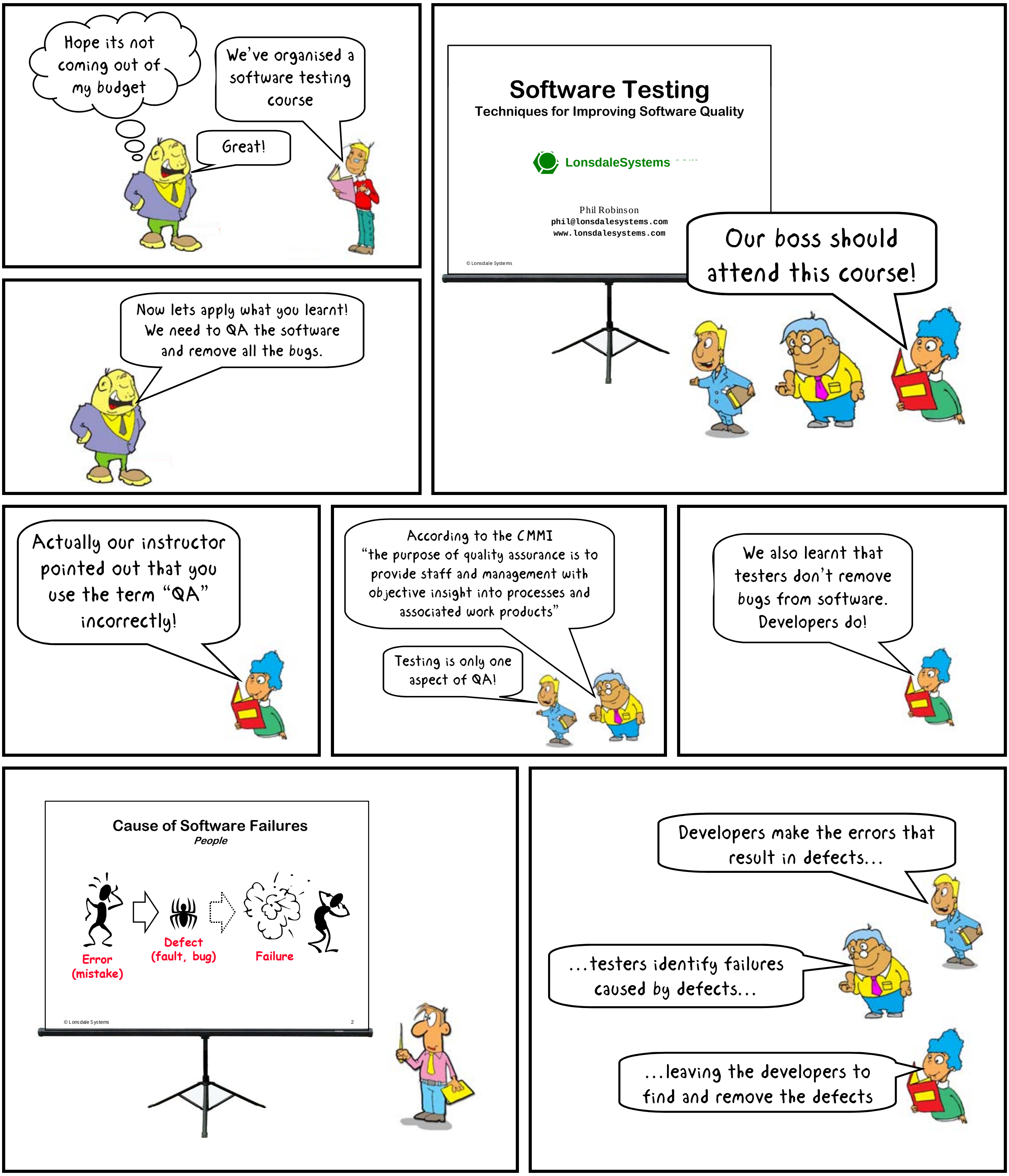
What Your Boss Needs to Know About Software Testing

Phil Robinson


Hope its not coming out of my budget
We've organised a software testing course
Great!
Now lets apply what you learnt! We need to QA the software and remove all the bugs.
Software Testing
Techniques for Improving Software Quality
LonsdaleSystems
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Our boss should attend this course!
Actually our instructor pointed out that you use the term "QA" incorrectly!
According to the CMMI "the purpose of quality assurance is to provide staff and management with objective insight into processes and associated work products"
Testing is only one aspect of QA!
We also learnt that testers don't remove bugs from software. Developers do!
Cause of Software Failures
People
Error (mistake)
Defect (fault, bug)
Failure
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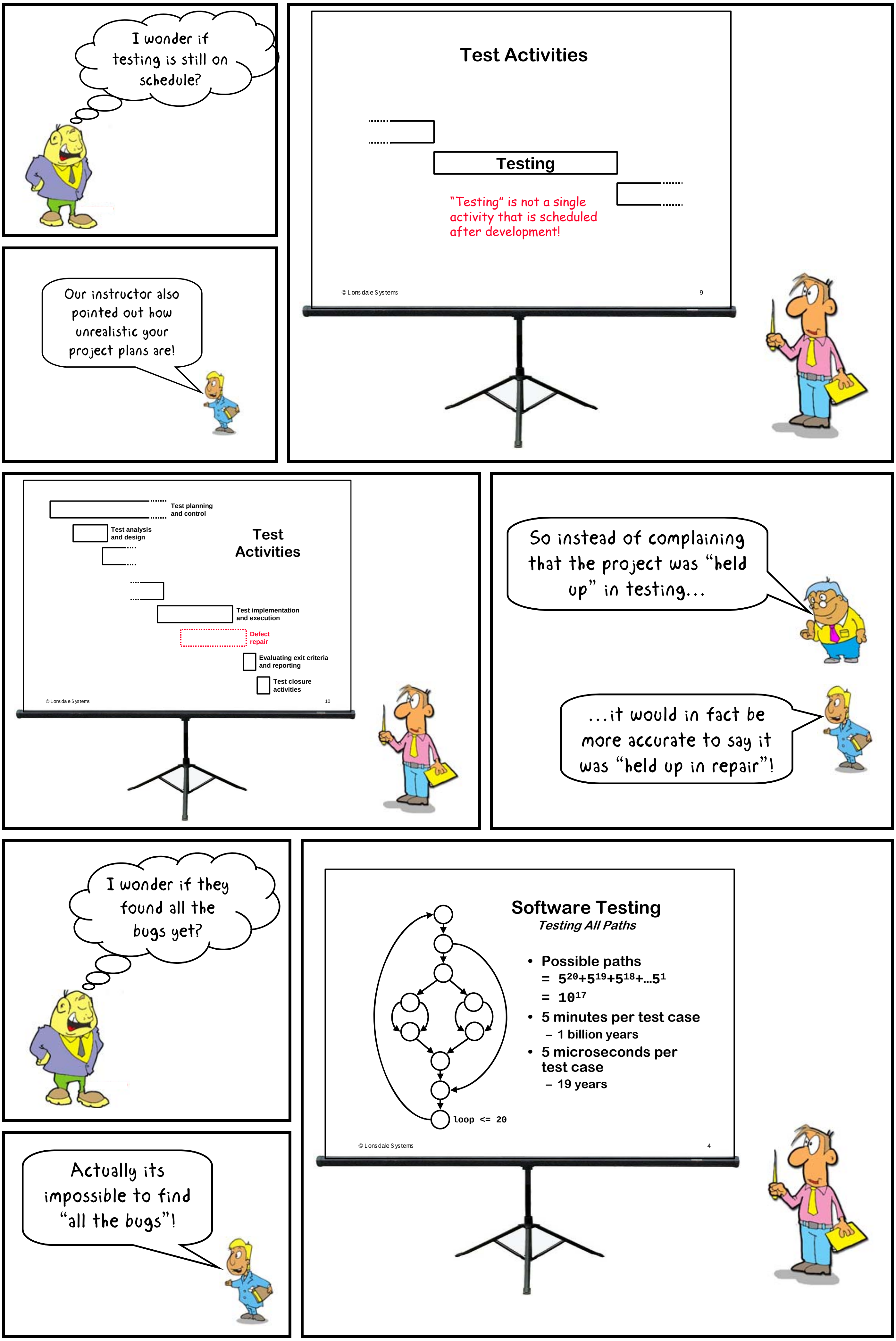
Developers make the errors that result in defects...
...testers identify failures caused by defects...
...leaving the developers to find and remove the defects


I wonder if testing is still on schedule?
Our instructor also pointed out how unrealistic your project plans are!

Test Activities

Testing

"Testing" is not a single activity that is scheduled after development!

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Test planning and control

Test analysis and design

Test Activities

Test implementation and execution

Defect repair

Evaluating exit criteria and reporting

Test closure activities

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So instead of complaining that the project was "held up" in testing...
...it would in fact be more accurate to say it was "held up in repair"!
I wonder if they found all the bugs yet?
Actually its impossible to find "all the bugs"!

Software Testing

Testing All Paths

- Possible paths
  - = $5^{20}+5^{19}+5^{18}+\ldots5^{1}$
  - = 10^{17}
- 5 minutes per test case
  - 1 billion years
- 5 microseconds per test case
  - 19 years

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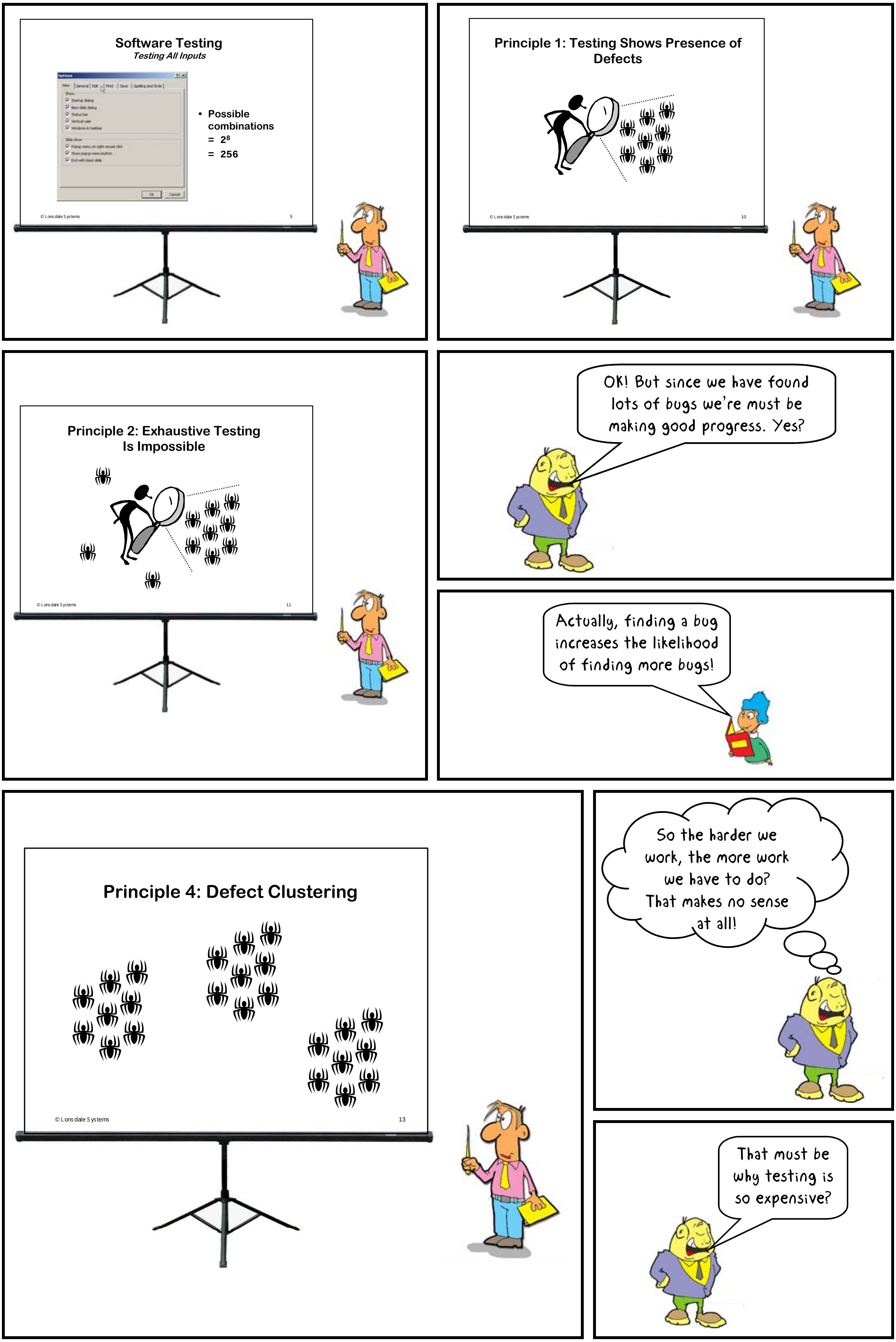
Software Testing
Testing All Inputs
• Possible combinations
= 2^8
= 256
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Principle 1: Testing Shows Presence of Defects
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Principle 2: Exhaustive Testing Is Impossible
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OK! But since we have found lots of bugs we're must be making good progress. Yes?
Actually, finding a bug increases the likelihood of finding more bugs!
Principle 4: Defect Clustering
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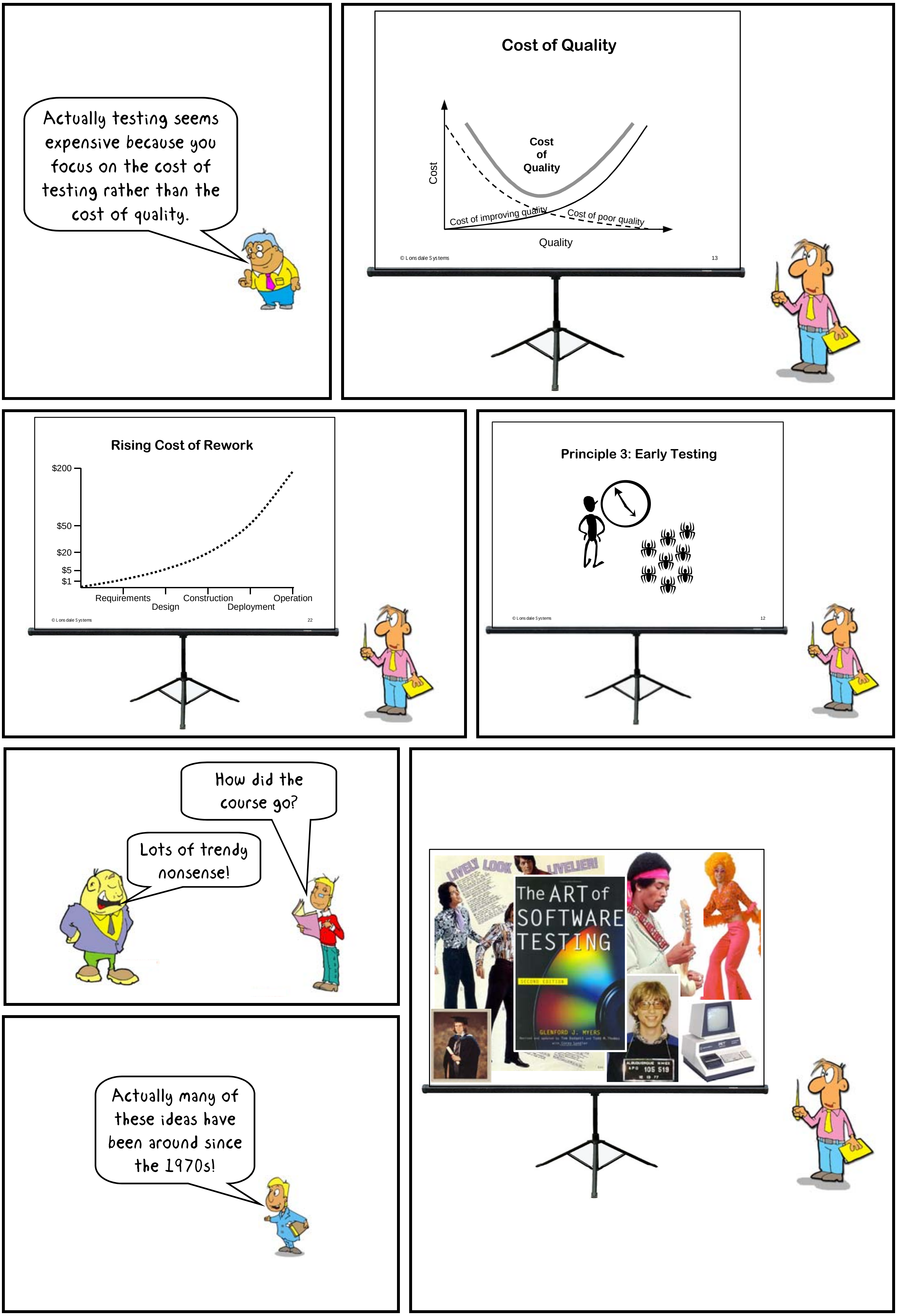
So the harder we work, the more work we have to do? That makes no sense at all!
That must be why testing is so expensive?



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