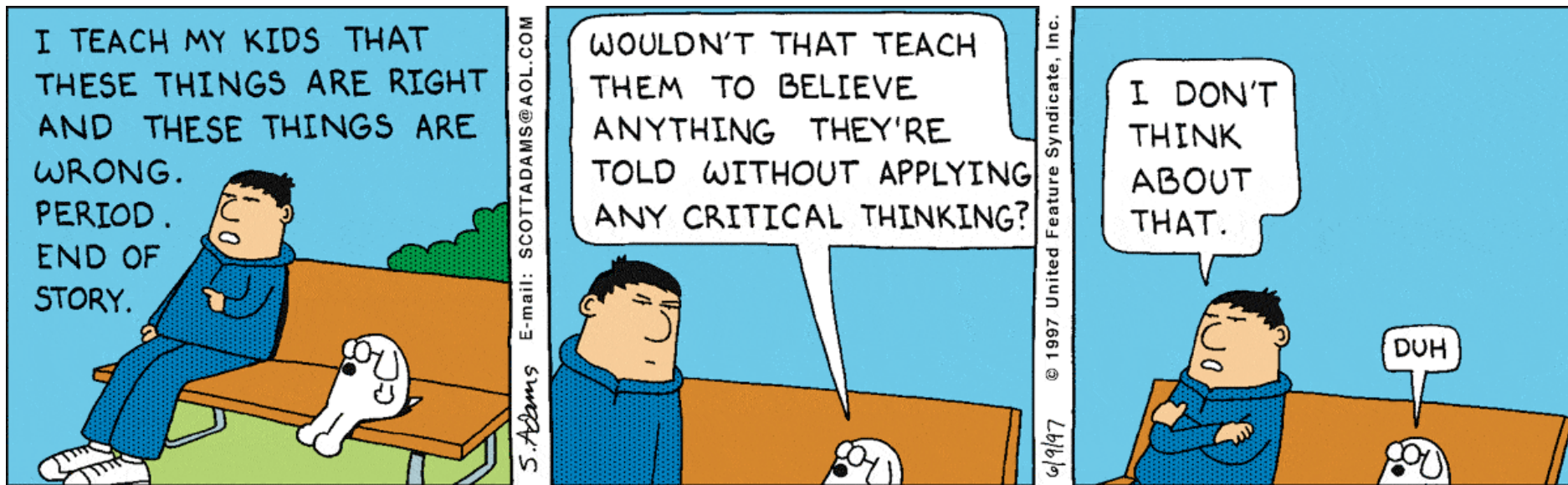


Lect. #13: Critical Reasoning 1

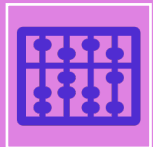


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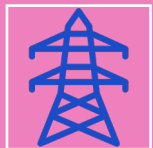
Agenda for Today



1. Solution to Item 1 of E3



2. Structured Arguments: Descriptive vs Normative



3. Structured Argument: Valid vs Invalid

Case Scenario: Workplace Surveillance

Suppose you're on the information services team of a large advertising firm. Your team holds a confidential meeting to talk about ways to improve productivity. The company president wants to ensure employees aren't sending personal emails or surfing the web for entertainment at work. The chief information officer (CIO) suggests informing employees that their email and web services will be monitored. In fact, the company doesn't have the resources to do this, so monitoring won't be implemented. Employees will just be told it has been implemented. What should you do?

Case Scenario: Workplace Surveillance

Rule Utilitarianism

- Identify general rule: Management should always act in the best interests of the company to ensure maximum profitability which will, in turn, ensure the continued existence of the company.
- Apply rule to situation: Inform employees they'll be monitored, but don't monitor them.
- Assess: This will lead to maximum productivity which will ensure maximum profitability and the continued existence of the company. This will result in the greatest good for the greatest number of people because stockholders will be happy with their earnings and employees will be happy to be employed.

Case Scenario: Workplace Surveillance

Rule Deontology

- Must address both of Kant's two categorical imperatives:
 - **Impartiality**: No individual should be favored over another; no one should be treated as a means to an end
 - **Universality**: Same rules must apply to everyone
- Apply to situation: Inform workers they'll be monitored, but don't monitor them.
- Assess: **Impartiality** not satisfied because employees will be treated as a means to an end. **Universality** not satisfied because management knows no monitoring will take place, but employees don't.

Case Scenario: Workplace Surveillance

Act Deontology

- Identify *prima facie* duties relevant to the situation:
 - Be honest with employees
 - Be as profitable as possible
- Prioritize duties: Honesty comes before profitability
- Assess: Ethically-acceptable behavior is to tell employees they're being monitored only if they are.

Case Scenario: Workplace Surveillance

Social Contract Theory

- Identify legal and natural rights relevant to the situation:
 - **Federal Law:** Neither the common law or the Electronic Communications Privacy Act (ECPA) protect employees who are subject to electronic monitoring in the workplace National Workrights Institute (NWI)
 - **State Law:** “Legal experts generally recommend that organizations communicate with employees about monitoring and get written confirmation that employees consent to it.”—Lewis Maltby, President of NWI
 - **Work Contract:** Unknown, but relevant

Assess: These social contracts indicate that the company has the right to monitor its employees, but their consent should be obtained. They don't provide guidance for falsely telling workers they'll be monitored, so no conclusion can be made.

Case Scenario: Workplace Surveillance

Virtue Ethics (not part of HW)

- Assume I have “strong moral character” because I have the proper virtues. Ask:
 - What kind of a person should I be in this situation?
- Assess: Based on the virtues of honesty, trustworthiness, and integrity, the company must be honest with its workers about its monitoring practices.

Poll

Of the five ethical models we applied to our workplace surveillance case scenario, which one do you find more compelling or appealing?

- A. Rule utilitarianism (general rule → greatest good, etc.)
- B. Rule deontology (impartiality, universality)
- C. Act deontology (rank *prima facie* duties)
- D. Social contract theory (identify and assess social contracts)
- E. Virtue ethics (strong moral character → ethical behavior)

Poll

Do ethical theories make more sense now?

A. Yes

B. No

C. Not applicable

Critical Reasoning: Structured (Logical) Arguments

- Structured arguments are a form of reasoning that attempts to establish the truth of a claim based on the assumed truth of other claims
- Arguments have three key features:
 - They are a form of reasoning
 - They consist of claims, i.e., statements or assertions
 - They try to establish a logical conclusion, which is one of the claims, based on the evidence provided by the other claims



criticalthinkersworld.files.wordpress.com/2012/09/argument-380x258.jpg

Arguments: Structure of an Argument

PREMISE 1:

PREMISE 2: (optional)

PREMISE 3: (optional)

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-
-

PREMISE N: (optional)

CONCLUSION:

1. Includes at least two claims: one premise and a conclusion
2. Structured to establish a conclusion, i.e., the truth of one claim, based on evidence provided by one or more other claims called premises

Critical Reasoning: Types of Arguments

Descriptive vs Normative

- *Descriptive* (or empirical) statements and arguments:
 - Truth can be verified by empirical research or observation; it can be tested independently
- *Normative* statements or arguments:
 - Truth is based on what's considered to be the norm or standard, which is a value judgment; it can't be tested independently

Arguments: Example of Descriptive Argument

PREMISE 1: Dr. Yan's lab is experimenting with the use of quadcopters to monitor agricultural crops.

PREMISE 2: Dr. Yan's lab resides in Pullman, Washington.

PREMISE 3: Dr. Yan's students have successfully field-tested the quadcopters at several agricultural sites.

CONCLUSION: The use of quadcopters to monitor agricultural crops was invented in Pullman, WA.

- The truth of every claim (premise and conclusion) can be determined. No opinions expressed in descriptive arguments.
- Does the conclusion follow from the premises?

Arguments: Example of Normative Argument

PREMISE 1: When a country is at war, it is allowed to deploy manned aircraft to perform airstrikes on the countries with which it is at war.

PREMISE 2: Unmanned drones are like manned aircraft.

PREMISE 3: When a country is at war, it can save the lives of its fighter pilots by deploying unmanned drones.

CONCLUSION: A country at war **should** use unmanned drones to attack its enemies.

- The truth of most of the claims can't be determined. Instead, value judgments are used.
- Normative statements and arguments often use words like should and ought.

Poll

Which of the example arguments we just considered do you think is stronger?

- A. The descriptive one on Dr. Yan's work (truth of claims can be determined)
- B. The normative one on unmanned drones (truth of claims can't be determined)

Breakout Discussion (4 min)

Arguments: Analyzing the Strength of an Argument

PREMISE 1: People who own iPhones are smarter than those who own Android phones.

PREMISE 2: My roommate owns an iPhone.

PREMISE 3: I own an Android phone.

CONCLUSION: My roommate is smarter than I am.

- Decide whether this is a descriptive or normative argument.
- Is this a strong argument?
- Be prepared to discuss your conclusions.

Arguments: Valid vs Invalid Arguments

- Valid and invalid are technical terms in logic
- Claims can be true or false, but arguments are either valid or invalid
- To determine whether an argument is valid, we **assume** all premises are true
- Given this assumption, is it impossible for the conclusion to be false?



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- If one counterexample is discovered, then the argument is invalid; otherwise it's valid

Arguments: Analyzing the Validity of an Argument

PREMISE 1: People who own iPhones are smarter than those who own Android phones.

PREMISE 2: My roommate owns an iPhone.

PREMISE 3: I own an Android phone.

CONCLUSION: My roommate is smarter than I am.

- Is this a valid argument, i.e., must the conclusion be true if all the premises are assumed to be true? Can you think of a counter example?
- What can we conclude?
 - A valid argument isn't necessarily a strong or good argument.


Arguments: Analyzing the Validity of an Argument

PREMISE 1: It takes one software developer 20 days to fix Bug A in a program.

PREMISE 2: There are two software developers available to fix Bug A.

CONCLUSION: Bug A will be fixed within 10 days.

- Is this argument valid?
- If this argument is invalid, can it be made valid? If so, how?
- Add another premise stating that two software developers working in parallel will halve the time required to fix Bug A.

A close-up, black and white portrait of an older man with glasses, wearing a suit and tie. He is looking slightly to the right of the camera with a serious expression.

**WHAT ONE PROGRAMMER
CAN DO IN ONE MONTH, TWO
PROGRAMMERS CAN DO IN
TWO MONTHS.**

- Fred Brooks

atlaz.io

atlaz.io/blog/programming-quotes-32/

This isn't an actual quote, but it's implicit in the book:

The Mythical Man-Month (Anniversary Ed.). Frederick P. Brooks, Jr. 1995. Addison-Wesley Longman Publishing Co., Inc., Boston, MA, USA.

Breakout Discussion (5 min)

- Construct a valid argument that supports the conclusion that workplace surveillance is beneficial to employees.
- Use no more than 6 claims (5 premises and a conclusion). Remember that a valid argument can't have any counterexamples, and its conclusion must follow when all premises are *assumed* to be true.
- Choose someone to present your argument.

Case Scenario: Workplace Surveillance

Suppose you're on the information services team of a large advertising firm. Your team holds a confidential meeting to talk about ways to improve productivity. The company president wants to ensure employees aren't sending personal emails or surfing the web for entertainment at work. The chief information officer (CIO) suggests informing employees that their email and web services will be monitored. In fact, the company doesn't have the resources to do this, so monitoring won't be implemented. Employees will just be told it has been implemented. What should you do?

Arguments: Using Ethical Theories in Arguments

- The ethical theories we studied include *normative* assertions that can be used to strengthen an argument from an ethical point of view.
- Ethical theories can assist in establishing the validity of an argument.
- When using an ethical theory in a structured argument, be sure to include an additional premise stating something to the effect that “only actions that are consistent with <ethical theory> should be taken.”

Arguments: Example Using Rule Deontology

PREMISE 1: Rule Deontology requires employers to treat their employees as rational beings (it's their duty to do so).

PREMISE 2: In order to treat employees as rational beings, they must be informed that they are being monitored (universality).

PREMISE 3: Monitoring employees has been shown to help employees increase their productivity (impartiality).

PREMISE 4: Employers should take only those actions that (a) are consistent with Rule Deontology and (b) help increase employee productivity.

CONCLUSION: Employers should monitor their employees and inform them that they are being monitored.

Arguments: Example Using Rule Deontology

PREMISE 1: Rule Deontology requires employers to treat employees as rational beings (if they are rational beings).

PREMISE 2: In order to treat employees as rational beings, they must be informed that they are being monitored (impartiality).

PREMISE 3: Monitoring employees has been shown to help employees increase their productivity (universality).

PREMISE 4: Employers should take only those actions that (a) are consistent with Rule Deontology and (b) help increase employee productivity.

CONCLUSION: Employers should monitor their employees and inform them that they are being monitored.

State the ethical theory you're using

Arguments: Example Using Rule Deontology

PREMISE 1: Rule Deontology requires employers to treat employees as rational beings (it's their duty to do so).

PREMISE 2: In order to treat employees as rational beings, they must be informed that they are being monitored (impartiality).

PREMISE 3: Monitoring employees has been shown to help employees increase their productivity (universality).

Include premises that address the ethical theory you're using, e.g., Rule Deontology has two imperatives

should only those actions that (a) are and (b) help increase employee

should monitor their employees and
being monitored.

Arguments: Example Using Rule Deontology

PREMISE 1: Rule Deontology requires treating employees as rational beings (it's the only way to ensure consistency).

PREMISE 2: In order to treat employees as rational beings, they must be informed that they are being monitored.

PREMISE 3: Monitoring employees is necessary to ensure that employees increase their productivity (universality).

PREMISE 4: Employers should take only those actions that (a) are consistent with Rule Deontology and (b) help increase employee productivity.

CONCLUSION: Employers should monitor their employees and inform them that they are being monitored.

Include premise stating that actions or decisions in this scenario must be in line with the ethical theory you're using