**Philosophical Method Day 6: Translating into Propositional Logic**

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| **Content:**1. Translating from English into symbolic logic (15 minutes)2. Translating propositions (35 minutes) | **Method:**1. Interactive lecture2. Think, pair, share using worksheet |

***Instructor’s Introduction***: This lesson will show students how to use what they’ve learned previously in order to translate propositions from English into symbolic form (propositional logic).

# *Goals and Key Concepts*

1. Students should understand the process for translating from English into symbolic form.
2. Students should gain practice translating from English into symbolic form.
3. Key concepts: none

**1. Translating from English into propositional logic**

We pretty much have all the tools we need to translate from English into propositional logic. First we convert the English argument into normal form. Next we figure out the atomic sentences that appear in the argument and write out a key showing which letters will represent which atomic sentences. Then we add connectives as needed to create the premises and conclusion.

Here are some examples:

Example 1:

Since today is Monday and Tuesdays follow Mondays, tomorrow must be Tuesday.

Today is Monday.

If today is Monday, then tomorrow is Tuesday.

Tomorrow is Tuesday.

P: Today is Monday.

Q: Tomorrow is Tuesday.

P

P → Q

Q

Example 2:

Either John will study or he will fail the test. He won’t study, so he’ll fail the test.

Normal form:

Either John will study or he will not pass the test.

John will not study.

John will fail the test.

P: John will study.

Q: John will pass the test.

P ∨ ¬Q

¬P

¬Q

Example 3:

It will rain in just those cases when I don’t bring an umbrella. Since I didn’t bring an umbrella, it’s going to rain.

Normal form:

It will rain if and only if I don’t bring an umbrella.

I didn’t bring an umbrella.

It will rain.

P: It will rain.

Q: I bring an umbrella.

P ↔ ¬Q

¬Q

P

**2. Translating propositions**

Think (worksheet)/Pair/Share class exercise: Have students complete the Translating Propositions worksheet individually. Pair students up and have them discuss their answers. Then take a volunteer to put each answer up on the board. Discuss each translation as a class. If you have time remaining, as a class work through more example translations.

ASSIGNMENT: Translating Arguments worksheet.