

1.8.1. Argument Evaluation Problems

A. For the following argument, and possible situations listed below it, **circle the letter** of each possible situation that would count as a **validity counterexample** for this argument. Based on your answers about these situations, state whether you think the argument is **valid** or **invalid**.

Argument:

1. 10 Math majors turned in the questionnaire .
 2. 10 English majors turned in the questionnaire.
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∴ All the students in the class turned in the questionnaire.

Possible Situations:

Situation A: There are 20 students in the class – 10 Math majors and 10 English majors – and they all turned in the questionnaire.

Situation B: There are 30 students in the class – 10 Math majors, 10 English majors, and 10 people who haven't declared a major; and only the people without majors failed to turn in the questionnaire.

Situation C: There are 20 students in the class – 10 Chemistry majors and 10 Education majors – and they all turned in the questionnaire.

Situation D: There are 30 students in the class – 20 Math majors and 10 English majors – and everyone turned in the questionnaire except 10 of the Math majors.

Situation E: There are 20 students in the class – 10 Math majors and 10 English majors – but none of them turned in the questionnaire.

The argument is (**Valid** / **Invalid**) (circle one).

B. Restate the following argument in **standard form**. Then state, for each of the four possible situations listed below, which (if any) qualify as a **validity counterexample** for this argument.

Argument:

Did everyone in the class show up for the logic exam? Well, we know that 10 Pi Kappa's showed up for the logic exam. And since 10 Delta Chi's also showed up for the logic exam, it follows that all the students in the class did indeed show up for the Logic exam.

Possible Situations:

Situation A. There are 20 students in the class – 10 Pi Kappa's and 10 Delta Chi's – and they all showed up for the exam.

Situation B. There are 30 students in the class – 10 Pi Kappa's, 10 Delta Chi's, and 10 people who hate fraternities and sororities; and only the people who hate fraternities and sororities skipped the exam.

Situation C. There are 20 students in the class – 10 Mu Zeta's and 10 Delta Chi's – and they all showed up for the exam.

Situation D. There are 30 students in the class – 20 Pi Kappa's and 10 Delta Chi's – and everyone showed up for the exam except 10 of the Pi Kappa's.

C. Restate the following argument in **standard form**. Then state, for each of the four possible situations listed below, which (if any) qualify as a **validity counterexample** for this argument.

Argument

Jack speaks French fluently. Moreover, he has been seen buying baguettes, those long French loaves of bread. Now, people from France speak French fluently, and regularly buy baguettes. So, Jack must be from France.

Possible Situations:

Situation A. Jack speaks French fluently, and buys baguettes. And both of these activities are common to people from France. And Jack is indeed from France.

Situation B. Jack does speaks French fluently and buy baguettes -- both activities common to people from France. But Jack is from Thailand, and does regular business in France, whose language and bread he enjoys.

Situation C. Both French-speaking and baguette-buying are common to the French people. But Jack is from Thailand, speaks only Thai and a bit of Japanese, and hates baguettes.

Situation D. People from France do speak French fluently and often buy baguettes. And while Jack is from France, and speaks French fluently, he doesn't buy baguettes because he's avoiding carbohydrates.

D. For each of the following arguments, consider whether or not you can think up a **validity counterexample** for that argument.

1. Ace has had a runny nose for the last couple of days. His eyes have also been watery, and his throat has been sore. So he must have some sort of allergy.
2. Every logic book I have ever read was written by a woman. And that means all logicians are women. (*From Trudy Govier, Asking the Right Questions, 2nd Edition*)
3. The atmosphere of Mars has only trace elements of oxygen. But since humans and all other vertebrates require oxygen to live, this shows that there cannot be life on Mars.
4. The law forbids murder, except in cases of self-defense. So since Rex killed a housefly that wasn't hurting him, what he did was illegal.
5. Rex said he would pay me around 20 dollars for my old TV. But since he only paid me \$18, he hasn't kept his promise.

E. We listed two requirements for an argument to be convincing:

1. The premises of the argument must be **true**.
2. The conclusion must **follow from** the premises
(in other words: The argument must be **valid**.)

Since an argument needs to satisfy both of these requirements to count as convincing, an argument failing either requirement will be *unconvincing*.

An argument can therefore be accused of being unconvincing because

1. one or more *premises are false*,

or because

2. the *conclusion does not follow* from the premises (i.e., the argument is invalid),

or because of

3. *both* false premise(s) *and* an invalid argument.

And the evidence for an argument being invalid will be presenting a **validity counterexample** – a possible way of having the premises true, but the conclusion still false.

In each of the following examples, an argument is accused of being unconvincing. For each case, **decide if the argument is being criticized for (i) having a false premise, (ii) being invalid, or (iii) both.**

1. **Ace:** Look, ordinary objects in the universe can't cause themselves to come into existence: people need parents to exist, chairs need carpenters, new drugs need chemists, dents require collisions, and so on. And every single ordinary thing does require *some* cause – it can't just come into existence out of nowhere. Also, this chain can't just trace back forever. So there had to be some original cause, outside of ordinary things, that started the whole chain of objects to exist – what we call "God".

Barbie: That's not a good argument. Who say ordinary things can never just come into existence without a cause? For all we know, that might really happen. Also, maybe the chain of things really *does* go back forever.

The argument is being criticized for:

- ☐ having one or more false premises
- ☐ having a validity counterexample (being invalid)
- ☐ both (false premise, and invalid argument)

2. **Ivor:** Rex is a longhaired hippie who hasn't had a job in over a month. Now, we know that whoever broke into the church stole some gold decorations, which would get them several hundred dollars if fenced on the black market – enough money to keep a hippie in Twinkies® and drugs for weeks! Clearly, it was Rex who committed the burglary.

Jack: Just because Rex would stand to benefit from a burglary doesn't mean he actually did it. For instance, Ace could have profited from stealing the gold just as much as Rex. It could be that Ace paid for that fancy new GameBoy® of his by stealing and selling the church stuff, and Rex was an innocent bystander who just happens not to have had a job or haircut recently.

The argument is being criticized for:

- ☐ having one or more false premises
- ☐ having a validity counterexample (being invalid)
- ☐ both (false premise, and invalid argument)

3. **Mark:** This coin conducts electricity. And all silver objects conduct electricity. So that shows that the coin must indeed be made of silver.

Neko: Sheesh – my gerbil could make a better argument. You *say* that the coin conducts electricity, but you provide no evidence; I'll bet it doesn't conduct electricity at all. Anyway, even if it *is* true that the coin conducts electricity, that doesn't show that it's silver, because silver is only one of many things that conduct electricity. Maybe it's made of copper, and *that's* why it conducts electricity.

The argument is being criticized for:

- ☐ having one or more false premises
- ☐ having a validity counterexample (being invalid)
- ☐ both (false premise, and invalid argument)

4. **Suki:** You ought to drop what you're working on and do my homework for me right now. After all, it's a principle of ethics that if you *can* do something to make another person's life better, then you are *morally obliged* to do it. And doing my homework for me would definitely make my life better.

Trixie: Nice try, Suki! If you really believed there was an ethical requirement to do anything that makes someone's life better, you'd believe that you should donate your liver and heart to people who need transplants. But you don't really believe you're required to do that. So you have to admit, it's *not* an ethical requirement to do anything whatsoever that would improve another person's life.

The argument is being criticized for:

- ☐ having one or more false premises
- ☐ having a validity counterexample (being invalid)
- ☐ both (false premise, and invalid argument)

5. **Chung:** Inflation and unemployment are inversely related – that is, when unemployment is low, inflation is higher, and when unemployment is higher, inflation is low. So, given that unemployment looks to remain high for the foreseeable future, we can safely conclude that inflation will stay low.

Dr. Slim: I'm not convinced. As the stagflation of the Seventies showed us, inflation and unemployment can *both* go up; so they're not *always* inversely related.

The argument is being criticized for:

- ☐ having one or more false premises
- ☐ having a validity counterexample (being invalid)
- ☐ both (false premise, and invalid argument)

6. *Background: people arguing for **innate knowledge** – knowledge built into the mind, not learned from experience – sometimes support their view by noting that certain claims are agreed to by everyone. John Locke (1632-1704) here criticizes this ‘universal consent’ argument for innate ideas.*

“There is nothing more commonly taken for granted than that there are certain principles... universally agreed upon by all mankind: which therefore, they argue, must needs be the constant impressions which the souls of men receive in their first beings, and which they bring into the world with them, as necessarily and really as they do any of their inherent faculties.

This argument, drawn from universal consent, has this misfortune in it, that if it were true in matter of fact, that there were certain truths wherein all mankind agreed, it would not prove them innate, if there can be any other way shown how men may come to that universal agreement, in the things they do consent in, which I presume may be done.

But, which is worse, this argument of universal consent, which is made use of to prove innate principles, seems to me a demonstration that there are none such: because there are none to which all mankind give an universal assent.”

– John Locke, **An Essay Concerning Human Understanding** (1690), Book I Chapter 2; reprinted in Beakley and Ludlow, eds., **The Philosophy of Mind: Classical Problems/ Contemporary Issues**, 2nd Edition (MIT Press, 2006), p. 705.

The argument is being criticized for:

- ☐ having one or more false premises
- ☐ having a validity counterexample (being invalid)
- ☐ both (false premise, and invalid argument)