Text-to-Speech Engine

Let's turn now to the third component of the virtual assistant abstract system: text-to-speech. A virtual assistant does not feel human if it replies to queries in the form of text output like that in the terminal application. You need Melissa to talk; and for that purpose, you need to use a TTS engine.

Different types of TTS are available for different platforms. Because TTS is native software that is OS dependent, this section discusses the software available for OS X and Linux-based systems, both of which are *nix-based. It is perfectly possible to program on a Raspberry Pi from the beginning, but for the sake of learning and testing, I am working on the laptop, as you may be, too. This approach allows you to work your way through the book even if you don't have a Raspberry Pi or if the Raspberry Pi you have ordered hasn't arrived just yet.

OS X

OS X comes preloaded with the `say` command, which allows you to access the built-in TTS without having to install any additional third-party software. The voice quality and dialect of `say` are among the best, and the response seems quite human and realistic.

To test the `say` command, open the command line and enter the following command:

```
$ say "Hi, I am Melissa"
```

If you have your speakers turned on or if you are listening via earphones, you can listen to your system speak these words out loud to you.

Linux

Some Linux distributions come with software called eSpeak preinstalled. However, other distributions, like Linux Mint, do not have eSpeak preinstalled. You can find the instructions to install the eSpeak utility on your system at `http://espeak.sourceforge.net`.

Once you have installed the eSpeak software, you can test it via the terminal by entering the following command:

```
$ espeak "Hi, I am Melissa"
```

This causes your system to speak whatever you have written. Note that eSpeak is not as impressive as OS X's `say` command; the voice quality is robotic and has a strange accent. Despite this, I have included eSpeak because of its small size. You can use any other TTS engine if you want to and edit the code of the TTS engine that you write shortly accordingly.