

Puzzle for October 30, 2006

The Perfect Antivirus

by Dr. Solly

I shall now give you, free of charge, an antivirus that if used correctly, detects all past, present and future viruses, never gives a false alarm, and has a zero cost. Skeptical? Then watch carefully ...

```
program P1.BAT:
Echo %1 is infected by a virus!!!
```

You'll agree, I think, that *P1.BAT* will detect all past present and future viruses. That alone meets the “mathematically impossible” task! But, I hear you thinking, aren't there rather a lot of false alarms? Well, you didn't say you wanted a low false alarm rate....

OK, OK. I'm used to projects where the user specification changes in the middle. Never mind. I can deal with the false alarms ...

```
program P2.BAT:
Echo %1 is NOT infected by a virus!!!
```

You'll agree, I think, that *P2.BAT* will never, ever, tell you that you have a virus when you don't. Of course, it has a pretty poor detection rate. I admit that. But I can fix it. See here ...

```
program PERFECT.BAT:
Echo Is %1 a virus? (Y/N)
```

If the user types “Y”, you run *P1.BAT*. If the user types “N”, you run *P2.BAT*. Remember what I promised you? An antivirus that *if used correctly*, detects all past, present and future viruses, never gives a false alarm, and has a zero cost.

All very amusing, but what can we learn from this?

1. If something is superb at detecting viruses, it's no use if it gives a lot of false alarms.
2. Anything that relies on the user to make a correct decision, on matters that he is not likely to be able to decide about, is useless.
3. You can receive something that is *exactly* what the salesman promised to deliver, and it's nevertheless useless.