By Robert W. Lucky

Engineering Expressiveness

I keep hearing an ad on a local radio station touting a course that will give you a "million-dollar vocabulary." According to the ad, after only a few hours of studying the course material, you will be using big, powerful words that will impress people with your intelligence.

The thought occurs to me that we could fix this shortcoming in written communication. Your word processor could come up with a helpful pop-up. "I see you're using small words, like 'pay,' " it would say. "Perhaps you'd like to substitute the word 'remuneration.' "

This got me to thinking once again about how computers have changed the way we engineers communicate in writing and in planning presentations. A few readers will remember the Dark Ages, when we had to send memos to the typing pool and Vu-graphs to the art department. How constraining that was! Words and drawings were frozen in the virtual concrete of expensive ink-drawn lines and multiple carbon copies. Just the thought of this today gives me an involuntary shiver.

Personal computers and word processors enabled us to do our own publishing, but the widespread availability of LCD projectors changed things again. Now memos and presentations are infinitely malleable, existing only for the fleeting instant of actual observation, like the collapse of a wave function in quantum mechanics when a measurement is performed. Prior to the observation, the presentation exists only in an indeterminate state—like Schroedinger's cat, neither alive nor dead—subject to instant changes, depending on sudden whims or something said by a previous speaker.

So now we have this wonderful, expansive freedom to express ourselves—a freedom limited by only two things. The first is our knowledge of Microsoft Word and PowerPoint and similar programs. Since the products of this type of software are the lingua franca of engineering communication, it would seem that the ability to express yourself would be a function of your knowledge of the features of these programs.

In my experience, however, engineers never take courses in word processing. In fact, we never even read the manuals. Furthermore, I often find that even the help functions in these programs turn out to be useless. I don't know how many times I've tried to do something in PowerPoint (usually some variation of a chart or table) and have given up after 5 or 10 minutes and just left that material out. I debate with myself—is it worth trying to learn this feature or not? "Not" usually wins. So I confess: sometimes I am PowerPoint-challenged.

Even as I confess this shortcoming, I am defensive. Maybe not knowing all the features is a good thing. I said earlier that two things limited our expressiveness. The first is our knowledge of features, but the second is the set of expectations that have been established through common practice. I find this most curious. On the one hand, computers have given us this vast freedom of expression, but at the same time they have established a pattern of conformity that has narrowed the range of expression to a tiny sliver. Said more succinctly: all PowerPoint presentations look the same.

Well, let me rephrase that last statement: all good PowerPoint presentations look alike. On one end of the spectrum are the poor presentations by PowerPoint illiterates, while on the other end are the presentations by PowerPoint showoffs, who are more interested in demonstrating their graphics than in getting their points across. Somewhere in the middle is the golden mean of about five bullets or one picture per slide. I get really edgy when speakers clutter up their slides with all sorts of seemingly irrelevant material.

So are the writers of these word processing programs going to take this bad usage lying down? Of course not. Future programs will take care of all of this. First there was bad spelling. Now spell-checking is ubiquitous. Then they took on grammar. In my opinion, the grammar checker hasn't been perfected yet, but it will be. Then they'll start to look at our math, providing corrections and helpful suggestions. Maybe the paper clip helper will pop up and suggest that it could provide a proof for a certain equation if you'd like.

There's no stopping this evolution. Today you have your choice of fonts, such as Times New Roman or Bookman Old Style. But in the future, you could have your choice of writing styles. The paper clip would ask whether you would prefer this in the style of Hemingway, or perhaps in the style of Dickens.

PowerPoint would begin to criticize our usage. "This slide is confusing," the paper clip would say. "Might I try redoing this for you to provide clarity?"

In the final stages, before the user revolution occurs, word processing programs would begin to criticize our ideas. "Let me give a counterargument," the paper clip would begin.

Suggesting big, powerful words is only the beginning. The camel's head is poking into the tent. As computers empower our expressiveness, they also plot to take it away. ■

ARTHUR GIRON