

An Exploration into the Current State of Test-First vs. Test-Last Testing

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2013 Fall Senior Seminar

The big picture

- Developmental plasticity: a powerful source of flexibility in biology
- Most EC & GP systems don't have a developmental phase
- Even fewer allow for plasticity during development
- N-gram GP has natural developmental phase
- Can we add plasticity?



Bluedrakon

<http://tr.im/pWU1>

Outline

- 1 Background
- 2 Comparison Between Test-First and Test-Last Testing
- 3 Different ways of Implementing Test-First Testing
- 4 Summary

Outline

- 1 Background
 - What is testing?
 - Test-Last Testing and Waterfall Development
 - Test-First Testing and Test Driven Development
- 2 Comparison Between Test-First and Test-Last Testing
- 3 Different ways of Implementing Test-First Testing
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Software Testing Defined

Waterfall Development

Test-Last Testing

Agile Software Development

Test Driven Development

Test-First Testing

Outline

- 1 Background
- 2 Comparison Between Test-First and Test-Last Testing
 - Perception of Test-First vs Test-Last
 - Current Data
 - Discussion
- 3 Different ways of Implementing Test-First Testing
- 4 Summary

Perceptions from a Pro Test-First User

Perceptions from a Pro Test Last User

Study by Kollanus

Test-First vs Test Last Study

In 2012 Lemos et al preformed an experiment comparing test-first and test-last testing with auxiliary functions (10-200 lines of code).

In the study, Lemos had 39 third year computer science students with basic test-first and test-last knowledge solve coding problems using test-first or test-last development methodologies.

After the study was completed Lemos found that Test-First testing:

- produced 40% more code coverage than test-last testing
- took 12% longer to implement then test-last testing
- Did not produce more effective code quality

Contradictory Studies

Conclusions

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- 1 Background
- 2 Comparison Between Test-First and Test-Last Testing
- 3 Different ways of Implementing Test-First Testing
 - The challenges of Test Driven Development
 - Acceptance Test Driven Development
 - Behavior Driven Development
- 4 Summary

Difficulty of TDD

Acceptance Test Driven Development (ATTD)

Behavior Driven Development (BDD)

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Conclusions