

# PHIL 220: Introduction to Logic

Week 1 Discussion (08/29/2025)

## 1 Argument

### Example 1

1. Don't do that!
2. You said that this argument is valid. How am I supposed to believe you?
3. I exist. Therefore, I exist.

An **argument** is a sequence of *declarative sentences*, which are the *premises*, and a declarative sentence marked as the *conclusion*.

How do we tell the *conclusion* from the premises?

### Exercise 1

1. Either you do not want the flourishing of all human beings or you want revolution. But you want the flourishing of all human beings. Hence, you want revolution.
2. All companies that succeed in the long term are ones that are willing to adapt their business model. It's clear that the company was destined for bankruptcy. It continued to rely on brick-and-mortar sales long after its competitors had moved to a dominant online-first strategy.
3. If I know that I have hands, then it is not true that I know I am not a brain in a vat. For if I know that I have hands, I know something about whatever plays the role of a hand, and if I know something about whatever plays the role of a hand, then it is false that I know I am not a brain in a vat (since there is something that plays the role of a hand for brains in vats too).

## 2 Validity and Form

### Example 2

1. 98% of all commercial airline flights land safely. I am on a commercial airline flight. Therefore, my flight will land safely.
2. The ball is crimson. Therefore, the ball is red.
3. I can't fly. So,  $1+1=2$ .

Good arguments are not necessarily risk-free or valid arguments.

Risk-free arguments are not necessarily valid arguments.

An argument is *valid* if, and only if, it is an instance of a *valid argument form*.

Two DISTINCTIVE FEATURES of a *valid argument form*:

- A valid argument form has no argument instances with true premises and a false conclusion. (A valid argument can have false premises!)
- A valid argument form preserves the truth of its premises regardless of the subject matter of its instances.

### Exercise 2

1. I exist. Therefore, I exist.
2. A perfect being must exist. God is a perfect being. Therefore, God must exist.
3. A perfect being must exist. God doesn't exist. Therefore, God is not a perfect being.
4. If I know that I have hands, then it is not true that I know I am not a brain in a vat. For if I know that I have hands, I know something about whatever plays the role of a hand, and if I know something about whatever plays the role of a hand, then it is false that I know I am not a brain in a vat.
5. Every human being is imperfect. Every USC student is a human being. Therefore, every USC student is imperfect.

Valid arguments are not necessarily sound arguments.

**Soundness:**

An argument is *sound* if, and only if, it is a *valid* argument and *its premises are all true*.

A sound argument = (a valid argument + *true premises*).

### 3 Checklist for Week 1

What you need to know	No idea	Meh	Got it!
Argument			
Identify the conclusion of an argument			
Valid argument			
Valid argument form			
Sound argument			