

## 4.1 – 4.2 Categorical Propositions

Now, we are going to study a certain type of statement—one that relates subjects and predicates in a certain way. A **subject** of a sentence is the thing that some property or class is being attributed to, the **predicate** is the property or class that is being attributed to the subject, and the **copula** is the word which links the two together. For instance,

“All bunnies are fuzzy.”

Here, “bunnies” is the subject, “fuzzy” is the predicate, and “are” is the copula. This particular statement about bunnies has a certain form, the form of a **categorical proposition**.

**Categorical Proposition:** A proposition that relates two classes, or categories.

Notice that, in addition to subject, predicate, and copula, categorical propositions also have a **quantifier**. Quantifiers tell you HOW MANY of the subject we are referring to. In the statement above, “All” is the quantifier. How many bunnies are fuzzy? ALL of them.

Categorical propositions tell us one of four things:

- (1) ALL members of the subject class are included in the predicate class.
- (2) NONE of the members of the subject class are included in the predicate class.
- (3) SOME of the members of the subject class are included in the predicate class.
- (4) SOME of the members of the subject class are NOT included in the predicate class.

Here are some examples of each of these 4 kinds of categorical proposition:

- (1) All dogs are mammals.
- (2) No dogs are reptiles.
- (3) Some dogs are cute.
- (4) Some dogs are not potty-trained.

Here is the FORM of each these 4 kinds of categorical proposition:

- (1) All S are P.
- (2) No S are P.
- (3) Some S are P.
- (4) Some S are not P.

*Note: Do homework for section 4.1 at this time.*

**1. Quality and Quantity:** Now, let's go over some definitional terms: Categorical statements each have a **quantity** and a **quality**.

**Quantity:** Refers to HOW MUCH of the subject class is included in the predicate class. Quantity is either:

- (a) Universal – Tells us something about how ALL of the subjects are related to the predicate.
- (b) Particular – Tells us how SOME of the subjects are related to the predicate.

**Quality:** Refers to whether the proposition is AFFIRMING something or DENYING something of a subject. Quality is either:

- (a) Affirmative – Members of the subject ARE included in the predicate.
- (b) Negative – Members of the subject are NOT included in the predicate.

For instance, of the 4 kinds of categorical proposition we discussed above:

<b>Proposition</b>	<b>Quantity</b>	<b>Quality</b>	<b>Letter</b>
(1) All S are P.	universal	affirmative	A
(2) No S are P.	universal	negative	E
(3) Some S are P.	particular	affirmative	I
(4) Some S are not P.	particular	negative	O

*Note: For shorthand, it is common to refer to each of these types of proposition by a **letter**; Those letters are A, E, I, and O. They are listed above. Sometimes the textbook will talk about "A-propositions" for instance. These letters will come in handy later in this unit.*

**2. Distribution of Terms:** There is one more pair of terms to learn: **distributed** and **undistributed**. These apply to the subject terms and the predicate terms of categorical propositions. Basically, a subject term is "distributed" in a categorical proposition if that proposition tells us something about ALL of the things in the subject class. Similarly, a predicate term is "distributed" if the proposition tells us something about ALL of the things in the predicate class. Let's look at the four kinds one at a time:

- (1) All S are P. (e.g., "All dogs are mammals")

Subject term of (1) is distributed: This proposition tells us something about ALL of the things in the subject class. For instance, if the proposition is "All dogs are mammals," we know something about ALL of the mammals—namely, that they are dogs.

Predicate term of (1) is not distributed: Meanwhile, the proposition does NOT tell us something about ALL of the things in the predicate class. For instance, for “All dogs are mammals,” we do NOT know something about all of the mammals. There might be some mammals that are not dogs, for instance, and this statement doesn’t tell us anything about those other animals.

(2) No S are P. (e.g., “No dogs are reptiles”)

Subject term of (2) is distributed: Again, this proposition DOES tell us something about ALL of the things in the subject class. In the example given, it tells us something about ALL of the dogs—namely, it tells us that NONE of them are reptiles.

Predicate term of (2) is distributed: The proposition ALSO tells us something about ALL of the reptiles—namely, that the ENTIRE class of reptiles does not have any dogs in it.

(3) Some S are P. (e.g., “Some dogs are cute animals”)

Subject term of (3) is undistributed: This proposition does NOT tell us something about ALL of the dogs. It only tells us something about SOME of the dogs—namely, that SOME of them are cute. So, the subject term is NOT distributed.

Predicate term of (3) is undistributed: Similarly, the proposition ALSO does NOT tell us something about ALL of the cute animals. We only know that, SOME of the cute animals are dogs—but we do not know anything about the other cute animals (if there are any).

(4) Some S are not P. (e.g., “Some dogs are not potty-trained pets”)

Subject term of (4) is undistributed: Here, we do NOT have any information about ALL of the dogs—we only know that SOME of them are not potty-trained pets.

Predicate term of (4) is distributed: This is a LITTLE confusing: This statement DOES tell us something about ALL of the potty-trained pets (namely, that, out of the ENTIRE set of potty-trained pets, one or more dogs are not ANYWHERE in that set).

**3. Cheat Sheet:** Here is the table again, but with distribution added this time:

<b>Proposition</b>	<b>Quantity</b>	<b>Quality</b>	<b>Letter</b>	<b>Distribution</b>
(1) All S are P.	universal	affirmative	A	subject
(2) No S are P.	universal	negative	E	subject & predicate
(3) Some S are P.	particular	affirmative	I	none
(4) Some S are not P.	particular	negative	O	predicate

**Mnemonic Device:** Notice that the *subject* is distributed in each of the *universal* propositions, while the *predicate* is distributed in each of the *negative* propositions. Here is a way to remember this:

**“Unprepared Students Never Pass.”**

This sentence will help you remember that **U**niversal propositions distribute **S**ubjects, while **N**egative propositions distribute **P**redicates.

*Note: Do homework for section 4.2 at this time.*