CRAFTING CONVINCING ARGUMENTS

ATTACK and DEFENSE

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MODES OF DISCOURSE

- NARRATION : The author **tells** a story.

- DESCRIPTION & EXPOSITION : The author **describes** and **explains**.

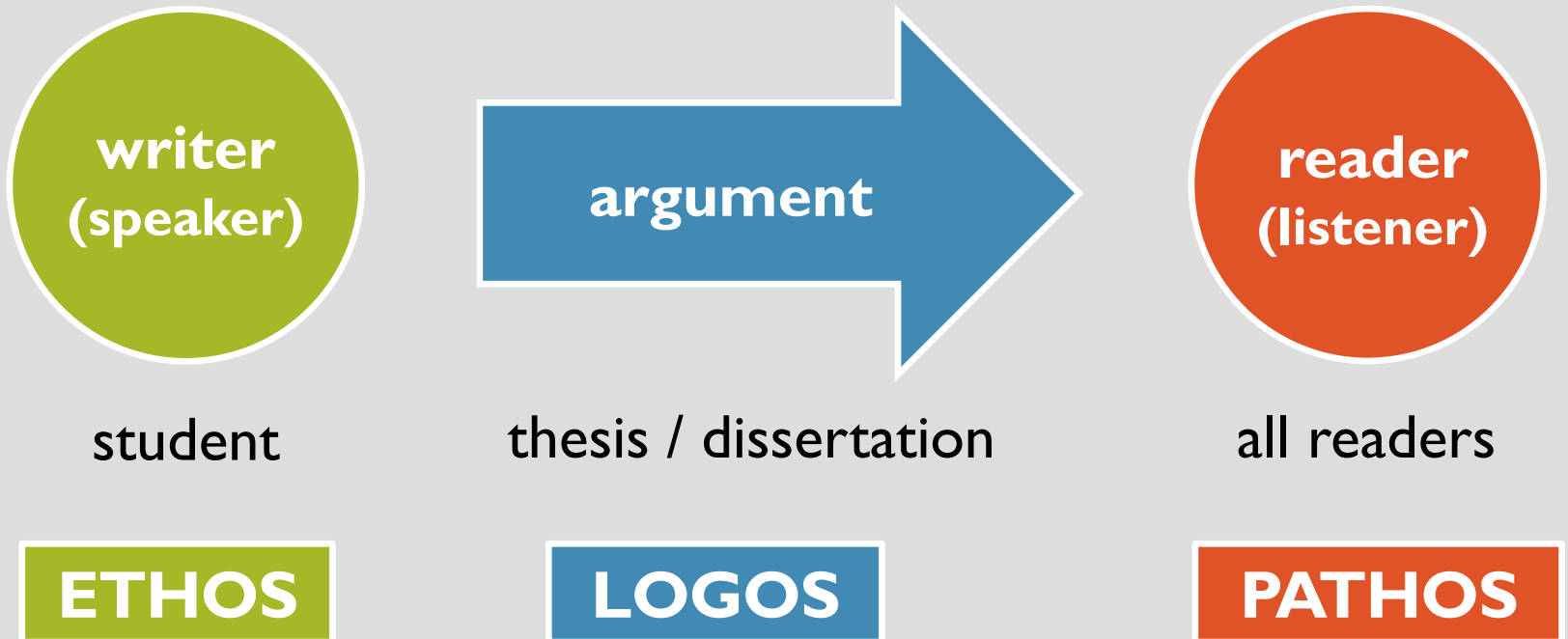- ARGUMENTATION (rhetoric) : The author **persuades**.

"Rhetoric is the ability to see ...
the possible ways to persuade."

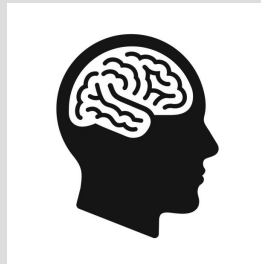–Aristotle (384–322 BCE)

RHETORICAL APPEALS

**writer
(speaker)**

argument

**reader
(listener)**

student

paper

professor
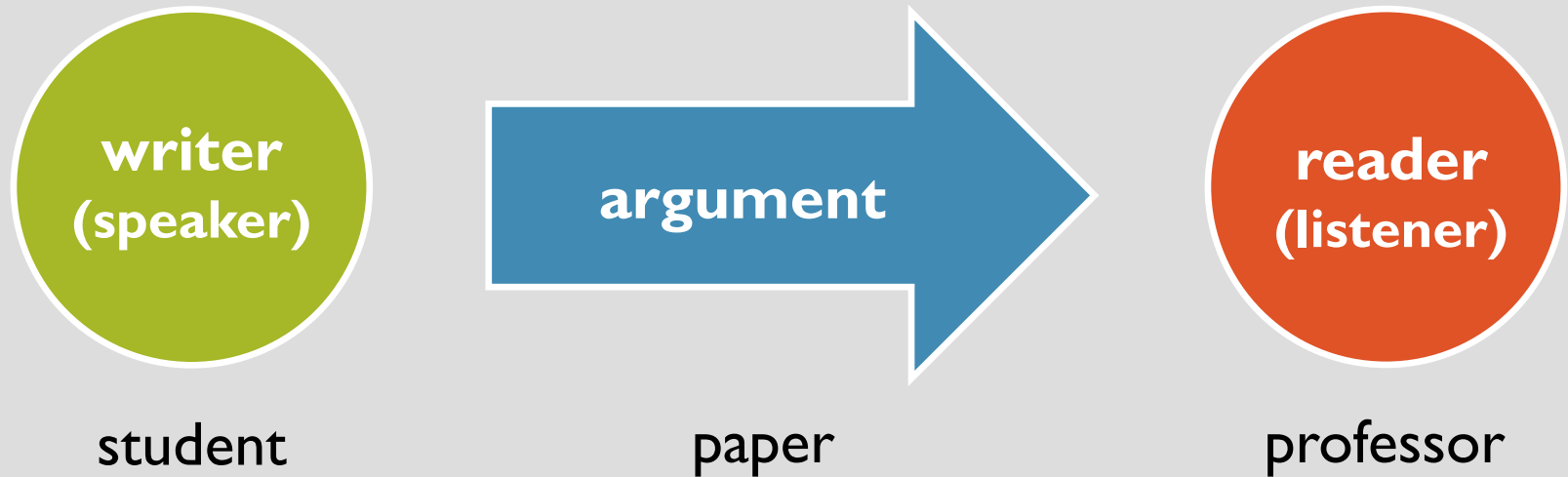
RHETORICAL APPEALS

LOGOS : **an appeal to reason**

the argument

think: l<u>o</u>gic

"The argument is logical."

Have you ever seen anything like it? Not just what she's made, but how proud it's made her. It's a look you'll see whenever children build something all by themselves. No matter what they've created.

Younger children build for fun.
LEGO Universal Building Sets for children ages 3 to 7 have colorful bricks, wheels, and friendly LEGO people for lots and lots of fun.

Older children build for realism.
LEGO Universal Building Sets for children 7–12 have more detailed pieces, like gears, rotors, and treaded tires for more realistic building. One set even has a motor.

Lego Universal Building Sets will help your children discover something very, very special: themselves.

Radio is the Majority of Listening

Radio reaches

93%

Of the US population
(275,000,000 people)

80%

Of music listening is radio
13 hours a week/2 hours a day
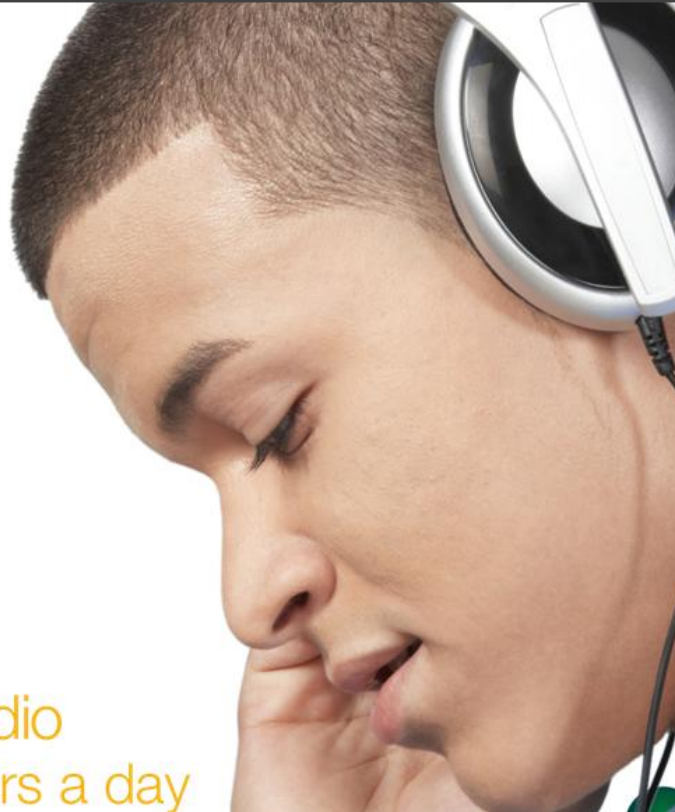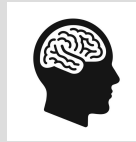
How might you use "logos"—an appeal to reason—in your coursework, thesis, or dissertation?

- establishing strong, logical argument (introduction)

- building strong, logical argument (body)

- quantitative evidence (data, experiment results)

- qualitative evidence (non-numeric information)

- clarity of argument and its organization

RHETORICAL APPEALS

PATHOS : **an appeal to emotion**

reader   think: em<u>path</u>y

"I feel as the author feels."

'I was new and afraid to ask.'

It doesn't hurt to speak up. **Work Safe**

PATHOS : an appeal to emotion ❤️

PATHOS : an appeal to emotion ❤️

PATHOS : an appeal to emotion ❤️

How might you use "pathos"—an appeal to emotion—in your coursework, thesis, or dissertation?

- introduction / conclusion

- argue relevance

- more likely in qualitative evidence

- anecdotes (using narrative mode?)

- word choice

RHETORICAL APPEALS

ETHOS : **an appeal to credibility**

author

AKA the "ethical" appeal
or an "appeal to character"

"The author is credible."

A NOTE ABOUT "ETHOS" :

<u>In the discourse itself</u>
- knowledgeable?
- fair (virtuous)?

vs.

<u>Reputation</u>
- knowledgeable?
- fair (virtuous)?

How might you use "ethos"—an appeal to credibility—in your coursework, thesis, or dissertation?

You:

- Demonstrate knowledge (of relevant existing research).

- Don't dismiss critiques (counterarguments). Address them directly.

- Be fair-minded. Make concessions when appropriate.

- Spelling, grammar, punctuation. Seek clarity in your writing.

Your sources:

- Cite research that's relevant, important and up-to-date.

- Argue the "authority" of your references.

RHETORICAL APPEALS

ETHOS **LOGOS** **PATHOS**

Can you spot the rhetorical appeal(s)?

ETHOS

Appeal to character (speaker):
Lance Armstrong

Also (perhaps) LOGOS:
If you drink Michelob Ultra, you will become as awesome as Lance Armstrong.

PATHOS

Appeal to emotions:
1. vacation
2. the beach / the ocean
3. flying fish (whimsy)
4. "clean" and "light" aesthetic

LOGOS

Appeal to reason (argument):
1. Guinness is healthy.
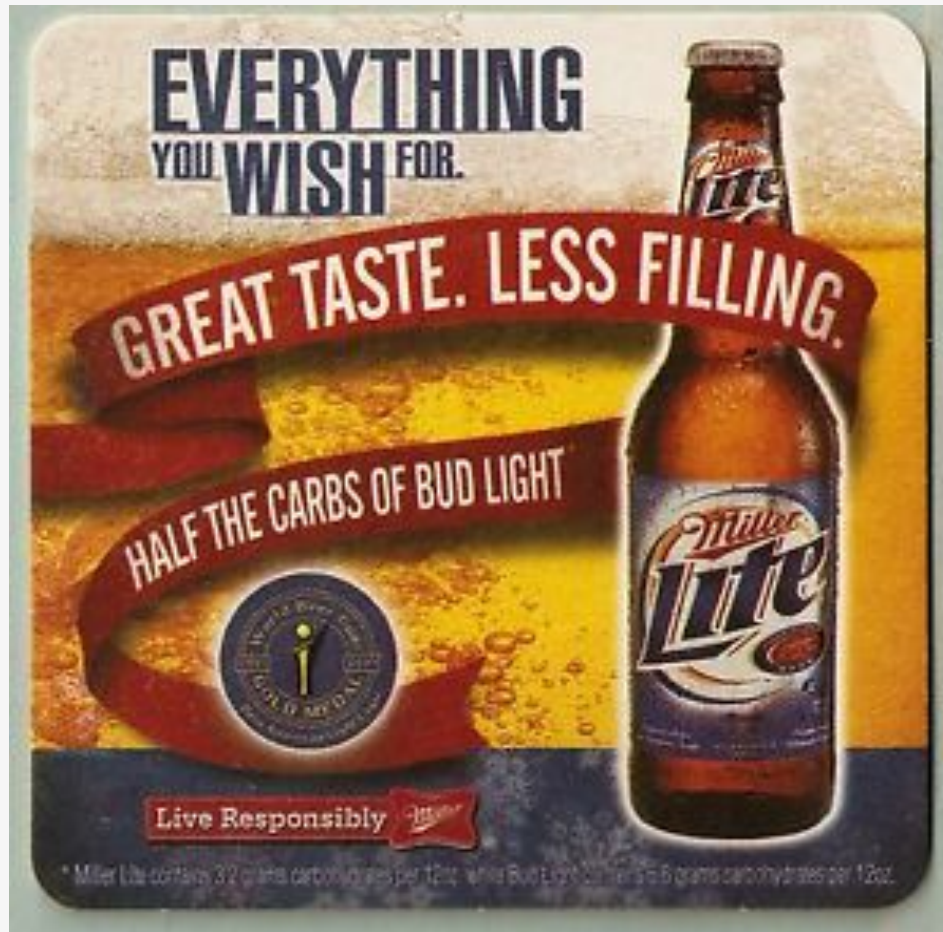
LOGOS

Appeal to reason (argument):
1. great taste
2. less filling
3. healthy (1/2 carbs of Bud Light)

PATHOS

Appeal to emotions:
1. cute animals
2. friends
3. acceptance despite differences
4. cinematic aesthetic

LOGOS

Appeal to reason (argument):
1. Budweiser is investing in wind energy.
2. Budweiser is good for the planet.

Also (perhaps) PATHOS: Wind turbines and "better tomorrow" may evoke emotion for some viewers.

A BEER WITH MORE SUBSTANCE THAN A HIPSTER'S HANDMADE LEATHER JOURNAL.

GARAGISTA
pure beer performance *beer co.*
South African
PALE ALE
ALC 5% • 440ML

ALL BEER. NO BULLSHIT.

PATHOS

Appeal to emotions:
1. anti-hipster, pro-substance
2. anti-PC culture ("no bullshit")
3. "strong" aesthetic

RHETORICAL APPEALS

ETHOS **LOGOS** **PATHOS**

Practice.

ARGUMENT : SETTING UP THE ATTACK

A **thesis statement** captures the argument.

Argument is built through a series of **supporting claims**.

Claims are validated through **deductive** or **inductive reasoning**.

Each claim must hold up to **logical scrutiny**.

a good place to start :

What do others think?

What do I think?

ARGUMENT : SETTING UP THE ATTACK

Brainstorm:

nuclear energy?

(mostly)
positive   **or**   *(mostly)*
negative

ARGUMENT : SETTING UP THE ATTACK

nuclear energy?

postive (pro)
Possible claims:

-
-
-
-
-
-

negative (con)
Possible claims:

-
-
-
-
-
-

ARGUMENT : SETTING UP THE ATTACK

"They say." nuclear energy?

Jordan Wilkerson, 2016, *Reconsidering the Risks of Nuclear Power*:

- Climate change is real; fossil fuels must be replaced.
- Solar and wind energies are variable.
- Radiation is misunderstood.
- Fossil fuels are more dangerous.
- Nuclear is cheaper than coal, oil, gas, and wind on a kWh basis.
- The industry will continue to innovate (especially on storage).

Greenpeace, 2012, *Lessons from Fukushima*:

- Failures will happen because regulation is led by the industry and, therefore, weak.
- Emergency planning is inadequate.
- Unnecessary exposure to radiation is dangerous.
- Decontamination is costly and ineffective.
- Nuclear power can never be safe.
- Nuclear waste is dangerous and costly.
- Other mature and robust energy technologies are available

ARGUMENT : SETTING UP THE ATTACK

Agree

Note: Some fields of study and some NPS departments and professors may discourage the use of "I" or "we" in academic writing. Check with your professor if you are unsure.

- I agree that _____ because my experience _____

- X is right about _____ because recent studies have shown that _____.

- X's theory of _____ is extremely useful because it sheds light on the difficult problem of _____.

- If X is right that _____, then we need to reassess the popular assumption that _____.

Source : Adapted from Gerald Graff and Cathy Birkenstein, *They Say/I Say: The Moves That Matter in Academic Writing*, W.W. Norton & Company, 2018

ARGUMENT : SETTING UP THE ATTACK

Agree   nuclear energy?

- Murphy's law is extremely useful because it sheds light on the difficult problem of nuclear waste storage.

- If X is right about the reliability of nuclear power, then we need to reassess the popular assumption that wind and solar are better carbon-free options.

ARGUMENT : SETTING UP THE ATTACK

Disagree

- 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 can't have it both ways. One the one hand, he argues _____. On the other hand, he also says _____.

- By focusing on _____, X overlooks the deeper problem of _____.

ARGUMENT : SETTING UP THE ATTACK

Disagree   **nuclear energy?**

- I disagree with X's view on the effects of low-dose radiation exposure because, as recent research has shown, there is no credible increased cancer risk for those living within 30 miles of a reactor.

- By focusing on nuclear power's lack of greenhouse gas emissions, X overlooks the deeper problem of nuclear waste storage.

ARGUMENT : SETTING UP THE ATTACK

Both

- Although I agree with X up to a point, I cannot accept her assumption that _____.

- Though I concede that _____, I still insist that _____.

- X is right that _____, but he seems to be on more dubious grounds when he claims that _____.

- Whereas X provides ample evidence that _____, Y and Z's research on _____ and _____ convinces me that _____ instead.

ARGUMENT : SETTING UP THE ATTACK

Both **nuclear energy?**

- Though I concede that nuclear power is carbon-free, I still insist that its inherent risks make it a weak candidate for infrastructure investment.

- Whereas X provides ample evidence that nuclear regulation is currently expensive, Y and Z's research on its low generation costs and manageable environmental impacts convinces me that nuclear power can help us transition to a carbon-free future.

For more templates, refer to *They Say / I Say: The Moves That Matter in Academic Writing* by Gerald Graff and Cathy Birkenstein, 4th Edition 2018, W.W. Norton & Company

ARGUMENT : SETTING UP THE ATTACK

nuclear energy?

For class papers, your argument will most often be crafted in response to a professor's prompt.

prompt:

Given its advantages and disadvantages, how do you view nuclear power—as a relic of the past or as a bridge to a sustainable future?

my argument (my thesis):

Although evidence is ample that the regulatory demands of nuclear power are currently expensive, new data on the manageable environmental impact and relatively low cost of nuclear power generation is convincing. It is now clear that nuclear power is the only existing energy source that can help us maintain our way of life while we transition to a carbon-free future.

ARGUMENT : SETTING UP THE ATTACK

A **thesis statement** captures / represents the argument.

Thesis statement :

The students in this class are great because they are intelligent, kind, and hard-working.

Your argument (thesis) is built through a series of **supporting claims**.

Overall argument (thesis) :
The students in this class are great …

Supporting claims :   *… because they are <u>intelligent</u>, <u>kind</u>, and <u>hard-working</u>.*
                                                    claim 1   claim 2   claim 3

ARGUMENT : SETTING UP THE ATTACK

Thesis statement :

C.S. Lewis's Chronicles of Narnia series is one of the richest works of the 20th century because it offers an escape from reality, teaches readers to have faith even when they don't understand, and contains a host of vibrant characters.

Overall argument (thesis) :

C.S. Lewis's Chronicles of Narnia series is one of the richest works of the 20th century…

Supporting claims : *… because (1) it offers an escape from reality, (2) teaches readers to have faith even when they don't understand, (3) and contains a host of vibrant characters.*

ARGUMENT : SETTING UP THE ATTACK

Thesis statement :

The many scandals of Hoover's administration revealed basic problems with the Republican Party's nominating process.

Overall argument (thesis) :

There were many basic problems with the Republican Party's nominating process in 1928.

Supporting claims :

the many scandals of the Hoover administration
(Build and evaluate each as evidence.)

ARGUMENT : SETTING UP THE ATTACK

Thesis statement :

It was Hitler's impulsive decision to invade Russia that ultimately lost him WWII. The terrible consequences of this for the Wehrmacht—immeasurable casualties against the dauntless Red Army and a resulting failure to prepare adequate defenses against a foreseen Allied landing in the west—were decisive.

Overall argument (thesis) :

Germany lost WWII because Hitler invaded Russia.

Supporting claims :

(1) unanticipated losses against Russia's Red Army, (2) lack of men and material to improve Atlantic defense, which allowed Operation Overlord to succeed
(Build and evaluate each as evidence.)

THE COUNTERARGUMENT

"When we are able to run through the puzzles on both sides of an issue, we more readily perceive what is true and what is false."

–Aristotle (384–322 BCE)

THE COUNTERARGUMENT

"We <u>are</u> urging you to tell readers what others might say against you, but … doing so will actually <u>enhance</u> your credibility, not undermine it. … The more you give voice to your critics' objections, the more you tend to disarm those critics, especially if you go on to answer their objections in convincing ways. When you entertain a counterargument, you make a kind of preemptive strike."

–Gerald Graff & Cathy Birkenstein in *They Say / I Say* (2018)

ARGUMENT : SETTING UP YOUR DEFENSE

THE COUNTERARGUMENT (or antithesis)

Anticipate the argument(s) that will be used against you.

Demonstrate that you've considered these alternatives (ethos).

Retreat when necessary: Be prepared to make concessions (ethos).

Prepare the ground for your refutation/rebuttal (logos).

ARGUMENT : SETTING UP YOUR DEFENSE

Possible structure:

- **Intro paragraph**
- Thesis part 1
- Thesis part 2
- Thesis part 3
- Counterargument 1
- Counterargument 2
- Rebuttal / refutation
- Conclusion

THESIS STATEMENT

HOOK?

CONTEXT / RELEVANCE

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui est. ugiat nulla pariatur. Excepteur sint Excepteur sint occaecat cupidatat non proident, sunt in culpa qui est. ugiat nulla pariatur. Excepteur sint. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui est. ugiat nulla pariatur. Excepteur sint. Excepteur sint occaecat cupidatat no. **The students in this class are great because they are intelligent, kind, and hard-working.** *Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa.*

ARGUMENT : SETTING UP YOUR DEFENSE

Possible structure:

- Intro paragraph
- **Thesis part 1**
- Thesis part 2
- Thesis part 3
- Counterargument 1
- Counterargument 2

Note:

The **topic sentence** is the claim that we will prove in this paragraph. Think of it as a conclusion, but one that is placed at the beginning of the paragraph (BLUF).

The students in this class are intelligent. **TOPIC SENTENCE**

consectetur *magna aliqua. Ut en* *ut aliquip ex ea commodo* *te velit esse cillum dolore eu fu* *non proident, sunt in culpa qui officia de* *olor sit amet, consectetur adipiscing e* *ore et dolore magna aliqua. Ut enim ad minim v* *ico laboris nisi ut aliquip ex ea commodo consequat. D* *erit in voluptate velit esse cillum dolore eu fugiat nulla par* *at cupidatat non proident, sunt* *ba qui officia deserunt mollit*

We call this the "**inverted pyramid**."

ARGUMENT : SETTING UP THE ATTACK

Possible structure:

- Intro paragraph
- Thesis part 1
- **Thesis part 2**
- Thesis part 3
- Counterargument 1
- Counterargument 2
- Rebuttal / refutation
- Conclusion

The students in this class are kind. Lo *adipiscing elit, sed do eiusmod tempor incididunt ut la*e *et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.* **TOPIC SENTENCE** *ecat cupidatat non proident, sunt in culpa qui officia deserunt mol* **EVIDENCE (details / data)** *m. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu f* **Conclusion :** Possibly unnecessary / redundant. *non proident, sunt in culpa qui offic* **Transition :** Possible but not always necessary.

ARGUMENT : SETTING UP THE ATTACK

Possible structure:

- Intro paragraph
- Thesis part 1
- Thesis part 2
- **Thesis part 3**
- Counterargument 1
- Counterargument 2
- Rebuttal / refutation
- Conclusion

The students in this class are hard-working. La... **TOPIC SENTENCE** consectetur adipiscing elit, sed do eiusmod tempor incididunt ut la...ore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla p... **EVIDENCE (details / data)** ...nt occaecat cupidatat non proident, sunt in culpa qui officia deserunt m...rum. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu f... **Conclusion :** Possibly unnecessary / redundant. ...non proident, sunt in culpa qui offi... **Transition :** Possible but not always necessary.

ARGUMENT : SETTING UP YOUR DEFENSE

Possible structure:

- Intro paragraph

- Thesis part 1

- Thesis part 2

- Thesis part 3

- **Counterargument 1**

- Counterargument 2

- Rebuttal / refutation

- Conclusion paragraph

However, some claim that the NPS students in this class aren't as good as students at the British Army's Technology Academy. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt

TOPIC SENTENCE

EVIDENCE (details / data)

Advice:

1. Maintain a consistent voice. The reader should understand that you do not or will not fully accept this counterargument. (We'll see how in the rebuttal.)

2. Words like "some **claim**" or "some **argue**" help the reader see that you aren't fully convinced. (You can also explicitly name the authors or camps making these arguments.)

ARGUMENT & COUNTERARGUMENT

Possible structure:

- Intro paragraph
- Thesis part 1
- Thesis part 2
- Thesis part 3
- Counterargument 1
- **Counterargument 2**
- Rebuttal / refutation
- Conclusion

Furthermore, there are those who argue that the rejection of some NPS theses due to allegations of plagiarism serves as evidence that NPS students in general aren't so great. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquib ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est.

TOPIC SENTENCE

**EVIDENCE
(details / data)**

Remember, be **fair-minded** (ethos). Provide a faithful rendering of the argument with accurate details, data, and other evidence.

ARGUMENT : SETTING UP YOUR DEFENSE

Possible structure:

- Intro paragraph
- Thesis part 1
- Thesis part 2
- Topic
- Counterargument 1
- Counterargument 2
- **Rebuttal / refutation**
- Conclusion

CONCESSION

CONCESSION

EVIDENCE

EVIDENCE

REFUTATION

REFUTATION

> *While its true that the students at the British Army's Technology Academy are quite good, the goal of this paper isn't to determine the best military students in the world. It is not necessary to prove that the students in this class are the best in order to prove that they are great. Wh... ...s undeniably.* Ipsum dolor sit amet, consec... ...lit i...i...li...ed do eiusmod t...por in......... ...re et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi. *It's also true that some NPS theses are rejected due to plagiarism concerns. But this actually shows that NPS has a rigorous process in place to ensure that students adhere to the standards of academic integrity.* Lo... ...m dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore ... dolor... Ut enim ad minim veniam, q... ...ion ullamco laboris nisi ut aliquip ex ea commodo ut aliquip. *Among the thousands of theses published by NPS since 1909, only a handful have been investigated for plagiarism. Unfortunately, the same can't be said for British Academy theses over just the last five years.*

The refutation (or rebuttal) is where you again attack, delivering the decisive blow to the counterargument(s). Many moves are possible. You may attack the logic of a counterargument, its premises/assumptions, the accuracy of its data, or prove that the counterargument is irrelevant to the argument that you're making.

ARGUMENT : SETTING UP YOUR DEFENSE

Possible structure:

- Intro paragraph

- Thesis part 1

- Thesis part 2

- Thesis part 3

- Counteragument 1

- Counterargument 2

- Rebuttal / refutation

- **Conclusion**

*Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip nisi ut aliquip nisi ut aliquip ex ea commodo. **It is the proven ability of the students in this class to utilize their minds, to help one another, and to always apply themselves to their work that sets them apart as truly exceptional students.** Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum. Lorem ipsum dolor sit amet, consectetur ad* incididunt ut labore et dolore *magna aliqua. Ut enim* citation ullamco laboris nisi ut *aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore e* cat cupidatat non proident, *sunt in culpa qui of*

Restates / amplifies your thesis in other words.
(What's different now?)

The thesis argument should be stronger now that the counterarguments have been entertained but clearly refuted.
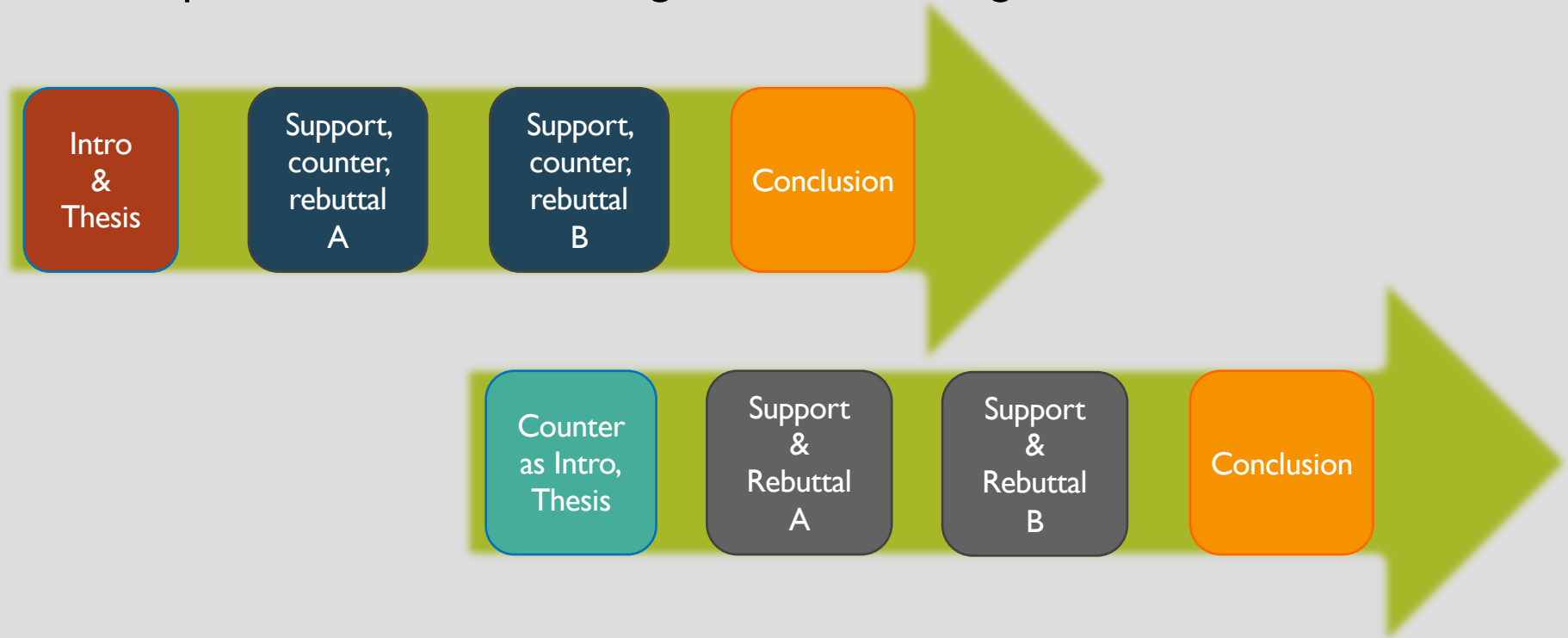
TACTICS : EVALUATING LOGIC

A claim can be disproven through:

False premises (think: false assumptions) and false reasoning, such as that demonstrated by common **logical fallacies**.
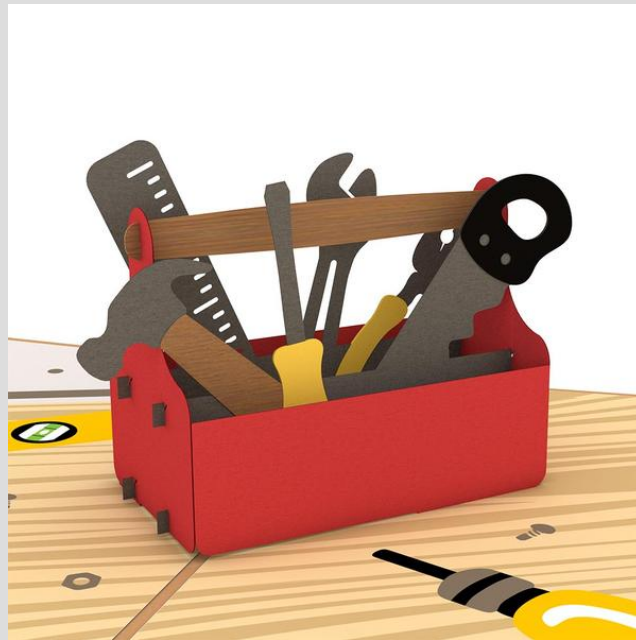
TACTICS : EVALUATING LOGIC

Thesis statement :
The students in this class are great because they are intelligent, kind, and hard-working.

Reasoning proceeds through **premises** and **conclusions**.

Claim : *The students in this class are intelligent.*

Deductive Reasoning:

Premise 1 : (given that) All NPS students are intelligent.

Premise 2 : (given that) The students in this class are all NPS students.

Conclusion : Therefore, all students in this class are intelligent.

TACTICS : EVALUATING LOGIC

Thesis statement :

The students in this class are great because they are intelligent, kind, and hard-working.

Claim : *The students in this class are intelligent.*

Deductive Reasoning:

Premise 1 : All students in this class scored 80% or better on the test.

Premise 2 : The test is an accurate reflection of intelligence.

Conclusion : Therefore, the students in this class are intelligent.

TACTICS : EVALUATING LOGIC

Thesis statement :
The students in this class are great because they are intelligent, kind, and hard-working.

Premises must hold up to scrutiny to be considered **valid.**

Claim : *The students in this class are intelligent.*

Inductive Reasoning:

`valid` **Premise 1 :** I have a random sample of all the students in this class.

`valid` **Premise 2 :** All the students in the random sample are intelligent.

`VALID` **Conclusion :** Therefore, all students in this class are (probably) intelligent.

TACTICS : EVALUATING LOGIC

Thesis statement :

The students in this class are great because they are intelligent, kind, and hard-working.

If a single premise is false, then the reasoning must be considered **invalid.**

Claim : *The students in this class are intelligent.*

"But the sample wasn't really random! You cherry-picked!"

Inductive Reasoning:

invalid **Premise 1 :** I have a random sample of all the students in this class.

valid **Premise 2 :** All the students in the random sample are intelligent.

INVALID **Conclusion :** Therefore, all students in this class are (probably) intelligent.

Source : Adapted from Michigan State University, "The Philosophy of Inquiry," https://msu.edu/course/sw/891/stocks/reserve/phiinde.pdf

TACTICS : EVALUATING LOGIC

Thesis statement :

The students in this class are great because they are intelligent, kind, and hard-working.

If a single premise is false, then the reasoning must be considered **invalid.**

Claim : *The students in this class are intelligent.*

"Can this single test really measure intelligence?"

Deductive Reasoning:

valid **Premise 1 :** All students in this class scored 80% or better on the test.

invalid **Premise 2 :** The test is an accurate reflection of intelligence.

INVALID **Conclusion :** Therefore, all students in this class are intelligent.

Source : Adapted from Michigan State University, "The Philosophy of Inquiry," https://msu.edu/course/sw/891/stocks/reserve/phiinde.pdf

TACTICS : EVALUATING LOGIC

Logical fallacies

Fallacies side-step the demands of logical argument.

A small selection:

Begging the Question

Hasty Generalization

Correlation vs. Causation (post hoc)

Slippery Slope

Straw Man Argument / Cherry Picking

TACTICS : EVALUATING LOGIC

Logical fallacies

BEGGING THE QUESTION

Starting from an arguable proposition as if it were already an established fact.

"Given that dogs are better than cats …"

"Given that a unified Korean Peninsula is a desired outcome …"

INVALID

TACTICS : EVALUATING LOGIC

Logical fallacies

HASTY GENERALIZATION

Making an assertion based on surveying a small and/or unrepresentative sample.

"Based on my (two) sources, it is clear that …"

"Many scholars argue that …" (but only cites one)

INVALID

TACTICS : EVALUATING LOGIC

Logical fallacies

CORRELATION VS. CAUSATION (post hoc)

Assuming that because phenomena happen near each other in space or time, one causes the other. Assuming that since (A) preceded (B), (A) caused (B).

"My great aunt met Hitler. Three days later he invaded Poland. My great aunt was an evil influence."

INVALID

TACTICS : EVALUATING LOGIC

Logical fallacies

SLIPPERY SLOPE

W → X → Y → Z

"Allowing multiple official state languages exacerbates division of society along ethnic lines, which undermines nationalism, destabilizing the state and ultimately leading to economic depression and anarchy."

INVALID

TACTICS : EVALUATING LOGIC

Logical fallacies

STRAW MAN ARGUMENT / CHERRY PICKING

Using a simplified version of an opponent's argument or cherry-picked elements that can be more easily knocked down.

"Charles Darwin's ideas were used to support racist pseudoscience; the theory of evolution is clearly bunk."

"Al Gore thinks we can overcome global warming if we all buy a Prius."

INVALID

IN CONCLUSION

Thank you!

Feel free to reach out if you have questions or if you wish to provide constructive feedback.

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