

Introduction to Logic:

Argumentation and Interpretation

Vysoká škola mezinárodních a veřejných vztahů

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20. 4. 2016

# **Introduction to Logic: Argumentation and Interpretation**

## **Annotation**

The course offers an overview of topics in logic, communication, reasoning, interpretation and summary of their practical use in communication. It provides basic orientation in terminology of linguistic research and communication, persuasion and communication strategies, understanding the logic games, exercises and tasks, and offers the opportunity to learn the reasoning applied in various situations. The aim is that students not only get familiar with lectures, but also acquire the means of communication and argumentation through exercises and online tests.

## Topics

1. Brief history of Logic and its place in science
2. Analysis of complex propositions using truth tables
3. The subject-predicate logic – Aristotelian square
4. Definitions and Terminology
5. Polysemy, synonymy, homonymy, antonymy
- 6. Analysis of faulty arguments**
7. Interpretation – rules and approaches
8. Analysis of concrete dialogue

<http://mediaanthropology.webnode.cz/kurzy/introduction-to-logic/>

# Introduction to Logic: Argumentation and Interpretation

## Analysis of faulty arguments



Barnes, Richard. Animal Logic Series. California Academy of Sciences, San Francisco, 2008. Online:

<http://www.richardbarnes.net/#at=0&mi=2&pt=1&pi=10000&s=8&p=0&a=0>

Barnes, Richard. Animal Logic Series. Smithsonian Museum, Washington DC, 2005. Online:

<http://www.richardbarnes.net/#at=0&mi=2&pt=1&pi=10000&s=16&p=0&a=0>

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## **Analysis of faulty arguments**

Language as a tool has in itself a certain pressure and attempt to influence the opinion of the recipient.

It allows for the utterance to communicate contents and concepts that the speech does not contain explicitly and which do not result from the speech.

E.g. a child is often asked, "Who do you prefer, mother or father?". In this utterance it is suggestively being served, that it is impossible to love both equally.

Language also allows emotionally tinged speech, when the utterance contains expressions of enthusiasm, joy, disappointment, contempt, despair and other emotions.

Sources: **NYTROVÁ, Olga - PIKÁLKOVÁ, Marcela.** *Etika a logika v komunikaci*. Praha: UJAK, 2007.  
*E-vyuka pro logiku*. [online] Online: <http://snug.ic.cz/index.htm#>

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## **Analysis of faulty arguments**

Each tool should be used in accordance with its own instructions for use. (How to treat it to not to get myself or the other in trouble).

E.g. hammer as a tool – we cannot decide whether it is good or bad. It can be used for hammering nails and also to hit someone in the head. It depends on the user!

Communicating with others (personal or occupational), monitoring of political and cultural news, the impact of advertising, political propaganda, all this is characterized by attempts to achieve the following:

1. To think something (thinking)
2. To want something (motivation)
3. To decide somehow (decisions)
4. To have an attitude towards something (attitude)
5. To behave somehow (behavior)

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## **Analysis of faulty arguments**

Forms of opinion influence (persuasion):

- beyond rational (acting on the subconscious, belonging to a group)
- rational (reasoning and argumentation)

Argumentation

We say that B is true, because A1, A2...An is true... and thereby we describe the entailment relationship.

Reasoning is correct when B follows from A1, A2...An and the statements (propositions) A1 to An are true.

We encounter argumentation in: public debate, dialogue, a newspaper polemic, the prosecution and defense in legal proceedings...

**Where else?**

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## **Analysis of faulty arguments**

The dialogue is often a clash of two sides. Here the argumentation may meet other arguments and other objections. The result?

- A statement can be attacked as false, or there are given reasons for the thesis that is incompatible with the opponent's.
- It can be proven that the opponent's argument is not correct. If we do so, it sometimes gives the impression that the whole statement has been refuted , but it is not so: refuting the argument does not refute the statement!
- It could be argued that the argument is conducted incorrectly. This, again, does not mean that the statement does not apply.



# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

Informal logic shows the possibility of a proper argument. Incorrect, improper, arguments are considered those deviating from the rules of formal logic.

Overview of faulty reasoning:

### Formal fallacies

- Propositional fallacies
- Quantification fallacies
- Formal syllogistic fallacies

### Informal fallacies

- Faulty generalizations
- Red herring fallacies

### Conditional or questionable fallacies

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# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Formal fallacies**

A formal fallacy is an error in logic that can be seen in the argument's form. All formal fallacies are specific types of non sequiturs (does not follow, does not result from premises).

**Anecdotal fallacy** – using a personal experience or an isolated example instead of sound reasoning or compelling evidence.

**Appeal to probability** – is a statement that takes something for granted because it would probably be the case (or might be the case).

**Argument from fallacy** – assumes that if an argument for some conclusion is fallacious, then the conclusion is false.

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## Analysis of faulty arguments

### Formal fallacies

**Base rate fallacy** – making a probability judgment based on conditional probabilities, without taking into account the effect of prior probabilities.

**Conjunction fallacy** – assumption that an outcome simultaneously satisfying multiple conditions is more probable than an outcome satisfying a single one of them.

**Masked man fallacy** (illicit substitution of identicals) – the substitution of identical designators in a true statement can lead to a false one.

# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Formal fallacies**

#### **Propositional fallacies**

A propositional fallacy is an error in logic that concerns compound propositions. For a compound proposition to be true, the truth values of its constituent parts must satisfy the relevant logical connectives that occur in it. The following fallacies involve inferences whose correctness is not guaranteed by the behavior of those logical connectives, and hence, which are not logically guaranteed to produce true conclusions.

Sources: **NYTROVÁ, Olga - PIKÁLKOVÁ, Marcela.** *Etika a logika v komunikaci*. Praha: UJAK, 2007.  
*E-vyuka pro logiku*. [online] Online: <http://snug.ic.cz/index.htm#>  
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## Analysis of faulty arguments

### Formal fallacies

#### Propositional fallacies

Types of Propositional fallacies:

- **Affirming a disjunct** – concluded that one disjunct of a logical disjunction must be false because the other disjunct is true; A or B; A, therefore not B.
- **Affirming the consequent** – the antecedent in an indicative conditional is claimed to be true because the consequent is true; if A, then B; B, therefore A.
- **Denying the antecedent** – the consequent in an indicative conditional is claimed to be false because the antecedent is false; if A, then B; not A, therefore not B.

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## Analysis of faulty arguments

### Formal fallacies

#### Quantification fallacies

A quantification fallacy is an error in logic where the quantifiers of the premises are in contradiction to the quantifier of the conclusion.

Types of Quantification fallacies:

- **Existential fallacy** – an argument that has a universal premise and a particular conclusion.

#### Formal syllogistic fallacies

Syllogistic fallacies – logical fallacies that occur in syllogisms.

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## **Analysis of faulty arguments**

### **Formal fallacies**

#### **Formal syllogistic fallacies**

- Affirmative conclusion from a negative premise (illicit negative) – when a categorical syllogism has a positive conclusion, but at least one negative premise.
- Fallacy of exclusive premises – a categorical syllogism that is invalid because both of its premises are negative.
- Fallacy of four terms (quaternio terminorum) – a categorical syllogism that has four terms.
- Illicit major – a categorical syllogism that is invalid because its major term is not distributed in the major premise but distributed in the conclusion.

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## Analysis of faulty arguments

### Formal fallacies

#### Formal syllogistic fallacies

- Illicit minor – a categorical syllogism that is invalid because its minor term is not distributed in the minor premise but distributed in the conclusion.
- Negative conclusion from affirmative premises (illicit affirmative) – when a categorical syllogism has a negative conclusion but affirmative premises.
- Fallacy of the undistributed middle – the middle term in a categorical syllogism is not distributed.

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*E-vyuka pro logiku*. [online] Online: <http://snug.ic.cz/index.htm#>  
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## **Analysis of faulty arguments**

### **Informal fallacies**

Informal fallacies – arguments that are fallacious for reasons other than structural (formal) flaws and usually require examination of the argument's content.

Some examples:

**Appeal to the stone** (argumentum ad lapidem) – dismissing a claim as absurd without demonstrating proof for its absurdity.

**Argument from ignorance** (appeal to ignorance, argumentum ad ignorantiam) – assuming that a claim is true because it has not been or cannot be proven false, or vice versa.

**Argument from (personal) incredulity** (divine fallacy, appeal to common sense) – I cannot imagine how this could be true, therefore it must be false.

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## Analysis of faulty arguments

### Informal fallacies

**Argument from repetition** (argumentum ad infinitum) – signifies that it has been discussed until nobody cares to discuss it anymore

**Argument from silence** (argumentum ex silentio) – where the conclusion is based on the absence of evidence, rather than the existence of evidence.

**Argument to moderation** (false compromise, middle ground, fallacy of the mean, argumentum ad temperantiam) – assuming that the compromise between two positions is always correct.

**Argumentum ad hominem** – the evasion of the actual topic by directing an attack at your opponent.

- ergo decedo – where a critic's perceived affiliation is seen as the underlying reason for the criticism and the critic is asked to stay away from the issue altogether.

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## **Analysis of faulty arguments**

### **Faulty generalizations**

Faulty generalizations – reach a conclusion from weak premises.

**Accident** – an exception to a generalization is ignored.

No true Scotsman – when a generalization is made true only when a counterexample is ruled out on shaky grounds.

**Cherry picking** (suppressed evidence, incomplete evidence) – act of pointing at individual cases or data that seem to confirm a particular position, while ignoring a significant portion of related cases or data that may contradict that position.

**Survivorship bias** – when a small number of survivors of a given process are actively promoted while completely ignoring a large number of failures

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## **Analysis of faulty arguments**

### **Faulty generalizations**

**False analogy** – an argument by analogy in which the analogy is poorly suited.

**Hasty generalization** (fallacy of insufficient statistics, fallacy of insufficient sample, fallacy of the lonely fact, leaping to a conclusion, hasty induction, secundum quid, converse accident) – basing a broad conclusion on a small sample.

**Inductive fallacy** – A more general name to some fallacies, such as hasty generalization. It happens when a conclusion is made of premises that lightly support it.

**Misleading vividness** – involves describing an occurrence in vivid detail, even if it is an exceptional occurrence, to convince someone that it is a problem.

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## Analysis of faulty arguments

### Faulty generalizations

**Overwhelming exception** – an accurate generalization that comes with qualifications that eliminate so many cases that what remains is much less impressive than the initial statement might have led one to assume.

**Thought-terminating cliché** – a commonly used phrase, sometimes passing as folk wisdom, used to quell cognitive dissonance, conceal lack of thought-entertainment, move on to other topics etc. but in any case, end the debate with a cliché—not a point.

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## Analysis of faulty arguments

### Red herring fallacies

A red herring fallacy is an error in logic where a proposition is, or is intended to be, misleading in order to make irrelevant or false inferences. In the general case any logical inference based on fake arguments, intended to replace the lack of real arguments or to replace implicitly the subject of the discussion.

**Red herring** – argument given in response to another argument, which is irrelevant and draws attention away from the subject of argument.



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Image: <http://fermentationwineblog.com/wp-content/uploads/redherring.png>

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## Analysis of faulty arguments

### Red herring fallacies

**Ad hominem** – attacking the arguer instead of the argument.

- **Poisoning the well** – a type of ad hominem where adverse information about a target is presented with the intention of discrediting everything that the target person says.
- **Abusive fallacy** – a subtype of "ad hominem" when it turns into verbal abuse of the opponent rather than arguing about the originally proposed argument.

**Vacuous truth** – e.g. "if Uluru is in France, then the Eiffel Tower is in Bolivia"

**Appeal to authority** (argumentum ab auctoritate) – where an assertion is deemed true because of the position or authority of the person asserting it.

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## Analysis of faulty arguments

### Red herring fallacies

**Appeal to accomplishment** – where an assertion is deemed true or false based on the accomplishments of the proposer.

**Appeal to consequences** (argumentum ad consequentiam) – the conclusion is supported by a premise that asserts positive or negative consequences from some course of action in an attempt to distract from the initial discussion.

**Appeal to emotion** – where an argument is made due to the manipulation of emotions, rather than the use of valid reasoning.

**Appeal to fear** – a specific type of appeal to emotion where an argument is made by increasing fear and prejudice towards the opposing side

**Appeal to flattery** – a specific type of appeal to emotion where an argument is made due to the use of flattery to gather support.

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## **Analysis of faulty arguments**

### **Red herring fallacies**

**Appeal to pity** (argumentum ad misericordiam) – an argument attempts to induce pity to sway opponents.

**Appeal to ridicule** – an argument is made by presenting the opponent's argument in a way that makes it appear ridiculous.

**Appeal to spite** – a specific type of appeal to emotion where an argument is made through exploiting people's bitterness or spite towards an opposing party.

**Wishful thinking** – a specific type of appeal to emotion where a decision is made according to what might be pleasing to imagine, rather than according to evidence or reason.

**Appeal to motive** – where a premise is dismissed by calling into question the motives of its proposer.

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## **Analysis of faulty arguments**

### **Red herring fallacies**

**Appeal to nature** – wherein judgment is based solely on whether the subject of judgment is 'natural' or 'unnatural'.

**Appeal to novelty** (argumentum novitatis/antiquitatis) – where a proposal is claimed to be superior or better solely because it is new or modern.

**Appeal to poverty** (argumentum ad Lazarum) – supporting a conclusion because the arguer is poor (or refuting because the arguer is wealthy).

**Appeal to tradition** (argumentum ad antiquitatem) – a conclusion supported solely because it has long been held to be true.

**Appeal to wealth** (argumentum ad crumenam) – supporting a conclusion because the arguer is wealthy (or refuting because the arguer is poor).

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## **Analysis of faulty arguments**

### **Red herring fallacies**

**Argument from silence** (argumentum ex silentio) – a conclusion based on silence or lack of contrary evidence.

**Argumentum ad baculum** (appeal to the stick, appeal to force, appeal to threat) – an argument made through coercion or threats of force to support position.

**Argumentum ad populum** (appeal to widespread belief, bandwagon argument, appeal to the majority, appeal to the people) – where a proposition is claimed to be true or good solely because many people believe it to be so.

**Association fallacy** (guilt by association) – arguing that because two things share a property they are the same.

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## **Analysis of faulty arguments**

### **Red herring fallacies**

**Bulverism** (psychogenetic fallacy) – inferring why an argument is being used, associating it to some psychological reason, then assuming it is invalid as a result.

**Chronological snobbery** – where a thesis is deemed incorrect because it was commonly held when something else, clearly false, was also commonly held.

Fallacy of relative privation ("not as bad as") – dismissing an argument or complaint due to the existence of more important problems in the world, regardless of whether those problems bear relevance to the initial argument.

**Genetic fallacy** – where a conclusion is suggested based solely on something or someone's origin rather than its current meaning or context.

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## **Analysis of faulty arguments**

### **Red herring fallacies**

Judgmental language – insulting or pejorative language to influence the recipient's judgment.

**Naturalistic fallacy** – claims about what ought to be on the basis of statements about what is.

**Pooh-pooh** – dismissing an argument unworthy of serious consideration.

**Straw man fallacy** – an argument based on misrepresentation of an opponent's position.

**Texas sharpshooter fallacy** – improperly asserting a cause to explain a cluster of data.

**Tu quoque** ("you too") – a certain position is false/wrong/should be disregarded because its proponent fails to act consistently in accordance with that position.

**Two wrongs make a right** – occurs when it is assumed that if one wrong is committed, another wrong will cancel it out.

# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Conditional or questionable fallacies**

**Broken window fallacy** – an argument that disregards lost opportunity costs (typically non-obvious, difficult to determine or otherwise hidden) associated with destroying property of others, or other ways of externalizing costs onto others.

**Definist fallacy** – involves the confusion between two notions by defining one in terms of the other.

**Slippery slope** (thin edge of the wedge, camel's nose) – asserting that a relatively small first step inevitably leads to a chain of related events culminating in some significant impact/event that should not happen, thus the first step should not happen. While this fallacy is a popular one, it is, in its essence, an appeal to probability fallacy. (e.g. if person x does y then z would [probably] occur, leading to q, leading to w, leading to e.) This is also related to the Reductio ad absurdum.

# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Controverting an Argument by Indicating a Formal or an Informal Fallacy**

- Appeal to a formal fallacy
- Appeal to an informal fallacy

### **Controverting an Argument by Claiming Grounds for Rejecting One or More Premises Offered as Evidence**

- Appeal to unsatisfactory evidence offered as premises
- Appeal to inconsistent premises
- Appeal to inconsistency with previous positions
- Appeal to internal self-refutation

### **Controverting an Argument by Attacking Inadequate Conceptualization**

- Appeal to unsatisfactory categorical structure
- Appeal to meaningless statements
- Appeal to distinctions

# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Controverting an Argument by Criticism of Methods Used in Formulating Arguments**

Appeal to faulty sources

Appeal to methodological deficiencies

Appeal to a faulty model

### **Controverting an Argument by Appeal to Its Consequences**

Appeal to similar consequences

Appeal to disparity between proposed consequences and probable consequences

### **Controverting an Argument by Establishing an Alternative Conclusion**

Appeal to a counterargument

Appeal to a different argument

Appeal to the greater simplicity of an alternative argument

### **Controverting an Argument by Appeal to Irrational Positions Found Within It**

Appeal to the absurdity of an argument

Appeal to circularity

Appeal to an infinite regress



# Introduction to Logic: Argumentation and Interpretation

## Analysis of faulty arguments

### Most important fallacies

*1. Podunk Community College should not require a freshman writing course. Harvard does not require a freshman writing course and the students there get along just fine without it.*

*Before women got the vote, there were no nuclear weapons.*

*Every time my brother Bill accompanies me to Fenway Park, the Red Sox are sure to lose.*

*The sun goes down because we've turned on the street lights.*

*Minds, like rivers, can be broad. The broader the river, the shallower it is. Therefore, the broader the mind, the shallower it is.*

**False Analogy.** It is false because the two items do not have strong enough similarities to predict that what happens in one will happen in the other.

# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Most important fallacies**

*2. Everyone wants to get married someday. A good self-concept is important in attracting a husband or wife. Therefore, everyone should develop a good self-concept.*

**False Premise.** This example starts a logical statement with an assumption that is false; not everybody wants to get married. So even if the conclusion drawn is valid, the argument it is built on is not.

# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Most important fallacies**

*3. Suds 'n Spuds is a great restaurant: you can see how shining clean the kitchens are!*

*Four little Indian boys going out to sea;*

*A red herring swallowed one and then there were three.*

*(And Then There Were None by Agatha Christie)*

**Distraction or "Red Herring."** This example distracts the audience from far more important criteria used to establish whether or not a restaurant is good. Even if - to invent a name - Monsieur Taco has a shining clean kitchen, it might well be a lousy restaurant with horrible food and an awful waitstaff!

# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Most important fallacies**

*4. Ms. Bauer is an incompetent math teacher. She always wears blue jeans.*

*Von Daniken's books about ancient astronauts are worthless because he is a convicted forger and embezzler.*

*In order to maintain a civil debate, I will not mention my opponent's drinking problem.*

*I used to think that way when I was your age.*

**Ad hominem.** "Against the person." Instead of evaluating any faults in teaching technique/theory/pedagogy, it calls attention to things about the teacher as a person which are UTTERLY unrelated to her performance and abilities.

# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Most important fallacies**

*5. Ms. Bauer is an incompetent math teacher. She's a wild-eyed radical in her educational theories.*

**Name-Calling and Genetic Fallacy.** Similar to (but different from) ad hominem - illustrates the genetic fallacy: defamation of a person or ideas purely on the basis of their background. Another example of the Name-Calling and Genetic Fallacy: "I'm not surprised AI is in trouble. His father did a stretch in jail, you know."

*6. Look at this fourteen-year-old child who has run away from home to hide her shame ... pregnant, unwashed, friendless, penniless, at the mercy of our social service agencies. Can you still claim that sex education should be taught in high school?*

**Appeal to Pity.** Tear-jerking description. Question is posed so disagreement would appear heartless.

# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Most important fallacies**

*7. Suds 'n Spuds is a great restaurant; no one has reported someone dying of poisoning yet!*

**Appeal to Ignorance.** Your argument on something is supposedly true because its opposite has not been proven true. ("See that door move on its own?! Zoinks! GHOSTS! Run, Scooby!") Similarly, absence of evidence is not evidence of absence.

*8. Either we continue to build nuclear weapons or we will fall prey to the Russians (or Taliban or Chinese or Iraqis or whomever).*

**Either/Or Fallacy.** Writer pretends only two choices exist.

# Introduction to Logic: Argumentation and Interpretation

## Analysis of faulty arguments

### Most important fallacies

*9. It has been proven that all heroin addicts smoked marijuana in their youth. Therefore, smoking marijuana leads to heroin addiction.*

**Post hoc, ergo propter hoc.** "After this, therefore because of this."

Heroin addicts probably really started on mother's milk; does it lead to heroin? Other examples: "The cock crows, then the sun comes up, therefore the cock is responsible for raising the sun every morning."

*10. All the teenagers who like alternative rock music display little enthusiasm for school and have dirty feet and pierced noses. Therefore, alternative rock leads to dirty feet, pierced noses, and lack of enthusiasm in school.*

**Concurrence Fallacy.** Two things happening at the same time need not indicate a causal relationship.

# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Most important fallacies**

*11. History tells us idealistic leaders are never effective.*

**Personified Abstraction.** History is personified because it is supposedly talking, but the writer can make it say anything he or she wants it to. History "tells" us nothing.

*12. I don't have any children, but I take my niece and my neighbor's child to the zoo and the park every week or so. I can tell children really love me.*

**Ill-Founded Generalization.** Conclusion is based on insufficient evidence. Whenever you draw a conclusion you are making an inductive leap when you feel you have sufficient evidence. Look before you leap! If 4 of 20 students in your section wear glasses, you may NOT generalize to say *"20% of all students require corrective lenses."*



# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Most important fallacies**

*13. Students who take earth science instead of physics are lazy. Susie took earth science instead of physics. Lazy Susie should be kicked out of school.*

*"Tens of thousands of Americans have seen lights in the night sky which they could not identify. The existence of life on other planets is fast becoming certainty !"*

*"Bill lives in a large building, so his apartment must be large."*

*"All dogs are mammals. My cat is a mammal. Therefore, my cat is a dog."*

**Non Sequitur.** "It does not follow." Even if we were to believe the premise ("students who take earth science instead of physics are lazy"), there is nothing in the line of reasoning that indicates lazy students should be kicked out of school.

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## **Analysis of faulty arguments**

### **Most important fallacies**

*14. Juan is an impressive speaker because he always touches his listeners deeply.*

**Circular Reasoning** or "Tautological Reasoning." The very meaning of "impressive" includes the idea of touching someone deeply - intellectually or emotionally. In an argument this is ineffective and absurd, just as "he is handsome because he is good looking" would be.

# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Most important fallacies**

*15. Essay exams should be abolished because they require writing skills.*

**Begging the Question.** Essay exams are supposed to require writing skills in order to be essay exams. Hidden premise: writing skills should not be required of students.

*16. Prof. Drake says, "All students turn their papers in on time." Rachel says, "But I'm a student and I turn my papers in late." Mean Old Drake says, "Then you're not really a student."*

**Equivocation.** The original premise is true only of ideal students.

# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

### **Most important fallacies**

*17. My Political Science professor says "new math" is impossible for students to learn.*

**Appeal to Wrong Authority.** Another example might be "according to REM's Michael Stipe, only 'silly' people think Windows NT is a better multi-tasking and networking operating system environment than Macintosh X." Computer operating platforms is NOT his area of authority! NOT to be confused with False Premise, above.

*18. No, you vegans cannot order a bacon, lettuce, and tomato sandwich with peanut butter instead of bacon! Then everyone would start wanting substitutions on their BLT sandwiches.*

**Slippery Slope.** One instance will inevitably lead to many more? NOT necessarily so!

# Introduction to Logic: Argumentation and Interpretation

## **Analysis of faulty arguments**

What is the correct red herring definition?

- a) An attack on someone's character instead of the arguments.
- b) A device to divert attention away from the true object.
- c) A false dichotomy to oversimplify a situation.
- d) A logical statement with an assumption that is false.
- e) Pretending that only two choices exist.

## Introduction to Logic: Argumentation and Interpretation

### **Analysis of faulty arguments**

Which of the following is an example of a red herring?

- a) “All dogs are mammals. My cat is a mammal. Therefore, my cat is a dog.”
- b) “I had lunch with Donald, then I felt sick. Therefore, Donald made me sick.”
- c) “You asked what I’ve done to counteract global warming. In my first two years in office, we’ve had lower than average temperatures.”
- d) “Ms. Bauer is an incompetent math teacher. She's a wild-eyed radical in her educational theories.”
- e) “In order to maintain a civil debate, I will not mention my opponent's drinking problem.”

## Introduction to Logic: Argumentation and Interpretation

### **Analysis of faulty arguments**

Which of the following is not an example of an argument to a man (Argumentum Ad hominem)?

- a) Ms. Bauer is an incompetent math teacher. She always wears blue jeans.
- b) Von Daniken's books about ancient astronauts are worthless because he is a convicted forger and embezzler.
- c) In order to maintain a civil debate, I will not mention my opponent's drinking problem.
- d) I used to think that way when I was your age.
- e) "You asked what I've done to counteract global warming. In my first two years in office, we've had lower than average temperatures."

## Introduction to Logic: Argumentation and Interpretation

### **Analysis of faulty arguments**

Which of the following is an example of an argument to a man (Argumentum Ad hominem)?

- a) In order to maintain a civil debate, I will not mention my opponent's drinking problem.
- b) “You asked what I’ve done to counteract global warming. In my first two years in office, we’ve had lower than average temperatures.”
- c) Suds 'n Spuds is a great restaurant: you can see how shining clean the kitchens are!
- d) *Four little Indian boys going out to sea; A red herring swallowed one and then there were three.* (And Then There Were None by Agatha Christie)
- e) “Before women got the vote, there were no nuclear weapons.”



## Introduction to Logic: Argumentation and Interpretation

### **Analysis of faulty arguments**

Which of the following is not an example of false analogy?

- a) “Before women got the vote, there were no nuclear weapons.”
- b) “Every time my brother Bill accompanies me to Fenway Park, the Red Sox are sure to lose.”
- c) “The sun goes down because we've turned on the street lights.”
- d) “Minds, like rivers, can be broad. The broader the river, the shallower it is. Therefore, the broader the mind, the shallower it is.”
- e) Prof. Drake says, “All students turn their papers in on time.” Rachel says, “But I'm a student and I turn my papers in late.” Mean Old Drake says, “Then you're not really a student.”

## Introduction to Logic: Argumentation and Interpretation

### **Analysis of faulty arguments**

Which of the following is not an example of Equivocation?

- a) “The sign said 'fine for parking here', and since it was fine, I parked there.”
- b) “All trees have bark. All dogs bark. Therefore, all dogs are trees.”
- c) “Consider that two wrongs never make a right, but that three lefts do.” - “Deteriorata”, National Lampoon
- d) Prof. Drake says, “All students turn their papers in on time.” Rachel says, “But I'm a student and I turn my papers in late.” Mean Old Drake says, “Then you're not really a student.”
- e) “You should accept the view that our protection society can strengthen the sales of your product. Otherwise you might find that your machinery has been damaged and that your labor troubles increase.”

## Introduction to Logic: Argumentation and Interpretation

### **Analysis of faulty arguments**

Which of the following is not an example of Non Sequitur?

- a) Students who take earth science instead of physics are lazy. Susie took earth science instead of physics. Lazy Susie should be kicked out of school.
- b) "Tens of thousands of Americans have seen lights in the night sky which they could not identify. The existence of life on other planets is fast becoming certainty !"
- c) "Bill lives in a large building, so his apartment must be large."
- d) "All dogs are mammals. My cat is a mammal. Therefore, my cat is a dog."
- e) History tells us idealistic leaders are never effective.

## Introduction to Logic: Argumentation and Interpretation

### **Analysis of faulty arguments**

Which of the following is not an example of Personified Abstraction?

- a) "History tells us idealistic leaders are never effective."
- b) "The El-Nino phenomenon killed thousands of people."
- c) "Plane accidents are less common than car accidents, therefore it is safer to travel by plane than by car."
- d) "This application is easy to use. Look at its label, 'Easy Applicator.'"
- e) "All dogs are mammals. My cat is a mammal. Therefore, my cat is a dog."

# Thank you for your attention!

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