So You Think You’re Logical?

A Guide to the Use (and Misuse) of Facts and Reason
The Logic of Logic

“The question of proof is problematical since proof needs to be proven.”

- Jean-Francois Lyotard

“I’m from the hood, stupid, what type of facts are those?”

- Jay Z
“Each of us is an argument, evidenced by our narrative” (415).
“If Ms. Smith is steadfast in conviction and is outfitted with what she takes to be good evidence and sound reasoning, that means she is living a narrative that is congruent with her expectations and satisfying to her needs. But if she speaks to Mr. Jones, who is at opposites and equally steadfast, who is his own satisfying narrative, then it’s likely that Ms. Smith’s evidence will not look like evidence to Mr. Jones, and Ms. Smith’s reasoning will not look like reasoning. Evidence and reason are evidence and reason only if one lives in the narrative that creates and regards them.”
The Interpretation of Evidence

Chief Justice John Roberts was asked about “literal” interpretations of the Constitutions (i.e., do you interpret the Constitution literally?).
Roberts’ response was that it depends:

- When the Constitution demands that 2/3 of the Senate must approve an Amendment we are all literalists.
- When the Bill of Rights says “Reasonable Search and Seizure” no one is a literalist, because the definition and scope of “reasonable” depends upon so many factors. How can you know the literal meaning of “reasonable.”
- It is a fact that the Constitution says “reasonable,” but that evidence does not speak for itself.
Facts Can Be Tricky

- Facts are often a question of definition, authority, and societal agreement.
- Even basic facts are often up for debate.
- Question: How many planets are in our solar system?
Facts Can Be Tricky

Answer: 8, 9, or 10

- Traditionally, the popular answer is that there are 9 planets in the solar system.
- However, some scientists insist that Pluto is too small to be classified a planet and should be labeled as a “Kuiper Belt object“ instead.
- The recent discovery of 2003UB313 beyond Pluto has thrown this question into even more debate. 2003UB313 is larger than Pluto but not as large as Neptune. Should both of these objects be called planets? Just one? Or neither of them?
- Even after a popular answer is settled, there is bound to be debate within the scientific community.
“After a tumultuous week of clashing over the essence of the cosmos, the International Astronomical Union stripped Pluto of the planetary status it has held since its discovery in 1930. The new definition of what is -- and isn't -- a planet fills a centuries-old black hole for scientists who have labored since Copernicus without one.”

“On Sept. 7, the former ninth planet was assigned the asteroid number 134340 by the Minor Planet Center (MPC), the official organization responsible for collecting data about asteroids and comets in our solar system.”

“Brown was pleased by the decision. He had argued that Pluto and similar bodies didn't deserve planet status, saying that would "take the magic out of the solar system."
Facts Can Be Tricky

- Even the most careful observation cannot encompass everything.

- Empiricism, the study of observable, measurable phenomenon, is effective but limited.
  - For instance, only after 20 years of study did Jane Goodall fully realize the war-like nature of apes.
  - What if she spent 28 years?
Statistics Can Be Tricky

- Maybe numbers don’t lie, but they can lead to different conclusions.
- One number may not tell the whole story.
Statistics Can Be Tricky

Additionally, the same numbers can sometimes be used to prove conflicting points.

Downloading MP3’s should be legal!

Downloading MP3’s should be illegal!
“The numbers are truly disturbing. […] This highlights the importance of using data to understand and inform how we make decisions.”

Charts From “Toward a Golden Age in American Education.” US Department of Education
Who did the study? Who did they measure? What standard did they use as reading proficiency?

These statistics do not explain causality: the cause or causes of these findings.

These statistics do not suggest solutions for these findings.
Statistics Can Be Tricky

Example: Exit Poles

The percentage of US Voters who cited moral values as their top election concern in 2004 was 22%*

*The Economist. November 13th, 2004
Statistics Can Be Tricky

Example: Exit Poles

Percentage of voters who cited moral values as top election issue:

- 1996: 40%
- 2000: 35%
- 2004: 22%*

*The Economist. November 13th, 2004
Statistics Can Be Tricky

Example: Exit Poles

We should also ask how the question defined “moral values”?

- In religious terms? (typically)
- In economic terms? (many treat labor issues in terms of social and/or moral justice)
Facts can be tricky

- In the same way, other factual pieces of evidence, even when accurate, may present problems.

- Sometimes graphics, surveys, and other factual evidence may gloss over complexities.

- Like statistics, other factual evidence can be used to support contradictory claims.
Facts Can Be Tricky

Who is the better Major League team?
- The Los Angeles Angels
- The Los Angeles Dodgers

Argument: The Angles are the better team.

Evidence: The Angles have a better record.
Facts Can Be Tricky

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<thead>
<tr>
<th>National League West</th>
<th>American League West</th>
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Facts Can Be Tricky

- Who is the better team?
- Is this still enough evidence?
- Is evidence as simple as this?
Facts Can Be Tricky

This map reflects the electoral votes from 2004, and it reflects the narrative of the red-state/blue-state divide.
Facts Can Be Tricky

However, when the county by county results are examined, a different story emerges.
Facts Can Be Tricky

This map indicates the percentage of each county votes, and further complicates our narrative of the American Political Climate.
Importance of Frames (Narratives)

- We will choose a map depending on our narratives:
  - Red State/Blue State Divide
  - Urban/Rural Divide
  - A less divisive view
Importance of Frames (Narratives)

Consider, as well, all the things these maps, as frames, exclude:

- Why people voted the way they did?
- Did they vote for a specific issue?
  - “I dislike Bush’s foreign policy, but I am pro life.”
  - “I dislike John Kerry’s views on abortion, but I think Bush will be bad for labor unions.”
- How many people voted in each area?
- How many people live in each area?
Statistics Can Be Tricky

- The reliability of statistics is usually rooted in authority and credibility (*ethos*) – who do we trust to compile our data?

- Statistics can rarely make a complete argument.

- Statistics cannot always capture the essence or spirit of the argument.
  - Lakoff (facts are accepted by frames)
  - If frames go unaddressed statistics are meaningless.
Statistics Can Be Tricky

An “okay” version of the story

Michael Jordan was the best basketball player ever. He scored 29,277 points. He made 5,836 rebounds and 5012 assists and 2306 steals. He played 930 games. And he got 828 blocks. See, he was good.*

*http://www.geocities.com/Colosseum/Track/8686/MJSTATS.htm
Statistics Can Be Tricky

A “better” version of the story

“What sticks out most in going back over Michael Jordan's career isn't any of the shots he made to win NBA titles or any of the moves that took our breath away. What sticks in the mind most isn't about anything Michael Jordan did, it's about who he is. He competed at the highest level in everything he did. There was no getting in his head. He would set his mind to a task and nothing could steer him from it. He had the marvelous ability to block out all external forces and focus on what he wanted to focus on. Not even pain could stop him. But he was fallible and he knew it. He never made excuses when he played poorly; he just used it to get him psyched up for the next game.”

Statistics Can Be Tricky

- There are some things statistics and facts cannot or will not prove – things too rooted in values to be discussed on a statistical level.

- Even in “rational” arguments, emotion and authority are usually involved.

- Statistics, as well as being evaluated in terms of credibility and authority (ethos), are evaluated in terms of familiarity and identification (ethos); do they fit an individual’s worldview.
Statistics Can Be Tricky

Example Arguments

- “You should support the troops, because a Princeton study said you should.”
- “You shouldn’t club baby seals, because 75% of Americans think they are really cute.”
- “Billy should really love Suzie, because her crush on him is 5% stronger this year than last year.”
Logic Can Be Tricky

- Often, statements which sound logical are riddled with problems.

- Logic (as a framework) establishes a closed system that often ignores critical information.

- Logic can run into problems when it ignores context.
Logic Can Be Tricky

- Every syllogism depends on a preliminary claim or claims outside of logic.

- These claims are called first principles.
  - We have been referring to them as frames.
  - This is also Corder’s claim when he writes: “Evidence and reason are evidence and reason only if one lives in the narrative that creates and regards them.”

- Different first principles will lead to varied conclusions, many of which can be logical.
The “Trick” of the Syllogism

Sample Syllogism

- All men are mortal.
- Socrates is a man.
- Therefore, Socrates is mortal.
Logic Can Be Tricky

Sample Syllogism

- The government should not help those who cannot contribute to society.
- Welfare gives free aid to those who do not contribute to society.
- Therefore, the US government should not provide welfare.
Logic Can Be Tricky

Sample Syllogism

- The government allows individuals to accomplish what they could not on their own.

- Welfare helps individuals achieve what they otherwise could not.

- Therefore, the government should provide welfare assistance.
“How Do You Know That She Is A Witch?”

- Witches burn because they are made of wood.
- Ducks float in the water as wood does.
- If she weighs as much as a duck she is a witch.
- This a syllogism
  - How is it *illogical* despite its *logical* construction?
Logic Can Be Tricky

- Usually, when an argument is about facts, it is also about the values behind the facts; people will react to facts differently based on the values they hold.

- Incorporating facts into an argument is only part of the larger effort of persuasion.

- Any presentation of “facts” must account for the frames that will receive them.
Logic Can Be Tricky

Example: Guantanamo Bay

- Let’s pretend we are writing a position paper arguing that prisoners should stop being tortured at Guantanamo Bay.

- One of the facts we want to cite comes from a June 4, 2005 MSNBC article which reports on Pentagon descriptions of Koran mishandling at the prison.

- We have a lot to do in order to make this fact “prove” our case.
Logic Can Be Tricky

Example: Guantanamo Bay

Step 1: Authority

First, we have to prove that the article is trustworthy. When Newsweek ran a similar article earlier in May 2005, they were forced to retract the story. Why is this MSNBC article reliable?
Logic Can Be Tricky
Example: Guantanamo Bay

Step 2: Definition

Secondly, we have to argue that these “mishandling” charges constitute “torture.” Not everyone is automatically going to label them as torture, and there may be no set definition that specifically classifies these events as torture.

- As with Judge Robert’s comments on “reasonable search and seizure.”
- Definition as framing
Logic Can Be Tricky

Example: Guantanamo Bay

Step 3: Values

Even if we have defined these events as torture, some people will react to these facts with horror, others will react with relief that crucial intelligence may be gained. The difference in reaction is entirely a matter of the values the reader holds before encountering our piece. Therefore, if we want to make our case, we have to argue at a value level with those whose values are different than our’s. Suddenly, we are arguing about first principles.
Logic Can Be Tricky

- Suddenly, facts are more complex than they first seemed. As our example shows, we can’t always just print a fact and let it speak for itself.

- Facts need defense, elaboration, and supplemental evidence.

- Ultimately, they will succeed or fail based on the values our audience has when they finish reading our work. This requires, then, persuasive work above and beyond the simple presentation or display of facts.
Concluding John Locke Quotes to Soothe Your Soul

- “It will be no excuse to an idle and untoward servant who would not attend his business by candle light, to plead that he had not broad sunshine. The Candle that is set up in us shines bright enough for all our problems.”

- “It is of great use to the sailor to know the length of his line, though he cannot with it fathom all the depths of the ocean.”