1.2   Elements of a Formal Language

**formal
language**

Comment. To represent similarities among arguments of a natural language, logicians introduce formal languages. The first formal language we will introduce is the language of sentential logic (also known as propositional logic). In chapter 4 we introduce a more sophisticated language: that of predicate logic.

vocabulary

Definition. The **VOCABULARY OF SENTENTIAL LOGIC** consists of
- **SENTENCE LETTERS**
- **CONNECTIVES**, and
- **PARENTHESES**.

**sentence
letter**

Definition. A **SENTENCE LETTER** is any symbol from the following list:

$$A, \ldots, Z, A_0, \ldots, Z_0, A_1, \ldots, Z_1, \ldots$$

**sentence
variable**

Comment. By the use of subscripts we make available an infinite number of sentence letters. These sentence letters are also sometimes called **SENTENCE VARIABLES**, because we use them to stand for sentences of natural languages.

connectives

Definition. The **SENTENTIAL CONNECTIVES** (often just called **CONNECTIVES**) are the members of the following list:

$$\sim, \&, \vee, \rightarrow, \leftrightarrow.$$

Comment. The sentential connectives correspond to various words in natural languages that serve to connect declarative sentences.

tilde

$\sim$ The **TILDE** corresponds to the English 'It is not the case that'. (In this case the use of the term 'connective' is odd, since only one declarative sentence is negated at a time.)