

Black Box Software Testing

(Academic Course - Fall 2001)

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Section: 12 :

Regression Testing Paradigm

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Black Box Software Testing

Regression Testing Paradigm

- Assigned Reading:
Marick, *How Many Bugs Do Regression Tests Find?*
- Suggested Readings
Hendrickson, *Difference Between Test Automation Failure & Success*
Kaner, *Avoiding Shelfware: A Manager's View of GUI Test Automation*
Pettichord, *Success with Test Automation*

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.

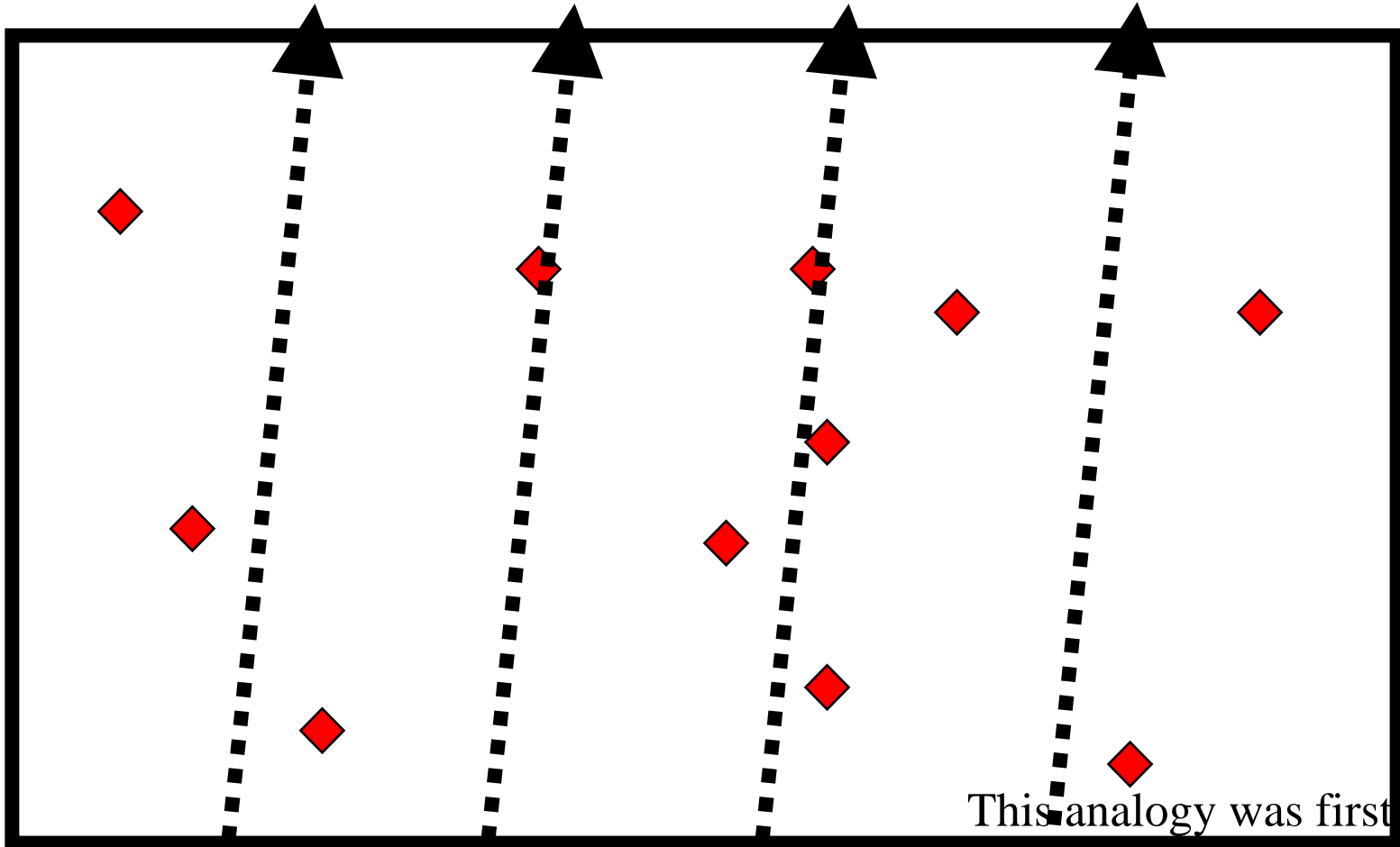
Potential Regression Advantages

- 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.*

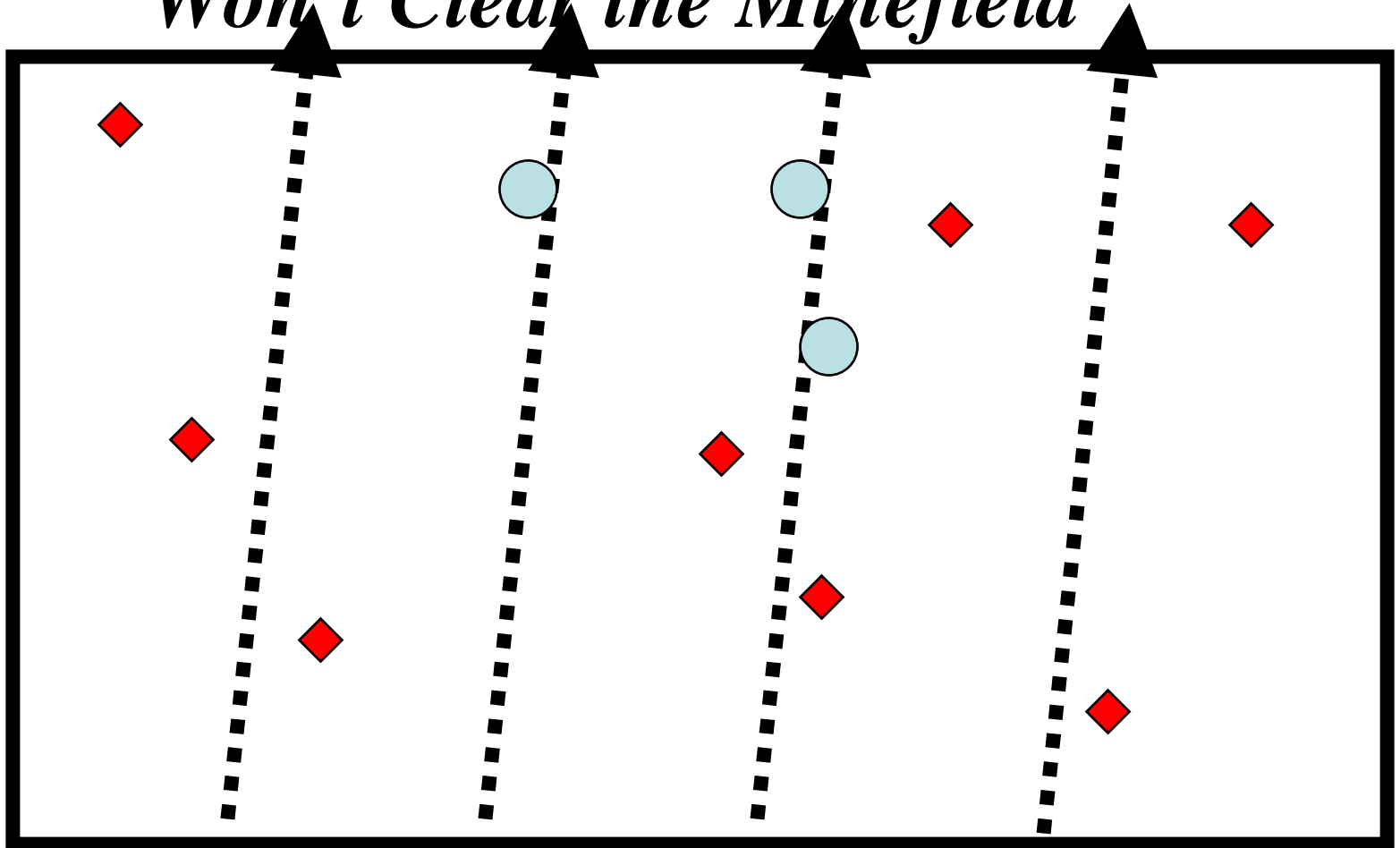
Testing Analogy: Clearing Mines



◆ mines

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

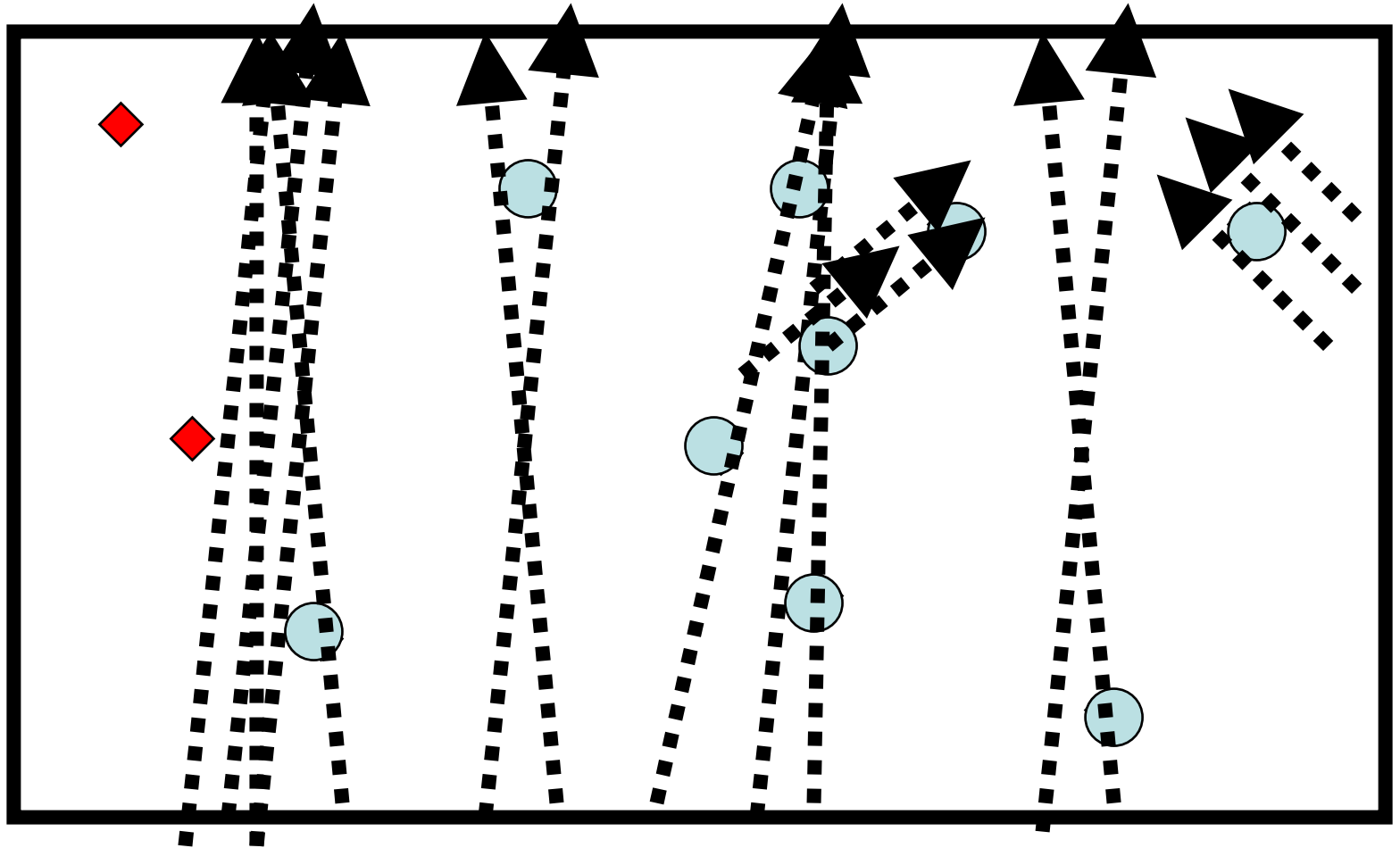
Totally Repeatable Tests Won't Clear the Minefield



◆ mines

● fixes

Variable Tests are Often More Effective



◆ mines

● fixes

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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