All, Some, None, Are, Are Not

Categorical Proposition: A proposition (statement) that relates to classes (roughly, groups) or categories (roughly, groups larger than classes).

Though this definition of categorical proposition may sound odd, it is more intuitive than you may realize. Categorical propositions are denoted by being composed of a **subject term** and a **predicate term**.

Categorical Proposition Examples
Junk foods do not belong in school cafeterias. Many of today's unemployed have given up on finding work. Not all romances have a happy ending.

In the above examples, the subject terms are *junk foods*, *today's unemployed*, and *romances*. The predicate terms are *belong in school cafeterias*, *given up on finding work*, and *a happy ending*. This kind of sentence dissection should be somewhat familiar to you if you have done sentence diagramming, though it is substantially different (see the **Note** in the next paragraph).

It should be obvious, however, that there are more components to the above examples that merely the subject and predicate terms. For example, in the first proposition, how many junk foods are being claimed to not belong in school cafeterias? It would seem that there is an implicit understanding that it is **not** only some junk foods that are to be banned from schools. Rather, **no** junk foods are to be allowed in school cafes. Additionally, in the second example, only a portion of the total number of unemployed people are being picked out. Similar to the second, the third example makes an interesting claim because it is isolating only part of the total number of romances and claiming that they do not end well. Given that these kinds of words and phrases discuss a quantity of of the subject term, these words and phrases are called **quantifiers**. **Note**: this is a key difference between the subject-predicate relation in English grammar and the subject term - predicate term relation in our logical system. In English, the subject *includes* the quantifier and subject term as the entire subject; not so in this logic.

Finally, the last bit of these examples to discuss are called the **copula**. In Latin, copula means to couple together or to connect. These kinds of words in English link our subject and predicate terms together. In the first example, the coupla is *do not*; in the second, it is *have*; in the third, it is *have*. For our purposes, we will simply our forms of the verb *to be* and only allow *are* and *are not* as the permissible forms.

If we focus on the quantifiers, then we can see that there are four and only four standard forms that categorical propositions can take:	
There are those that claim that the entire subject class is included in the predicate class:	**All S are P**.
There are those that claim that only part of the subject class is included in the predicate class:	**Some S are P**.
There are those that claim that only part of the subject class is excluded from the predicate class:	**Some S are not P**.
There are those that claim that all of the subject class is excluded from the predicate class:	**No S are P**.

Notice that these four categorical forms are entirely unambiguous. There is no way to misunderstand what is being stated in each of the above four forms. Notice that this is not true of the following non-standard categorical form: **All S are not P**. This can be properly be understood as both **No S are P** and **Some S are not P**. As we'll in the next few classes, these two different claims have very different logical properties and so **All S are not P** is not a valid categorical proposition.

Can you see some connections between the different forms of categorical propositions?