

# PHI 1500: Major Issues in Philosophy

## **Session 3**

September 9<sup>th</sup>, 2015



# All About Arguments (Part II)

A *common theme* linking many fallacies is that they make *unwarranted assumptions*.

- “An **assumption** is a claim that is taken for granted, for which no proof is given or argument made.” (Carroll 2015)
  - Every argument makes some assumptions.
  - These need not all be proven true, but they should be *warranted*.
- “A **warranted assumption** is . . . *either known to be true or is reasonable to accept* without requiring an argument to support it.
  - Since a good argument must be based on true or reasonable assumptions,
  - it follows that arguments based upon false or questionable assumptions are not good arguments.
- A **questionable assumption** is one that is *controversial* and *one for which there is no general consensus* among the vast majority of those with the *appropriate knowledge or experience*.
  - A claim does not become questionable just because you or anyone else questions it; otherwise all claims would be questionable.” (ibid.)
    - » Note that by avoiding making questionable assumptions, you can’t expect to state only *unquestionable truths*
      - very few such facts exist which *could not possibly be false*.

## “How do we determine which assumptions of an argument are warranted and which ones are not?”

- “...many, if not most, statements can be known to be true or false only by shared experience or by studying the particular field in which the statements are made.
- ...Many of the claims we run across as we read...and many...we make in our own arguments come from experts and authorities in fields of which we are not knowledgeable.



➤ **We determine whether or not assumptions are warranted based on our knowledge, experience, the quality of the source of our information and the type of claim made.”** (ibid.)

- “Also, don't assume that just because consensus claims in science are questioned *by some people* that such questioning implies that the consensus claim *is questionable*.
  - » Just because, for example, some people [who are *not scientists*] believe that vaccines cause autism does not make the claim that vaccines don't cause autism a questionable claim.” (ibid.)

*Last class we discussed how...*

A **good (deductive) argument** gives us adequate reason to believe that its conclusion is true. It supports its conclusion well because:

- I. its premises are worthy of our belief,
- II. its premises are true, and
- III. its conclusion follows logically from the truth of the premises.

- » We learned about common **fallacies**, which make premises unworthy of our belief, because they either  
a) use bad logic, or b) break one of the rules of rhetoric.
- » **Today we're going to focus on how good deductive arguments meet criteria II and III.**

- These criteria for goodness have to do with an argument's:
  - **form:** *how the premises and conclusion are related to one another*
  - **content:** *what the premises and conclusion actually say*
- » Sometimes you'll need to analyze these independently of one another, by looking at the argument's *logical form*.

To write an argument in its *logical form*,

a. Stack the premises above a solid line and write the conclusion underneath.

**Ex. #1:**

- 1) If someone is enrolled in PHI 1500, then their name is on the roster.
  - 2) You are enrolled in PHI 1500.
- 
- 3) Therefore your name is on the roster.

a. Identify each proposition in the argument.

- A proposition is a phrase that can stand alone as a sentence.
  - Premise-flags & conclusion-flags are not part of propositions.
  - One sentence can contain multiple propositions. E.g.:
    - A **conjunction** joins two propositions using 'and': ' \_\_\_\_ and \_\_\_\_ '
    - A **disjunction** joins two propositions using 'or': ' \_\_\_\_ or \_\_\_\_ '
    - A **conditional** has the format 'If \_\_\_\_, then \_\_\_\_'.
      - The proposition in the 1st blank (following 'if') is the **antecedent**.
      - The proposition in the 2nd blank (following 'then') is the **consequent**.
- *In the example above, 1) is a conditional.*
- *What are the propositions in this argument?*

c. Assign a letter to each proposition that appears in the argument.

- Let 'P' = 'someone is enrolled in PHI 1500'.
- Let 'Q' = 'their [i.e., that someone's] name is on the roster'.

d. Replace propositions in the argument with the letters symbolizing them.

- 1) If someone is enrolled in PHI 1500, then their name is on the roster.
- 2) You are enrolled in PHI 1500\*.

---

- 3) Therefore your name is on the roster.

...becomes:

- 1) If P, then Q.
- 2) P.

---

- 3) Therefore Q.

This is an argument form known as ***Modus Ponens (MP)***.

- a.k.a. "Affirming the Antecedent",
  - because its 2<sup>nd</sup> premise asserts the truth of the antecedent of the conditional in premise 1).

\* 2) is an instance of P, because *you* are a member of the category of *someones*.

We consider propositions to be *equivalent* if they only differ in that the *subject of one is a category*, and the *subject of the other is a member of that category*.

## Let's try another example:

- a. Stack the premises above a solid line and write the conclusion underneath.

### Ex. #2:

- 1) If someone is enrolled in PHI 1500, then their name is on the roster.
- 2) Kendrick Lamar's name is **not** on the roster.

---

- 3) Therefore Kendrick Lamar is **not** enrolled in PHI 1500.

- a. Identify each proposition in the argument.

- As in Ex. #1, premise 1) is a *conditional*.
  - Its **antecedent** = 'someone is enrolled in PHI 1500'.
  - Its **consequent** = 'their name is on the roster'.
- Premise 2) is equivalent to the consequent of 1) [since Kendrick is a someone],
  - except that it has a 'not'.
  - In other words, 2) **negates** that proposition:
  - it *denies/falsifies* the consequent.
- Likewise, 3) is a **negation** of the antecedent of 1).

c. Assign a letter to each proposition that appears in the argument.

- Let 'P' = 'someone is enrolled in PHI 1500'.
  - Hence 'Kendrick Lamar is **not** enrolled in PHI 1500' = **Not-P**, since it negates P.
- Let 'Q' = 'their name is on the roster'.
  - Hence 'Kendrick Lamar's name is **not** on the roster' = **Not-Q**, since it negates Q.

d. Replace propositions in the argument with the letters symbolizing them.

- 1) If someone is enrolled in PHI 1500, then their name is on the roster.
- 2) Kendrick Lamar's name is **not** on the roster.

---

- 3) Therefore Kendrick Lamar is **not** enrolled in PHI 1500.

...becomes:

- 1) If P, then Q.
- 2) **Not-Q.**

---

- 3) Therefore **Not-P.**

This argument form is called ***Modus Tollens (MT)***.

- a.k.a. "Denying the Consequent",
  - because its 2<sup>nd</sup> premise denies the truth of the antecedent of the conditional in premise 1).



# Validity

- An argument is **valid** when it is *structured so that when the premises are true, you can infer that the conclusion is true as well.*
  - Making an **inference** is *using logic to derive a conclusion from premises you assume to be true.*
- Validity is a property of an argument's **form**, *not its content.*
  - So, validity doesn't depend *at all* what the premises and conclusion claim.
  - Neither does it depend on whether they are true or false.
  - The only thing that matters is how the premises and conclusion relate to each other logically.

➤ **Three valid argument forms you should know:**

## MODUS PONENS (MP)

1. If P, then Q.
2. P.

---

3. Therefore Q.

## MODUS TOLLENS (MT)

1. If P, then Q.
2. Not-Q.

---

3. Therefore Not- P.

## DISJUNCTIVE SYLLOGISM (DS)

1. P or Q.
2. Not-P.

---

3. Therefore Q.

We've already seen examples of arguments in the valid forms of Modus Ponens and Modus Tollens.

Here's an example of a *disjunctive syllogism*:

**Ex. #3**

- 1) Socrates was a philosopher or Socrates was a historian.
- 2) Socrates was **not** a historian.

---

- 3) Therefore Socrates was a philosopher.

**DISJUNCTIVE  
SYLLOGISM**

**(DS)**

1. P or Q.
2. Not-P.

---

3. Therefore Q.

- Making an argument in the form of a disjunctive syllogism is like using a *process of elimination*.
- The disjunction in premise 1) indicates either P is true, or Q is true.
    - » *Imagine that P is cake and Q is pie: the disjunction says you can have cake, or you can have pie – but you can't have both.*
  - Premise 2) rules out one of the propositions, by declaring it *false*.
    - » *Sorry, no cake for you!*
  - That allows you to infer that the *other* proposition is true, in 3).
    - » *You do get to have pie, though.*

➤ Contrast these three *valid argument forms*:

**MODUS PONENS**  
(MP; *Affirming the Antecedent*)

1. If P, then Q.
2. P.

---

3. Therefore Q.

**MODUS TOLLENS**  
(MT; *Denying the Consequent*)

1. If P, then Q.
2. Not-Q.

---

3. Therefore Not-P.

**DISJUNCTIVE SYLLOGISM**  
(DS)

1. P or Q.
2. Not-P.

---

3. Therefore Q.

➤ ...with their *invalid counterparts*:

**Denying the Antecedent**

1. If P, then Q.
2. Not-P.

---

3. Therefore Not-Q.

**Affirming the Consequent**

1. If P, then Q.
2. Q.

---

3. Therefore P.

**Dysfunctional Syllogism**

1. P or Q.
2. P.

---

3. Therefore Q.

- In each invalid counterpart, 1) is the same as the valid form, but 2) and 3) are different.

#### Ex. #4

- 1) If there is a hedgehog in my engine, my car will not start.
- 2) My car will not start.

---

- 3) Therefore there must be a hedgehog in my engine.

#### Affirming the Consequent

1. If P, then Q.
2. Q.

---

3. Therefore P.

- An argument in this invalid form *does not* guarantee that the conclusion is true when the premises are true.
- That's because **a conditional promises that when P is true, Q is true too;**
  - but it *doesn't* promise that Q can *only* be true when P is true.
    - The truth of many propositions other than P could guarantee the truth of Q.
      - » *Think of how many alternative (and more plausible) reasons could explain why one's car won't start!*
- So, **Q's being true doesn't supply enough evidence for us to infer that P is true.**



### Ex. #5

- 1) If I forget my friend's birthday, she will be mad at me.
- 2) I will not forget my friend's birthday.

---

- 3) Therefore my friend will not be mad at me.

### *Denying the Antecedent*

1. If P, then Q.
2. Not-P.

---

3. Therefore Not-Q.

- This argument form also *fails* to guarantee the truth of its conclusion when its premises are true.
- It's because **a conditional promises that when Q is false, P is false too**;
  - but it doesn't promise that P is *only* false when Q is false.
    - Many propositions other than P could guarantee the truth of Q.
      - » *Think of how many reasons your friend could get mad at you besides having her birthday forgotten!*
- So, **P's falseness doesn't supply enough evidence to infer that Q is false.**



## Ex. #6

- 1) Baruch is in Manhattan or Baruch is in New York.
- 2) Baruch is in Manhattan.

---

- 3) Therefore Baruch is in New York.

## Dysfunctional Syllogism

1. P or Q.
2. P.

---

3. Therefore Q.

- This one is tricky. Its conclusion happens to be true, but just by dumb luck, *not* because the truth of the premises guaranteed the truth of the conclusion.
- **A disjunction promises that either P is true, or Q is true – but not both\*.**
  - This invalid argument form ends up asserting that both P and Q are true, contradicting the disjunction's promise.
    - » *A dysfunctional syllogism is greedy:*
    - » *it lets you have your cake & eat the pie too!*
- ***Takeaway: The conclusion's truth is irrelevant to the argument's validity.***

\*The exception to this rule is **inclusive** disjunctions, which allow that both P and Q could be true.

- *For this class, assume that the disjunctions you encounter are **exclusive**: they don't allow both P and Q to be true.*

Sometimes authors will fail to explicitly state one of the premises which supports their conclusion;

- instead, they will take for granted that their reader will fill in a gap in one's reasoning.

**Ex. # 7**

1) Lady Gaga is from Mars.

2) Therefore, Lady Gaga is from the fourth planet from the sun.



- As written, this argument seems like it makes a *non sequitur*.
  - The conclusion doesn't seem to follow from the info given in the premise.
  - The author who wrote this assumed that everybody knows that Mars is the fourth planet from the sun, and will fill in that missing information.
- The argument only becomes valid we add 'Mars is the fourth planet from the sun' as a second premise.
  - We can call this a **hidden premise**, because the author takes it for granted without actually stating it explicitly.
- When writing your own arguments, try to be as explicit as possible about what pieces of evidence are functioning in your reasoning – even if they seem incredibly obvious to you.

# Soundness

An argument is **sound** when it has a **valid form & all of its premises are true**.

- Hence, soundness depends on both an argument's *form* and its *content* – specifically, whether what the premises say corresponds with reality.

## Ex. #8

- 1) If the sky is purple, then pigs can fly.
- 2) The sky is purple.

---

- 3) Therefore pigs can fly.



- This argument is valid, since it is written in the form of a modus ponens ('P' = "the sky is purple" and Q = "pigs can fly").
  - » But premise 2) is false: the sky isn't purple. [1) is likely false too.]
  - » Since at least one of its premises is false, the argument is *unsound*.

**When an argument is unsound, its premises *do not* support the conclusion, even if the argument has a valid form.**

- A valid argument guarantees the truth of the conclusion *only on the condition that all the premises are true*.
  - In unsound arguments, that condition is *not* met.



Having true premises isn't enough for an argument to be sound:  
it must be valid, too.

**Ex. #9**

- 1) If you are enrolled in PHI 1500, then you are a student at Baruch.
- 2) You are a student at Baruch.

---

- 3) Therefore you are enrolled in PHI 1500.

- Both of those premises are true, but the conclusion is not supported,
- because the argument is invalid: it has the form of Affirming the Consequent.
  - Therefore, the argument is unsound.

**Ex. #10**

- 1) If you attend Baruch, then your school mascot is a banana slug.
- 2) Your school mascot is not a banana slug.

---

- 3) Therefore, you do not attend Baruch.

- This argument is valid, written in the form of a modus tollens.
- But it is unsound, because premise 1) is false.
  - *A conditional is false when the promise it makes – that when P is true, Q will be true too – is a broken promise: when P is true, but Q is false.*

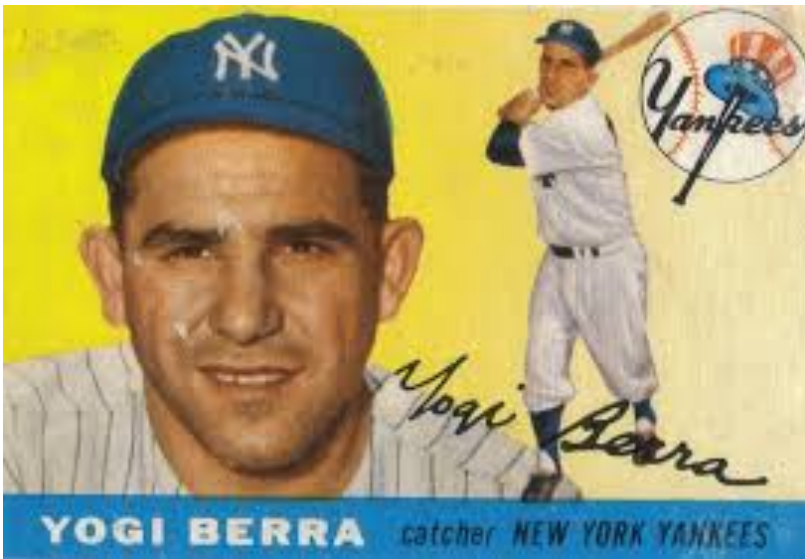
**Here are some sample arguments. Can you tell which ones are valid and which of the valid arguments are also sound? (There are 5 valid arguments and 2 sound arguments.)**

- I. If Socrates is a man, then Socrates is mortal. Socrates is a man. So, Socrates is mortal.
- II. If Socrates is a horse, then Socrates is mortal. Socrates is a horse. So, Socrates is mortal.
- III. If Socrates is a horse, then Socrates has four legs. Socrates is a horse. So, Socrates has four legs.
- IV. If Socrates is a horse, then Socrates has four legs. Socrates doesn't have four legs. So, Socrates is not a horse.
- V. If Socrates is a man, then he's a mammal. Socrates is not a mammal. So Socrates is not a man.
- VI. If Socrates is a horse, then he's warm-blooded. Socrates is warm-blooded. So Socrates is a horse.
- VII. If Socrates was a philosopher then he wasn't a historian. Socrates wasn't a historian. So, Socrates was a philosopher.

- Check for validity by looking at the argument's form.
- Check for soundness by judging whether the premises are true or false.

# Consistency

An argument is **consistent** as long as *none of its premises contradict one another.*



- A **contradiction** occurs when a *premise is inconsistent with itself* ('P & not-P'),
  - » "I never said most of the things I said."  
– Yogi Berra
- ...or when *two premises are inconsistent with each other* ('P', 'not-P').
  - » "Nobody goes there anymore. It's too crowded." – Yogi, again

- *A contradiction cannot possibly be true,*
  - so **an argument that contains a contradiction, and therefore is not consistent, is also unsound.**

# Persuasiveness

A **persuasive** argument is valid, sound, & its **premises are *obviously* true.**

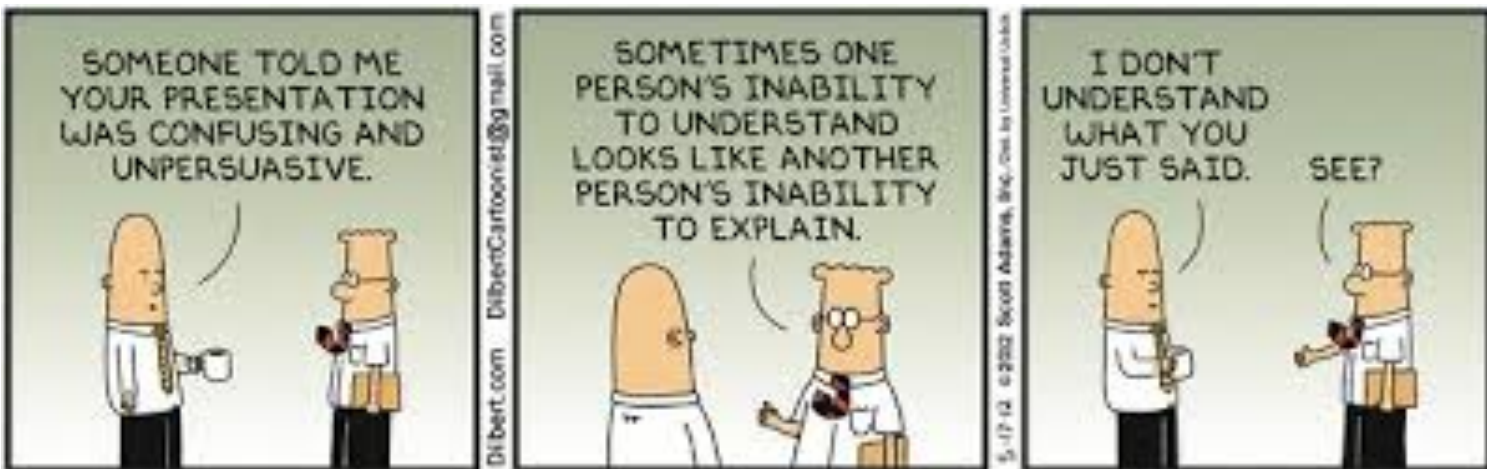
## Ex. #11

- 1) Either God exists or  $2+2 = 5$ .
- 2)  $2+2 \neq 5$ .

---

- 3) Therefore God exists.

- This argument is valid, because it has the form of a disjunctive syllogism.
  - But premise 1 is *not* obviously true (why should it be the case that only one of those propositions is true?), so the argument is *not persuasive*.
    - » To make it persuasive, the author would have to provide an *auxiliary argument* in defense of 1), to convince us that it is true.



# Responding to Arguments

If you identify a problem with an argument, you can raise an **objection** against it. For example:

- *This argument is not convincing, since the author equivocates on the meaning of 'laws'.*
- *This argument misleads readers by exhibiting Confirmation Bias in the selection of the sources for the defense of its conclusion.*
- *This argument fails to support its conclusion because its reasoning is an instance of the Post Hoc fallacy.*

An objection may motivate you to suggest a **revision**,

- *where you give different premises in support of the same conclusion,*
- *and/or show that the original premises actually support a different conclusion.*

...or it may motivate you to pose a **counterargument**,

- *where you give your own premises in support of the opposite conclusion.*



## Consider this argument:

A\*. Barack Obama is the best President the U.S. has ever had, given that *he made affordable healthcare insurance available to all Americans.*



Sample *revisions* to this argument might be:

A+. Barack Obama is the best President the U.S. has ever had, given that *he expanded marriage rights and made affordable healthcare insurance available to all Americans.*

A-. Barack Obama is *not* the best President the U.S. has ever had, given that *he made affordable healthcare insurance available to all Americans.*



A sample *counterargument* might be:

B. Barack Obama is *not* the best President the U.S. has ever had, given that *he has failed to curb police brutality against people of color.*

# Philosophical Writing

There are no essay questions on Take-Home Quiz #1 – but even in the short answer questions, strive to achieve the following ***attributes of good philosophical writing***:

- ***Clarity***

- Make it glaringly obvious what central claim you are defending.
  - Use the *first-person voice* to signal your thesis with phrases like “I argue that...” “My view is that...”, “In this paper I contest the view that...”
- Give examples to help your reader understand what you are claiming.
- Avoid needlessly complex, obfuscatory language.
  - “If you wouldn’t say it [out loud, in conversation], don’t write it” (Pryor 8)

- ***Precision***

- Define any technical terms that you use.
  - Many words have multiple meanings. It’s important for your reader to know which meaning you intend to use.
- Be consistent in your vocabulary.
  - Don’t vary your word choice just to be interesting. If your wording changes, it can make your reasoning hard to follow and compromises clarity.

## *attributes of good philosophical writing* (continued)

- **Structure**

- Use *signposts* to help your reader follow along.
  - These are phrases that orient your reader to what task you are trying to accomplish at each point in the argument,
    - e.g., “I will begin by...”, “I will now consider X’s claim that...”, “Before I say what is wrong with this argument, I want to...”, “These passages suggest that...”, “For example...”, “Further support for this claim comes from...”
- Keep each paragraph focused on *one* idea.
  - It’s better to use many brief, focused paragraphs than fewer, longer less-focused ones.
- Order your essay so each idea leads smoothly to the next.

- **Brevity**

- Aim to write only what is necessary to get your points across.
  - Skip introductory sentences meant to orient your reader to the topic or grab their attention, and don’t pad your conclusion with off-topic musings.