The Three Building Blocks of Logic - Terms

I. Lesson

We will begin our study of logic by defining the three basic notions used to characterize declarative sentences, their parts, and the relations between them. These are **terms**, **propositions**, and **syllogisms**. We will nuance and refine each of these further in future modules. For now, we look at *terms*.

> "Forms of speech are either simple or composite. Examples of the latter are such expression as 'the man runs,' 'the man wins;' of the former 'man,' 'ox,' 'runs,' 'wins.'"
> -Aristotle, *Categories* (W.D. Ross, 1952)

Here are some examples of terms:

Terms: man, ox, runs, wins, yellow, that funny comedian, the book on that shelf, etc.

Grammatically, terms fall into three classes: nouns, verbs, and adjectives. "Man" and "ox" are nouns; "runs" and "wins" are forms of the verbs "to run" and "to win"; "yellow" and "funny" are adjectives.

Combinations of terms are used in order to *predicate* something of a *subject*. For example, when you say "The ox runs," you *predicate* "runs" of the ox; we say that "The ox" is the *subject*, and "runs" is the *predicate*. When you say "The man is funny," you predicate "funny" of the man; we say that "The man" is the subject, and "runs" is the predicate.

When you predicate something of a subject, you form a proposition; the proposition is either true or false. For example: "the ox runs" is either true or false. But can a term, by itself, be true or false? Let's see what Aristotle has to say:

> "No one of these terms, in and of itself, involves an affirmation; it is by the combination of such terms that positive or negative statements arise. For every assertion must, as is admitted, be either true or false, whereas expressions which are not in any way composite, such as 'man,' 'white,' 'runs,' 'wins,' cannot be either true or false."
> -Aristotle, *Categories* (W.D. Ross, 1952)

Here, Aristotle argues that while assertions must be either true or false, terms are neither. For instance, take the assertion, "Africa is large." This is an assertion which is either true or false. On the other hand, let's take the term, "Africa." The term "Africa" cannot be either true or false. It is simply a word that refers to something. It refers to a continent south of Europe and south-west of Asia. It is not saying whether or not such a continent *exists*, or whether or not such a continent *is* anything. "Africa" is simply a term.

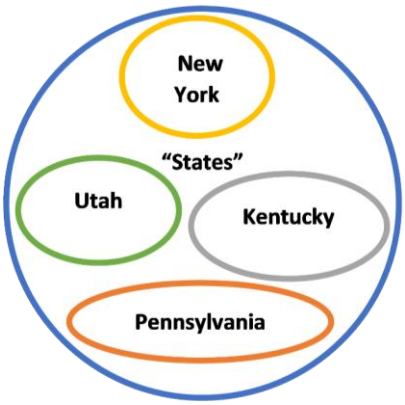
Later, we will look at the **copula.** The copula is the word that relates the predicate and the subject. It generally takes the form of "is," "are," "was," or "were." It is *not* considered a term. For instance, in the assertion "All men are mortal," "All men" and "mortal" are terms, while "are" is the copula, so it is not a term.

A helpful distinction can be made between two types of terms:

- **Categorematic Terms:** Terms that refer to a *category* of thing(s) in the world; terms that have determinate meaning without surrounding terms (as in a proposition).
- **Syncategorematic Terms:** Terms that do not refer to a *category* of thing(s) in the world; terms that require surrounding terms in a proposition for a determinate meaning.

For example, terms like "dog," "humans," "happiness," "Aristotle," "that computer," and "the gentleman running to catch the bus" are all *categorematic* terms. On the other hand, terms such as "and", "or", "every", "of", and "on" as they stand by themselves are *syncategorematic*. There's an intuitive difference between the two types just by giving examples, but the technical difference can be described in terms of *categories*. What is a *category*?

A *category* is roughly a collection of things that have some sort of relevant common *property*. For instance, all of the particular chairs in existence are *members* of the category "chairs". All of these chairs have a relevant common *property*: they all have the property of *being a chair*. This is why "chairs" is a *categorematic* term - it refers to the *category* of objects that *are* a certain thing. Here's a diagram to visualize the category "states."



The largest circle represents the category "states", where anything inside the circle is a *member* of the category "states". Although there is not enough room to have smaller circles for *all* of the states, a perfect diagram would have *all* states in existence inside the category "states".

Finally, it is worth noting that some categories, unlike "chairs" or "states", have only one *member*. For instance, the category "Aristotle" has only one member: Aristotle himself! Since Aristotle is the only thing that *is* Aristotle, he is the only member in the category "Aristotle." The same holds for the category "that chair" or the category "The United States of America".

For Aristotle, there are *many* categories in the world, and we use terms to refer to them. Now we can clearly say that *categorematic* terms are those that refer to categories. On the other hand, *syncategorematic* terms do not refer to categories. There is no category "of", "on", or "an". This distinction is *extremely* important, as *categorematic* terms will be emphasized in logic. However, some syncategorematic terms will also be important, especially terms like "and" and "or," by which we connect sentences, as well as terms like "all" and "some" – but we postpone discussion of these syncategorematic terms.

It is also important to note that some terms seem to be composed of many terms. Take, for instance, the *categorematic* term "the ugly computer on top of the table". This is a categorematic term, since it designates a category of things in the world (namely, a category which has only one member: the actual ugly computer on top of the table). However, it also contains the terms "the", "ugly", "computer", etc. For the sake of this course, you will only need to deal with tasks relating to the larger term, rather than the more complicated task of dealing with smaller terms within the larger term.

From here on out in this lesson sheet, when we simply refer to "terms", we are referring to *categorematic* terms, as they are of highest importance in logic.

II. Examples

(1) We must remember that, no matter how long and complex a term is, as long as it can neither be true nor false it remains a term. The term, "ant" is just as much a term as the term, "The ant which walked along the ground in a quick fashion".

Neither of these terms are making an assertion. We have already seen why this is the case for "ant." However, it may be more tempting to think that "The ant which walked along the ground in a quick fashion" is making a claim. It seems that we are saying there is an ant that walked along the ground quickly. But in fact, we are saying only what it means to be in the category "The ant which walked along the ground in a quick fashion". Namely, in order to be a member of this category, an object must be a particular ant that walked along the ground in a quick fashion.

We are not stating anything *about* this ant; not even that this ant exists. It is in this sense that we are not predicating anything of it. It might be helpful to compare "The ant which walked along the ground in a quick fashion" with the following proposition: "The ant which walked along the ground in a quick fashion *is over there*". Only the second of these predicates

something of a subject, this particular ant; accordingly, only the second of these can be true or false.

(2) Let us take the term "larger". At first glance, this does not seem like it would be a term at all. Rather, it seems to be a word which only *relates* terms to each other, such as "the dog is *larger* than the cat." Without the terms "dog" and "cat", it would seem that "larger" has no meaning. However, philosophers *do* consider words like "larger" as terms: they are a special kind of term known as a relational term, which you will learn about later. Note that this type of term, however, is not *categorematic*.

"Expressions which are in no way composite signify substance, quantity, quality, relation, place, time, position, state, action, or affection... 'Double,' 'half,' 'greater,' fall under the category of relation."
-Aristotle, *Categories* (W.D. Ross, 1952)

III. Exercises

Exercise 1

Directions: Identify the (categorematic) terms in the following assertions.

Ex. Dogs are fast runners.

Answer: Dogs, fast runners

1.) Men are mortal.
2.) The amazing man who won the world record was 50.
3.) "Man is predicated...." (*Categories*)
4.) All countries that are greater than 50 square miles
5.) Aristotle was Plato's pupil.

Exercise 2

Directions: Decide whether the following are terms or not, and explain why.

Ex. "I am. I exist." (Descartes, *Meditations)*

Answer: This is not a term. Rather, these are two assertions that are either true or false. A term cannot be true or false.

1.) Aristotle was a philosopher
2.) The tiger who had just caught her prey for dinner
3.) The Democratic Republic of the Congo
4.) "I think, therefore I am." (Descartes, *Discourse on Method*)

5.) Plato's boxing matches
6.) ethics
7.) All books have covers. That is a book. Therefore, it has a cover.
8.) None of the chickens that belonged on the property

Exercise 3

We have already discussed the relational terms "larger" and "smaller." Come up with five more relational terms, and use each in an assertion.

Exercise 4

Directions: Determine which of the following terms are *categorematic* vs *syncategorematic*. Explain your answers.

Ex. Country

Answer: categorematic; this term is categorematic because it refers to the category "Countries", where particular countries like The United States, France, Ghana, and New Zealand are members of "Countries".

1.) of
2.) therefore
3.) book
4.) the dog that is wagging its tail in front of me
5.) Plato
6.) on
7.) The United States
8.) Happy things

IV. Conclusion

The three fundamental building blocks of Aristotelian logic are *terms*, *propositions*, and *syllogisms*. Each of these has its own function and specific set of properties. In this lesson, we have looked at *terms*. Terms are the most basic building blocks of logic. In order to think and argue logically, we must fully understand and master the use of terms. In this lesson, we discussed how terms cannot be true or false. Being able to assign truth or falsity to a form of speech is an easy way to show that it is not a term. Additionally, we discussed that the *copula* is not considered to be a term. Finally, we made a distinction between categorematic and syncategorematic terms, and we made this distinction on the basis of understanding what a category is. In the following lessons, we will take a closer look at *propositions* and *syllogisms*.

V. Lesson Goals

At the end of this lesson, students will be able to:

- define terms
- grasp the concepts of subjects, predicates, and predicating
- understand that and why terms cannot be true or false
- distinguish terms from non-terms, both copulas and assertions
- identify terms; including terms that *seem* to predicate something of a subject, and relational terms (see examples)
- Understand the distinction between categorematic and syncategorematic terms
- Understand what a *category* is and how it is referred to
- Understand what a *member* of a category is

Answer Key:

Exercise 1

1.) Men, mortal
2.) The amazing man who won the world record, 50
3.) Man, predicated
4.) All countries that are greater than 50 square miles
5.) Aristotle, Plato's pupil

Exercise 2

1.) This is not a term. Rather, it is an assertion that is either true or false. A term cannot be true or false.
2.) This is a term. It is simply a complex term, but it is neither a copula nor is it an assertion (it is neither true nor false).
3.) This is a term. It is neither a copula, nor is it an assertion (it is neither true nor false).
4.) This is not a term. Rather, it is two assertions that are either true or false. A term cannot be true or false.
5.) This is a term. It is neither a copula, nor is it an assertion (it is neither true nor false).
6.) This is a term. It is neither a copula, nor is it an assertion (it is neither true nor false).
7.) This is not a term. Rather, it is three assertions that are either true or false. A term cannot be true or false.
8.) This is a term. It is simply a complex term, but it is neither a copula nor is it an assertion (it is neither true nor false).

Exercise 3

Answers may vary. Any comparatives or superlatives are correct answers. For example: redder, slower, slowest, largest, smellier, smelliest, most perfect, more perfect, etc. Additionally, relational terms such as double, half, quarter, etc. are likewise correct.

Exercise 4

1.) syncategorematic; this term does not refer to a category of things
2.) syncategorematic; this term does not refer to a category of things
3.) categorematic; this term refers to the category "books" that contains all things which are books
4.) categorematic; this term refers to the category "the dog that is wagging its tail in front of me" that contains all things which *are* dogs that are wagging their tails in front of me.

5.) categorematic: this term refers to the category "Plato" that contains all things that *are* Plato. In other words, it has one member: Plato himself.
6.) syncategorematic; this term does not refer to a category of things
7.) categorematic: this term refers to the category "The United States" that contains all things that *are* The United States. In other words, it has one member: The United States itself.
8.) categorematic; this term refers to the category "happy things" that contains all things which *are* happy.