Independents
- Republicans

G.O.P. Pursues Hispanic Votes With Abortion Stance
Short report

Influence of Valentine’s Day and Halloween on Birth Timing

Becca R. Levy*, Pil H. Chung, Martin D. Slade

Yale University, School of Public Health, Division of Social & Behavioral Sciences, 60 College Street, New Haven, CT 06520-8034, United States

ABSTRACT

It is known that cultural representations, in the form of stereotypes, can influence functional health. We predicted that the influence of cultural representations, in the form of salient holidays, would extend to birth timing. On Valentine’s Day, which conveys positive symbolism, there was a 3.6% increase in spontaneous births and a 12.1% increase in cesarean births. Whereas, on Halloween, which conveys negative symbolism, there was a 5.3% decrease in spontaneous births and a 16.9% decrease in cesarean births. These effects reached significance at p < .0001, after adjusting for year and day of the week. The sample was based on birth-certificate information for all births in the United States within one week on either side of each holiday across 11 years. The Valentine’s-Day window included 1,676,217 births and the Halloween window included 1,809,304 births. Our findings raise the possibility that pregnant women may be able to control the timing of spontaneous births, in contrast to the traditional assumption, and that scheduled births are also influenced by the cultural representations of the two holidays.

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The published graphs show data from 30 days in the year.
Chris Mulligan’s data graph: all 366 days

Births by Day of Year

- Births
- Smoothed
- Mean

Births graph showing data from Jan 1 to Dec 31, with peaks and troughs throughout the year.
Which Birth Dates Are Most Common?
Aki Vehtari’s decomposition
The blessing of dimensionality

- We learned by looking at 366 questions at once!

- Consider the alternative . . .
The Fluctuating Female Vote: Politics, Religion, and the Ovulatory Cycle

Kristina M. Durante¹, Ashley Rae¹, and Vladas Griskevicius²
¹College of Business, University of Texas, San Antonio, and ²Carlson School of Management, University of Minnesota

Abstract
Each month, many women experience an ovulatory cycle that regulates fertility. Although recent research has demonstrated that this cycle influences women’s mating preferences, we proposed that it might also change women’s political views. Building on theory suggesting that political and religious orientation are linked to reproductive success, we investigated whether the ovulatory cycle influenced women’s politics, religiosity, and voting in the 2012 U.S. presidential election. Using large and diverse samples, ovulation had drastically different effects on single women and women in committed relationships. Ovulation led single women to become more liberal, less religious, and more likely to vote for Mitt Romney. In contrast, ovulation led women in committed relationships to become more conservative and more likely to vote for Barack Obama. In addition, ovulation-induced changes in political views were different for single women than for women in committed relationships. Overall, the ovulatory cycle not only influences women’s politics but also affects their voting behavior.
Summary

- Big data ... messy data
- Clean up messy data ... Big model
- Big model ... Bayesian inference
- Bayesian inference ... Stan
- Understanding big models ... R!