

# Lesson Plan

**NEUROHEADWAY**

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Neuroscience Into Education

# Understanding our surroundings and our reality

| Slide | Subject                                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Timing |
|-------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 1     | Registration and brief introduction to lesson | Today we are going to talk about the importance of language in philosophy. How we say something may differ from how we "see it" in our own minds. However, for everybody else, including our friends, family, and teachers <i>what we say is usually considered to be what we actually think</i> . This is one of the reasons for the great interest in language within contemporary philosophy. Our second goal today is to understand the relationship between language and the rules of logic. We will finish by exploring how all of this is applicable to our everyday life.                                                                                                                                                                  | 3 min  |
| 2     | Proper names and predicates                   | Consider the difference between "a table" and "the Grand Canyon". You would probably agree that "a table" can be related to any table in the world, but when we say "the Grand Canyon" we mean one and only one unique place which "stands behind" the name. Therefore, "the Grand Canyon" is a proper name [See Graff Fara 2015: 61 - 66], like your own name, and "a table" is more like a characteristic of many things. In our language, we ascribe such characteristics all the time. They are called "predicates" [See Oliver 2010: 118 - 119]. (Show the students slide 3 from the presentation. Discuss the difference between names and predicates. Let them give some examples to make sure that they fully understand the distinction.) | 5 min  |
| 3     | Symbols (Activity)                            | Logic gives us the opportunity to present what we say succinctly and to express our opinion clearly and unambiguously. To do this we need a kind of a "perfect language", which is always accurate. This sounds like a hard thing to do, but it is easier if you think of it as "a language math". (Ask the students to look at their "Symbolic Logic Tables – Part 1". First each of them must form a simple and then two compound sentences. After that, by using the symbols, she or he may "translate it" to symbolic language. Also, show them slides 4 and 5, which contain information that will help them to complete the task and will provide visual examples.)                                                                          | 6 min  |
| 4     | From language to logic (Activity)             | We already learned that we can translate sentences in our language to particular symbols in logic. In language, we use connectives like "and", "but", "or", etc. The symbols that replace these connectives in logic are called "operators" [See Klenk 2008 (1983): 22 - 28]. (Now continue with "Symbolic Logic Tables – Part 2". Go through the basic logical operations                                                                                                                                                                                                                                                                                                                                                                         | 8 min  |

|   |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |
|---|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|   |                            | together.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |
| 5 | The ideal language project | Watch the video "The Ideal Language project".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2 min |
|   | Discussion                 | Do you think that science can benefit from such "Ideal Language" (See Russell 2010 (1924):144 - 145)? (Discuss with the class examples from IT (coding/programming), physics, chemistry, and biology. If applicable, examples involving a programming language are a priority as they have strong connection with logic and unambiguity. Ask students whether, according to them, scientific terms have only one meaning. Use the examples from slide 8. Compare the meaning of scientific terms with the meaning of ordinary words (check out <a href="https://literarydevices.net/ambiguity/">https://literarydevices.net/ambiguity/</a> for some ideas).                                | 9 min |
| 6 | Ideal entities             | But what does it mean for something to be "ideal"? There are two options. We already talked about the first one that suggests the completeness and perfection of something. In our example, this was the logical language of science where every sentence has a strict and defined meaning. The second use of the word "ideal" refers to "ideal entities". They are supposed to be real, but we could not actually see them with our eyes; however, we could perceive them with our minds. (Give to the students some examples such as "fairy tale characters", "feelings", and "numbers". Ask them if they think that numbers, for instance, actually exist, and discuss their opinions). | 5 min |

# Power point Example

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In philosophy there are many areas that are related to each other...

Are you ready to explore some of these areas and relations together?

- From Language to Logic
- From Logic to Math
- From Logic and Math to our Everyday Life

First, let`s see what is the logical difference between words in our language.

## **PREDICATES**

- A predicate is a certain feature of something;
- It can be ascribed to a group of things that have this same feature;
- Ex: "a table"



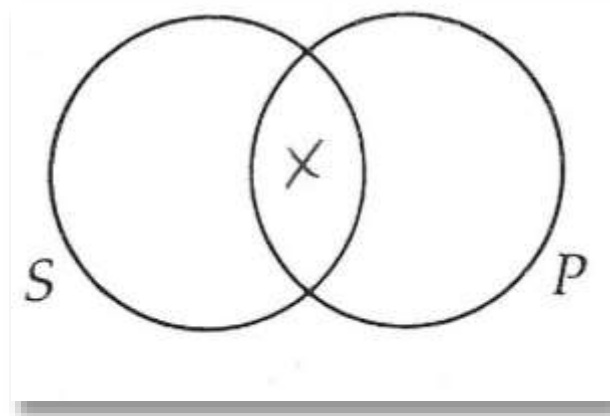
## PROPER NAMES

- We usually give names only to important things;
- A name refers to an unique thing;
- Ex: "The Grand Canyon"



But language is sometimes a bit tricky and we can say something while mean something else.

- One of the most important tasks in logic is to create a *system* that presents our ordinary language more accurately.
- By using logic, we are replacing our words and sentences with *symbols*.



# **Teachers Evaluation and Handouts**

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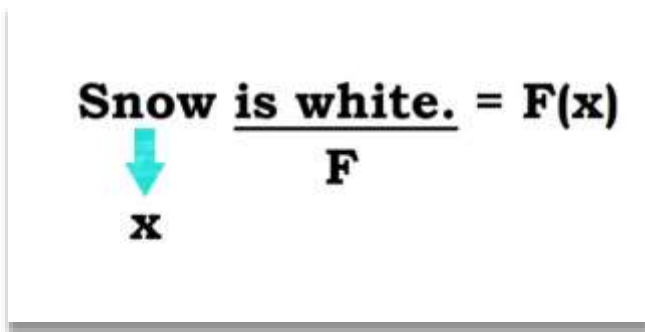
So how do these symbols work?

Let`s look at some examples:



## SENTENCES

We can replace a whole sentence with one of these letters “p”, “q”, “r”, “s”, etc.



## PREDICATES

Within a sentence, we can replace every predicate with one of these *capital* letters “F”, “G”, “H”, etc.



## PROPER NAMES

Within a sentence, we can simply replace them with the first letter of the name – “d” for David, “a” for “Anne”, etc.