

## 4.1. Categorical Sentences

**1. Categorical Sentences.** We now shift gears, turning to a different type of logic with an equally venerable heritage. While the logic of the last two chapters traces back to the work of the ancient Stoic logicians, the logic explored here finds its roots in the writings of Aristotle. But the guiding idea is the same as before: the validity or invalidity of an argument depends solely on its logical form. What changes is just the sort of logical form involved.

The following two arguments, for example, strike us as clearly valid.

Some risk-takers aren't gamblers.  
All risk-takers are people Jack wants to party with.

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∴ Some people Jack wants to party with aren't gamblers.

All bowlers are fans of bowling shirts.  
No goths are fans of bowling shirts.

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∴ No goths are bowlers.

Again we find formal skeletons underlying each arguments, which we can depict like so (using “G,” “H,” and “I” as blanks where subject the matter goes)

All **G** are **H**  
All **H** are **I**

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∴ All **G** are **I**

All **G** are **H**  
No **I** are **H**

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∴ No **I** are **G**

But note well what remains when subject matter is stripped away, and what disappears. The subject matter here comes not in the form of ‘atomic’ sentences, as in previous chapters, but **plural noun phrases** such as “gamblers,” “risk-takers,” and “goths”. Tradition calls such phrases the

**terms** of the sentences; and logic in the Aristotelean style is called **term logic** (rather than the sentence logic of previous chapters).

What remain after subject matter terms are stripped away are the words “All,” “Some,” and “No,” along with the generic connecting words “are” and “aren’t”. These constitute the English **form phrases** serving to string together the bits of subject matter.

[Subject and predicate terms]

Sentences of the form “All G are H” and “No G are H” are **universal sentences**, because they make claims about the entire ‘universe’ of a certain sort of object (the ‘Gs’): either an **positive** claim that everything in the group is H, or the **negative** claim that everything is non-H.

Indeed, the negative universal claim “No G are H” is equivalent to saying “All G are non-H,” and we will use this equivalence to simplify our presentation of Aristotelean logic.

We call sentences of the form “Some G are H” and “Some G are not H” **existential sentences**.<sup>1</sup> Again these sentences come in two varieties: the **positive** “Some G are H” and the **negative** “Some G are not H”. And we can hammer that latter, negative sentence into a form that parallels the universal negative

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<sup>1</sup> What we call existential sentences have traditionally been called particular sentences. But we reserve the term “particular” for a different sort of sentence, below; and “existential” better ties these sentences to the logic of Chapters Five and Six.

Taken together, these four sentence forms are the **categorical sentences**.

### Categorical Sentences

	Positive	Negative
Universal	<b>All G are H</b>	<b>(No G are H)</b> <b>All G are non-H</b>
Existential	<b>Some G are H</b>	<b>(Some G aren't H)</b> <b>Some G are non-H</b>

[2. Extended Categorical Form: negative subject terms as well as predicate]

[3. Translation Variations]

[Next reading: Square of Opposition]

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Again these sentences come in two varieties: either asserting that there's a G which is H, or that there's one which isn't H. So again

Universal and existential sentences. Positive and negative sentences.

into a special, rather straitjacketed family of sentences called **categorical sentences**.

**[1. Categorical Sentences.]** Aristotle (and the millennia of commentators who followed) focused on a special, quite restricted family of sentences built from the afore-mentioned

Each categorical sentence begins with a **quantifier** phrase – either “All” or “Some”. If the sentence begins with “All” its quantity is **universal**; it is a **universal sentence**. If the sentence begins with “Some” its quantity is **existential**.

Following the quantifier, a categorical sentence has two plural noun phrases. Each of these is a **term**. The two terms of a categorical sentence are linked by the word “are”. Here are some examples.

*All men are mortal beings.*

*Some men are mortal beings.*

Each term in a categorical sentence also has a **value**<sup>2</sup>. If the term begins with “non-” that term is **negative**; otherwise it’s **positive**.

**Positive Terms:**

men  
mortal beings

**Negative Terms:**

non-men  
non-mortal beings

The first term of a categorical sentence (between the quantifier and “are”) is the **subject** term. The second term of the sentence (after “are”) is the **predicate** term.

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<sup>2</sup> Something similar to “value” is been traditionally called “quality”. But quality applied to the entire categorical sentence, whereas value here applies to a single term. In this presentation, **sentences do not have values, only terms do**. However, if we restrict ourselves to the four traditional sentence-types discussed below, the value of the sentence is just the value of its **predicate** term.