

Black Box Software Testing

(Professional Seminar)

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Section:16

Regression Testing

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Regression Testing

Tag line

- “Repeat testing after changes.”

Fundamental question or goal

- Manage the risks that (a) a bug fix didn't fix the bug or (b) the fix (or other change) had a side effect.

Paradigmatic case(s)

- Bug regression (Show that a bug was not fixed)
- Old fix regression (Show that an old bug fix was broken)
- General functional regression (Show that a change caused a working area to break.)
- Automated GUI regression suites

Strengths

- Reassuring, confidence building, regulator-friendly

Regression Testing

Blind spots / weaknesses

- Anything not covered in the regression series.
- Repeating the same tests means not looking for the bugs that can be found by other tests.
- Pesticide paradox
- Low yield from automated regression tests
- Maintenance of this standard list can be costly and distracting from the search for defects.

Automating Regression Testing

This is the most commonly discussed automation approach:

- create a test case
- run it and inspect the output
- if the program fails, report a bug and try again later
- if the program passes the test, save the resulting outputs
- in future tests, run the program and compare the output to the saved results. Report an exception whenever the current output and the saved output don't match.

Potential Regression Advantages

- Dominant paradigm for automated testing.
- Straightforward
- Same approach for all tests
- Relatively fast implementation
- Variations may be easy
- Repeatable tests

The GUI Regression Automation Problem

**Prone to failure because of difficult financing,
architectural, and maintenance issues.**

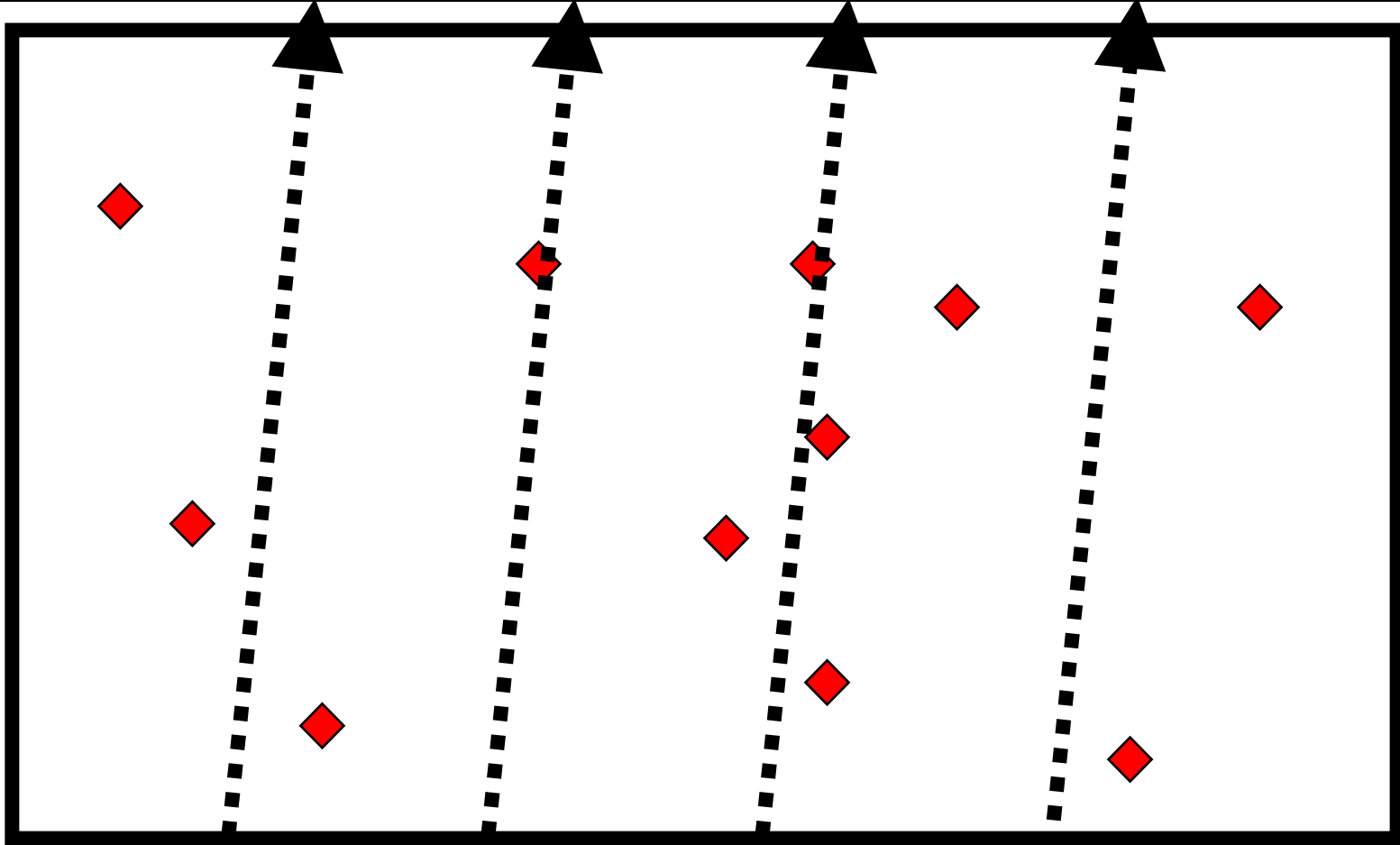
**Low power (in its traditional form) even if
successful.**

Extremely valuable under some circumstances.

***THERE ARE MANY ALTERNATIVES THAT CAN BE
MORE APPROPRIATE UNDER OTHER
CIRCUMSTANCES.***

If your only tool is a hammer, everything looks like a nail.

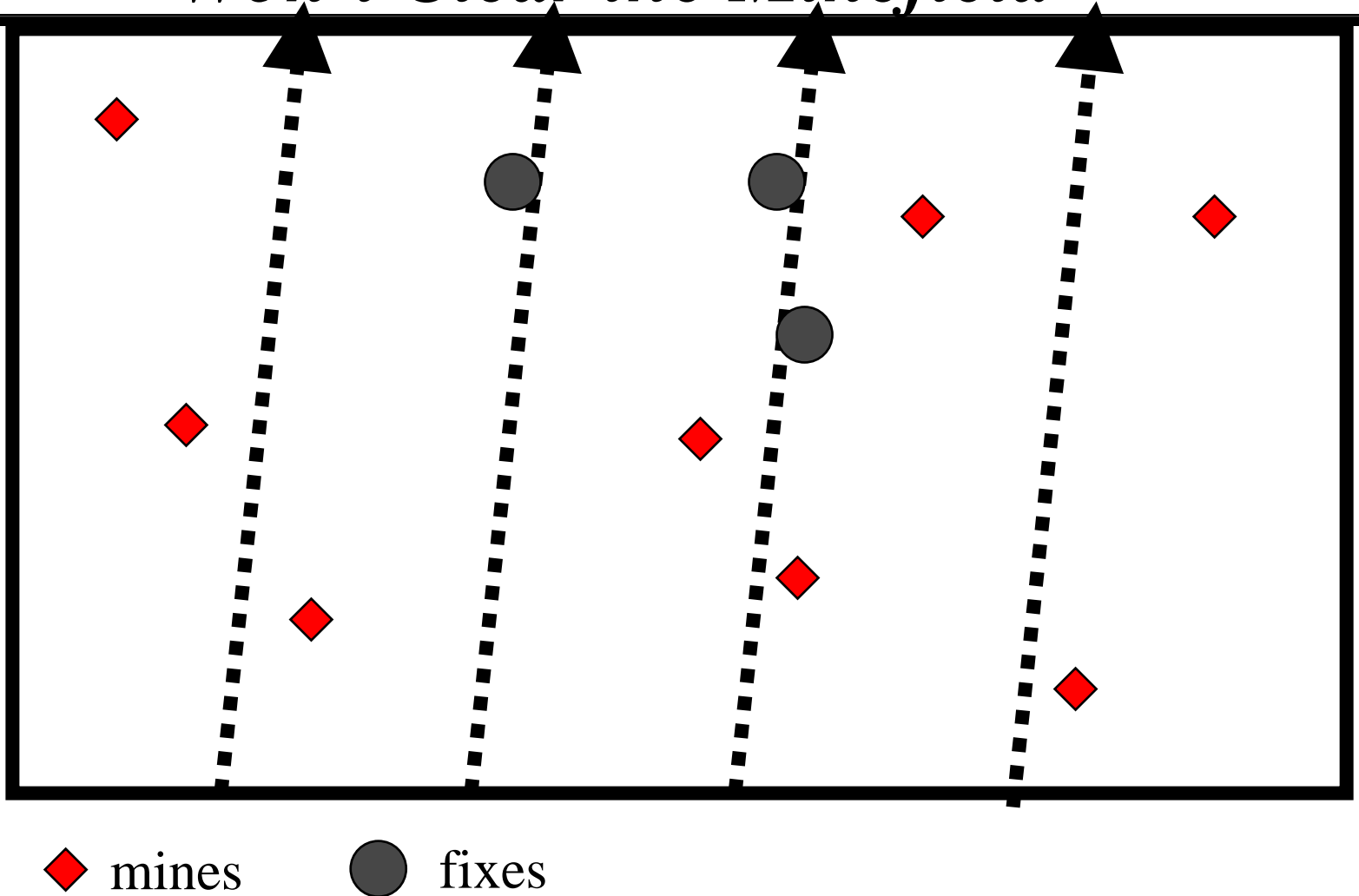
Testing Analogy: Clearing Mines



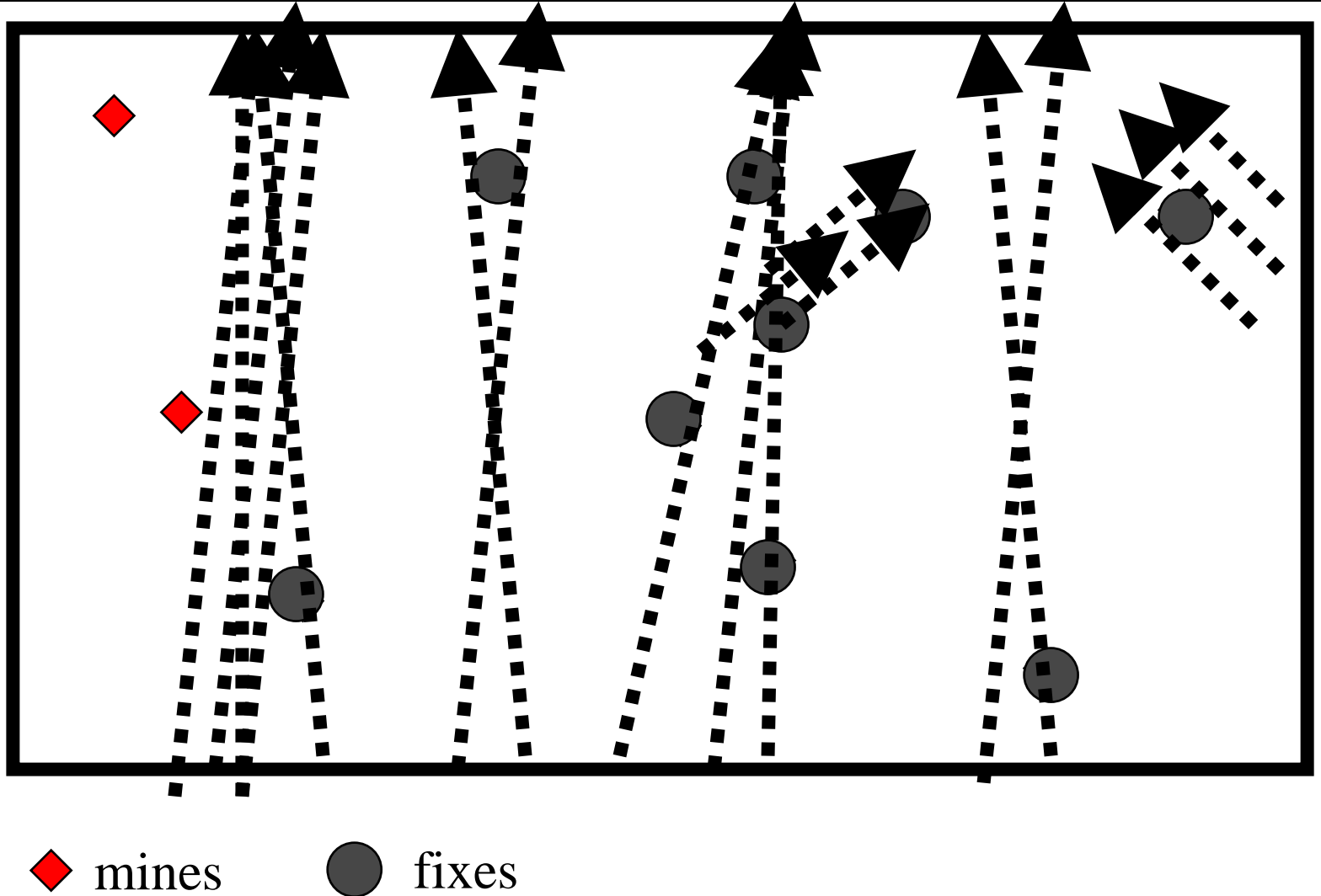
◆ mines

This analogy was first presented by Brian Marick.
These slides are from James Bach..

Totally Repeatable Tests Won't Clear the Minefield



Variable Tests are Often More Effective



GUI Regression Strategies: Some Papers of Interest

- **Chris Agruss, Automating Software Installation Testing**
- **James Bach, Test Automation Snake Oil**
- **Hans Buwalda, Testing Using Action Words**
- **Hans Buwalda, Automated testing with Action Words: Abandoning Record & Playback**
- **Elisabeth Hendrickson, The Difference between Test Automation Failure and Success**
- **Cem Kaner, Avoiding Shelfware: A Manager's View of Automated GUI Testing**
- **John Kent, Advanced Automated Testing Architectures**
- **Bret Pettichord, Success with Test Automation**
- **Bret Pettichord, Seven Steps to Test Automation Success**
- **Keith Zambelich, Totally Data-Driven Automated Testing**

Sample Exam Questions

What is regression testing? What are some benefits and some risks associated with regression testing? Under what circumstances would you use regression tests?

Sample Exam Questions

Why is it important to design maintainability into automated regression tests? Describe some design (of the test code) choices that will usually make automated regression tests more maintainable.

