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Basic Text

For a chapter dealing with words, this one won't be too wordy. See? It even has a short introduction. You're going to learn to use the TEXT block to give your robot the ability to combine text into sentences and letters into words.

The TEXT Block

Mindstorms NXT robots can make a lot of noise using the SOUND block. But if you want to give your robots control over the written word, you'll need to understand the TEXT block and how to use it properly (see Figure 19-1).
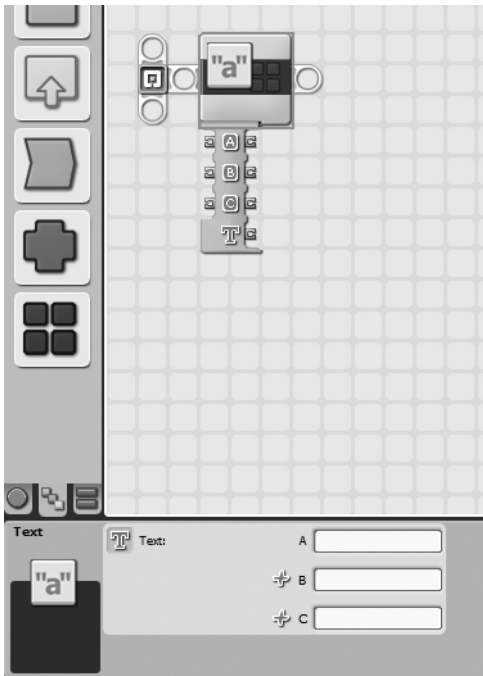
Figure 19-1. *The TEXT block and its configuration panel*

Here's another programming word for you to add to your list: *string* (and I don't mean the kind you use to fly a kite).

"String" is a term that's been around in programming circles forever and is fairly simple to define. A string is a collection of letters, numbers, spaces, special characters, or a combination of any of them. Here are five examples:

- THISISASTRINGOFTEXT

- So is this.

- 123456789

- !@#$%^&*( )

- These are all strings, including this one.

The reason I've introduced you to the concept of a string is that the TEXT block has the ability to take up to three different strings and merge them into one larger string value.

Look again at Figure 19-1. The TEXT block can hold three string values: A, B, and C. Notice that all three strings can be entered manually (by you, the programmer) or they can be submitted to the TEXT block using the input data plugs. Also, keep in mind that the value A will always be on the far left, B in the middle, and C on the right. You cannot change the order in which the three strings will be combined.

As an example, take a look at Figure 19-2.
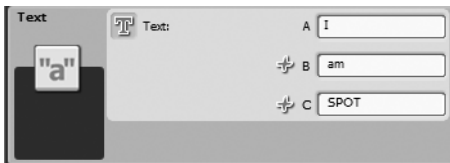
Figure 19-2. *Three string values for the TEXT block*

For value A, the text I entered is "I", with no spaces. Value B contains " am" (with a leading space), and value C is " SPOT" (with a leading space). The leading spaces will keep the combined text from looking like "IamSPOT"; instead, the combined text will look like "I am SPOT" when displayed on the screen. Once the text items are combined, how do I display the new string on the screen? I'll first add in a DISPLAY block to show the text on the screen (see Figure 19-3). I drag a wire from the output Text data plug (of the TEXT block) into the input Text data plug (on the DISPLAY block). The output Text data plug provides the combined text from A, B, and C.
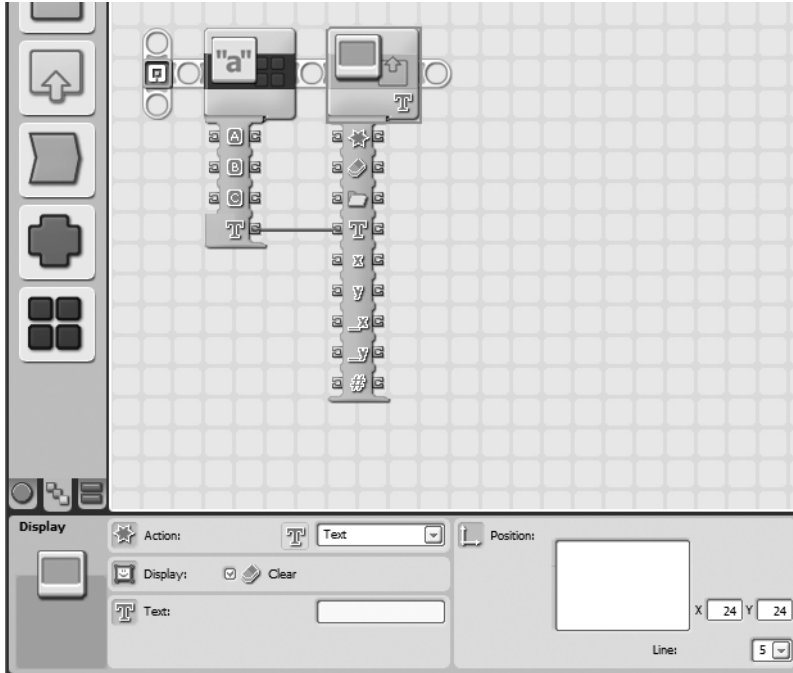
Figure 19-3. *Three string values combined and sent to the DISPLAY block*

Next, I add a TIME WAIT block, so I can view the text before the program ends and the text disappears; I'll configure the WAIT block for 10 seconds (see Figure 19-4).
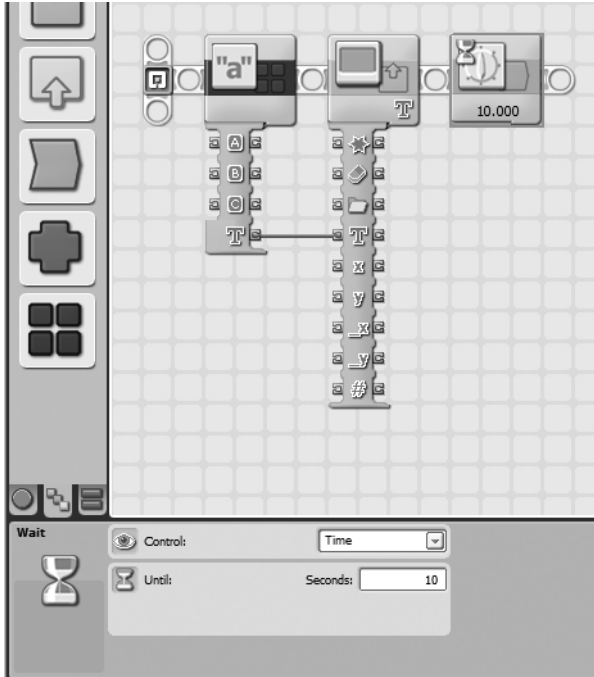
Figure 19-4. *This WAIT block gives me time to view the results on the screen.*

When I run the program, it now displays "I am SPOT" on the LCD screen. Earlier in the book (in Chapter 18), I showed you how to use the VARIABLE block. You could use this block to send text to the TEXT block using the input data plugs (A, B, and/or C). To do this, you would configure three VARIABLE blocks to each hold a bit of text. Drag a wire out of each VARIABLE block into ports A, B, and C and let the TEXT block do the rest!

Continue on to the next chapter, where I'll show you how to program your robot with some basic math skills.