

75. They Say / I Say



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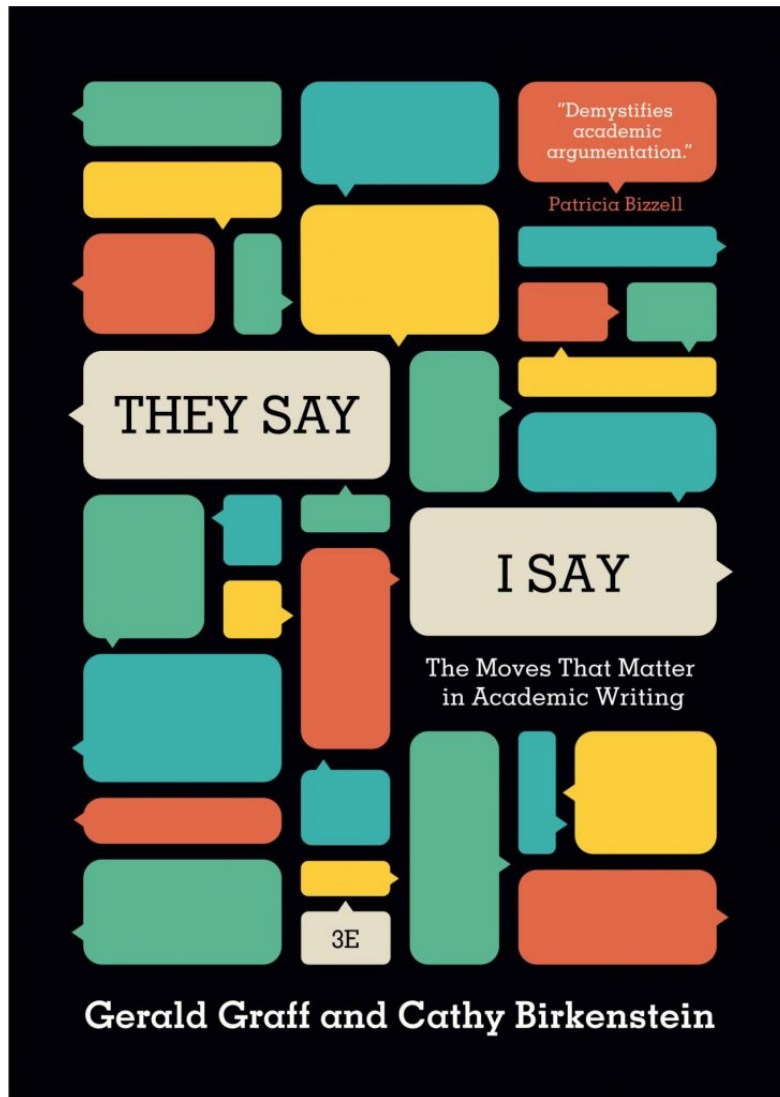
1. Scientific Arguments
2. They Say
3. I Say
4. They Say / I Say
5. Scientific Writing



DRESDEN
concept
Exzellenz aus
Wissenschaft
und Kultur

This lecture is based on:

- ▶ [Graff and Birkenstein, 2016]
Graff, Gerald, Cathy Birkenstein, and Russel Durst. "They say, I say. – The Moves That Matters in Academic Writing" (2006).
- ▶ Kentucky Writing Project, **Index of Templates**
http://www.kentuckywritingproject.com/uploads/2/7/8/7/27877037/they_say,_i_say_templates.pdf



75.1. Scientific Arguments



- ▶ Demystifying scientific writing
- ▶ Writing as means engage in conversation
- ▶ Provide ready-to-use templates

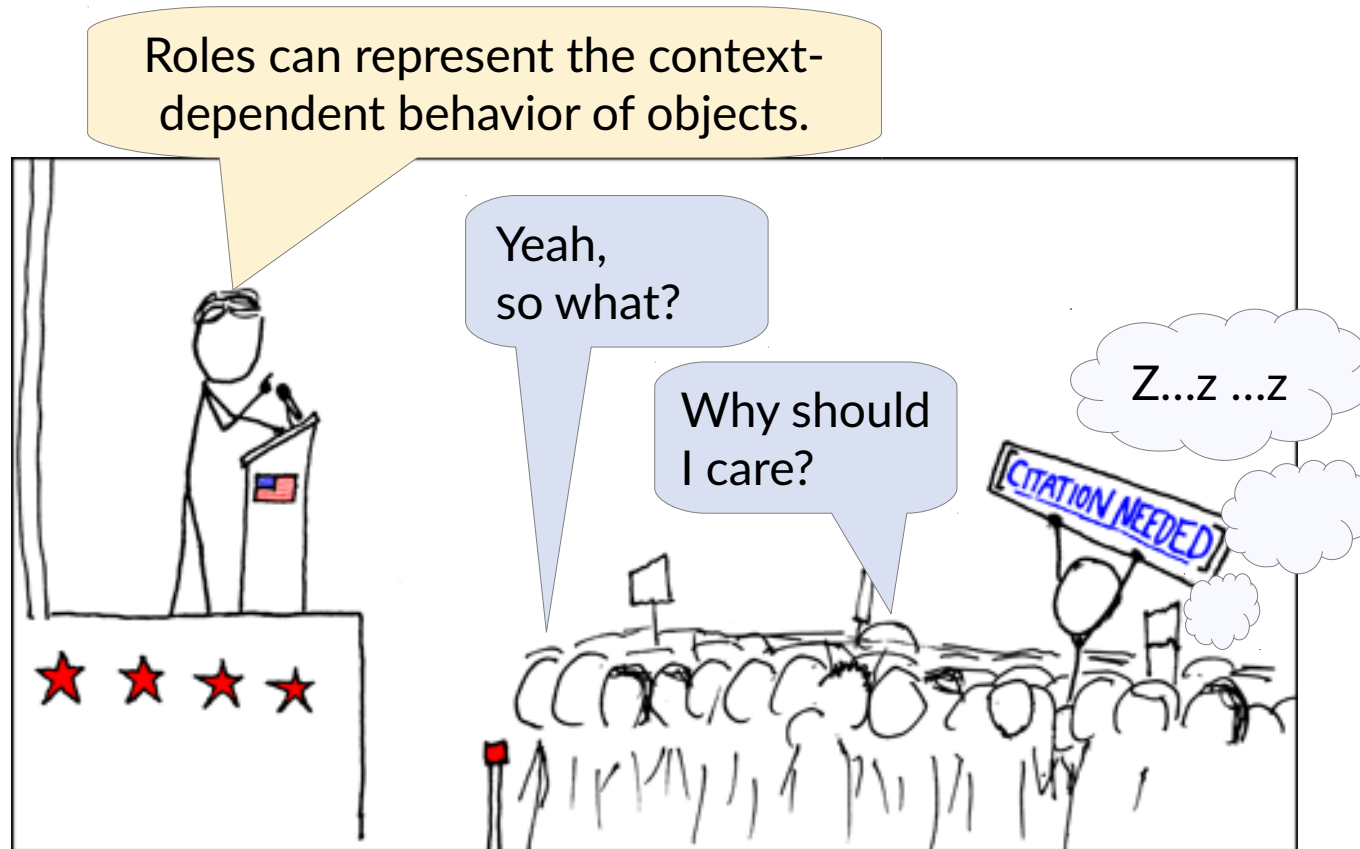


75.1. Scientific Arguments



Motivation

- ▶ Misconception



75.1. Scientific Arguments



Motivation

- ▶ Misconception
 - Science produces facts
 - Proven hypothesis are generally accepted
 - Evidence is always produced rigorously

$$\begin{array}{c}
 \vdots \qquad \qquad \qquad \vdots \\
 \hline
 \langle \mathbf{x} = \iota \wedge \mathbf{b} \rangle \mathbf{x} := \mathbf{x} + 1 \quad \langle \mathbf{x} = \iota + 1 \wedge \mathbf{b} \rangle \qquad \hline
 \langle \mathbf{x} = \iota \wedge \mathbf{b} \rangle \mathbf{b} := \perp \quad \langle \mathbf{x} = \iota \wedge \neg \mathbf{b} \rangle \\
 \hline
 \langle \mathbf{x} = \iota \wedge \mathbf{b} \rangle \dots \langle \mathbf{x} = \iota + 1 \wedge \mathbf{b} \rangle \quad \text{LEFT} \qquad \langle \mathbf{x} = \iota \wedge \mathbf{b} \rangle \dots \langle \mathbf{x} = \iota \wedge \neg \mathbf{b} \rangle \quad \text{RIGHT} \\
 \hline
 \langle \phi_\iota \wedge \mathbf{b} \rangle \dots \langle \mathbf{x} = \iota + 1 \wedge \mathbf{b} \rangle \quad \text{CON} \qquad \langle \phi_\iota \wedge \mathbf{b} \rangle \dots \langle \mathbf{x} = \iota \wedge \neg \mathbf{b} \rangle \quad \text{CON} \\
 \hline
 \langle \phi_\iota \wedge \mathbf{b} \rangle \dots \langle \mathbf{x} = \iota + 1 \wedge \mathbf{b} \rangle \quad \langle \phi_\iota \wedge \mathbf{b} \rangle \dots \langle \mathbf{x} = \iota \wedge \neg \mathbf{b} \rangle \quad \text{SPLIT} \\
 \hline
 \langle \phi_\iota \wedge \mathbf{b} \rangle \mathbf{x} := \mathbf{x} + 1 \sqcup \mathbf{b} := \perp \quad \langle \phi_{\iota+1} \rangle \\
 \hline
 \langle \phi_0 \rangle \dots \langle \neg \mathbf{b} \wedge \exists \iota \in \mathbb{N} \cdot \phi_\iota \rangle \quad \text{WHILE} \\
 \hline
 \langle \phi_0 \rangle \dots \langle \neg \mathbf{b} \wedge \exists \iota \in \mathbb{N} \cdot \phi_\iota \rangle \quad \text{CON} \\
 \hline
 \langle \mathbf{x} = 0 \rangle \text{ while } \mathbf{b} \text{ do } \mathbf{x} := \mathbf{x} + 1 \sqcup \mathbf{b} := \perp \quad \langle \neg \mathbf{b} \rangle
 \end{array}$$

Example Hoare Calculus [De Vries and Koutavas, 2011, Fig. 3]



75.1. Scientific Arguments



Motivation

- ▶ Science is like a party... **where you arrived late**



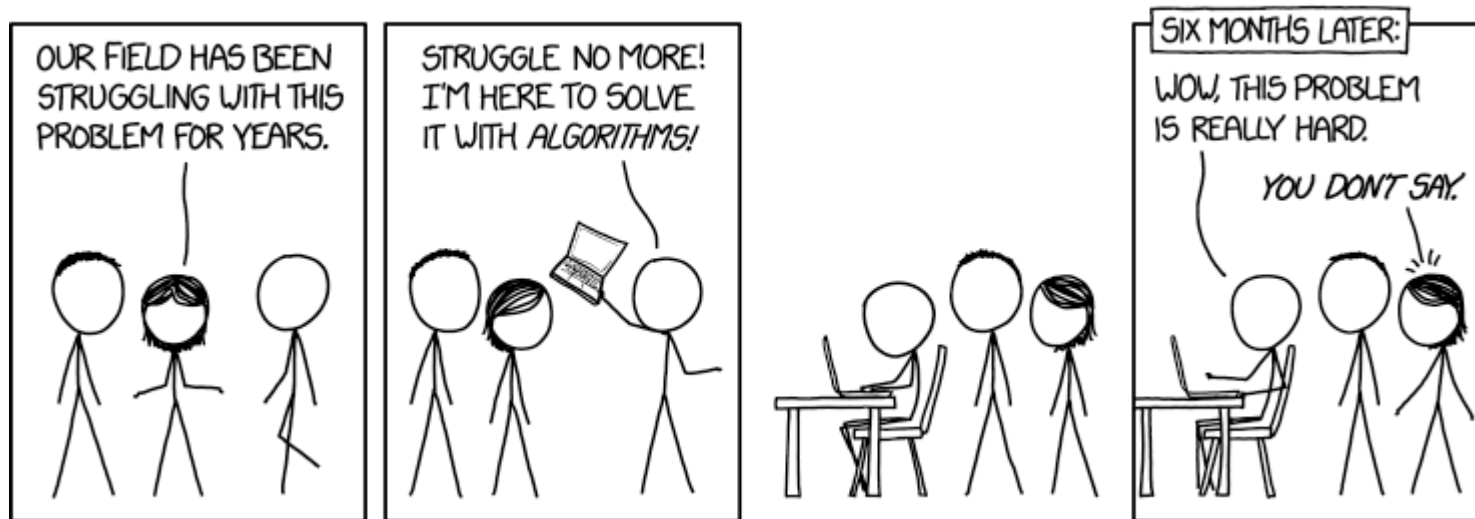
Alison Kuznitz, "Beta Theta Pi house opens for fraternity alumni during football weekends.", Daily Collegian, www.collegian.psu.edu

75.1. Scientific Arguments



Motivation

- ▶ Science is like a party... **where you join others' conversations**
 - Competing hypotheses in research field
 - You respond to arguments, claims, proposals of others
 - Join and continue the conversation of others



75.1. Scientific Arguments



They Say / I Say

- ▶ Fundamental template for writing “**They Say**” followed by “**I Say**”
- ▶ “*Internal DNA [...] of all effective argument*” – [Graff and Birkenstein, 2016]
- ▶ Good writers not only make claims (*I Say*), but also align them to claims of others (*They Say*)
- ▶ Include arguments, claims, and objections in your writing
- ▶ Graff and Birkenstein collected typical templates



Motivation

- ▶ Example – Boring Writing

Modeling aims at representing a referent in a more cost-effective way for a certain cognitive purpose.

A conceptual model is a formal description of parts of a subject domain by means of concepts and their interrelations.

– [Kühn, 2017, p.19]

75.1. Scientific Arguments



Motivation

- ▶ Example – Joining the conversation

[...] Jeff Rothenberg reminds us that, modeling is the basic ability of abstracting aspects of reality to better comprehend and reason about certain aspects of reality avoiding its complexity, danger and irreversibility [Rothenberg et al., 1989].

In detail, he characterized modeling as activity “to represent a particular referent cost-effectively for a particular cognitive purpose”.

This is particularly true for conceptual modeling, which Mylopoulos ascribes as “the activity of formally describing some aspects of the physical and social world around us for purposes of understanding and communication” [Mylopoulos, 1992].

By extension, a conceptual model is a formal description of parts of a subject domain by means of concepts and their interrelations.

– [Kühn, 2017, p.19]

75.2. They Say



- ▶ Before indicating a **hypothesis**
- ▶ Highlight **ongoing discussion** leading to **it**
- ▶ Keep readers engaged by explaining cause of **response**
- ▶ Start argument with *“what others are saying”*
- ▶ Followed by your **response, claim, or hypothesis**





Introducing what “They Say”

- ▶ A number of [scientists] have recently suggested that X’s work has several fundamental problems.
- ▶ It has become common today to dismiss X’s contribution to the field of [science].
- ▶ In their recent work, Y and Z have offered harsh critiques of X for _____.

Introducing “Standard views”

- ▶ [Americans] tend to believe that _____.
- ▶ Conventional wisdom has it that _____.
- ▶ Common sense seems to dictate that _____.
- ▶ The standard way of thinking about Topic X has it that _____.
- ▶ It is often said that _____.
- ▶ My whole life I have heard it said that _____.
- ▶ You would think that _____.
- ▶ Many people assumed that _____.

75.2. They Say



Making what “They Say” something you say

- ▶ I’ve always believed that _____.
- ▶ When I was a child, I used to think that _____.
- ▶ Although I should know better by now, I cannot help thinking that _____.
- ▶ At the same time that I believe _____, I also believe _____.

Introducing something implied or assumed

- ▶ Although none of them has ever said so directly, my teachers have often given me the impression that _____.
- ▶ One implication of X’s treatment of _____ is that _____.
- ▶ Although X does not say so directly, she apparently assumes that _____.
- ▶ While they rarely admit as much, _____ often take for granted that _____.



Introducing an ongoing debate

- ▶ In discussions of X, one controversial issue has been _____. On the one hand, _____ argues _____. On the other hand, _____ contends _____. Others even maintain _____. My own view is _____.
- ▶ When it comes to the topic of _____, most of us will readily agree that _____. Where this agreement usually ends, however, is on the question of _____. Whereas some are convinced that _____, others maintain that _____.
- ▶ In conclusion, then, as I suggested earlier, defenders of _____ can't have it both ways. Their assertion that _____ is contradicted by their claim that _____.



The Art of Summarizing

- ▶ Summarize works of other authors
- ▶ Take the authors position (*“Put yourself in their shoes”*)
- ▶ Good summaries balance authors points and your own focus
- ▶ Stay true to the authors argument
- ▶ Emphasize aspects you are interested in



Capturing authorial action

- ▶ X acknowledges that _____.
- ▶ X agrees that _____.
- ▶ X argues that _____.
- ▶ X believes that _____.
- ▶ X denies/does not deny that _____.
- ▶ X claims that _____.
- ▶ X complains that _____.
- ▶ X concedes that _____.
- ▶ X demonstrates that _____.
- ▶ X deplors the tendency to _____.
- ▶ X celebrates the fact that _____.
- ▶ X emphasizes that _____.
- ▶ X insists that _____.
- ▶ X observes that _____.
- ▶ X questions that _____.
- ▶ X refuses the claim that _____.
- ▶ X reminds us that _____.
- ▶ X suggests that _____.
- ▶ X urges us to _____.



Introducing quotations

- ▶ X states, “_____.”
- ▶ As the prominent philosopher X puts it, “_____.”
- ▶ According to X, “_____.”
- ▶ X herself writes, “_____.”
- ▶ In his book, _____, X maintains that “_____.”
- ▶ In X’s view, “_____.”
- ▶ X agrees/disagrees when she writes, “_____.”
- ▶ X complicates matters further when he writes, “_____.”

Explaining quotations

- ▶ Basically, X is saying _____.
- ▶ In other words, X believes _____.
- ▶ In making this comment, X argues that _____.
- ▶ X is insisting that _____.
- ▶ X’s point is that _____.
- ▶ The essence of X’s argument is that _____.

75.3. I Say



- ▶ Provide your response to what they said
- ▶ Good arguments not dependent on knowledge
- ▶ But based on basic rhetorical patterns
- ▶ Focusing on ways to respond to other's ideas
 - Agreement
 - Disagreement
 - *Combinations of both*





A good **argumentative** defense is always a good offense



THE BEST THESIS DEFENSE IS A GOOD THESIS OFFENSE.



Disagreeing, with reasons

- ▶ I think X is mistaken because she overlooks _____.
- ▶ X's claim that _____ rests upon the questionable assumption that _____.
- ▶ I disagree with X's view that _____ because, as recent research has shown, _____.
- ▶ X contradicts himself. On the one hand, he argues _____. But on the other hand, he also says _____.
- ▶ By focusing on _____, X overlooks the deeper problem of _____.
- ▶ X claims _____, but we don't need him to tell us that. Anyone familiar with _____ has long known that _____.



Agreeing – with a difference

- ▶ I agree that _____ because my experience _____ confirms it.
- ▶ X surely is right about _____ because, as she may not be aware, recent studies have shown that _____.
- ▶ X's theory of _____ is extremely useful because it sheds insight on the difficult problem of _____.
- ▶ I agree that _____, a point that needs emphasizing since so many people believe _____.
- ▶ Those unfamiliar with this school of thought may be interested to know that it basically boils down to _____.
- ▶ If group X is right that _____, as I think they are, then we need to reassess the popular assumption that _____.



Agreeing and disagreeing simultaneously

- ▶ Although I agree with X up to a point, I cannot accept his overall conclusion that _____.
- ▶ Although I disagree with much that X says, I fully endorse his final conclusion that _____.
- ▶ Though I concede that _____, I still insist that _____.
- ▶ Whereas X provides ample evidence that _____, Y and Z's research on _____ and _____ convinces me that _____ instead.
- ▶ X is right that _____, but she seems on more dubious ground when she claims that _____.
- ▶ While X is probably wrong when she claims that _____, she is right that _____.
- ▶ I'm of two minds about X's claim that _____. On the one hand, I agree that _____. On the other hand, I'm not sure if _____.
- ▶ My feelings on the issue are mixed. I do support X's position that _____, but I find Y's argument about _____ and Z's research on _____ to be equally persuasive.

75.4. They Say / I Say



- ▶ Clearly distinguish “They Say” from “I Say”
 - Embed voice makers in your text
 - Signal your own argument
- ▶ Anticipate and discuss objections to your argument
- ▶ Indicate who cares about your argument
- ▶ Transitions connecting all the part



75.4. They Say / I Say



Signaling who is saying what

- ▶ X argues _____.
- ▶ According to both X and Y, _____.
- ▶ Politicians _____, X argues, should _____.
- ▶ Most athletes will tell you that _____.
- ▶ My own view, however, is that _____.
- ▶ I agree, as X may not realize, that _____.
- ▶ But _____ are real and, arguably, the most significant factor in _____.
- ▶ But X is wrong that _____.
- ▶ However, it is simply not true that _____.
- ▶ Indeed, it is highly likely that _____.
- ▶ But the view that _____ does not fit all the facts.
- ▶ X is right/wrong that _____.
- ▶ X is both right and wrong that _____.
- ▶ Yet a sober analysis of the matter reveals _____.
- ▶ Nevertheless, new research shows _____.
- ▶ Anyone familiar with _____ should see that _____.

75.4. They Say / I Say



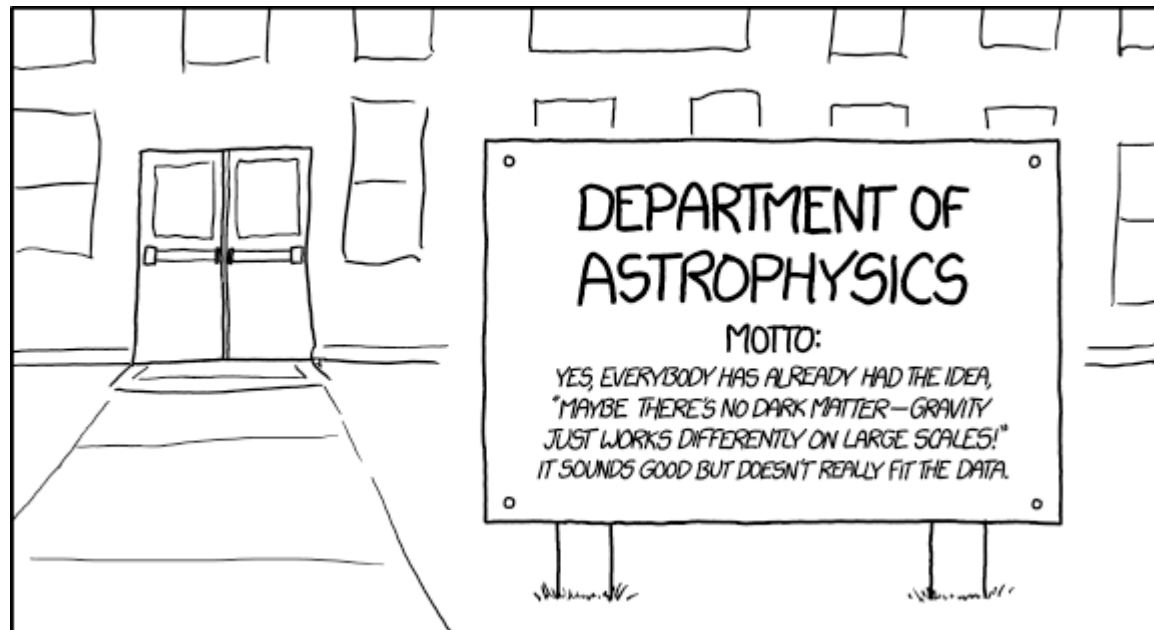
Embedding voice markers

- ▶ X overlooks what I consider an important point about _____.
- ▶ My own view is that what X insists is a _____ is in fact a _____.
- ▶ I wholeheartedly endorse what X calls _____.
- ▶ These conclusions, which X discusses in _____, add weight to the argument that _____.



Anticipate and discuss objections to your argument

- ▶ Add entertaining objections
- ▶ Name your “Naysayers”
- ▶ Answer objections, while still standing your ground





Entertaining Objections

- ▶ Yet some readers may challenge the view that _____. After all, many believe _____. Indeed, my own argument that _____ seems to ignore _____ and _____.
- ▶ Of course, many will probably disagree with this assertion that _____.

Naming your naysayer

- ▶ Here many feminists would probably object that _____.
- ▶ But social Darwinists would certainly take issue with the argument that _____.
- ▶ Biologists, of course, may want to dispute my claim that _____.
- ▶ Nevertheless, both followers and critics of Malcolm X will probably dispute my claim that _____.
- ▶ Although not all Christians think alike, some of them will probably dispute my claim that _____.
- ▶ Non-native English speakers are so diverse in their views that it's hard to generalize about them, but some are likely to object on the grounds that _____.

75.4. They Say / I Say



Indicating who cares

- ▶ _____ used to think _____. But recently [or within the past few decades] _____ suggests that _____.
- ▶ What this new research does, then, is correct the mistaken impression, held by many earlier researchers, that _____.
- ▶ These findings challenge the work of earlier researchers, who tended to assume that _____.
- ▶ Recent studies like these shed new light on _____, which previous studies had not addressed.



Indicating who cares

- ▶ Researchers have long assumed that _____. For instance, [one eminent scholar of cell biology], _____, assumed in _____, her seminal work on [cell structures and functions], that [fat cells] _____. As _____ herself put it, “_____”. Another leading scientist, _____, argued that fat cells “_____”. Ultimately, when it came to the nature of fat, the basic assumption was that _____.
- ▶ But a new body of research shows that fat cells are far more complex and that _____.
- ▶ If sports enthusiasts stopped to think about it, many of them might simply assume that the most successful athletes _____. However, new research shows _____.
- ▶ These findings challenge [dieters’] common assumptions that _____.
- ▶ At first glance, teenagers appear to _____. But on closer inspection



Establishing why your claims matter

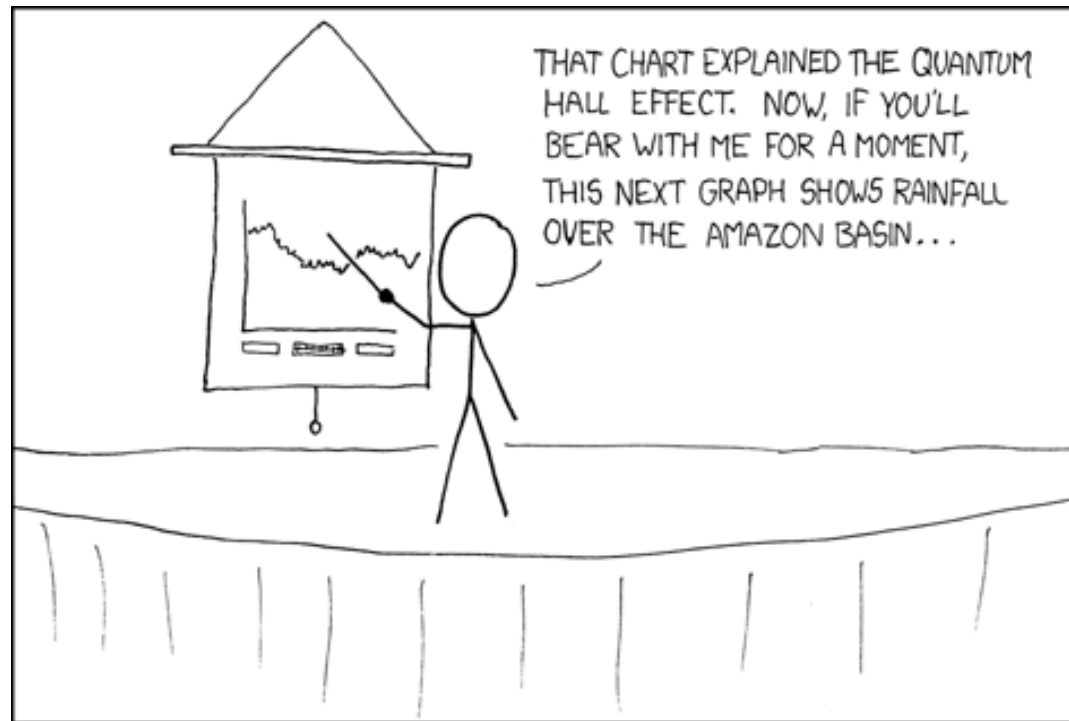
- ▶ X matters/is important because _____.
- ▶ Although X may seem trivial, it is in fact crucial in terms of today's concern over _____.
- ▶ Ultimately, what is at stake here is _____.
- ▶ These findings have important consequences for the broader domain of _____.
- ▶ My discussion of X is in fact addressing the larger matter of _____.
- ▶ These conclusions/This discovery will have significant applications in _____ as well as in _____.
- ▶ Although X may seem of concern to only a small group of

75.4. They Say / I Say



Use transitions connecting all the part

- ▶ Employ typical words and phrases



IF YOU KEEP SAYING "BEAR WITH ME FOR A MOMENT", PEOPLE TAKE A WHILE TO FIGURE OUT THAT YOU'RE JUST SHOWING THEM RANDOM SLIDES.



Cause and Effect

- ▶ accordingly
- ▶ as a result
- ▶ consequently
- ▶ hence
- ▶ it follows, then
- ▶ since
- ▶ so
- ▶ then
- ▶ therefore
- ▶ thus

Conclusion

- ▶ as a result
- ▶ consequently
- ▶ hence
- ▶ in conclusion, then
- ▶ in short
- ▶ in sum, then
- ▶ it follows, then
- ▶ so
- ▶ the upshot of all this is that
- ▶ therefore
- ▶ thus
- ▶ to sum up
- ▶ to summarize

75.4. They Say / I Say



Comparison

- ▶ along the same lines
- ▶ in the same way
- ▶ likewise
- ▶ similarly

Addition

- ▶ also
- ▶ and
- ▶ besides furthermore
- ▶ in addition
- ▶ in fact
- ▶ indeed
- ▶ moreover
- ▶ so too

Contrast

- ▶ although
- ▶ but
- ▶ by contrast
- ▶ conversely
- ▶ despite the fact that
- ▶ even though
- ▶ however
- ▶ in contrast
- ▶ nevertheless
- ▶ nonetheless
- ▶ on the contrary
- ▶ on the other hand
- ▶ regardless
- ▶ whereas
- ▶ while
- ▶ yet



Concession

- ▶ admittedly
- ▶ although it is true that
- ▶ granted
- ▶ I concede that
- ▶ of course
- ▶ naturally
- ▶ to be sure

Example

- ▶ after all
- ▶ as an illustration
- ▶ consider
- ▶ for example
- ▶ for instance
- ▶ specifically
- ▶ to take a case in point

Elaboration

- ▶ actually
- ▶ by extension
- ▶ in short
- ▶ that is
- ▶ in other words
- ▶ to put it another way
- ▶ to put it bluntly
- ▶ to put it succinctly
- ▶ ultimately

75.5. Scientific Writing



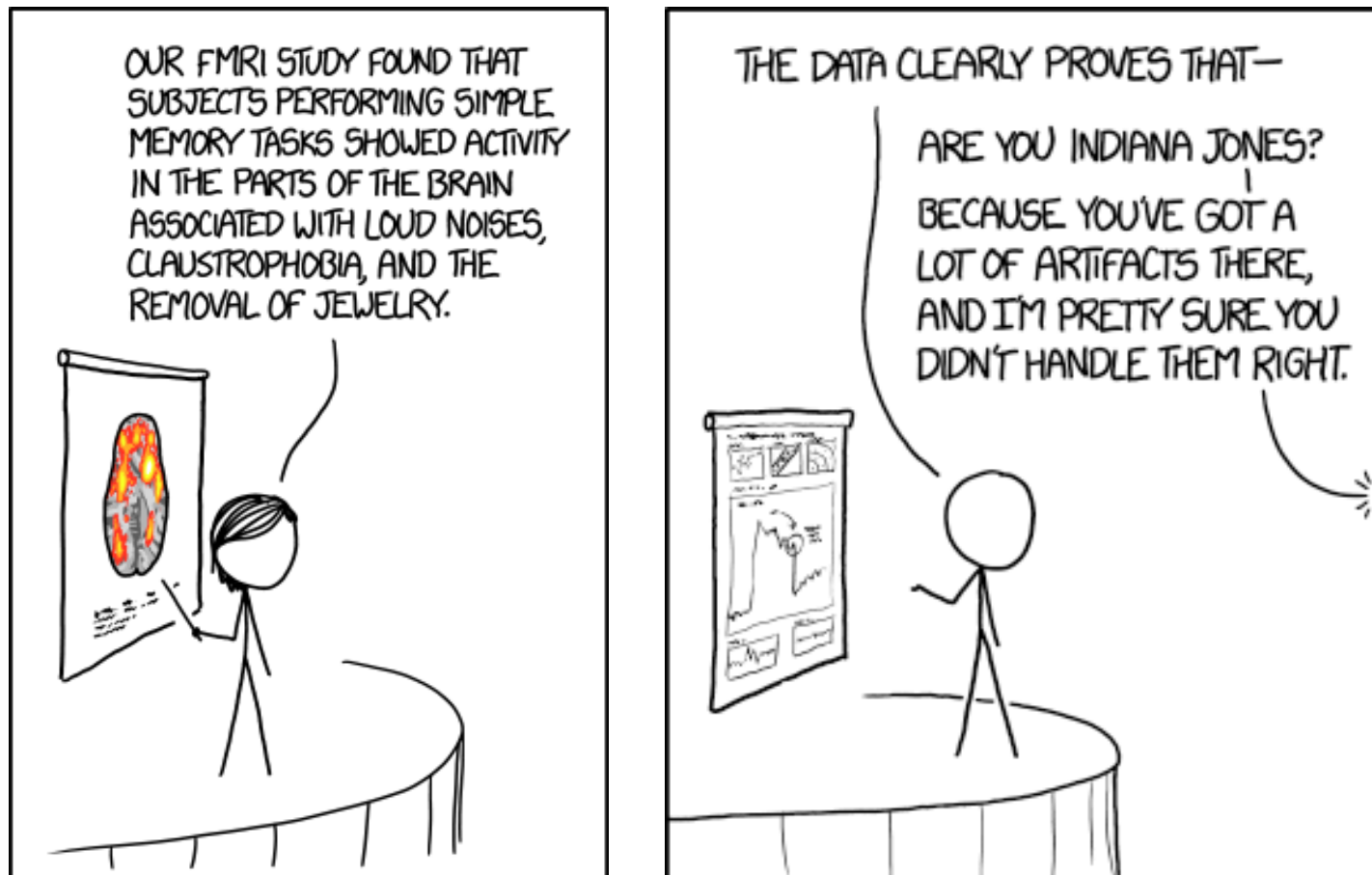
- ▶ Scientists must write about data
- ▶ “They Say / I Say” template is applicable
- ▶ Introduce your hypothesis and prevailing theories
- ▶ Explain applied research method
- ▶ Describing data objectively





Presenting Scientific Data

- ▶ Misleading presentations





Present the prevailing theories

- ▶ Experiments showing _____ and _____ have led scientists to propose _____.
- ▶ Although most scientists attribute _____ to _____, X's result _____ leads to the possibility that _____.

Explain the methods

- ▶ X and colleagues evaluated _____ to determine whether _____.
- ▶ Because _____ does not account for _____, we instead used _____.

Summarize the Findings

- ▶ _____ \pm _____ (mean \pm variability) _____ (units),
n = _____ (sample size)
- ▶ We measured _____ (sample size) subjects, and the average response was _____ (mean with units) with a range of _____ (lower value) to _____ (upper value).



Compare the findings (examples)

- ▶ Before training, average running speed was _____ \pm _____ kilometers per hour, _____ kilometers per hour slower than running speed after training.
- ▶ We found athletes' heart rates to be _____ \pm _____ % lower than nonathletes'.
- ▶ The subjects in X's study completed the maze in _____ \pm _____ seconds, _____ seconds slower than those in Y's study.



Explaining the data

- ▶ The data suggests / hints / implies _____.
- ▶ Our results show / demonstrate _____.

Data supporting your argument

- ▶ Our data support / confirm / verify the work of X by showing that _____.
- ▶ By demonstrating _____, X's work extends the findings of Y.
- ▶ The results of X contradict / refute Y's conclusion that _____.
- ▶ X's findings call into question the widely accepted theory that _____.
- ▶ Our data are consistent with X's hypothesis that _____.



Respond to your data with your argument

▶ *Agree, but with a difference*

- Now that _____ has been established, scientists will likely turn their attention toward _____.
- X's work leads to the question of _____. Therefore, we investigated _____.
- To see whether these findings apply to _____, we propose to _____.
- On explanation for X's finding of _____ is that _____. An alternative explanation is _____.
- The difference between _____ and _____ is probably due to _____.

▶ *Disagree – and explain why*

- The work of Y and Z appears to show that _____, but their experimental design does not control for _____.
- While X and Y claim that _____, their finding of _____ actually shows that _____.



Respond to your data with your argument

▶ *Okay, but ...*

- While X's work clearly demonstrates _____, _____ will be required before we can determine whether _____.
- Although Y and Z present firm evidence for _____, their data cannot be used to argue that _____.
- In summary, our studies show that _____, but the issue of _____ remains unresolved.



Anticipate Objections

- ▶ Scientists who take a _____ (reductionist / integrative / computational / statistical) approach might view our results differently.
- ▶ This interpretation of the data might be criticized by X, who has argued that _____.
- ▶ Some may argue that this experimental design fails to account for _____.

Say why it matters

- ▶ These results open the door to studies that _____.
- ▶ The methodologies developed by X will be useful for _____.
- ▶ Our findings are the first step toward _____.
- ▶ Further work in this area may lead to the development of _____.



Entering scientific conversations

- ▶ Is the sample size adequate?
- ▶ Is the experimental design valid? Were the proper controls performed?
- ▶ What are the limitations of the methodology?
- ▶ Are other techniques available?

- ▶ How well do the results support the stated conclusion?
- ▶ Has the data's variability been adequately considered?
- ▶ Do other findings verify (or contradict) the conclusion?
- ▶ What other experiments could test the conclusion?

- ▶ Can the results be generalized beyond the system that was studied?
- ▶ What are the work's practical implications?
- ▶ What questions arise from the work?
- ▶ Which experiments should be done next?

The End

- ▶ What is the core concept underlying the “They Say / I Say” approach?
- ▶ Do templates hinder creativity?
- ▶ Is it plagiarism to use templates?
- ▶ Is it okay to stay undecided in an argument?