Introduction to Logical Reasoning

Lecture #9

Validity & Truth

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Truth and Falsity

Recall that an individual statement is either true or false. A statement is **true** if and only if what it asserts is actually the case. A statement is **false** if and only if what it asserts is not the case.

This means that truth and falsity are attributes of individual *statements*. However, it makes no (logical) sense to say that an argument is true or false. This is because an argument is a *collection* of statements, not an individual one.

Validity and Invalidity

Instead, we now know that a deductive argument is either valid or invalid. An argument is **valid** if and only if the truth of its premises logically entails the truth of its conclusion. An argument is **invalid** if and only if it is logically possible to have true premises but a false conclusion.

This means that validity and invalidity are attributes of *arguments*, which are collections of statements connected by inferences. However, it makes no (logical) sense to say that an *individual* statement is valid or invalid.

Some Facts

The following information is all true (according to Wikipedia):

City	Latitude
Evanston, USA	42°2'28"N
Pittsburgh, USA	40°26'26"N
Doha, Qatar	25°17'12"N
Key West, USA	24°33'19"N

Problem 1

Use these facts to create a *valid* argument with two *false* premises and a *false* conclusion.

Problem 2

Use these facts to create an *invalid* argument with two *false* premises and a *true* conclusion.

Problem 3

Use these facts to create an *invalid* argument with two *true* premises and a *true* conclusion.

Next Class…

We will do a workshop practicing this process of constructing valid and invalid arguments with true and false statements.

Also, please do not forget to turn in your response to the Lecture #9 Questionnaire on your way out.