Common Human Decision-Making

Where Our Information (Evidence) Comes From

Personal Observations & Reading

Education

Family & Friends

Media (news, Internet, etc.)

Religion or Ideology

Entertainment (TV, movies, hobbies, etc.)

Employment
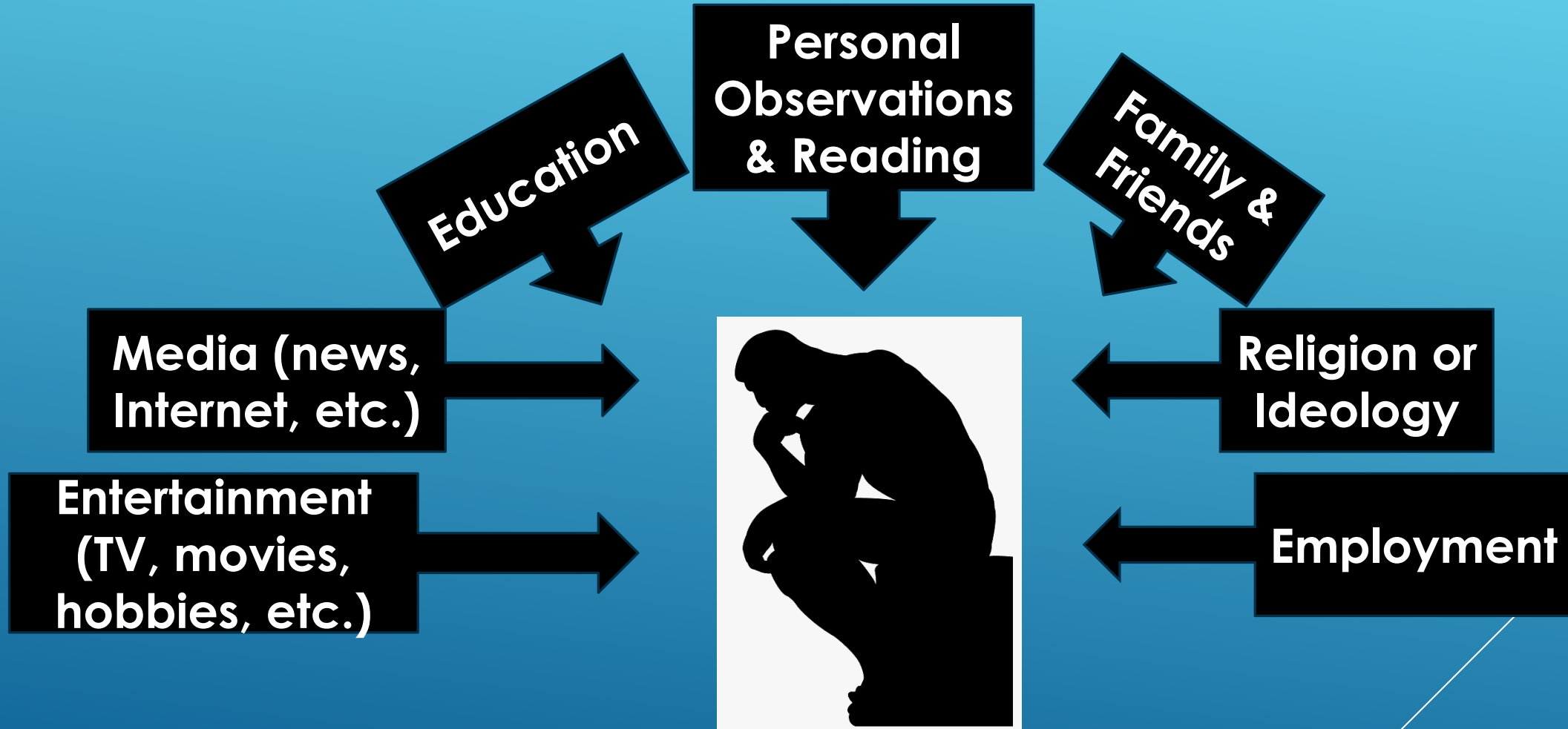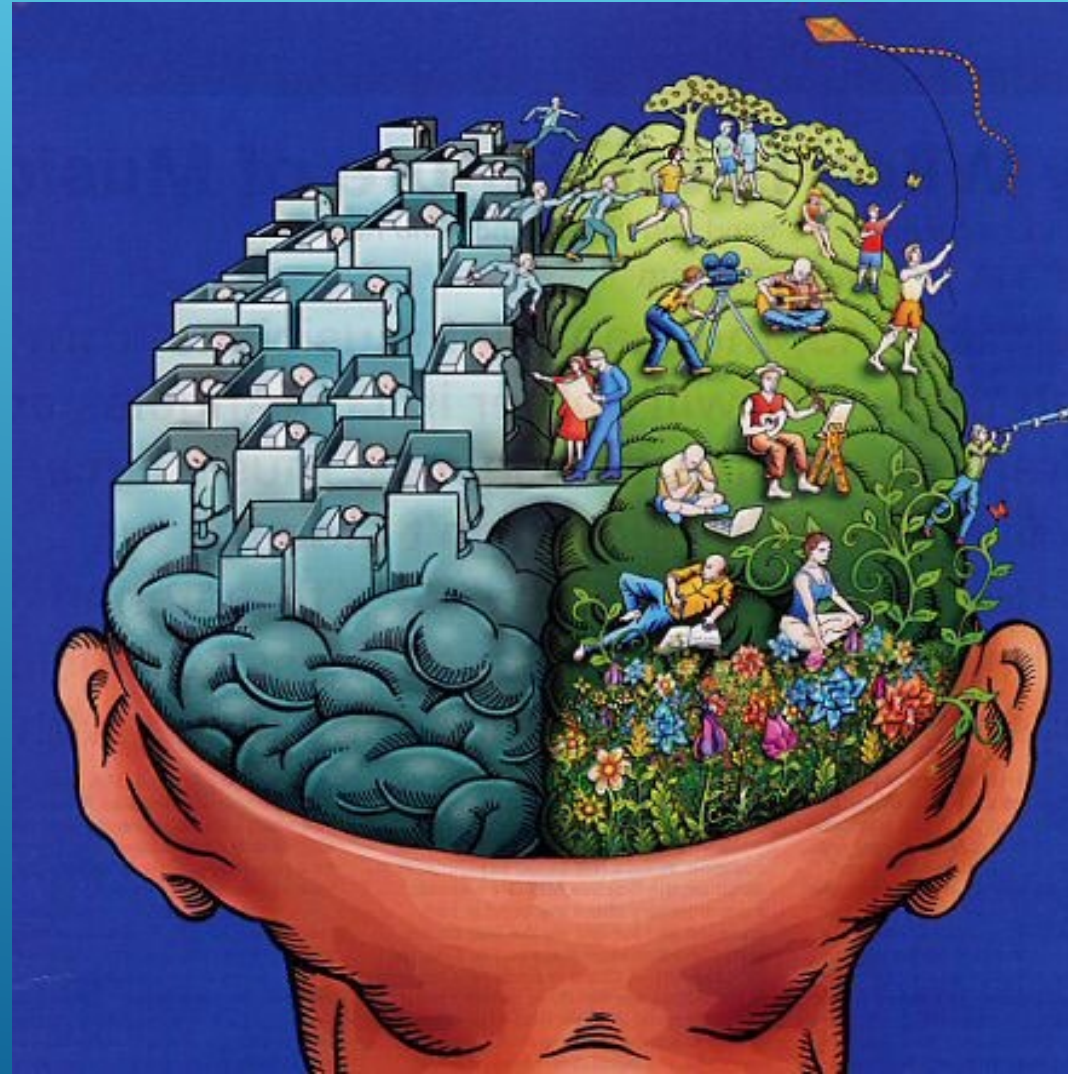
Silhouette of Rodin's "The Thinker"

Is your brain full
of too much disorganized evidence?

LEFT BRAIN VERSUS RIGHT BRAIN

Left Brain:
language
math
writing
science
facts
logic
convergence

Critical Thinking

Right Brain:
playfulness
artistic
musical
insightful
imagination
3D images
divergence

Creative Thinking

Not based in actual brain science!

LEFT BRAIN AS MAILBOXES METAPHOR

Categories of Knowledge (Epistemologies)

Category	Description
Authority	Knowledge provided by an expert or someone in authority (president, dictator, minister, teacher, journalist, parent, etc.) where a person tends to accept it without challenge.
Faith	Knowledge a person accepts with little or no supporting evidence and a person tends to accept it without challenge. Religious and political ideologies are major sources of faith knowledge.
Common Sense	Knowledge externally presented as if "everybody just knows it" and a person accepts it without challenge.
Intuition	Knowledge with no conscious reason for knowing and a person accepts it without challenge. **Gut Feeling**
Empiricism	Knowledge gained from a person's experiences, observations, and gathering of data, facts, evidence, etc., with the five senses or with technical measurement instruments (thermometers, gauges, etc.) where a person may challenge it through additional observations.
Rationalism	Knowledge generated through the human innate ability to use **logic and reasoning** and it may be challenged through additional use of logic and reasoning.
Science	Knowledge gained through combining empiricism and rationalism and a person may challenge it with repeated use of the scientific method. **Most reliable!**

- **Facts alone** (data, evidence, information) directly concerning the topic. A person should try to confirm the facts uncovered by multiple separate, independent sources. Facts may be found in raw reporting (such as in journalists' stories where they observed the events being reported); in **primary open sources** generated by the original source, including articles by the observer or from official documents. Facts may also be found in **secondary open sources** generated by others using primary source data, including statistical studies.

- **Facts, combined with logic and reasoning,** which normally are found in statements of causality, arguments, and contentions (theses, judgements, findings, conclusions, recommendations), or theoretical propositions (axioms, theorems, postulates, scientific laws, etc.). Statements, arguments, contentions, and propositions must be checked to ensure they do not include cognitive biases and informal logic fallacies (see later in this presentation).

- **Logic and reasoning lacking facts,** such as statements or propositions that cannot be factually verified but employ sound logic and reasoning allowing them to be classified as assumptions or theories and models useable in a thinking project.

Finding Different Combinations of Facts & Logic

Prioritizing Open Source Searches

| Priority/Source	Description
1. Governmental reporting	U.S. government agencies and international governmental organizations (IGOs) produce a number of recurring and special reports on a variety of subjects. **Look for biases.**
2. Scholarly and professional articles	Academic researcher and professional articles published in academic and professional journals. **Look for biases.**
3. Scholarly and professional books	Academic researcher and professional books published in the academic and professional press. **Look for biases.**
4. Legal databases	Databases developed to allow researchers to search legal materials (case transcripts, court documents, law journals, etc.), and also usually include public records and major news reporting.
5. Think tank and non-governmental organization (NGO) reporting	Academic and professional think tank researchers and thousands of NGOs produce research reports published in journals, books, or on the Internet. **High risk for biases.**
6. Popular media: books, newspapers, magazines, television, radio, and more	Open source material published by a variety of sources and in a variety of formats for a general public audience. **Massive biases in many cases.**
7. Internet	Last place to search for open source material as it includes a plethora of web sites, blogs, social media, etc., that **can be rife with misinformation and disinformation. Just don't!**

Importance of Media and Information Literacy
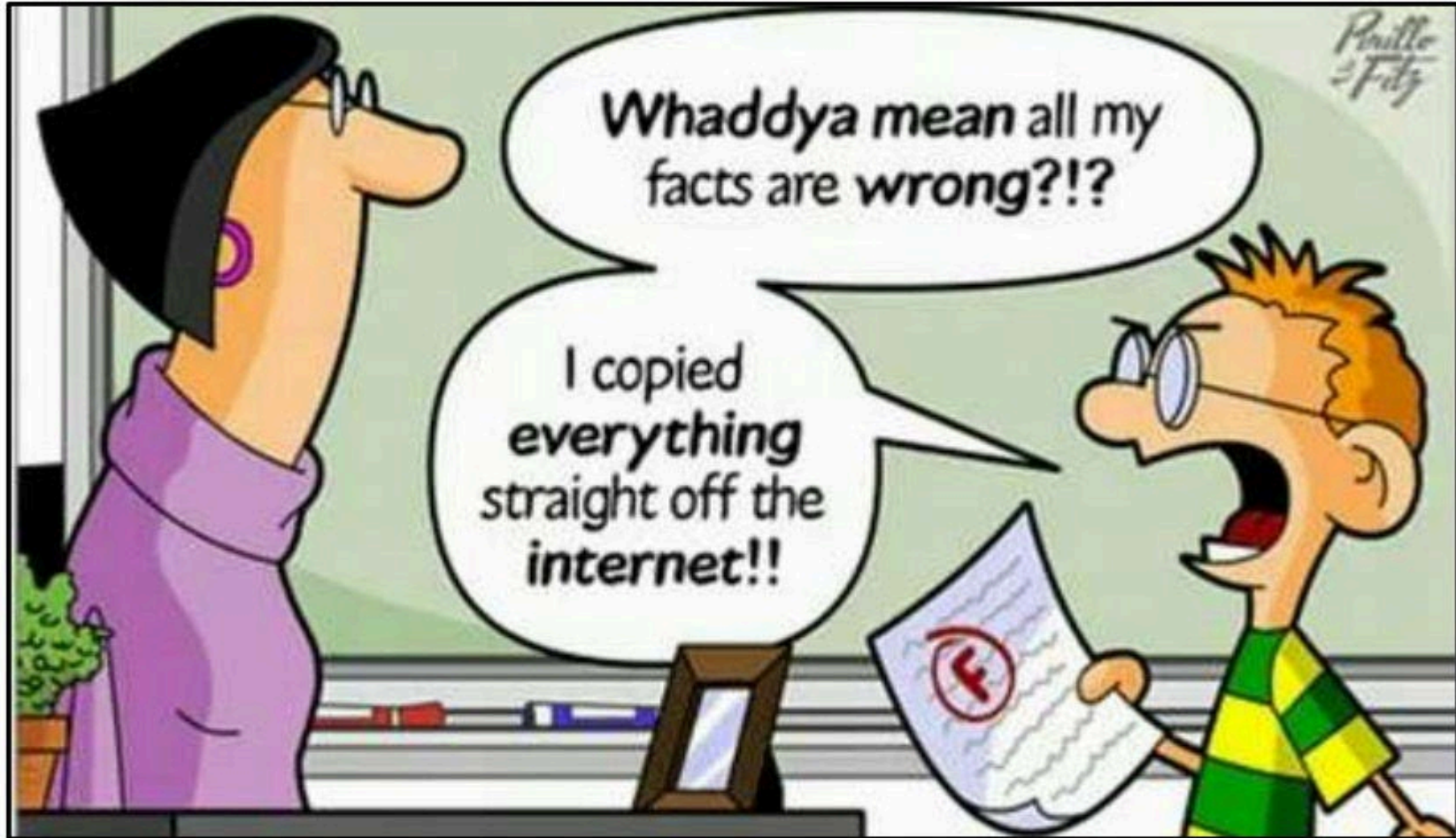
Classifying Scholarly/Professional Literature & Popular Media

	Scholarly, Professional Literature	Popular Media
Audience	Scholars, researchers, practitioners.	General public.
Authors	Experts in the field (i.e., faculty members, researchers, professionals). Articles and books are signed, often including author's credentials and affiliation.	Journalists or freelance writers. Articles or books may or may not be signed.
References	Includes a bibliography, references, footnotes, endnotes and/or works cited section.	Rarely include references or sources.
Editors	Editorial board of outside scholars (known as "peer review"), or professional editorial staff with subject matter expertise.	Editors and staff may not possess subject matter expertise.
Publishers	Often a scholarly or professional organization or academic press.	Commercial, for-profit publisher.
Writing Style	Assumes a level of knowledge in the field. Usually contains specialized language (jargon). Articles and books are often lengthy.	Easy to read – aimed at the layperson (written at 7th grade level). Articles and books are usually short and often entertain as they inform.
General Characteristics	Primarily print with few pictures. Tables, graphs, and diagrams are often included. Usually little if any advertising – if there is advertising, it is for books, journals, conferences, or services in the field. Often have "journal," "review," or "quarterly" in titles. Successive issues in a volume often have continuous pagination. Usually have a narrow subject matter focus. **Some bias.**	Contain advertising and photographs. Often printed on glossy paper. Often sold at newsstands or bookstores. Usually restarts pagination with each issue. Usually have broad subject focus. **Most biased.**

Assessing Media, Newspaper, Magazine Sources
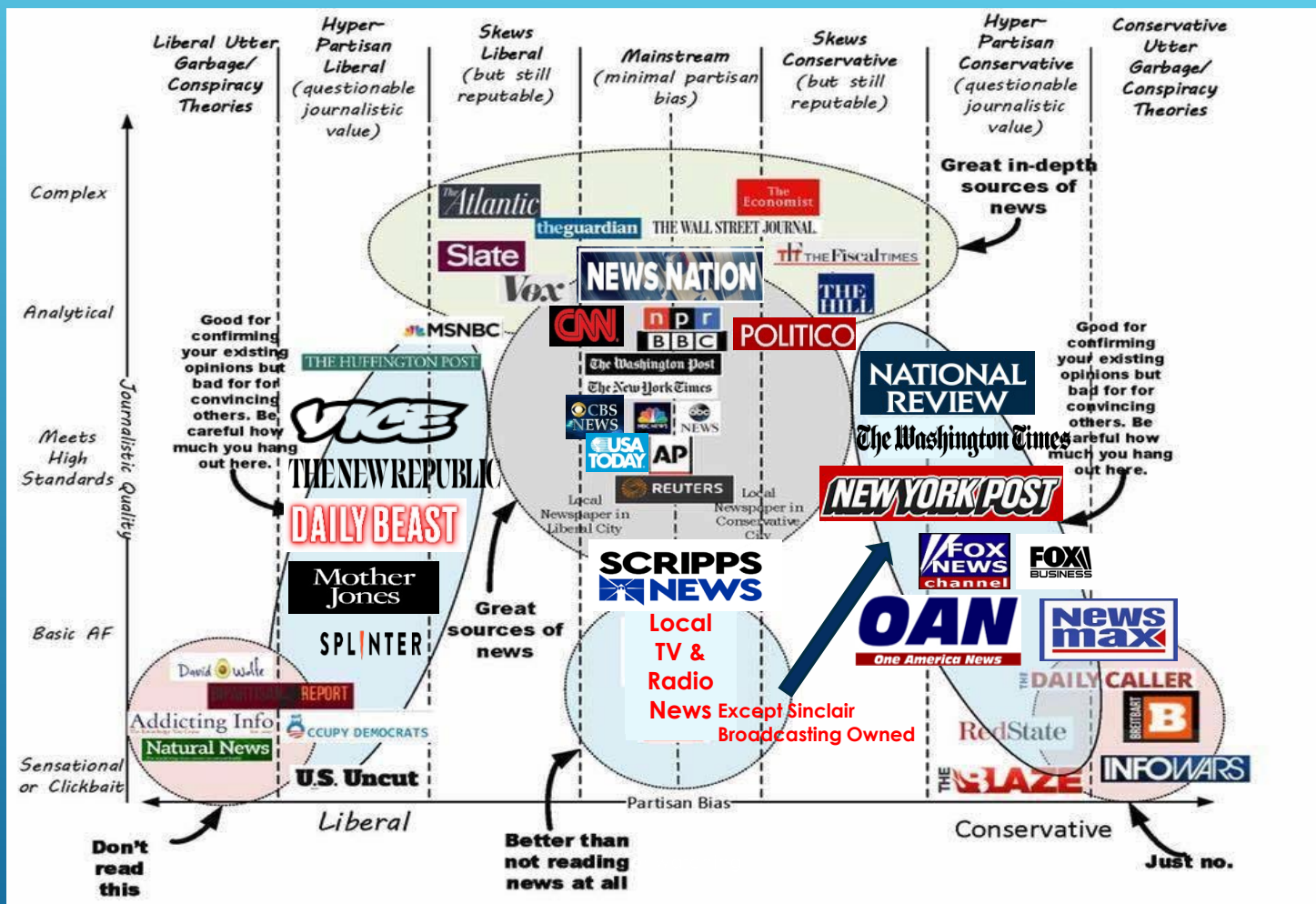
- **Circular Reporting** occurs when there is only one unverified source for a piece of information (whether valid or not), which then gets repeated through a number of open source reporting channels without other confirming evidence.

- **Deception**, which can be defined as "information…intended to manipulate the behavior of others by inducing them to accept a false or distorted perception of reality…." (**Results in Disinformation & Propaganda**)

OTHER INFORMATION PITFALLS

Guidelines for Assessing Information

- **Reality Check:** What is accurate and inaccurate about the content of this material?
- **Private Gain or Public Good:** Who is benefitting financially or in other ways from the distribution of this material?
- **What's Left Out:** What information is omitted that affects the point of view of this material?
- **Values Check:** How does this material align with or contradict accepted values?
- **Read Between the Lines:** What ideas are implied but not stated directly in the material (i.e., assumptions).
- **Stereotype Alert:** Consider the ways the material uses stereotypes to influence the reader's emotions.
- **Solutions Too Easy:** Does the material hope to attract the reader's attention by simplifying more complex ideas or concepts.
- **Record/Save for Later:** Is the overall worth or value of the material such that it should be used in the current (or later) project?

Template for Quality of Information Checks*				
Source	Critical Information Provided	Corroboration of Information	Confidence Level (H, M, L)	Comments

* Add additional rows as needed

TIME FOR A
10 MINUTE BREAK!

▶ **Cognitive Biases**

▶ **Informal Logic Fallacies**

▶ **Logical Argumentation Mistakes**

ASSESSING BIAS IN LOGICAL REASONING

BIAS

- "uninformed or unintentional inclination;" as such it may operate either for or against someone or something.

  - *American Heritage Dictionary*, 2nd College Edition, 1982

- An intellectual shortcut

- A preference or inclination that inhibits impartiality and impacts the assumptions we accept; e.g., racial prejudice is an extreme form of bias

- A deviation from the truth

- **We all have biases:**

  - **Cognitive biases: Inherent in how our brains work; present even if we are aware of them (i.e., how we think)**

  - **Personal biases: Different for each person; may be minimized if we are aware of their existence (i.e., what we think)**

- **Biases impact our mindsets (attitudes)**

- **Mindsets (attitudes) impact our analysis & decision-making**

Selected Cognitive Biases Commonly Found in Politics	
Cognitive Bias	Description
Confirmation (Affirmation)	Accepting only evidence supporting a pre-formed point of view and rejecting evidence contrary to this pre-formed point of view (probably the most prevalent cognitive bias in all societies). **Worse when Cognitive Dissonance (Cognitive Ease) is present!**
Anchoring	Focusing on one trait or piece of information to the exclusion of alternative information, especially new information.
Cognitive Ease	Accepting material easier to compute, more familiar, and easier to read, making them seem truer than material requiring harder thought, are novel, or are harder to see. (Closely related to both confirmation and anchoring biases.)
Coherent stories (Associative coherence)	Making sense of the world by telling logically consistent stories about what is going on, such as making associations between people, events, circumstances, and regular occurrences. The more these events fit into their stories (even if not true), the more normal they seem. Stories often violate logic and statistical probabilities.

Selected Cognitive Biases Commonly Found in Politics (Cont.)	
Cognitive Bias	Description
Law of Small Numbers	Offering small samples, often with no source data (i.e., "many people say"), leading to giving the outcomes of small samples more credence than statistics warrant.
Representative-ness (Stereotyping)	Explaining the opponent's decisions or behaviors based on their ideology or other traits (e.g., political views, religion, ethnic group, language, country of origin, etc.).
Trusting Expert Intuition	Becoming confident when an expert's story comes easily to mind, with no contradiction and no competing story. However, ease and coherence do not guarantee a belief held with confidence is true.
Fundamental Attribution	Over-emphasizing the personality-based **agency explanations** (opponent's internal traits such as motivation, decision making tendencies, etc.) over **structural explanations** (political culture, laws and regulations, organizational or bureaucratic influences, other outside structural influences, etc.).
Blind-Spot	Being unaware of and failing to consider your own personal biases, even as you recognize biases in others.

- ***Equivocation.*** Fallacies resulting from different meanings of a word in an argument or using different definitions of words to support an argument.

- ***Personal attack (Ad hominem attack).*** Fallacies created by attacking an opponent's character or their motives for believing something instead of disproving their argument.

- ***Genetic fallacy.*** Fallacies condemning an argument because of where it began, how it began, or with whom it began (type of stereotyping).

- ***Straw person (Strawman).*** Fallacies distorting the opponent's point of view or stance on an issue to make it easier to attack and disprove the opponent's arguments; thus, the attack is really about a point of view or stance not existing.

- ***Red herring.*** Fallacies introducing an irrelevant point into an argument. Someone may think (or want people to think) it proves their point, but it really does not. Introducing material not related to the core argument is included in this fallacy. (This fallacy takes its name from the British practice of dragging a bag of red herring across the fox's trail in a fox hunt to distract the foxhounds off the actual trail of the fox.) **Red herring** is similar to the **Straw person** fallacy.

SELECTED INFORMAL LOGIC FALLACIES

- *Bandwagon.* Fallacies pressuring someone to do something just because many other people are doing it.

- *Repetition.* Fallacies based on repeating a message loudly and often in the hope it will eventually be believed.

- *Irrelevant conclusion.* Fallacies in which conclusions are reached bearing little resemblance to the supporting argument.

- *Circular reasoning.* Fallacies supporting a conclusion by simply restating it in the same or similar wording. Someone says Y is true because X is true, and X is true because Y is true.

- *Suppressed evidence.* Fallacies resulting from withholding relevant evidence.

- *Slippery slope.* Fallacies asserting if one thing happens, then one or more other things will follow; when there is no evidence to support the follow-on actions


Slippery Slope Argument
Pokingstick Design

SELECTED INFORMAL LOGIC FALLACIES (CONT.)

One Theory of How your Brain Works:
Fast and Slow Thinking

System 1 (Fast)	System 2 (Slow)
Uses subconscious values, drives, and beliefs, which influence "gut reactions."	Articulates judgments, makes choices, endorses or rationalizes ideas and feelings.
Jumps to conclusions regarding causality.	Makes up stories to either confirm or deny conclusions.
Operates effortlessly.	Requires conscious effort to engage.
Can be wrong but is more often right.	Can be right or wrong depending on the level of thinking effort.
Heavily influenced by bias and heuristics (logic fallacies).	Examines bias and heuristics' influences when so inclined.

Logical Argumentation (Argument Mapping)
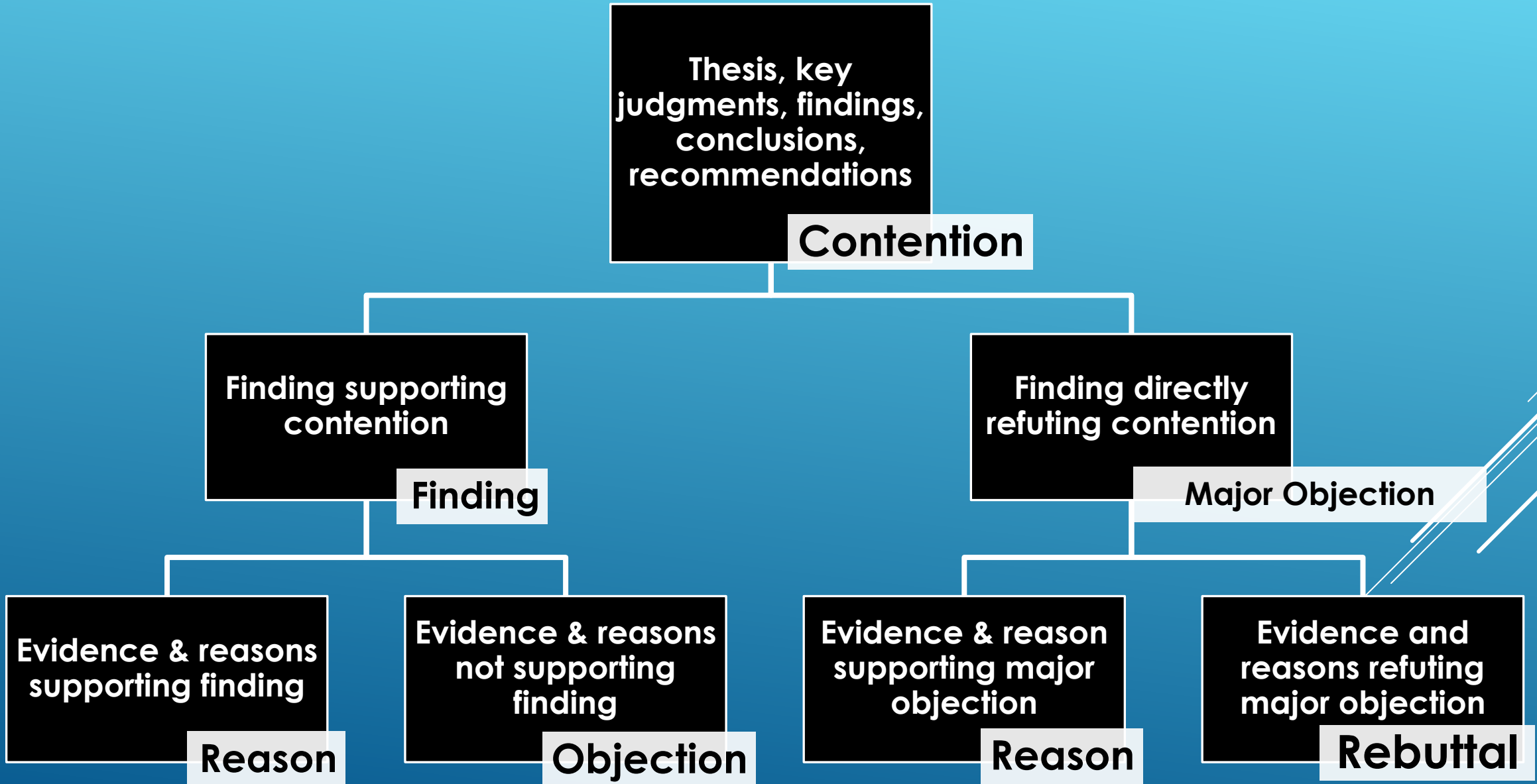
Argument Mapping Example

Research Question: Should voting be compulsory in political elections?

Voting should be compulsory.
Contention

Compulsory voting ensures that the Government is representative.
Finding

Political parties do not have to waste money to persuade people to turn up to the voting booth.
Finding

Compulsory voting is an infringement of democratic principles.
Major Objection

A large majority of the voting population will vote when it is compulsory.
Reason

Everyone does not have to vote for the Government to be called representative.
Objection

With compulsory voting people will get fined if they don't turn up to vote.
Reason

People living in a democracy should have the freedom to decide whether to vote.
Reason

People living in a democracy have the right and responsibility to vote.
Rebuttal

Faulty Information + Confirmation Bias (Cognitive Dissonance) + Repetition Informal Logic Fallacy ≈ Less Probability of Decision Success, Generation of Conspiracy Theories, Potential Brainwashing, and Possible Addiction (even Cults)

Modified from *Critical Belief Analysis*, Barnet Feingold

DEADLY FORMULA

WARNING

Pariah |puh-rahy-uh| noun

A person without status. A rejected member of society. An outcast.

OPENLY QUESTIONING PEOPLE'S INFORMATION AND LOGIC CAN MAKE YOU A PARIAH

IN WEEK 4 WE REVIEW THE USE OF CRITICAL THINKING AND HOW IT MAY APPROVE YOUR VOTING CHOICES AND OVERALL DECISION-MAKING IN YOUR PROFESSIONAL AND PERSONAL LIVES.