

The Alysha Linguistic AI Project - Part A

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Introduction to project subtleties

The Alysha Linguistic AI project is a software project that I am writing to enable the development of a linguistic AI system. Because of this, the software package includes parts of the program that are not directly related to the linguistic AI aspect of the program. It can be informative to pay close attention to which parts of the program are for utility, versus which parts are for the linguistic AI programming.

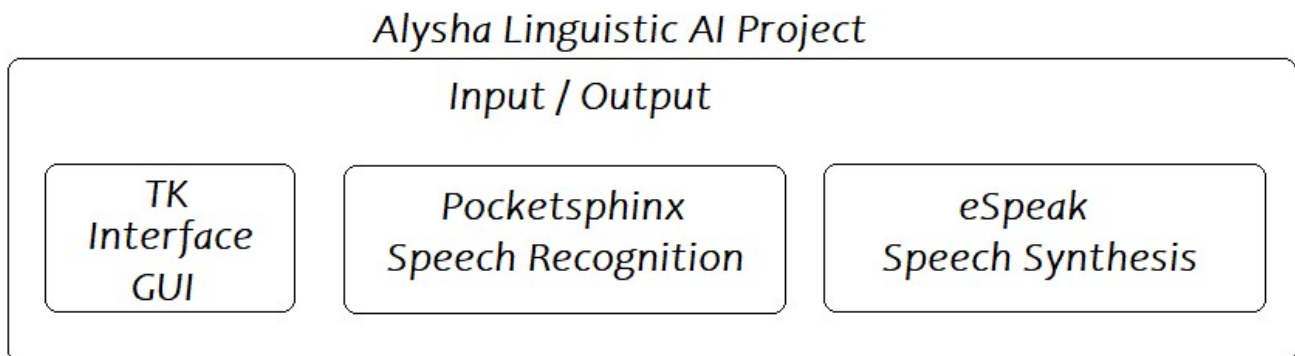
For this reason I would like to now divide the entire program into 2 sections A&B. A will consist of the input/output utilities while part B will consist of the actual linguistic dictionaries and their utility programs.

Part A the GUI I/O utilities

In order for this project to be programmable the programmer must have a user interface for the input and output of the program this will be done using a TKinter window as the graphic user interface

This interface is for the purpose of inputting and outputting words. These words have not yet been defined within the program. For now they are just meaningless words of letters associated with various phonemes or audible sounds, and that is the purpose of these speech recognition and speech synthesis programs. So this is just a necessary I/O utility for making the program usable.

We can depict this graphically as follows:



The Python TK interface GUI.

The python TK graphic user interface is a tool offered by the python programming environment to allow the programmer to have a graphical user interface for such things as typing in words and receiving words back from the program so this is just a utility program that the programmer uses to write interface with the main project program. This interface can be as simple as a keyboard and text display.

The CMU Pocketsphinx Speech Recognition Engine.

In addition to text input I'm also using a speech recognition engine called Pocketsphinx by Carnegie Mellon University. This replaces the text with a speech recognition engine and turns my speech into text. It does not define the meaning of any words and is just an input/output utility any speech recognition engine could do. This simply allows me to communicate to the robot using speech.

The eSpeak text-to-speech synthesizer.

This again is just another input/output utility program. This allows Alysha to translate her written words into synthesized speech so she can speak to me using audible language.

It is important to recognize that the above utilities are not part of the linguistic AI project directly. However they are very connected with the linguistic dictionaries because of the need for the speech synthesis translation dictionaries which these utilities must have maintained as new vocabulary is learned so they are an important part of the overall project in the larger scope of things.

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