Lesson #2: Simple Template Grammars

What's It All About?

A very simple linguistic model is presented in this lesson. It is intended to suggests the essential nature of more sophisticated models that will be considered in the course.

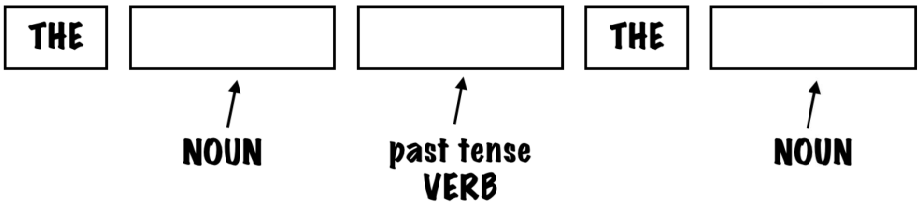
Perspective

Later this semester, we will consider a number of formalisms for modeling language, including **recursive transition networks** and **context free grammars**. For now, as a segue of sorts, we will consider a very simple **template grammar** for a very basic language.

Simple Template Grammar

A **language** is a set of strings of symbols defined over some vocabulary of symbols. A **grammar** is a finite specification of a language.

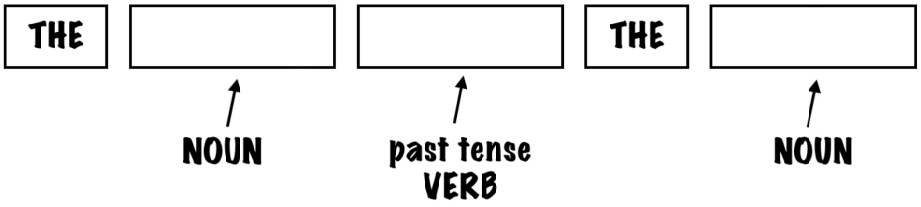
The following template is a grammar, since it defines a set of strings of symbols. The idea is very simple. Consider a string of words that matches template to be a sentence in the language being defined.



Do you think it is reasonable to consider this template to be a **model** for a language? Please answer yes or no, and, in a sentence or two, justify your answer.

Sentence Generation

Consider, again, the previously presented template grammar:

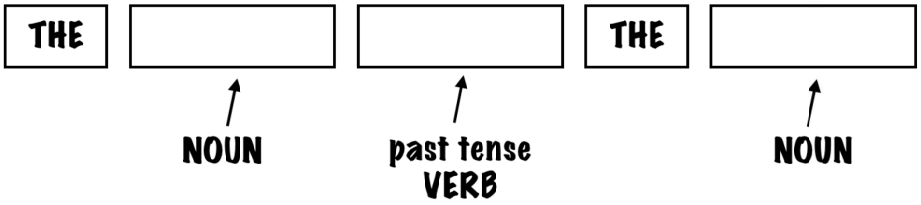


Please do this:

1. Place words in the boxes, any reasonable words that correspond to the specified lexical categories. Then, write down the resulting sentence.
2. Do it again, but for three different words.
3. And yet again, with three different words.

Sentence Recognition

Consider, yet again, the previously presented template grammar:



Which of the following strings of words are sentences in the language defined by this template?

1. THE FOOT KICKED THE BALL
2. THE BALL KICKED THE FOOT
3. THE APPLE ATE THE APPLE
4. THE APPLE APPLE THE APPLE
5. THE GIRL ATE THE PURPLE
6. THE GIRL ATE THE ORANGE
7. THE PROFESSOR DRANK A COFFEE

The Template Grammar is a Model

The template grammar can be used to generate the sentences in a language. It can also be used to recognize the sentences in a language. Consequently, the template grammar is a **model**!