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Social Science & Medicine

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Short report

Influence of Valentine's Day and Halloween on Birth Timing

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

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ARTICLE INFO

Article history:

Available online 28 July 2011

Keywords:

United States
Culture
Birth timing
Holidays
Pregnancy
Biocultural
Birth

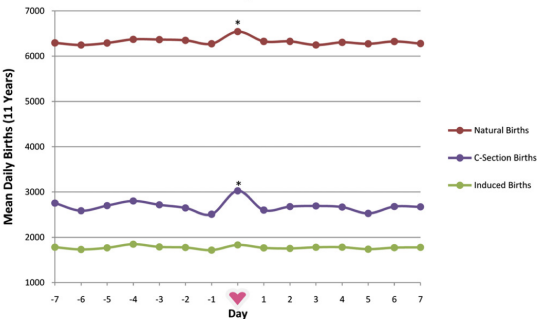
ABSTRACT

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.

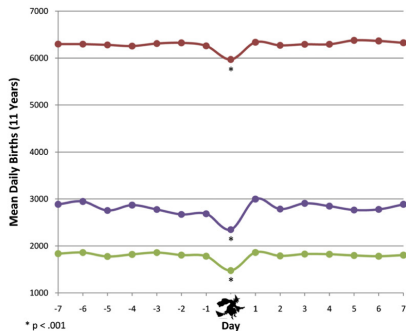
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The published graphs show data from 30 days in the year

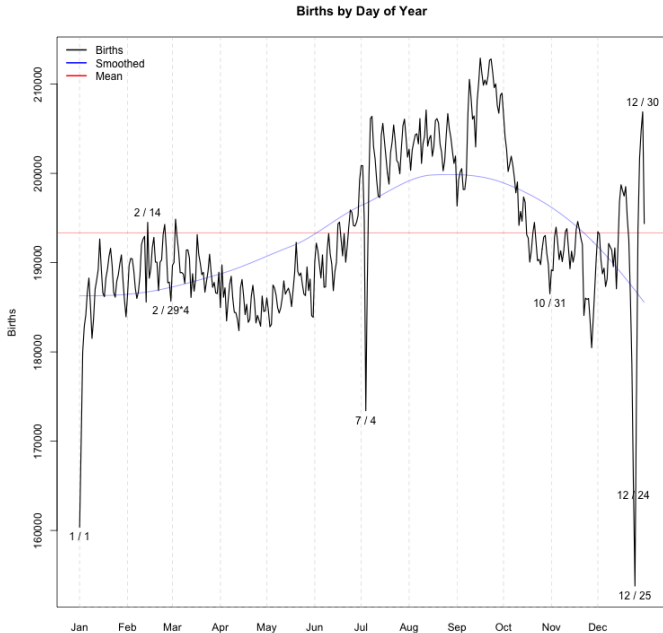
Valentine's Day: Two-Week Window



Halloween: Two-Week Window

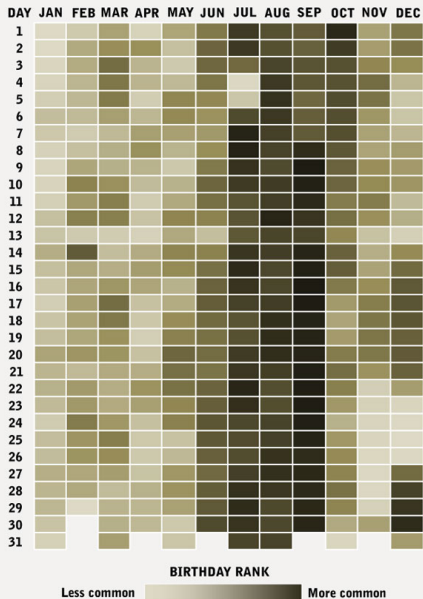


Chris Mulligan's data graph: all 366 days

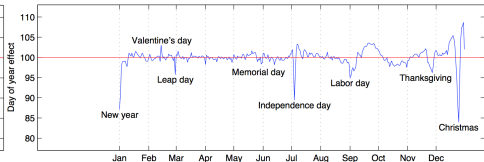
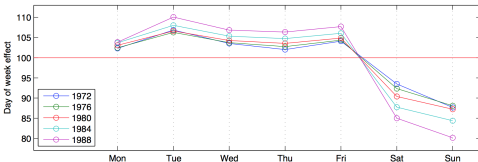
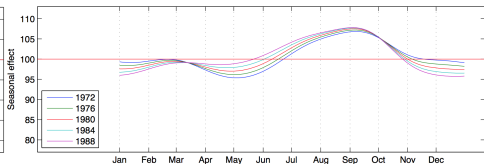
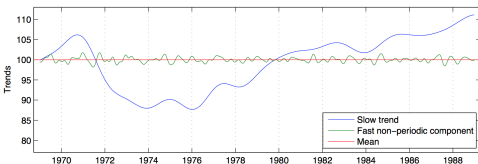


Matt Stiles's heatmap

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 the 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 status, we tested how fertility influenced women's politics, religiosity, and voting in the 2012 U.S. presidential election. Using data with large and diverse samples, ovulation had drastically different effects on single women and women in relationships. Ovulation led single women to become more liberal, less religious, and more likely to vote for Obama. In contrast, ovulation led women in committed relationships to become more conservative and more likely to vote for Mitt Romney. In addition, ovulation-induced changes in political orientation mediated women's voting behavior. Overall, the ovulatory cycle not only influences women's politics differently for single women than for women in relationships.

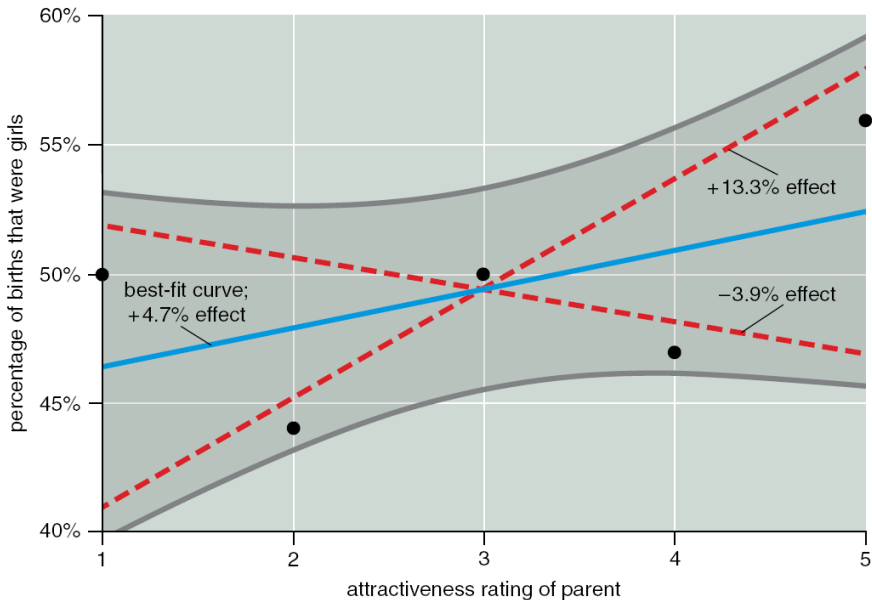
Why it's hard to study comparisons and interactions

- ▶ Standard error for a proportion: $0.5/\sqrt{n}$
- ▶ Standard error for a comparison: $\sqrt{0.5^2/\frac{n}{2} + 0.5^2/\frac{n}{2}} = 1/\sqrt{n}$
- ▶ Twice the standard error ... and the effect is probably smaller!

Beautiful parents have more daughters?

- ▶ S. Kanazawa (2007). Beautiful parents have more daughters: a further implication of the generalized Trivers-Willard hypothesis. *Journal of Theoretical Biology*.
- ▶ Attractiveness was measured on a 1–5 scale (“very unattractive” to “very attractive”)
 - ▶ 56% of children of parents in category 5 were girls
 - ▶ 48% of children of parents in categories 1–4 were girls
- ▶ Statistically significant (2.44 s.e.’s from zero, $p = 1.5\%$)

The data and fitted regression line



Background on sex ratios

- ▶ $\text{Pr}(\text{boy birth}) \approx 51.5\%$
 - ▶ Boys die at a higher rate than girls
 - ▶ At age 20, the number of boys and girls is about the same
 - ▶ Evolutionary story
- ▶ What can affect $\text{Pr}(\text{boy births})$?
 - ▶ Race, parental age, birth order, maternal weight, season of birth: effects of about 1% or less
 - ▶ Extreme poverty and famine: effects as high as 3%
- ▶ We expect any effects of beauty to be less than 1%

Bayesian solution

- ▶ Data: difference in $\Pr(\text{girl})$ estimated from 3000 respondents
 - ▶ 0.08 ± 0.03 (selected comparison)
 - ▶ 0.047 ± 0.043 (linear regression)
- ▶ Let θ = difference in \Pr (girl birth), comparing beautiful and ugly parents
- ▶ Prior distribution: $\theta \sim N(0, 0.003^2)$
- ▶ Equivalent sample size:
 - ▶ Consider a survey with n parents
 - ▶ Compare sex ratio of prettiest $n/3$ to ugliest $n/3$
 - ▶ s.e. is $\sqrt{0.5^2/(n/3) + 0.5^2/(n/3)} = 0.5\sqrt{6/n}$
 - ▶ Equivalent info: $0.003 = 0.5\sqrt{6/n} \dots n = 166,000$
- ▶ A study with $n = 166,000$ people would be weighted equally with the prior

The statistical crisis in science

Andrew Gelman

Department of Statistics and Department of Political Science
Columbia University, New York

German Society of Psychology methodology meeting
18 Sept 2015

50 shades of gray: A research story

Brian Nosek, Jeffrey Spies, and Matt Motyl:

Participants from the political left, right and center ($N = 1,979$) completed a perceptual judgment task in which words were presented in different shades of gray . . . The results were stunning. Moderates perceived the shades of gray more accurately than extremists on the left and right ($p = .01$).

They continue:

Our design and follow-up analyses ruled out obvious alternative explanations such as time spent on task and a tendency to select extreme responses. Enthused about the result, we identified Psychological Science as our fall back journal after we toured the Science, Nature, and PNAS rejection mills . . .

The preregistered replication

Nosek, Spies, and Motyl:

We conducted a direct replication while we prepared the manuscript. We ran 1,300 participants, giving us .995 power to detect an effect of the original effect size at $\alpha = .05$.

The result:

The effect vanished ($p = .59$).

The Fluctuating Female Vote: Politics, Religion, and the Ovulatory Cycle

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

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The Ancestral Logic of Politics



Upper-Body Strength Regulates Men's Assertion of Self-Interest Over Economic Redistribution

Over human evolutionary history, upper-body strength has been a major component of fighting ability. Evolutionary models of animal conflict predict that actors with greater fighting ability will more actively attempt to acquire or defend resources than less formidable contestants will. Here, we applied these models to political decision making about redistribution of income and wealth among modern humans. In studies conducted in Argentina, Denmark, and the United States, men with greater upper

DEAD

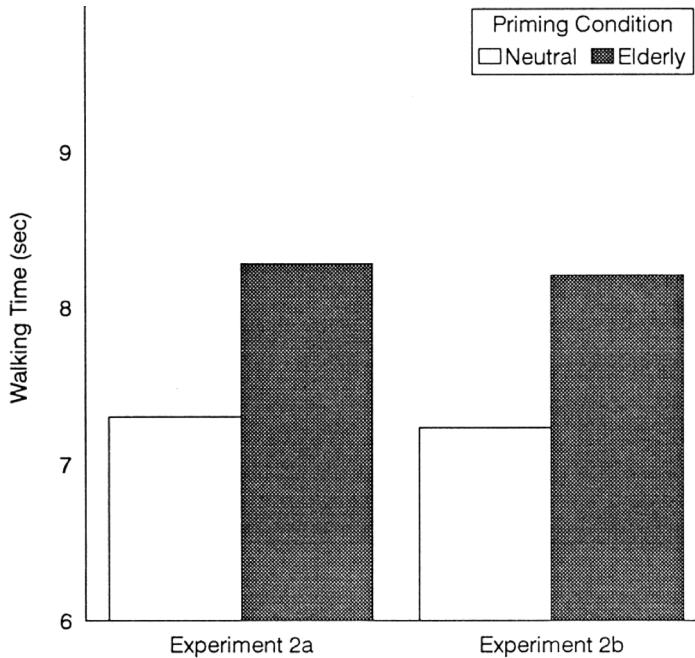
ON ARRIVAL

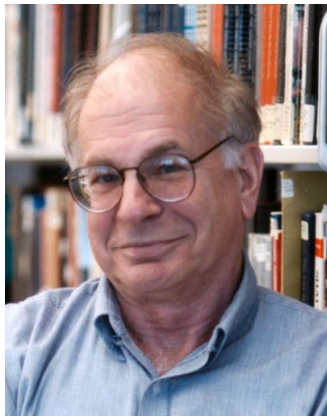


Results

Experiment 2a. A t test was computed to ascertain the effect of the priming manipulation on walking speed. Participants in the elderly priming condition ($M = 8.28$ s) had a slower walking speed compared to participants in the neutral priming condition ($M = 7.30$ s), $t(28) = 2.86$, $p < .01$, as predicted.

Experiment 2b. In the replication, analyses revealed that participants in the elderly priming condition ($M = 8.20$ s) again had a slower walking speed compared to participants in the neutral priming condition ($M = 7.23$ s), $t(28) = 2.16$, $p < .05$.





Daniel Kahneman (2011):

"When I describe priming studies to audiences, the reaction is often disbelief ... The idea you should focus on, however, is that disbelief is not an option. The results are not made up, nor are they statistical flukes. You have no choice but to accept that the major conclusions of these studies are true."

Elderly-Related Words Prime Slow Walking (#15)

[Return to View Chart](#)

[How to Cite this Report](#)

Reference to Original Report of Finding

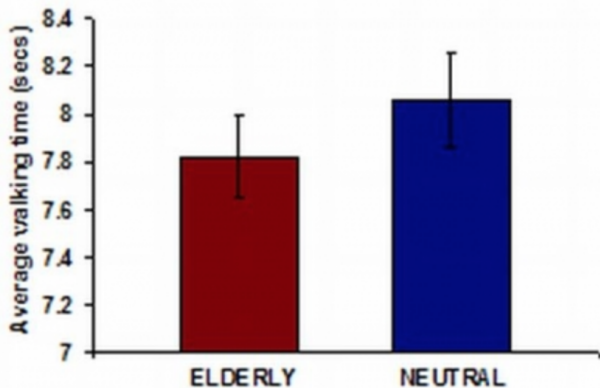
Bargh, J. A., Chen, M., & Burrows, L. (1996). Automatic action. *Journal of Personality and Social Psychology*, 71, 230-244.

Title

Elderly-Related Words Prime Slow Walking

The attempted replication

Average time (secs) to walk 32ft, as a function of priming stereotype condition



Daniel Kahneman (2011):

“When I describe priming studies to audiences, the reaction is often disbelief . . . The idea you should focus on, however, is that disbelief is not an option. The results are not made up, nor are they statistical flukes. You have no choice but to accept that the major conclusions of these studies are true.”

Wagenmakers et al. (2014):

“[After] a long series of failed replications . . . disbelief does in fact remain an option.”

Alan Turing (1950):



"I assume that the reader is familiar with the idea of extra-sensory perception, and the meaning of the four items of it, viz. telepathy, clairvoyance, precognition and psycho-kinesis. These disturbing phenomena seem to deny all our usual scientific ideas. How we should like to discredit them! Unfortunately the statistical evidence, at least for telepathy, is overwhelming."

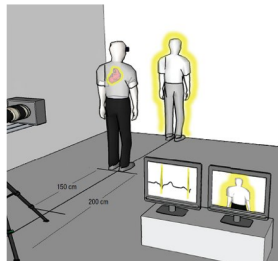


This Week in *Psychological Science* (TWiPS)

The links below take you to the journal via the APS website. If not already logged in, you will be redirected to log-in using your last name (**Gelman**) and Member ID (**8167**).

[Turning Body and Self Inside Out: Visualized Heartbeats Alter Bodily Self-Consciousness and Tactile Perception](#)

Jane Elizabeth Aspell, Lukas Heydrich, Guillaume Marillier, Tom Lavanchy, Bruno Herbelin, and Olaf Blanke



Studies of body perception have mostly focused on manipulations of exteroceptive cues (e.g., vision and touch); however, interoceptive cues (i.e., representations of internal bodily states) may be just as important for self-perception. Participants viewed a virtual body or a rectangle, each of which had a flashing outline that was synchronous or asynchronous with the participant's own heartbeat. Self-identification was stronger for people viewing the virtual body with the synchronous flashing outline than for those viewing the body with the asynchronous flashing outline or for those viewing the rectangles. This suggests that both interoceptive and exteroceptive cues play

important roles in bodily self-perception.

[Aging 5 Years in 5 Minutes: The Effect of Taking a Memory Test on Older Adults' Subjective Age](#)

Matthew L. Hughes, Lisa Geraci, and Ross L. De Forrest

Subjective age – how old people feel – is related to psychological and physical well-being. In this study, the researchers examined whether common memory-testing procedures influence adults' subjective age. Older and younger adults rated their subjective age before and after taking a memory test. Older adults reported feeling older after taking the memory test, but younger adults did not. A follow-up study found that

Psychological SCIENCE

Research, Theory, & Application in Psychology and Related Sciences

A Journal of the Association for Psychological Science

This week in Psychological Science

- ▶ “Turning Body and Self Inside Out: Visualized Heartbeats Alter Bodily Self-Consciousness and Tactile Perception”
- ▶ “Aging 5 Years in 5 Minutes: The Effect of Taking a Memory Test on Older Adults’ Subjective Age”
- ▶ “The Double-Edged Sword of Grandiose Narcissism: Implications for Successful and Unsuccessful Leadership Among U.S. Presidents”
- ▶ “On the Nature and Nurture of Intelligence and Specific Cognitive Abilities: The More Heritable, the More Culture Dependent”
- ▶ “Beauty at the Ballot Box: Disease Threats Predict Preferences for Physically Attractive Leaders”
- ▶ “Shaping Attention With Reward: Effects of Reward on Space- and Object-Based Selection”
- ▶ “It Pays to Be Herr Kaiser: Germans With Noble-Sounding Surnames More Often Work as Managers Than as Employees”

This week in Psychological Science

- ▶ $N = 17$
- ▶ $N = 57$
- ▶ $N = 42$
- ▶ $N = 7,582$
- ▶ $N = 123 + 156 + 66$
- ▶ $N = 47$
- ▶ $N = 222,924$

Labor Market Returns to Early Childhood Stimulation: a 20-year Followup to an Experimental Intervention in Jamaica

Paul Gertler, James Heckman, Rodrigo Pinto, Arianna Zanolini, Christel Vermeersch, Susan Walker, Susan M. Chang, Sally Grantham-McGregor

We find large effects on the earnings of participants from a randomized intervention that gave psychosocial stimulation to stunted Jamaican toddlers living in poverty. The intervention consisted of one-hour weekly visits from community Jamaican health workers over a 2-year period that taught parenting skills and encouraged mothers to interact and play with their children in ways that would develop their children's cognitive and personality skills. We re-interviewed the study participants 20 years after the intervention. Stimulation increased the average earnings of participants by 42 percent. Treatment group earnings caught up to the earnings of a matched non-stunted comparison group. These findings show that psychosocial stimulation early in childhood in disadvantaged settings can have substantial effects on labor market outcomes and reduce later life inequality.

The “That which does not destroy my statistical significance makes it stronger” fallacy

Charles Murray: “To me, the experience of early childhood intervention programs follows the familiar, discouraging pattern . . . small-scale experimental efforts [$N = 123$ and $N = 111$] staffed by highly motivated people show effects. When they are subject to well-designed large-scale replications, those promising signs attenuate and often evaporate altogether.”

James Heckman: “The effects reported for the programs I discuss survive batteries of rigorous testing procedures. They are conducted by independent analysts who did not perform or design the original experiments. The fact that samples are small works *against* finding any effects for the programs, much less the statistically significant and substantial effects that have been found.”

What's going on?

- ▶ The paradigm of routine discovery
- ▶ The garden of forking paths
- ▶ The “law of small numbers” fallacy
- ▶ The “That which does not destroy my statistical significance makes it stronger” fallacy
- ▶ Correlation does not even imply *correlation*

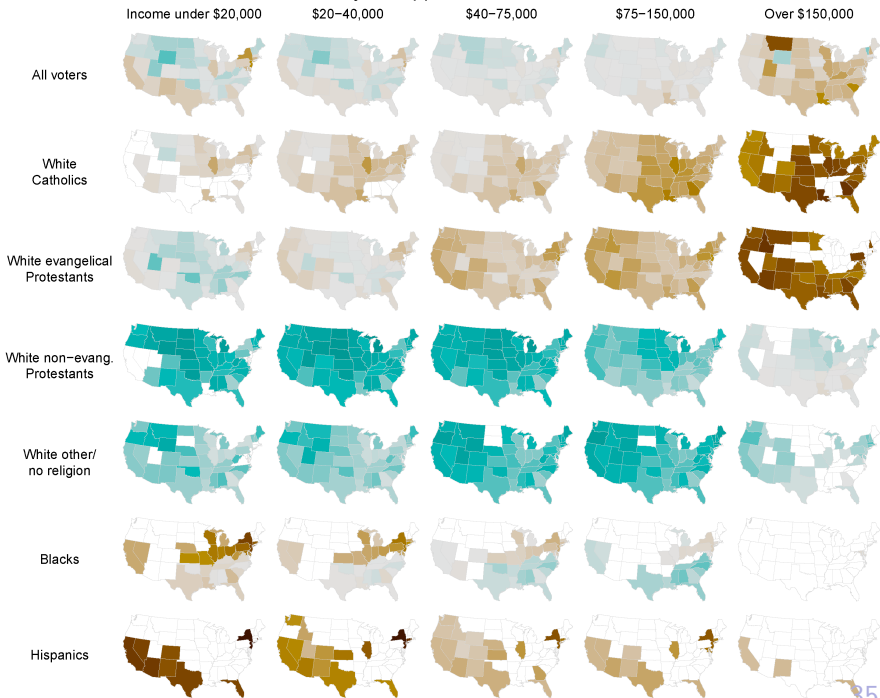
Why is psychology particularly difficult?

- ▶ Indirect and noisy measurement
- ▶ Human variation
- ▶ Noncompliance and missing data
- ▶ Experimental subjects trying to figure out what you're doing

What to do?

- ▶ Look at everything
- ▶ Interactions
- ▶ Multilevel modeling
- ▶ Within-person studies
- ▶ Design analysis
- ▶ Bayesian inference

2000: Do you support school vouchers?



The Fluctuating Female Vote: Politics, Religion, and the Ovulatory Cycle

**Kristina M. Durante¹, Ashley Rae¹, and
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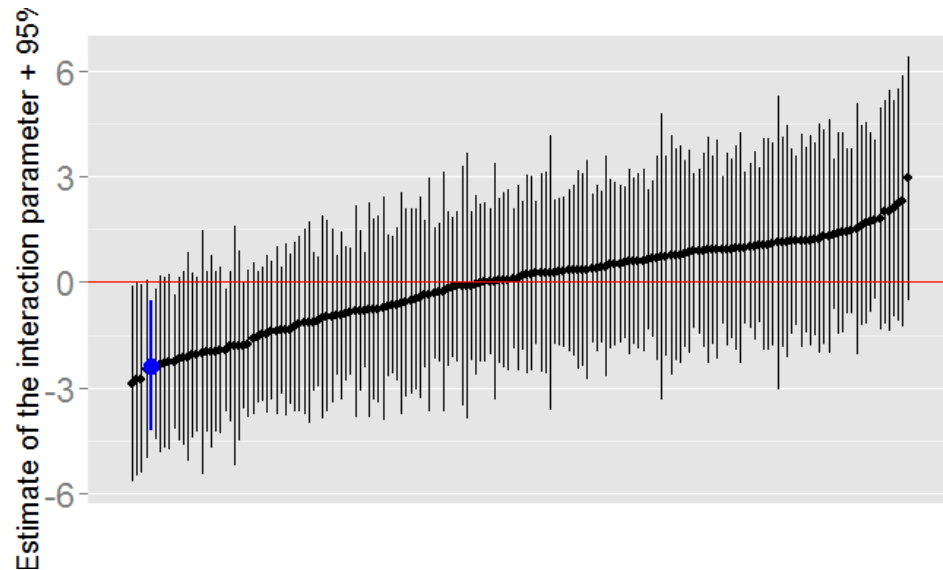
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Choices!

1. Exclusion criteria based on cycle length (3 options)
2. Exclusion criteria based on “How sure are you?” response (2)
3. Cycle day assessment (3)
4. Fertility assessment (4)
5. Relationship status assessment (3)

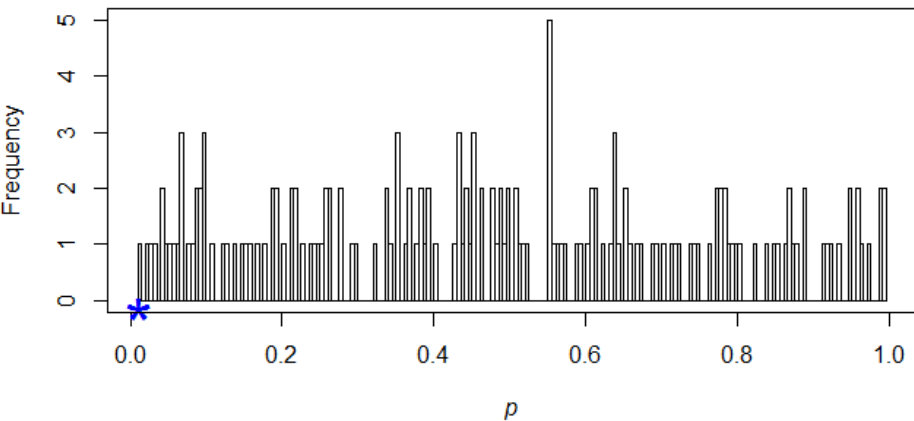
168 possibilities (after excluding some contradictory combinations)

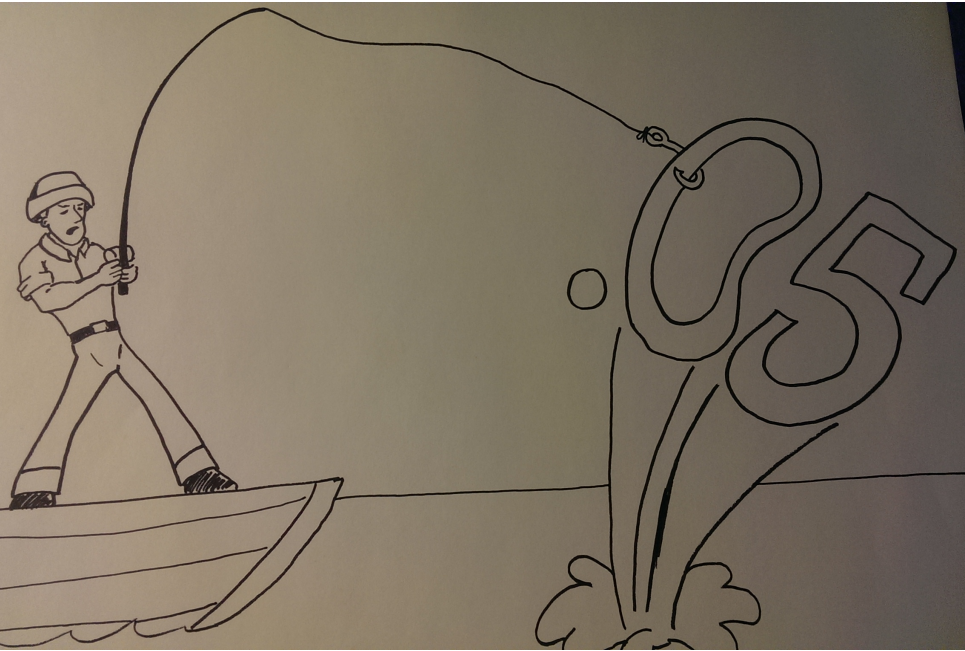
Living in the multiverse



Living in the multiverse

Histogram of p -values for fertility x relationship







.55

.09

.06

.01

.14

.22

.11

9

.03

.34

CHOOSE YOUR OWN ADVENTURE™ · 1

**YOU'RE THE STAR OF THE STORY!
CHOOSE FROM 40 POSSIBLE ENDINGS**

THE CAVE OF TIME

BY EDWARD PACKARD



WARNING ! ! ! !

Do not read this book straight through from beginning to end! These pages contain many different adventures you can go on in the Cave of Time. From time to time as you read along, you will be asked to make a choice. Your choice may lead to success or disaster!

The adventures you take are a result of your choice. You are responsible because you choose! After you make your choice, follow the instructions to see what happens to you next.

Remember—you cannot go back! Think carefully before you make a move! One mistake can be your last, or it may lead you to a new adventure.

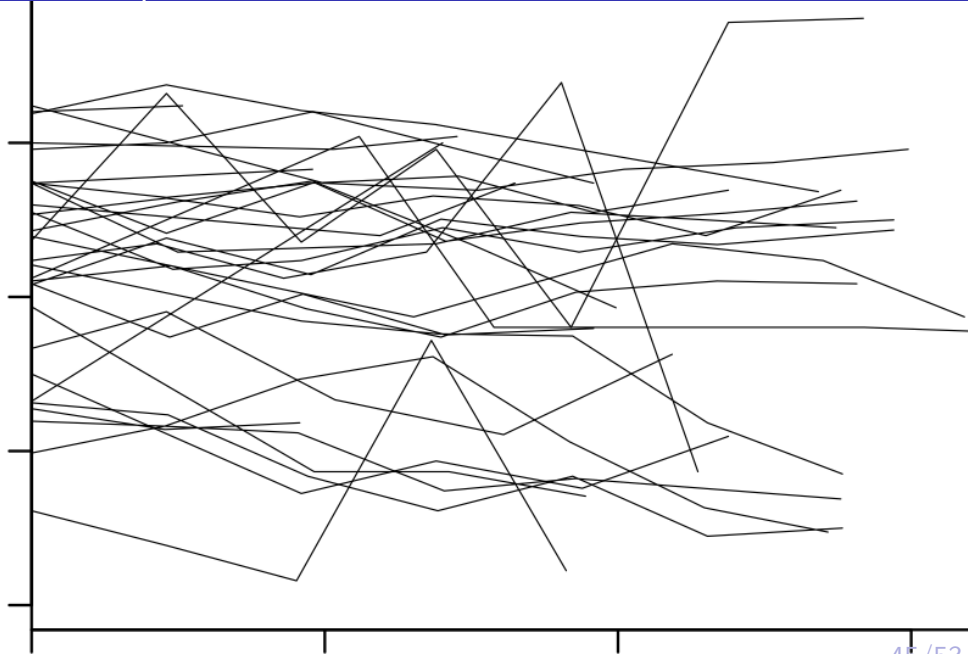
Interactions and the freshman fallacy

From an email I received:

Complaining that subjects in an experiment were not randomly sampled is what freshmen do before they take their first psychology class. I really ***hope*** you why that is an absurd criticism – especially of authors who never claimed that their study generalized to all humans.



Within-person studies







The Fluctuating Female Vote: Politics, Religion, and the Ovulatory Cycle

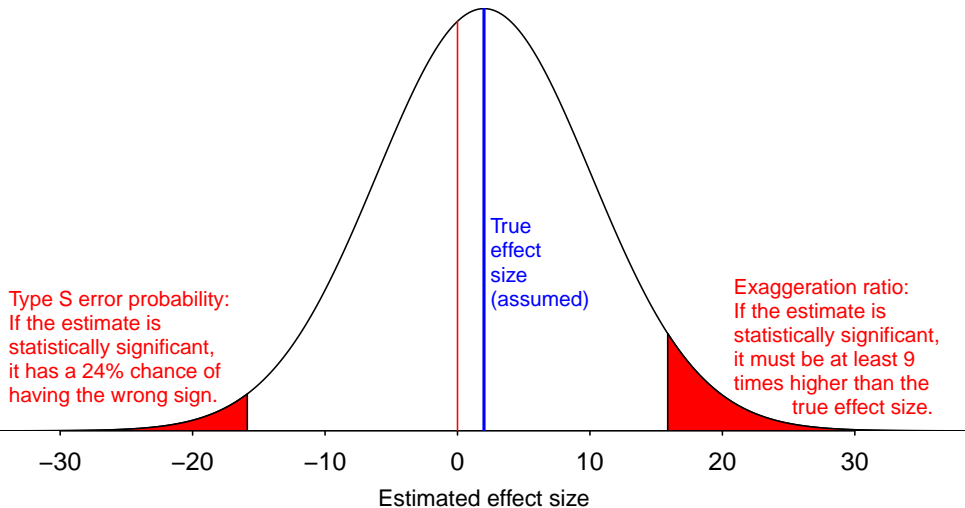
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**This is what "power = 0.06" looks like.
Get used to it.**




The paradox of publication

Journal's Paper on ESP Expected to Prompt Outrage

By [BENEDICT CAREY](#)

Published: January 5, 2011

One of psychology's most respected journals has agreed to publish a paper presenting what its author describes as strong evidence for extrasensory perception, the ability to sense future events.

 [Enlarge This Image](#)



Heather Ainsworth for The New York Times

Work by Daryl J. Bem on extrasensory perception is scheduled to be published this year.

The decision may delight believers in so-called paranormal events, but it is already mortifying scientists. Advance copies of the [paper](#), to be published this year in The Journal of Personality and Social Psychology, have circulated widely among psychological researchers in recent weeks and have generated a mixture of amusement and scorn.

The paper describes nine unusual lab experiments performed over the past decade by its author, [Daryl J. Bem](#), an emeritus professor at Cornell, testing the ability of college students to accurately sense random events,



TEACH**THE**CONTROVERSY



TEACH **THE** CONTROVERSY

Bayes to the rescue

- ▶ Smooth combination of information from multiple sources
- ▶ Open acknowledgement about uncertainty
- ▶ Let's discuss:
 - ▶ Hierarchical Bayes for studying many questions at once
 - ▶ Informative priors to make sense from noisy data
 - ▶ Model checking: With great power comes great responsibility
 - ▶ (Alternatives to) hypothesis testing
 - ▶ Fitting models in Stan
- ▶ What does this mean for psychometrics?
- ▶ What does this mean for psychology research?