Propositions and Their Parts

"Not every sentence is true or false; a prayer, for instance, is a sentence but it is neither true nor false. Let us set aside these other cases, since inquiry into them is more appropriate for rhetoric or poetics; our present study concerns affirmations"

-Aristotle, *De Interpretatione* (Irwin and Fine, 1996)

I. Lesson

As mentioned in an earlier lesson, logic is composed of terms, propositions, and syllogisms. In this lesson we will be talking about propositions and the parts of which they are made.

To review, **propositions** (what Aristotle here calls an "affirmation") can be thought of as a sentence that can either be true or false. There are three parts to every proposition:

- **Subject** - The categorematic term that the proposition is about, or the category of thing(s) to which a property is being ascribed in the proposition.
- **Predicate** - The property which is being ascribed to the subject in the proposition. This also takes the form of a categorematic term.
- **Copula** - The linking verb which does the job of ascribing the predicate to the subject; generally speaking, this will take some form of the verb "to be" in English, however strictly speaking this is not always the case.

Not all propositions start in a nice "subject-copula-predicate" form, however. Take the propositions:

1. All trees have trunks.
2. Plato stands 10 feet tall.

In these two examples, the copula takes the forms of the verbs "have" and "stands". We can reformulate these types of propositions to make the copula explicit. Doing so will allow us to better understand which *categories* the subject term and the predicate term represent.

For propositions of the first sort, it must be understood that the verb taking the appearance of the copula is *actually* part of the *predicate*. From our example before, the proposition can be reformulated along the lines of this realization to show its true form.

1. All trees are things that have trunks.

Now it is explicit that the subject designates the *category* "trees" and that the predicate designates the *category* "things that have trunks". Specifically, all members of the former category are *also* members of the latter category. In other words, the proposition says that all members of the category "trees" have the *property* of having a trunk, which is the property exclusive to all members of the category "things that have trunks". From our second example above we get:

2. Plato is a thing that stands 5-feet tall

It is now explicit that the two categories being compared are "Plato" and "things that are 10-feet tall". We are saying that the *only* member of the first category (Plato himself) is a member of the latter category. Specifically, Plato has the *property* of being 5-feet tall, which is only a property *common* to all members of the category "a thing that stands 5-feet tall." Therefore, Plato is a member of the category "a thing that stands 5-feet tall."

All non-standard forms of the copula can be rephrased this way. Why? Well, every*thing* is a thing, literally! In other words, the category "things" contains everything, including the members of whatever category is designated by *any possible* subject. Since we can predicate "thing" of literally anything, making it explicit in a predicate does not change the meaning of the original proposition.

For both cases, it is important to paraphrase the assertions stated in ways that will reveal the true form of the copula. This is important because propositions compare *categories*, which should be made explicit in their formulation.

II. Examples:

1. Take the sentence, "All trees are shorter than 10,000 feet", and think about why this is a proposition based on our definition above. This sentence turns out to be false if there is at least one tree taller than 10,000 feet *or* it turns out to be true if there are no trees taller than 10,000 feet. The former happens to be the case, but the point is that this sentence *is* a proposition because it could *in principle* be true or false.
2. Next, let's take the proposition, "They write quickly." We might rephrase this as, "They are things that write quickly." Now it is clear that we are comparing whatever are members of the category designated by "They" (it depends on the intension) and the category "things that

write quickly".

3. Thirdly, let's take a look at the proposition, "dogs get crazy easily." We can reformulate the proposition in a similar way to the last one. We can say "dogs are things that get crazy easily".
4. Finally, take the example, "Logic makes me love philosophy." We can rephrase this to say "Logic is a thing that makes me love philosophy". Now it is clear that we are comparing the categories "Logic" and "things that make me love philosophy".

[Activity] Think of some propositions and share them with the class. Once every student has shared, get in small groups and try to identify the subject, predicate, and copula of each proposition shared. If any of them are not yet explicit, reformulate them so that they are explicit.

It should be noted that two propositions could mean the same thing while taking differing surface forms (i.e. different words could be used to express the same underlying idea). For example, take these two assertions:

1. There are leafless trees.
2. Not all trees have leaves.

Looking at these two propositions, we can see that they mean the same thing. Namely, they both are equivalent to the proposition, "Some trees are leafless".

[Activity] In the same groups as before, take the propositions mentioned in the first activity and try to come up with alternative propositions that mean the same thing.

III. Exercises

Exercise 1

Directions: Give three examples of propositions.

Ex. Dogs are animals.

1.)

2.)

3.)

Next: Take the propositions you have written here and identify the subject, predicate, and copula of each.

Subject	Predicate	Copula

Exercise 2

Directions: Fill out the table for the following propositions, reformulating them such that the copula is always standard:

1.) Aristotle philosophized illustriously.
2.) Pencils write in a neater fashion than pens.
3.) These tables fall apart easily.
4.) Beethoven composed wonderful music.
5.) Happiness is a wonderful thing to have.
6.) Usain Bolt runs faster than any human in history.
7.) Plato went to the gym last week.
8.) I need to eat some food.
9.) A whole is greater than its part.
10.) (Challenge): It is better to be feared than loved

Subject	Predicate	Copula

Exercise 3

Directions: determine whether the following are examples of propositions or not. (Hint: First determine whether the sentences must be true or false.)

Ex. Can dogs swim?

Answer: No, not a proposition

1.) I play tennis well.

2.) Go to your room!

3.) Are trees tall?

4.) I definitely agree.

Exercise 4:

Directions: decide whether the following pairs of propositions mean the same thing, and justify your answer.

Ex. The students are intelligent.

vs.

The students have good grades.

Answer: These propositions do not mean the same thing, as the category "things that have good grades" is not identical to the category "things that are intelligent", as one could have good grades and lack intelligence or one could lack good grades while being very intelligent.

1.) The apples are wonderful tasting.

vs.

The apples are wonderful.

2.) Some people are of good character.

vs.

Some people are good.

3.) My (biological) sister is kind.

vs.

My (biological) father's daughter is kind.

IV. Conclusion:

The notion of the proposition is one of the most important concepts in Aristotelian Logic. In this lesson, we discussed the three parts of any proposition: the subject, predicate, and copula. We also discussed various forms that the copula may take and the ways in which multiple propositions can

mean the same thing. In further lessons, we'll continue to discuss propositions, the forms they may take, the ways in which they express certain ideas, and how different propositions relate to each other. Most importantly, since both the subject and the predicate are terms designating categories, we will look at how propositions relate categories.

V. Lesson Goals:

Following this lesson, the students will be able to:

- identify subjects, predicates, and copulas correctly
- recognize situations in which seemingly different propositions mean the same thing.

Answer Key:

Exercise 1

a. Answers will vary widely, however any sentence in the form of an assertion will count as a correct answer for each of three propositions to be written down.
b. Equally, answers will vary, however generally speaking, the answers will be correct if the noun preceding the verb is listed as the subject, the verb is the copula, and the adjective or noun following the verb is listed as the predicate.

Exercise 2

Subject	Predicate	Copula
Aristotle	a thing that philosophized illustriously	is
Pencils	things that write in a neater fashion than pens	are
These tables	things that fall apart easily	are
Beethoven	a thing that composed wonderful music	is
Happiness	a wonderful thing to have	is
Usain Bolt	a thing that runs faster than any human in history	is
Plato	a thing that went to the gym last week	was/is
I	a thing that needs to eat some food	am
A whole	a thing that is greater than its part	is
Being feared	a thing better than being loved	is

Exercise 3

1.) This is a proposition.

2.) This is not a proposition.

3.) This is not a proposition.

4.) This is a proposition.

Exercise 4

1.) These propositions do not mean the same thing; the student should not equate the property of being wonderful with the property of being wonderful-tasting. The student may, however, claim that for apples being wonderful implies being wonderful-tasting, due to the nature of value in this sense being dependent on human preference. If a well-conceived justification of this type is given, the student may say the propositions are identical.

2.) This is open for dispute, so a well-reasoned answer should receive full points. These Propositions mean the same thing under the assumption that one who has a good-character is good, and vice versa. The student may however disagree with this identification, if such a disagreement is explicitly stated and reasoned towards, the student may hold that the propositions are not identical.

3.) These propositions mean the same thing, since being the daughter of my father is equivalent to being my sister, and being kind implies being kind-hearted. The reverse also holds.