

CRITICAL THINKING PROCESS

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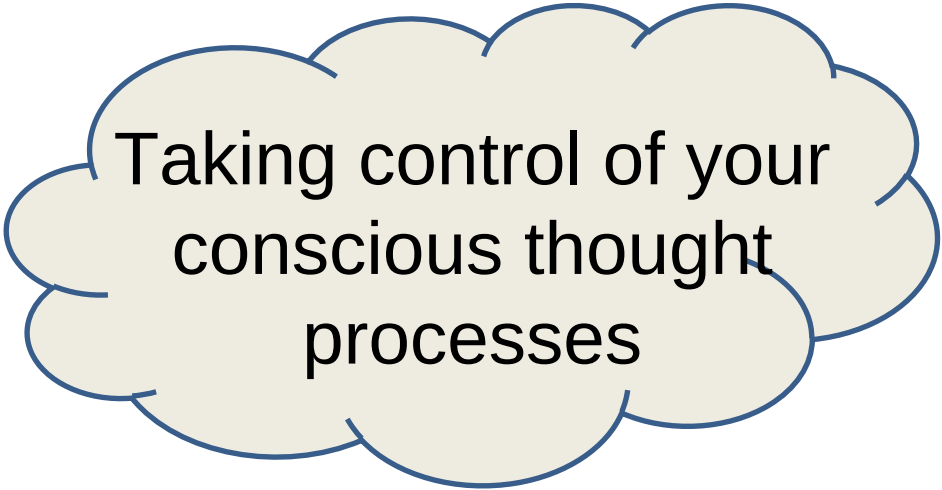
Critical Thinking exercise

1. How do you put a giraffe into your refrigerator?
2. How do you put an elephant into your refrigerator?
3. The Lion King is hosting an animal conference. All the animals attend - except one. Which animal does not attend?
4. There is a river you must cross but it is used by crocodiles and you do not have a boat. How do you manage it?

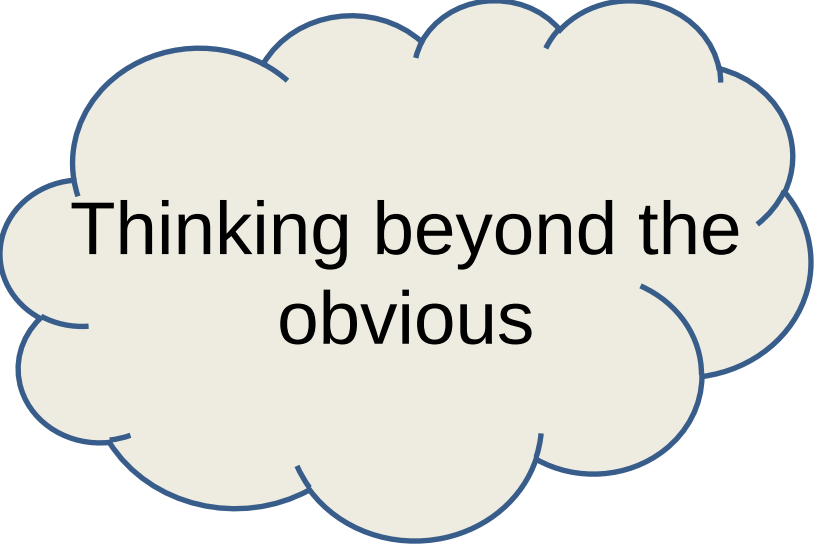
Warm-up



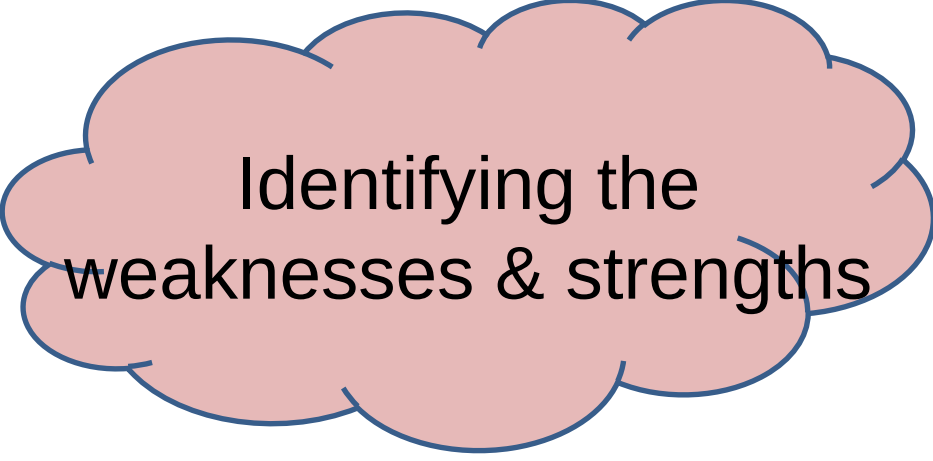
CRITICAL THINKING



Taking control of your
conscious thought
processes



Thinking beyond the
obvious



Identifying the
weaknesses & strengths

CRITICAL THINKING

COMPREHEND/SUMMARIZE

ANALYZE

INFER

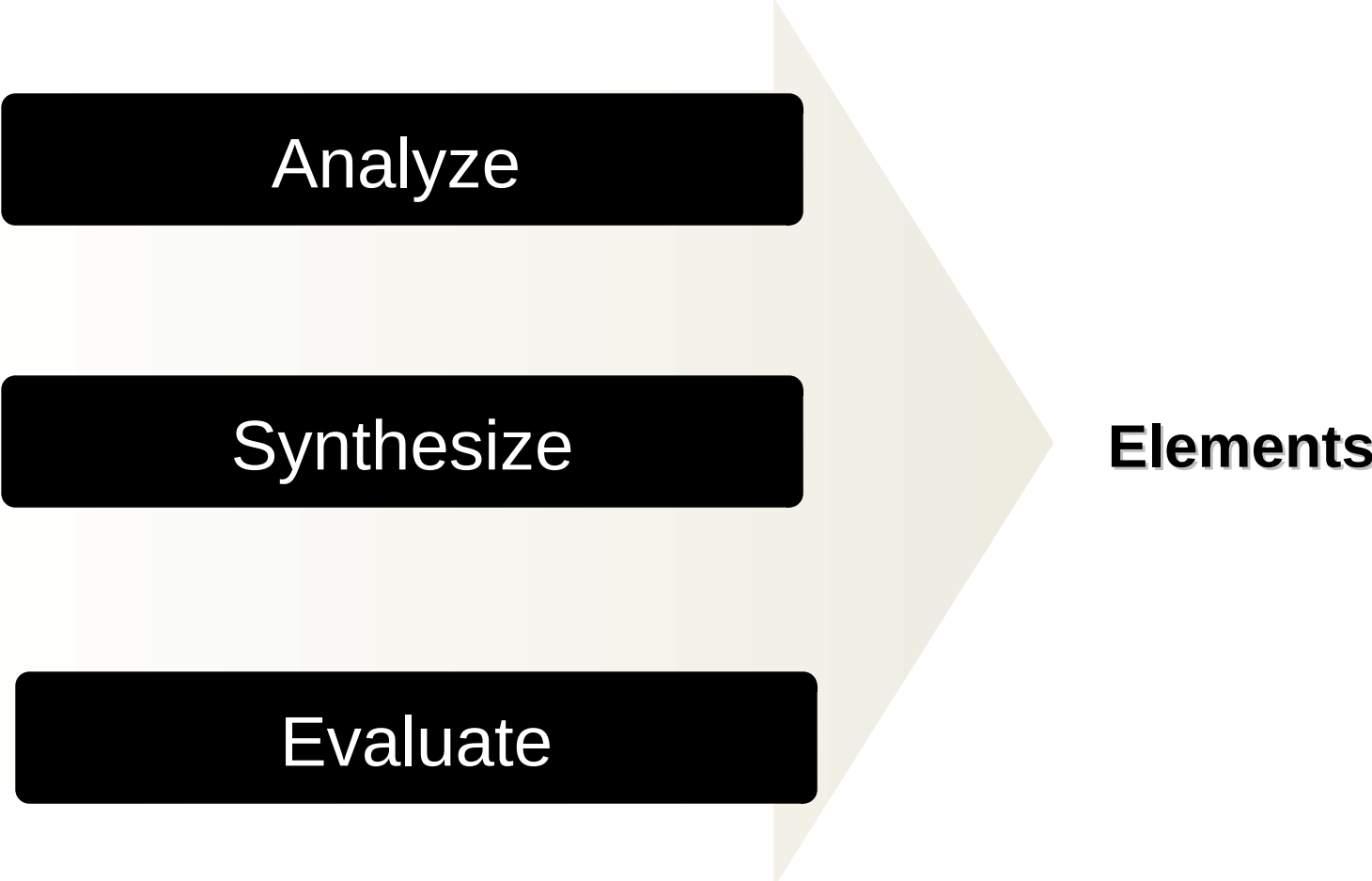
SYNTHESIZE

EVALUATE

ELEMENTS

The diagram illustrates the five elements of critical thinking. A large, light beige arrow points from the left towards the word 'ELEMENTS' on the right. Five horizontal bars of different colors are stacked vertically within the arrow's path. From top to bottom, the bars are: blue with 'COMPREHEND/SUMMARIZE', green with 'ANALYZE', red with 'INFER', blue with 'SYNTHESIZE', and green with 'EVALUATE'.

Critical Thinking



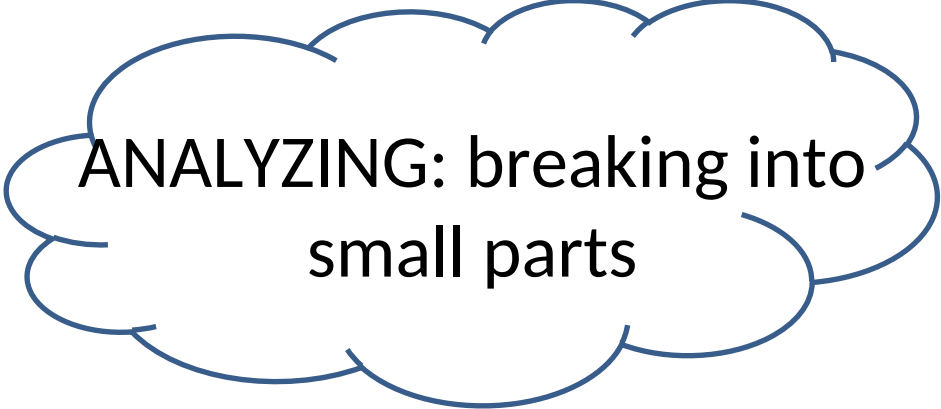
Analyze

Synthesize

Evaluate

Elements

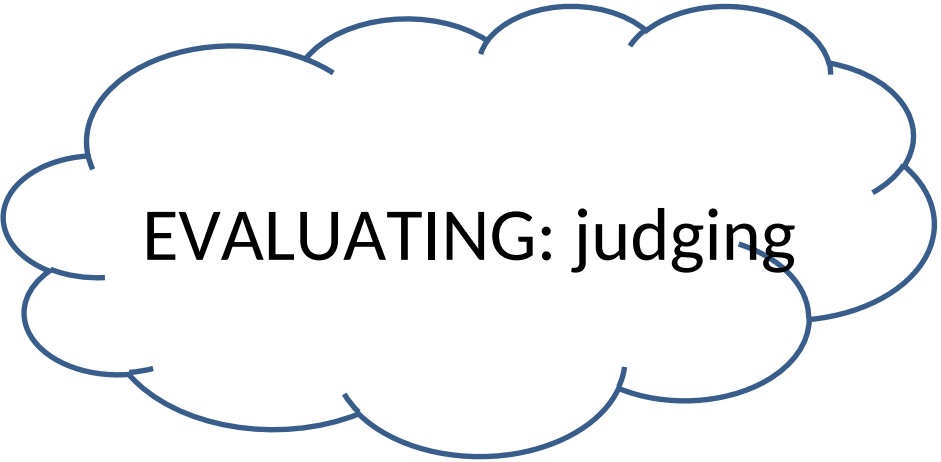
Critical thinking



ANALYZING: breaking into
small parts



SYNTHESIZING: putting
things together



EVALUATING: judging

Critical Thinking Skill	Definition	Applications for Readers	Applications for Writers
Analysis	Breaking down information into its parts and elements	Analyzing the information in articles, reports, and books to grasp the facts and concepts they contain	Analyzing events, ideas, processes, and structures to understand them and explain them to readers
Synthesis	Putting together elements and parts to form new wholes	Synthesizing information from several sources, examining implications, and drawing conclusions supported by reliable evidence	Synthesizing source materials with your own thoughts in order to convey the unique combination to others
Evaluation	Judging according to standards or criteria	Evaluating a reading by determining standards for judging, applying them to the reading, and arriving at a conclusion about its significance, value, or credibility	Evaluating something in writing by convincing readers that your standards are reasonable and that the subject either does or does not meet those standards

Using Critical Thinking for College Assignments

Critical Thinking Skill	Sample College Writing Assignments
<i>Analysis</i> : breaking into parts and elements based on a principle	■ Describe the immediate causes of the 1929 stock market crash. (Analyze by using the principle of immediate causes to identify and explain the reasons for the 1929 crash.) ■ Trace the stages through which a bill becomes federal law. ■ Explain and illustrate the three dominant styles of parenting. ■ Define <i>romanticism</i>, identifying and illustrating its major characteristics.
<i>Synthesis</i> : combining parts and elements to form new wholes	■ Discuss the following statement: High-minded opposition to slavery was only one cause, and not a very important one, of the animosity between North and South that in 1861 escalated into civil war. (Synthesize by combining the causes or elements of the North-South animosity, going beyond the opposition to slavery, to form a new whole: your conclusion that accounts for the escalation into civil war.) ■ Imagine that you are a trial lawyer in 1921, charged with defending Nicola Sacco and Bartolomeo Vanzetti, two anarchists accused of murder. Argue for their acquittal on whatever grounds you can justify.
<i>Evaluation</i> : judging according to standards or criteria	■ Present and evaluate the most widely accepted theories that account for the disappearance of the dinosaurs. (Evaluate, based on standards such as scientific merit, the credibility of each theory.) ■ Defend or challenge the idea that houses and public buildings should be constructed to last no longer than twenty years. ■ Contrast the models of the solar system advanced by Copernicus and by Kepler, showing how the latter improved on the former.



Problem

You can't afford both your college tuition and the car you need.

Solution

1 IDENTIFY CAUSES

Causes in your control:

Expensive vacation?

Credit-card debt?

Causes out of your control:

Medical emergency?

Job loss?

Tuition increase?

Financial aid policy change?

2 ANALYZE, SYNTHESIZE, AND EVALUATE OPTIONS

Do without a car	(<i>how?</i>)	• Get rides with family or friends? • Take public transportation?
Decrease your tuition	(<i>how?</i>)	• Take fewer courses?
Get more money	(<i>how?</i>)	• Get a loan from the bank? • Get a loan from the college? • Get a loan from a family member? • Get another job?

3 REACH A LOGICAL CONCLUSION

Apply for a short-term loan through the college for tuition.

How do I analyze?

1

Facts &
Opinions

2

Evidences

3

Cause &
Effect

4

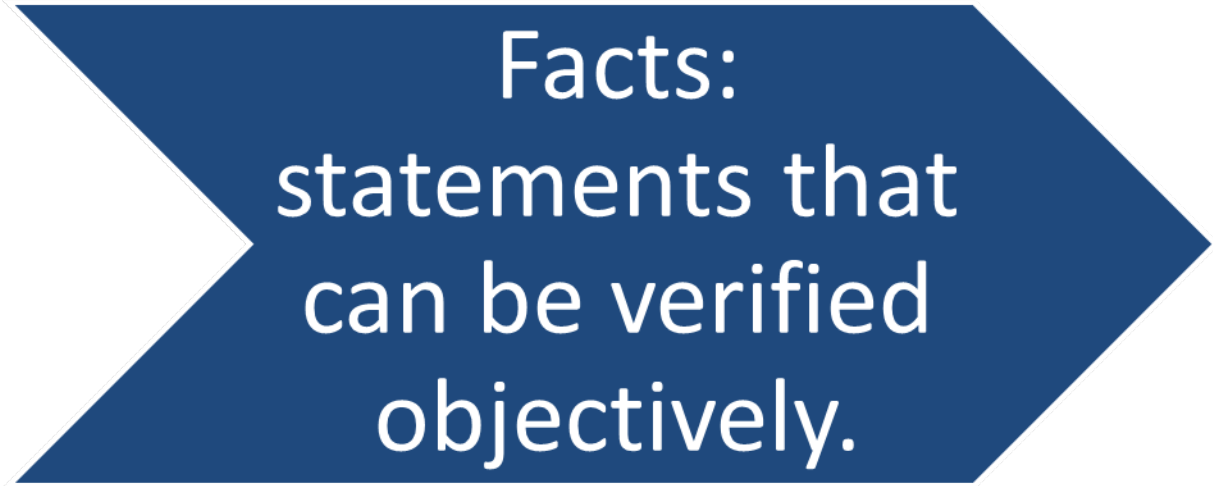
Tone

Facts or opinions?

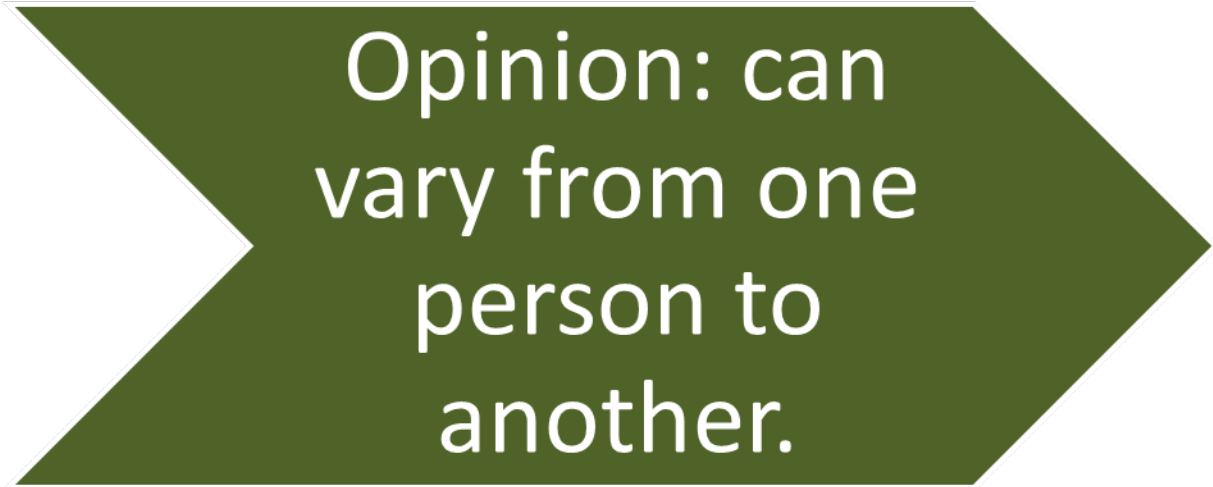
What is fact?

What is opinion?

Definitions



Facts:
statements that
can be verified
objectively.



Opinion: can
vary from one
person to
another.

F or O?

- 1. Nuclear fusion releases energy.
- 2. Nuclear fusion is a possible solution to our energy problems.
- 3. Solar energy has attracted a great deal of public attention over the past decade.
- 4. Many people hope that it will produce a clean, nonpolluting means of heating our homes and offices.
- 5. Oil and gas production in the US has been falling for over a decade.

F or O?

6. The petroleum industry is shrinking yearly.
7. In the interest of national security, the petroleum industry should be encouraged by government legislation.
8. The early pioneers generated energy from the wind on the frontier.
9. Such nonpolluting means of creating energy should immediately replace those produced by fossil fuels.
10. Because natural gas, methane, is a clean fuel, the government should encourage its use.

What is evidence?

- Anything that demonstrate the soundness of a claim.
- Forms of evidences:
 - Facts
 - Statistic
 - Firsthand observation
 - Expert testimony
- Others: example, illustrations, details, opinions

Four **reliable** forms of evidence

- Facts: are statements that can be verified
- Statistics: facts expressed in **numbers**
- Expert testimony: people with knowledge gained from study and experience of a particular field (testimony=proof)
- Firsthand observation: add concrete reality to abstract or complex points.

The Rhetoric Triangle



Appeals

- used to select evidence and judge whether it is appropriate and sufficient.
- Logical appeal: appeal to reader's mind and intellect (**relying on factual, objective, clear and relevant evidence**)
- Emotional appeal: appeal to reader's heart (choosing language, example, facts, quotations, images that evoke emotional responses)

Appeal

- Ethical appeal: call on the reader's sense of fairness or trust.
- How:
 - Establish your **credentials in the fields through experience**, other readings, interviews
 - Establish the rapport with readers by indicating values and attitudes you share with them by responding seriously to opposing argument.
 - Use language that is precise, clear and appropriate in tone.

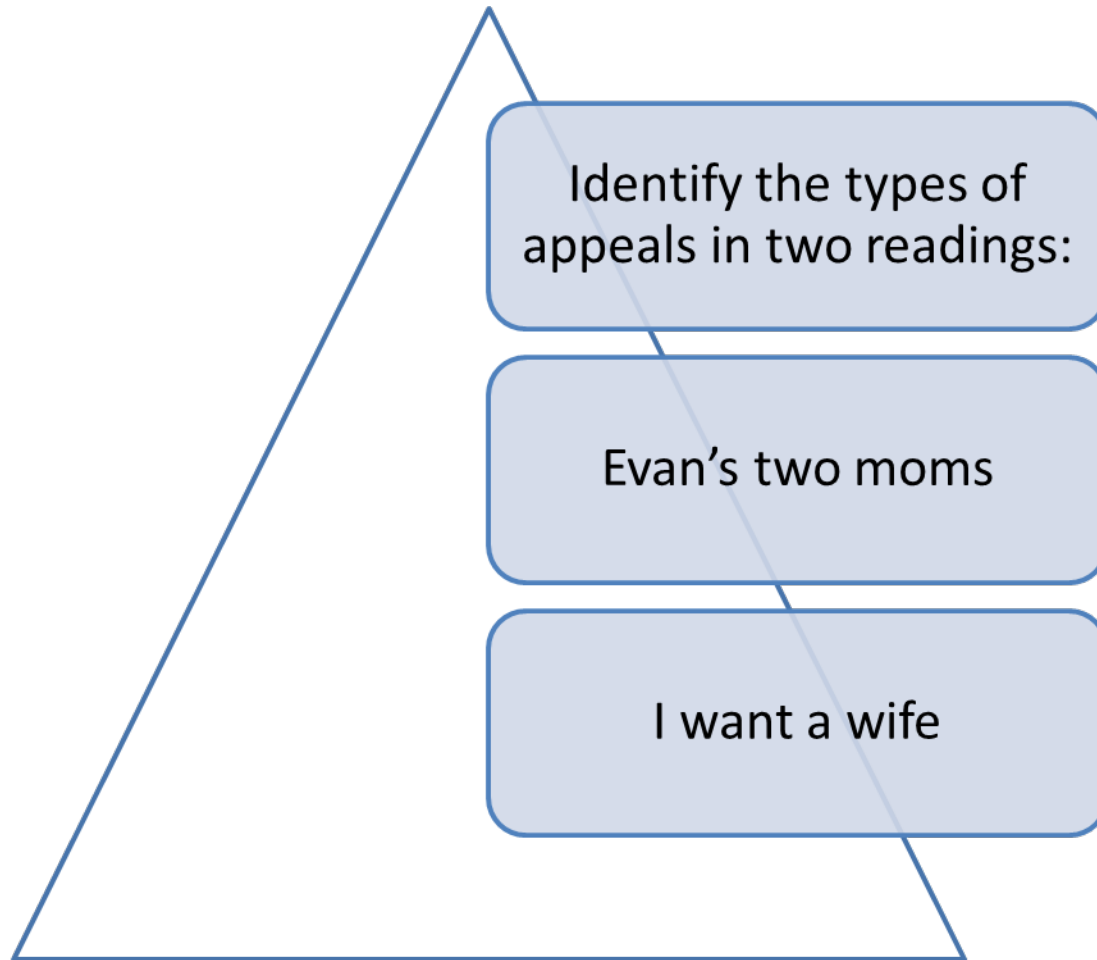
Identify types of appeals

1. "Better men than us have fought and died to preserve this great nation. Now is our turn to return the favor. For God and country, gentlemen!"
2. "He has a track record of success with this company, culminating in some of our most acclaimed architecture to date and earning us Firm of the Year nine times in a row."
3. "As a doctor, I am qualified to tell you that this course of treatment will likely generate the best results."
4. "My three decades of experience in public service, my tireless commitment to the people of this community, and my willingness to reach across the aisle and cooperate with the opposition, make me the ideal candidate for your mayor."
5. "The data is perfectly clear: this investment has consistently turned a profit year-over-year, even in spite of market declines in other areas."

Identify types of appeals

6. "If my age doesn't convince you that I know what I'm talking about, at least consider that I am your grandfather and I only want the best for you."
7. "You'll make the right decision because you have something that not many people do: you have heart."
8. "Ladies and gentlemen of the jury: we have not only the fingerprints, the lack of an alibi, a clear motive, and an expressed desire to commit the robbery... We also have video of the suspect breaking in. The case could not be more open and shut."
9. "More than one hundred peer-reviewed studies have been conducted over the past decade, and none of them suggests that this is an effective treatment for hair loss."
10. "If you're still unsure, please consider that my advanced degree and fieldwork speak for themselves."

Group Activity



How can I identify cause and effect?

Cause A → produces → Effect B

More studying → Produces → ?

? → Produces → Current headache

A happens before B

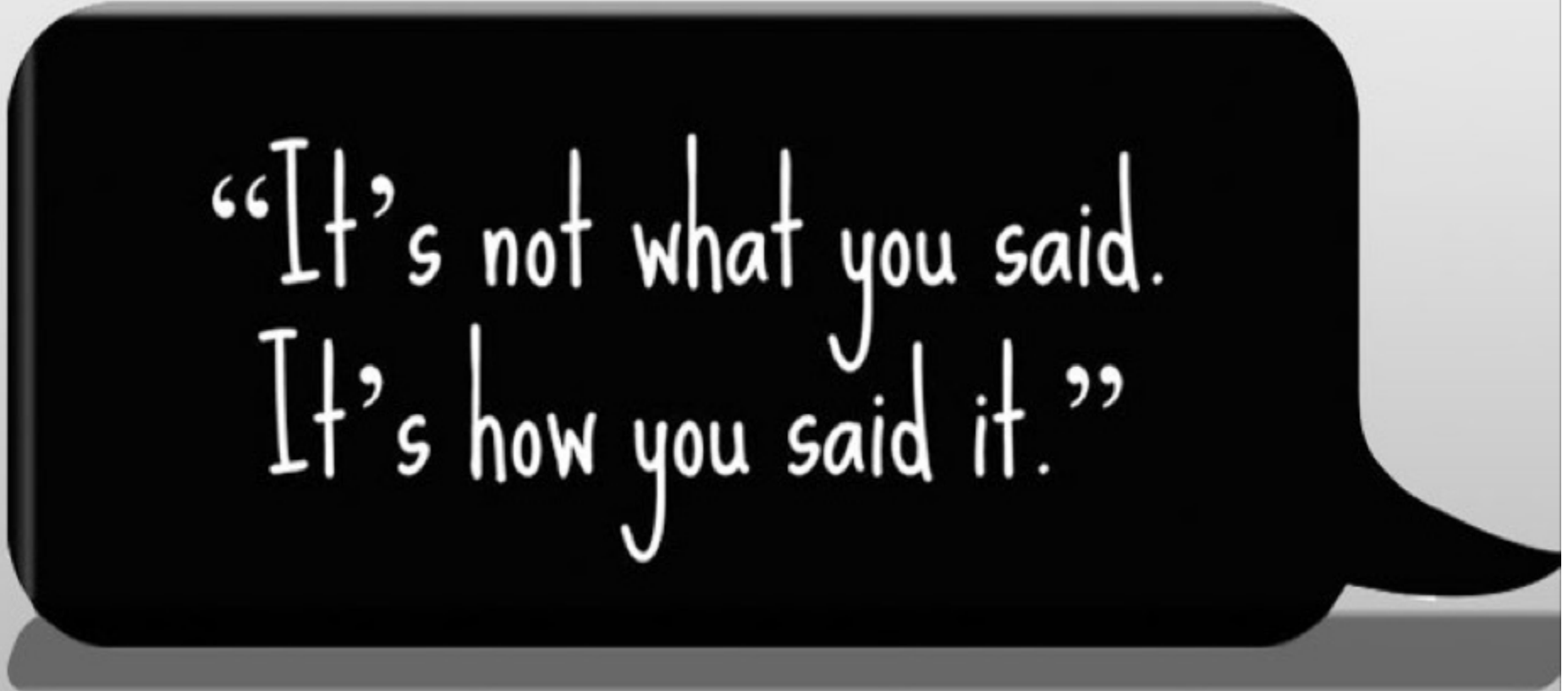
A & B are associated

**Doesn't
mean
A causes B**

Activity

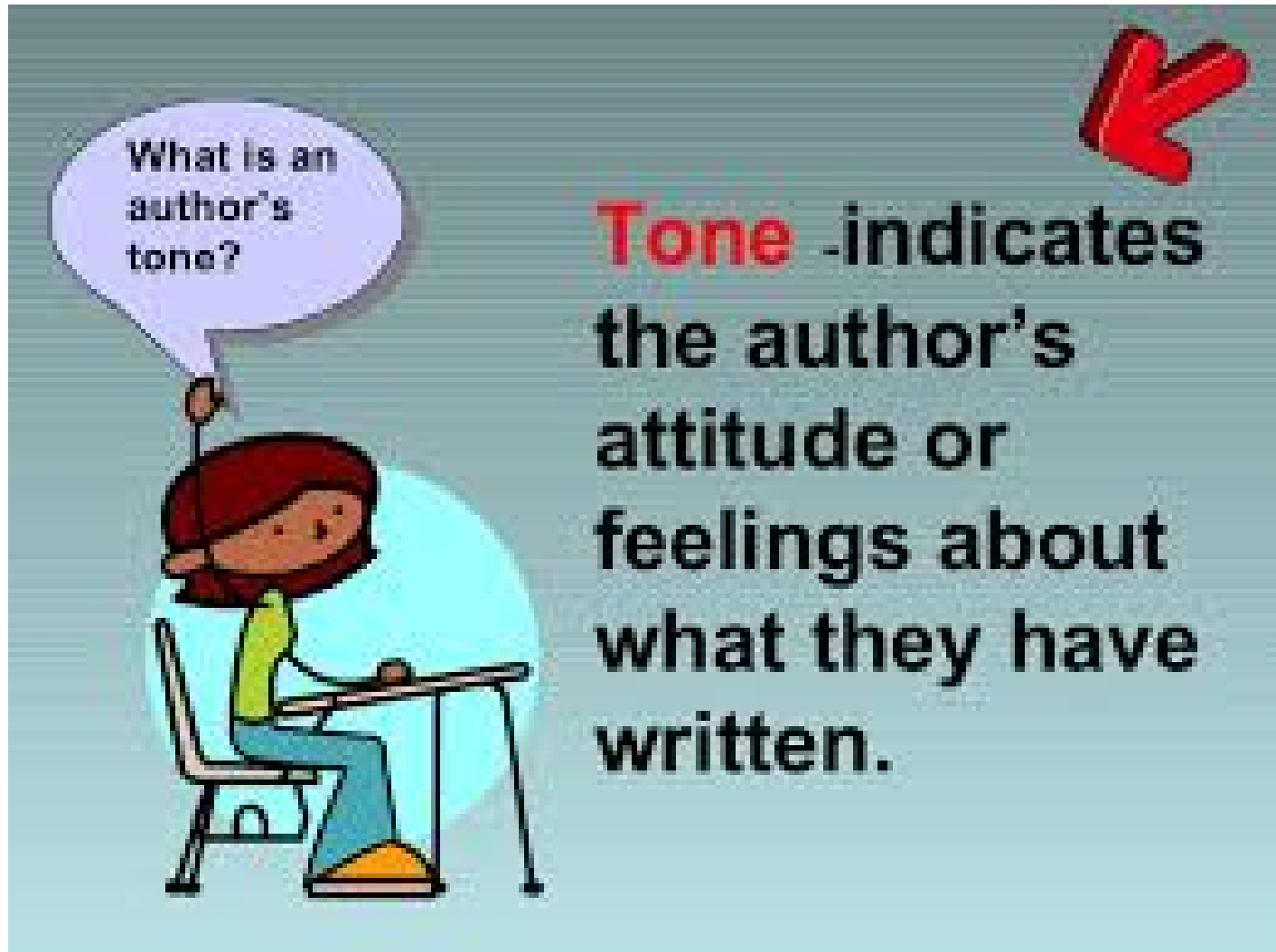
- **For each of the sentences below, explain how the effect might not be a result of the cause given.**
 1. Attendance at baseball games declined because the team raised prices.
 2. Test scores improved because the school instituted a dress code.
 3. Because of the Internet, Americans are reading fewer books than they did twenty years ago.

How can I describe the tone?



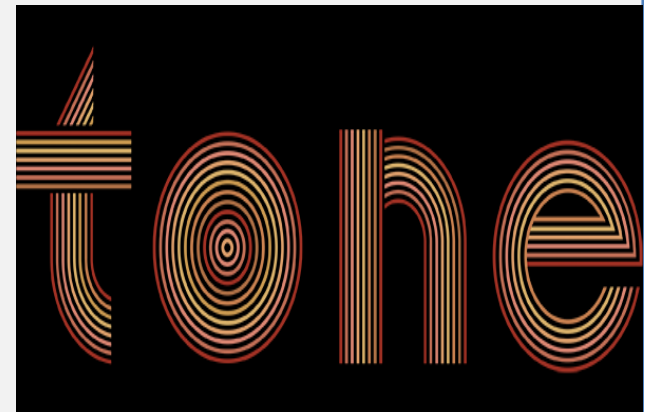
“It’s not what you said.
It’s how you said it.”

Tone Definition



Types of tone

- Informal
- Sympathetic
- Sad
- Sarcastic
- Tolerant
- Objective ><
(subjective)
- Humorous
- Bitter
- Irritated
- Straightforward
- Sentimental
- Pessimistic
- Optimistic
- Formal
- Happy
- Serious



Examples of Tone

- I'd rather stay here and wait, than go into that dark room.
 - The sentence above imposes that the person is scared.
- The sun is shining brightly in the meadow, let's go out and play!
 - The sentence above imposes that the person is happy or excited.
- I called my friend at their house, her brother said she's not home, but I heard her voice come over the line.
 - The sentence imposes that the person is suspicious.

Activity

The following statements each express different attitudes about a shabby apartment. Choose appropriate tone from these 6 different tones: optimistic, bitter, tolerant, sentimental, humorous, and objective.

1. This place may be shabby, but since both of my children were born while we lived here, it has a special place in my heart.

The tone is

2. This isn't the greatest apartment in the world, but it's not really that bad.

The tone is

Activity

3. If only there were some decent jobs out there, I wouldn't be reduced to living in this miserable dump.

The tone is

4. This place does need some repairs, but I'm sure the landlord will be making improvements sometime soon.

The tone is

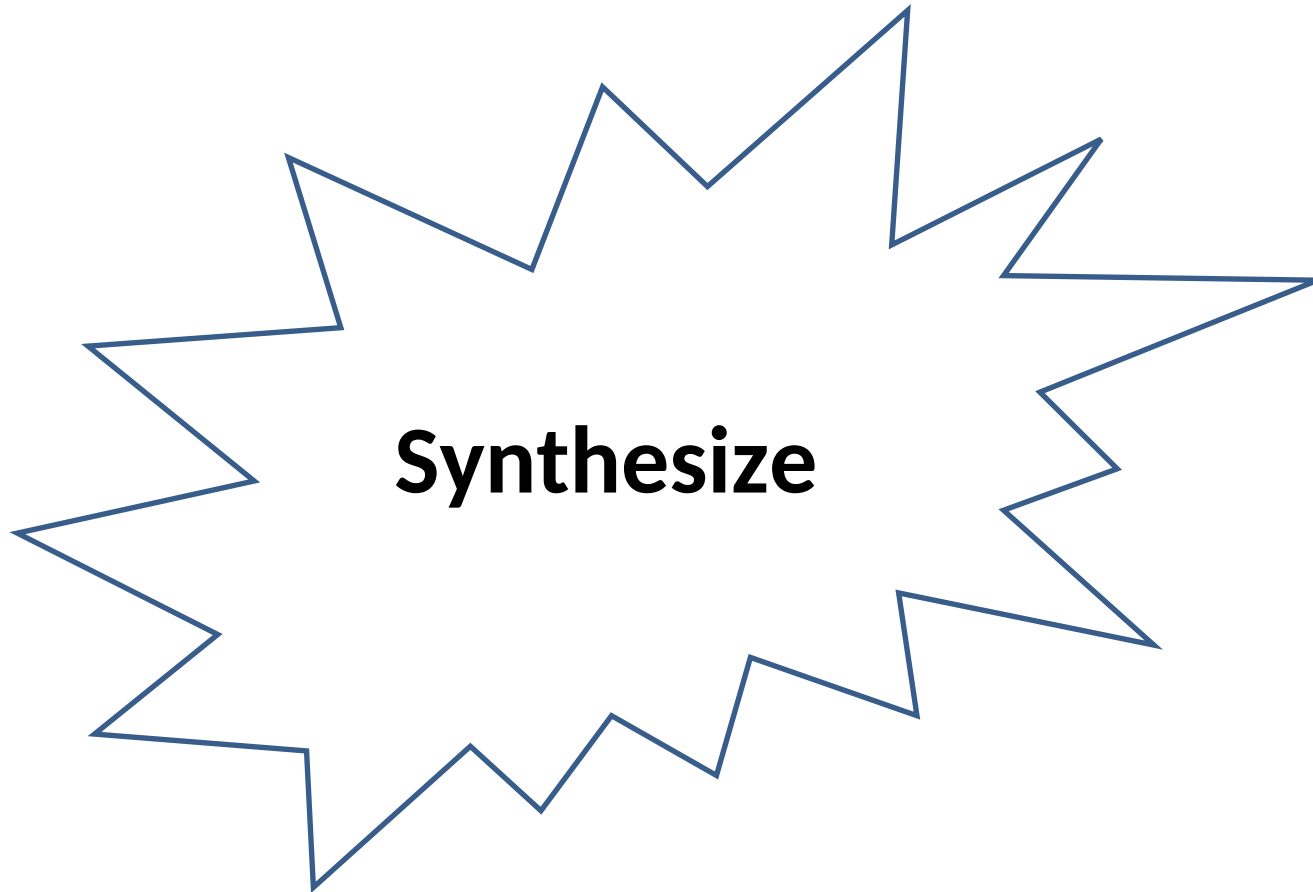
5. When we move away, we're planning to release three hundred cockroaches and tow mice, so we can leave the place exactly as we found it.

The tone is

6. This is the apartment we live in. It provides shelter.

The tone is

Definition



How do I synthesize?

- Put ideas together with things you know from

Your experience

Previous learning

Other readings

How do I synthesize?

“Probably no time in life as liberating or stimulating as the college years. Freed from the drudgery of a career and the obligation of family life, college students have the luxury to explore new ideas and pursue new paths of knowledge. College is a joyful time of endless possibility.”

How do I evaluate?

After summarizing, analyzing & synthesizing

Recognize tone, differentiate facts from opinion

Make judgments

Thank You !