Mind your language

GEISLER

There is one thing worse, for a test engineer, than getting bad data. That is, getting bad data as a result of giving bad instructions. Getting the instruction correct from a technical standpoint can be hard enough. This is a challenge to which designers and engineers are rightly committed. But even then there is a danger of being undone simply by imprecise language.

In the fictitious examples below I shall endeavor to show how easy it is to ask the right question in the wrong way, such that it can be misunderstood.

Let's start with vagueness. You don't set out to give a vague instruction, but what if the scenario is so familiar that you use shorthand? Surely you can expect the recipient to understand what you mean? For example, this dialogue from the airline industry should, hopefully, never happen:

Ganda: VSO4 Heavy, this is Ganda Control. What is your position?

VSO4: Roger Ganda Control this is VSO4 Heavy, I am in an airplane.

Ganda: VSO4 Heavy. What is your precise location?

VSO4: Roger Ganda Control, this is VSO4 Heavy. I am on the flight deck.

Ganda: Very amusing VSO4 Heavy, where is the plane?

VSO4: Roger Ganda Control, this is VSO4 Heavy. It's in the sky.

A vague interrogation can lead to imprecise data. In computer parlance: garbage in – garbage out.

At least in the above example the defective nature of the data is clearly apparent. In the next example the problem is ambiguity. Here we really see how language can be a sinister agent.

Suppose your facility has been retained to do some engine compression tests on a dozen aging diesel-powered trucks. These ten-year-old units have one main oil seal which is vulnerable to a recognized wear pattern. In view of the potential overstress in the intended test, it is decided to put a new seal into each unit as part of the test setup. The following language appears within the written instruction that you give to your technicians: "Tighten head gasket, replace oil seal and deliver to Lab 3."

The testing suffers frequent interruptions and renders suspect data. Oil seals are failing and the program is suspended. An investigation reveals that none of the oil seals were replaced. Your instruction was ambiguous. The technicians did what they thought you meant. In each case they tightened the head gasket, replaced the oil, and then sealed the engine by securing the oil filler cap. From a grammatical standpoint, their interpretation would be correct if you had put a comma after the word oil. But, from a practical standpoint, you have a dozen oily trucks to clean and a week's testing is lost. Ambiguity can do all that to you and worse.

This is why lawyers have a particular fondness for commas. A full stop can go in one place in a sentence. A comma can go in a variety of locations or none. Commas to lawyers are like decimal points to engineers: where we deploy them really matters.

As I have mentioned in these pages before, the one true law is Murphy's law. Just as bread always falls butter side down, so a technician or engineer, given an ambiguous instruction, will always pick the wrong interpretation. That being so, here are a few preventative tools: 1) The best form of communication is always face to face. Writing a note is a good follow-up but a poor substitute. 2) Proofread everything; think of it as a validation test. 3) Lawyers and criminals share a dislike of long sentences – you should too. 4) If it could be a list then it should be a list. 5) Above all, watch out for Murphy's law.

So much for the importance of language in internal communications. But what if they cease to be just internal? In a future column I shall explore what happens to your documents if there is a dispute. It turns out that there is one thing worse, for a test engineer, than getting bad data as a result of giving badly written instructions. That is, getting a bad day in court as a result of giving badly written instructions. ■

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