

Bonn Agile Meetup

eXtreme Programming.
Kanban.
Scrum.

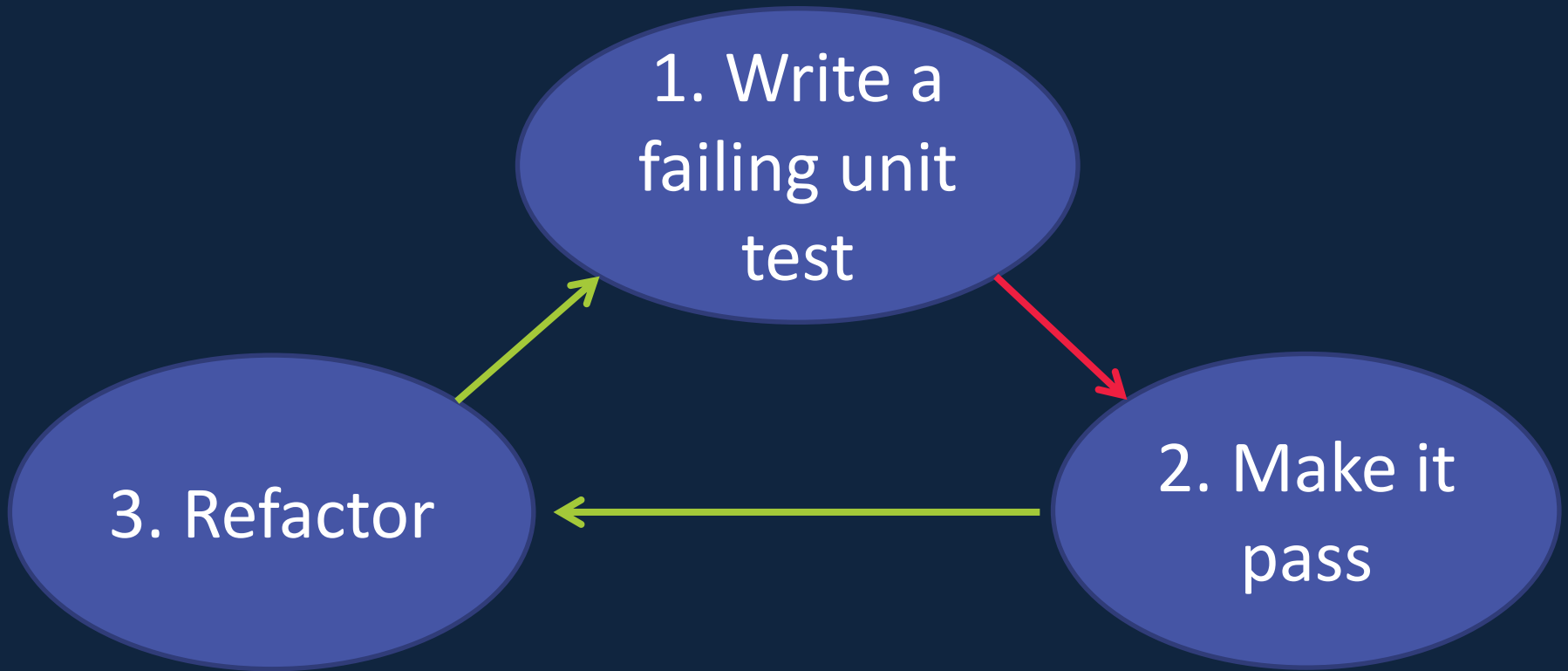
Jan Nonnen

Test Driven Development

Introduction ▶ Once upon a time...



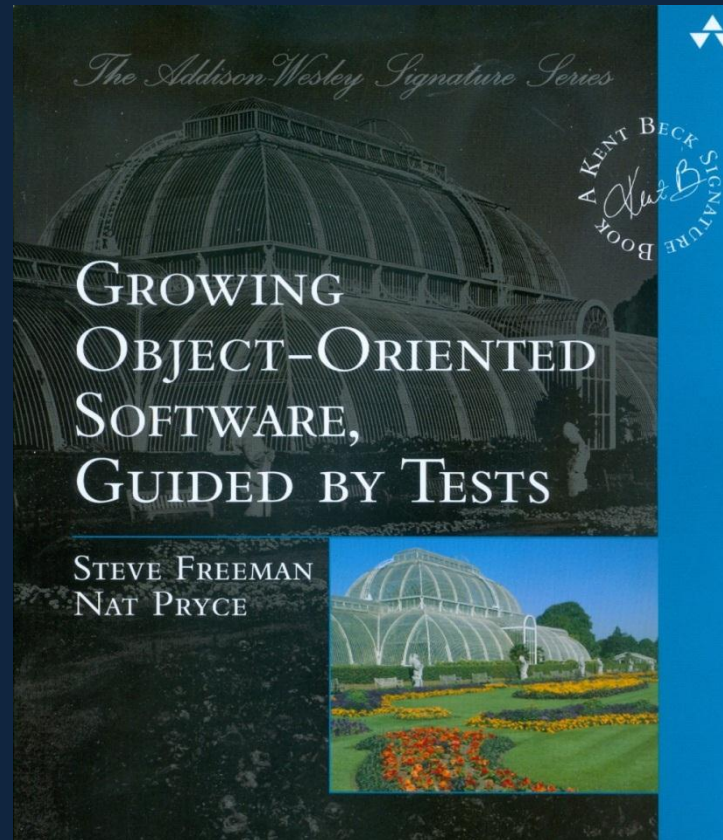
TDD ▶ Core Rules



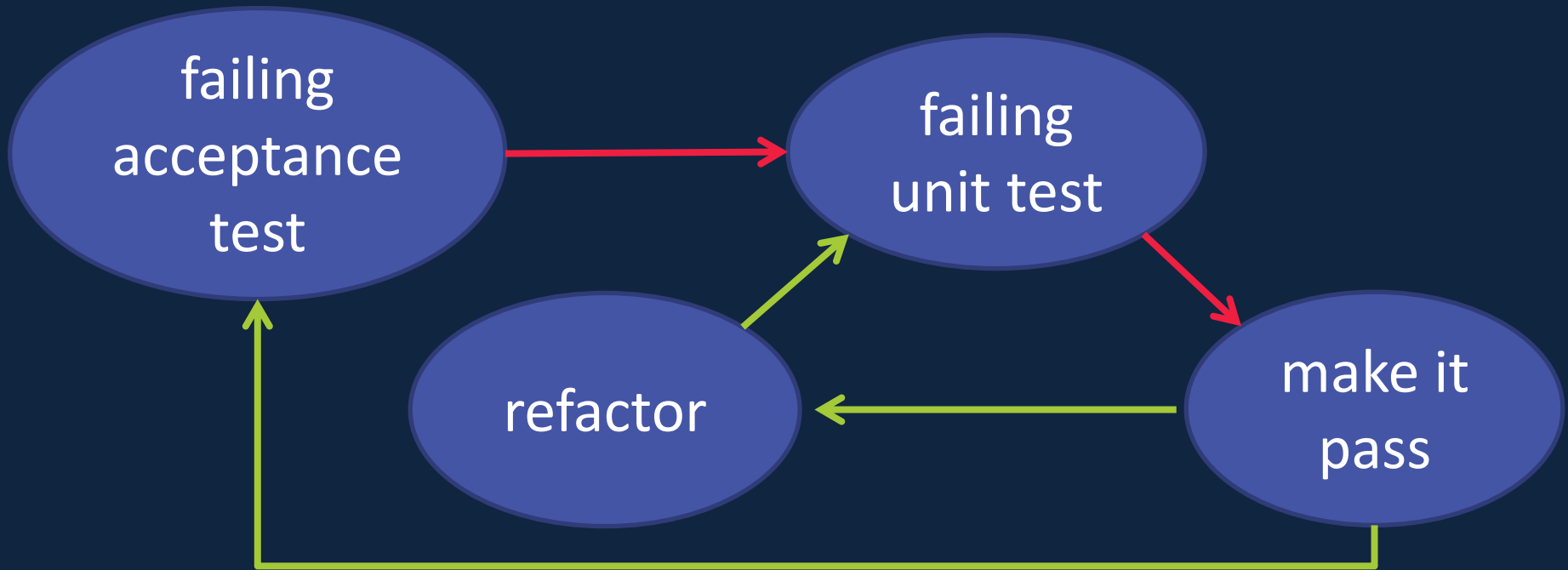
Never write new functionality
without a failing test

Golden TDD Rule

TDD ▶ „GOOS“ Book



Introduction ▶ **Bigger Picture**



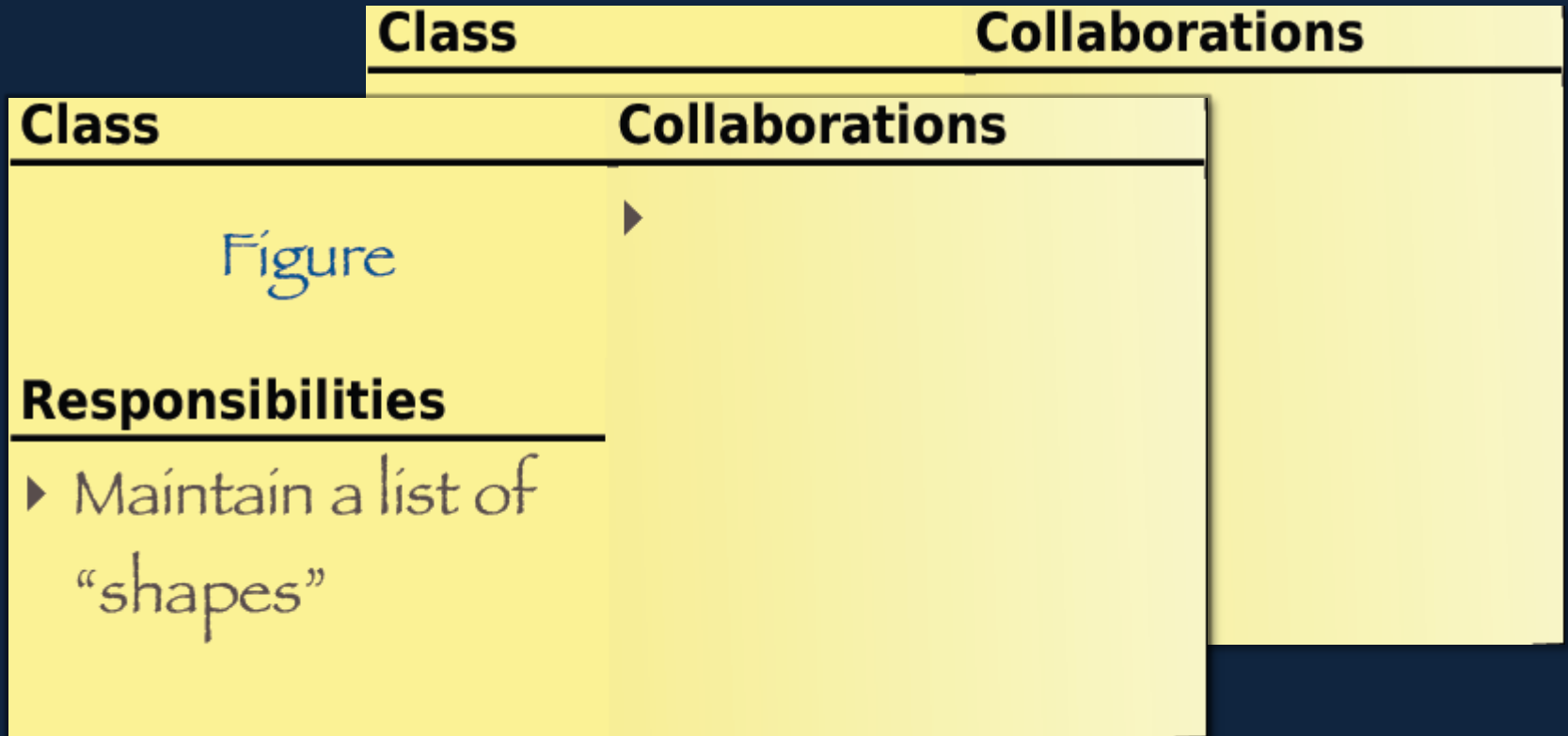
TDD ▶ „GOOS“ Style

End-To-End Test first

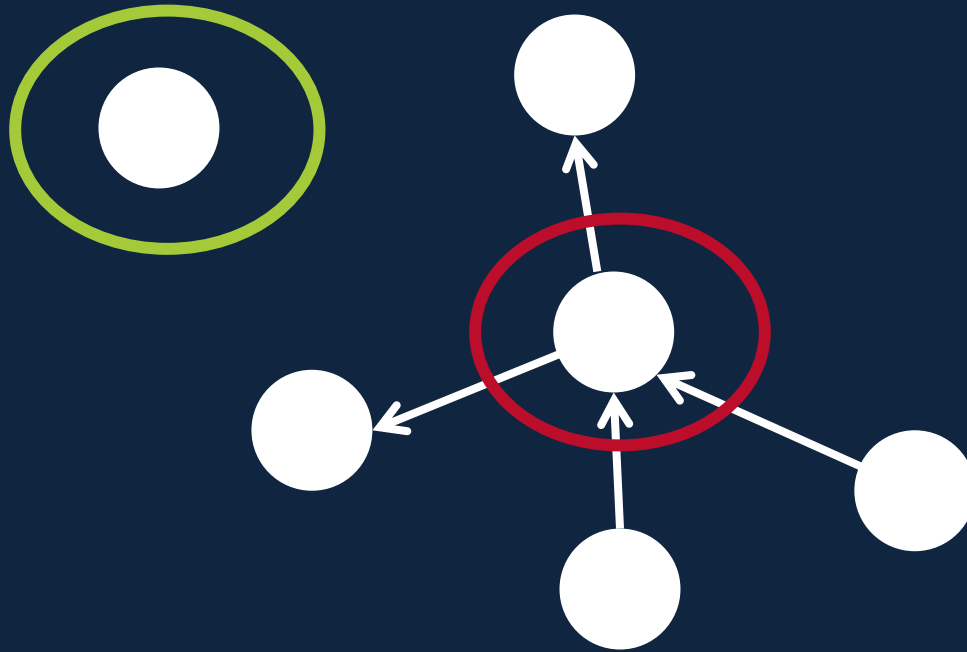
Use interfaces liberally



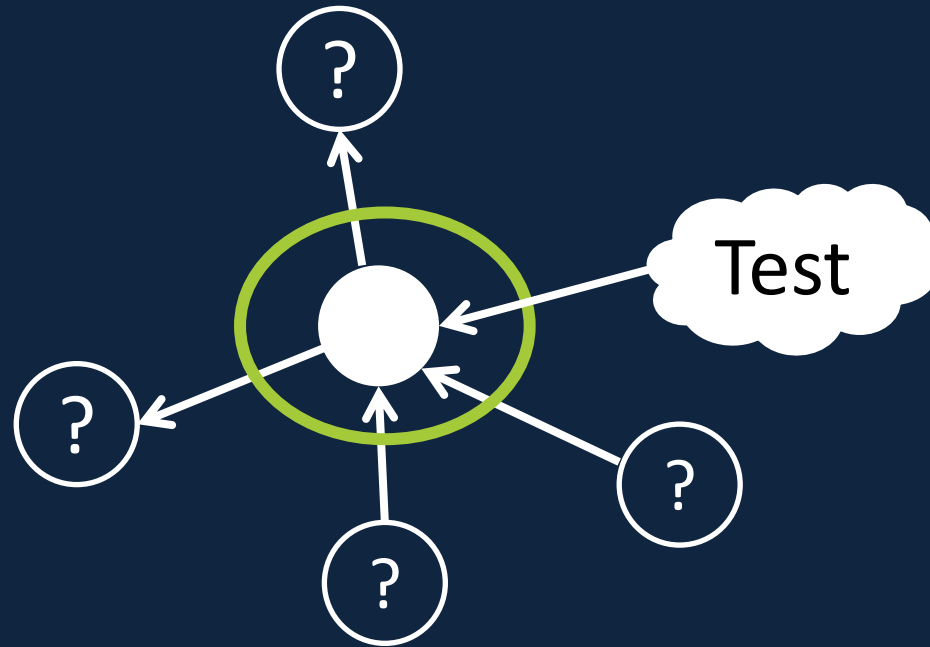
TDD ▶ Object Oriented Design



TDD ▶ Object Collaboration



TDD ▶ TDD with Mocks



TDD ► TDD with Mocks

Create any required mock object

Create any real object including the target object

Verify the target object (behaviour)

TDD ▶ Listen to Tests

```
@Test
public void
should_return_6_when_given_2_and_3 () {
...
}
```

```
@Test
public void should_return_6_when_given_2_and_3() {

    // Given: a multiplier
    Multiplier multiplier = new Multiplier();

    // When: [2,3] is the input
    List<Integer> input=Lists.newLinkedList(2,3);

    // Then: ensure that 6 is returned
    assertThat(multiplier.multiply(input), is(6));

}
```

TDD ▶ Cucumber (Ruby)

Feature: Multiplication

Scenario: Multiply two numbers

Given I have two numbers 2 and 3

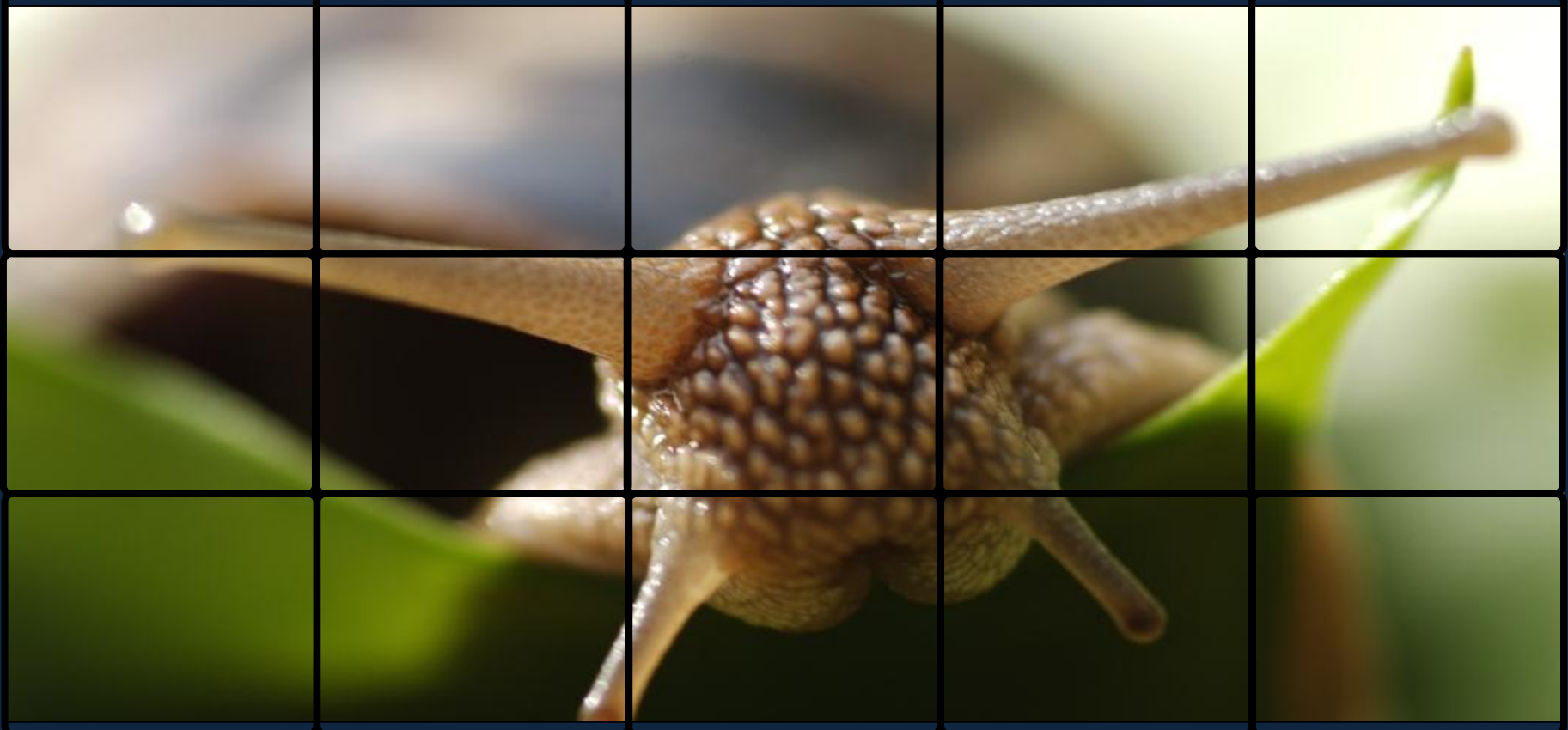
When I use multiply

Then the result should be 6

Test Smells ▶ Example: Bloated Constructor

```
public MessageProcessor(  
    MessageUnpacker unpacker,  
    AuditTrail auditer,  
    CounterPartyFinder counterpartyFinder,  
    LocationFinder locationFinder,  
    DomesticNotifier domesticNotifier,  
    ImportedNotifier importedNotifier)  
{  
    ...  
}
```

TDD ▶ Is it slowing us down?



TDD developer pairs took 16% more
time for development.

B.George, L.Williams - Proc. 2003 ACM Symposium on Applied Computing

TDD produces code that's **simpler**,
more cohesive, and less coupled...

D. Janzen, H. Saiedian - 2008 IEEE Software Computer Press

Einstieg ▶ Coding Katas

<http://codekata.pragprog.com>

<http://codingdojo.org>

<http://codingkata.org>



TDD ▶ Tags

A word cloud of TDD-related terms. The words are arranged in a roughly rectangular shape, with 'Unit Test' being the largest and most prominent. Other words include 'Mock', 'Given', 'When', 'Collaborations', 'mockito', 'TDD', 'Walking-Skeleton', 'Refactor', 'Unit', 'Test', 'End-To-End', 'GOOS', 'Cucumber', 'hamcrest', and 'Refactor'. The colors range from light blue to bright green.

hamcrest Mock
Cucumber Given
End-To-End GOOS When
Collaborations mockito
Walking-Skeleton TDD
Refactor Unit Test