

MONT 106N – Identifying Patterns
Paper 2 – November 23, 2009

General Information

The final formal writing assignment for the course will be an essay about one of the two readings listed below. Your paper should be prepared using MS Word or equivalent software, about 5 double-spaced pages in length. You will be submitting it by email as for some previous assignments. The due date is *Monday, December 7* (the final regular class day of the semester).

Description

The main objective of this essay will be to take an article or blog entry from the popular press, summarize the contents in a page or two, then discuss connections with topics we have discussed in this course, along the lines of the questions posed below. A major component of the evaluation this time will be how well you are able to draw connections with things we have discussed and make use of statistical concepts we have introduced in the course.

Which topic you are considering should be clearly stated in the first paragraph. Then the body of the paper should be the summary of the article or blog entry and the presentation of the reasoning and the evidence that lead you to your conclusions about the contents. As on the first essay, your job is to convince your reader of the soundness of your conclusions, starting “from the beginning.” That is, you should not assume the reader has been present for any of the discussions that we have had in class, or that you might have had with other Natural World cluster students. You might try explaining a possible opposing point of view, then giving your reasons for rejecting it as part of your argument.

Sources

This is not primarily a “research paper,” but you may wish to consult other sources (including Grinnell’s *Everyday Practice of Science*) as you think about the topic. If you do, please list all the sources you use in a References section at the end of the paper. For books, give the author, title, publisher, place and year of publication. For articles, give the author, title, name of the periodical, and date of publication. For online sources, give a *full URL (web address)* and the date you consulted it online.

A Suggestion

I will be happy to discuss (or read a first draft of) your paper and give you some preliminary comments by email. Or, you can come by my office hours if you want to “run your paper by me.” Alternatively, I think you may find it very helpful to have a first draft of your paper read by another student in the class. I can set up “reading pairs” working on different topics if you are interested.

Evaluation

I will provide written comments on your work, and assign two grades for each paper – one for how well your conclusions are presented and supported (in other words, for how convincing your arguments are), the other for how well your writing follows the standards for formal written English. (For instance, how well is the paper subdivided into paragraphs each addressing a particular item in your argument? Are the paragraphs arranged in a logical, recognizable sequence? Are the sentences within each paragraph ordered well? Are they grammatically correct? Are there awkward sentences? Are there overly flowery, overly colloquial, or incorrectly-used words or phrases? Is punctuation used correctly? Are there spelling and/or typographical errors?)

Note: Because of time constraints at the end of the semester, I will not be able to offer the resubmission option as for the first paper.

Topic 1 – “Does the Vaccine Matter’?”

In an article published in the November 2009 issue of the *Atlantic Monthly*, available online at <http://www.theatlantic.com/doc/200911/brownlee-h1n1>, authors Shannon Brownlee and Jeanne Lenzer raise some thought-provoking questions about the current efforts to immunize the population (particularly senior citizens) against H1N1 and seasonal influenza. Their article has been copied by many anti-immunization groups as a major support for their position and you will find the text copied at many places online. What are the key points in their argument against the current H1N1 (and seasonal flu) immunization efforts? How does what they say connect with topics we have discussed? Also, why does this make for such a “good story?” (Think about what Grinnell has to say about the difficulty of getting new ideas to be accepted.) Of course, this topic, and this article specifically, are hugely controversial in medical circles. Even though as many as 50% of doctors and health care workers are reluctant to be immunized themselves according to some estimates, there are also strongly-argued cases *for influenza immunization* that you will find if you look. Also see

http://scienceblogs.com/effectmeasure/2009/10/journalists_sink_in_the_atlant.php

for one critical assessment of the *Atlantic* piece. A key question here is: why have there been no randomized double-blind trials of flu vaccine using placebos? Why would doctors have resisted doing them? Is resistance to doing such trials understandable? A final question: If the “experts” cannot agree on something like this, where does that leave ordinary people?

Topic 2 – Zipf’s Law

The first problem on our Excel regression lab was inspired by the following Opinionator blog entry from the New York Times: “Math and the City” by Steven Strogatz (a Cornell math professor), published on May 19, 2009; the URL is

<http://opinionator.blogs.nytimes.com/2009/05/19/math-and-the-city/>

Who was Zipf and what did he do about relative sizes of cities? What other analogous possible patterns does Strogatz discuss? What do you think about the sort of ideas discussed here?

Next, if you look at the many online responses to this blog entry, you will see a number of common threads in the critical comments.

First, there are lots of “debunkers” who claim something to the effect that in country X, the pattern does not hold exactly, so Zipf’s Law is wrong. What are they missing (what don’t they understand about what Zipf’s Law is claiming)? And how does this relate to what we did in the lab? Could Strogatz have done a better job of describing the actual mathematics and “headed off” this type of comment?

Second, there are several more considered rebuttals to the effect that humans have a natural tendency to look for and find patterns in any data they examine, even when there are no real patterns there (just noise). How does this relate to Grinnell’s ideas about the thought patterns and presuppositions necessary to do science?