PHPUNIT MOCKERY HAMCREST

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UMFRAGE
Wie sieht's denn aus ...
... mit Unit Tests ...
... mit PHPUnit ...
... und Mockery ...
... im Alltag?

WARUM MOCKERY

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UNIT TEST SIND ...

... praktisch um Bugs zu finden.

... gut fürs Geschäft.

... voll im Trend.

... zeitaufwendig.

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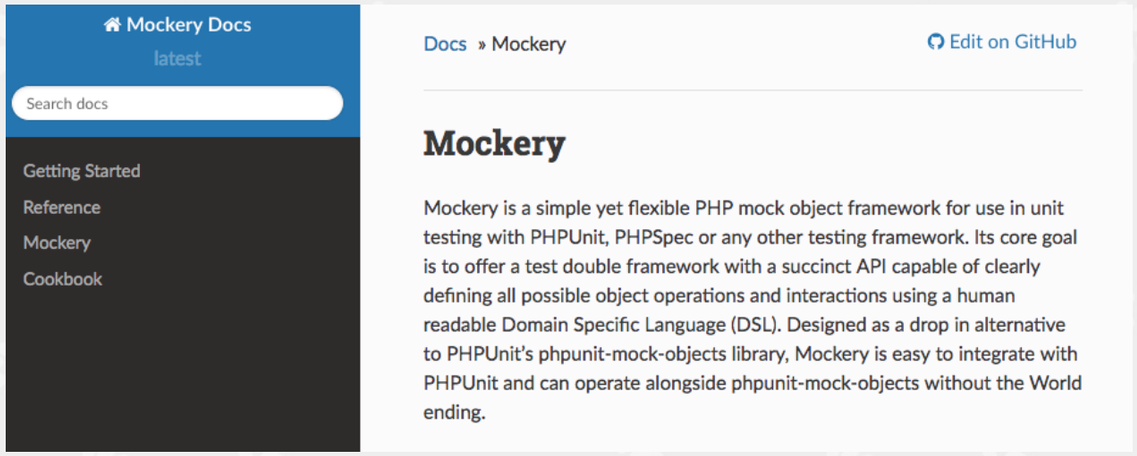
WIE HILFT UNS MOCKERY?



— docs.mockery.io

- PHP-Mock-Framework
- Prägnanten API
- Menschen lesbaren domänen-spezifischen Sprache (DSL)
- Alternative zu PHPUnits phpunit-mock-objects-Bibliothek

BEISPIEL GEFÄLLIG?

TESTEN EINES FLUENT INTERFACES ...

```php
namespace Zooroyal\MeetUpExample;

class Example
{
    public function __construct(FileReader $fileReader)
    {
        $this->fileReader = $fileReader;
    }

    public function useFluentInterface()
    {
        return $this->fileReader->setX()
            ->setX()
            ->setX()
            ->setY()
            ->readLine();
    }
}
```

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… MIT PHPUNIT-MOCKS

```php
    public function useFluentInterface()
    {
        $expectation = 'blub';

        $mockedFileReader = $this->createMock(FileReader::class);
        $mockedFileReader->expects($this->exactly(3))
            ->method('setX')->willReturnSelf();
        $mockedFileReader->expects($this->once())
            ->method('setY')->willReturnSelf();
        $mockedFileReader->expects($this->once())
            ->method('readLine')->willReturn($expectation);

        $subject = new Example($mockedFileReader);
        $result = $subject->useFluentInterface();

        self::assertSame($expectation, $result);
    }
```

… MIT MOCKERY-MOCKS

```
    public function useFluentInterface()
    {
        $expectation = 'blub';

        $mockedFileReader = Mockery::mock(FileReader::class);
        $mockedFileReader
            ->shouldReceive('setX->setX->setX->setY->readLine')
            ->andReturn($expectation);

        $subject = new Example($mockedFileReader);
        $result = $subject->useFluentInterface();

        self::assertSame($expectation, $result);
    }
```

WAS KANN MOCKERY?

DOUBLES

- Doubles sind Objekte
- Ersetzen Klassen
- Weniger komplex als Original
- Interaktion beobachten
- Kontrolle über Programmfluss

DOUBLES IN TESTS

Doubles spielen eine wichtige Rolle bei Unit-Tests.

- Abhängigkeiten des Testsubjekts durch Doubles ersetzt
- Subjekt wird vollständig isoliert (keine Nebeneffekte)
- Abhängigkeiten müssen nicht aufwendig erzeugt werden
- Interaktion des Subjekts mit den Doubles kann geprüft werden

```
$container = Mockery::mock(ContainerInterface::class);

$subject = new MyClass($container);
```

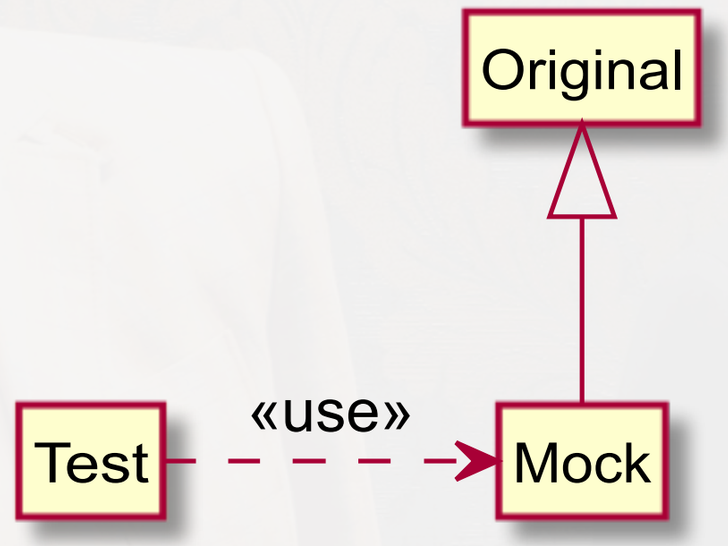
Es gibt zwei relevante Arten von Doubles in Mockery

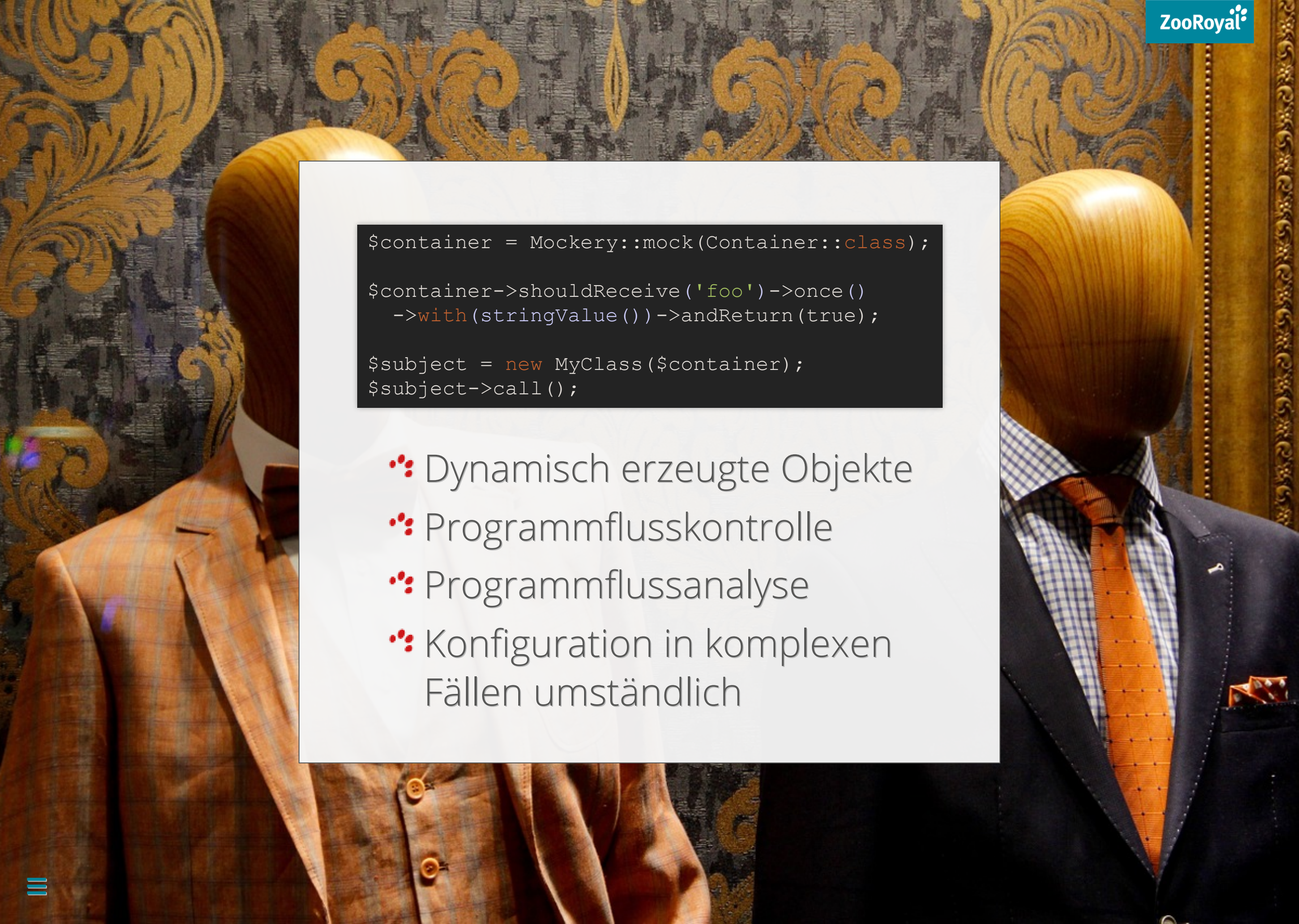
MOCKS

SPIES

MOCKS

Mocks bieten erweiterte Funktionalität zur Simulation einer Klasse.



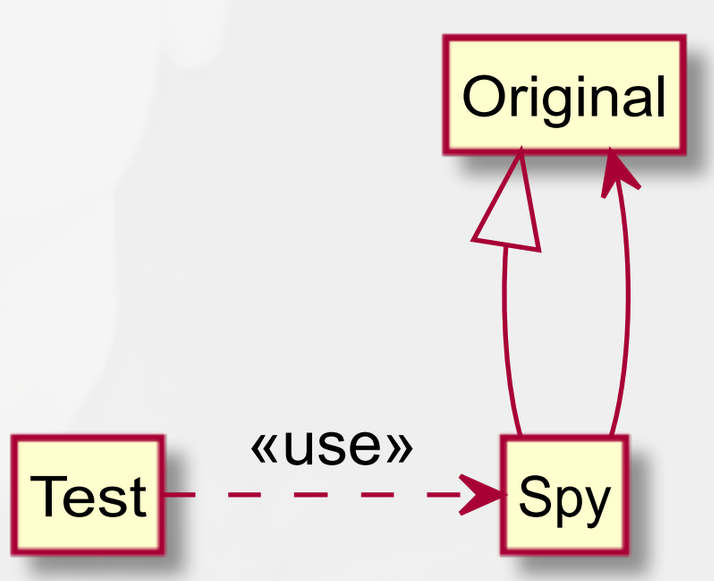


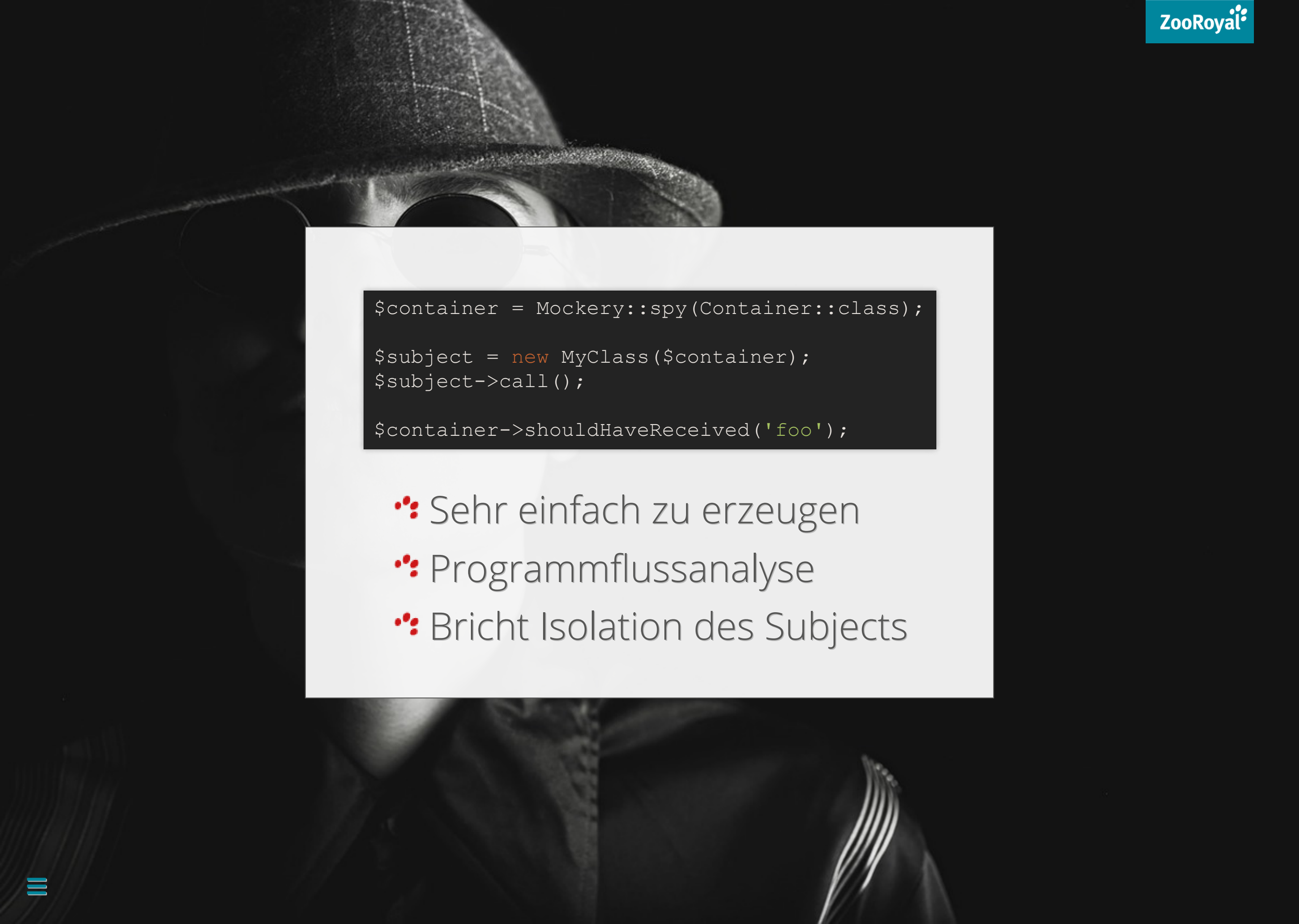
```
$container = Mockery::mock(Container::class);

$container->shouldReceive('foo')->once()
  ->with(stringValue())->andReturn(true);

$subject = new MyClass($container);
$subject->call();
```

- Dynamisch erzeugte Objekte
- Programmflusskontrolle
- Programmflussanalyse
- Konfiguration in komplexen Fällen umständlich

SPIES

Spies leiten Methodenaufrufe an das Original weiter und zeichnen die Interaktion zur späteren Analyse auf.





```
$container = Mockery::spy(Container::class);

$subject = new MyClass($container);
$subject->call();

$container->shouldHaveReceived('foo');
```

- Sehr einfach zu erzeugen
- Programmflussanalyse
- Bricht Isolation des Subjects

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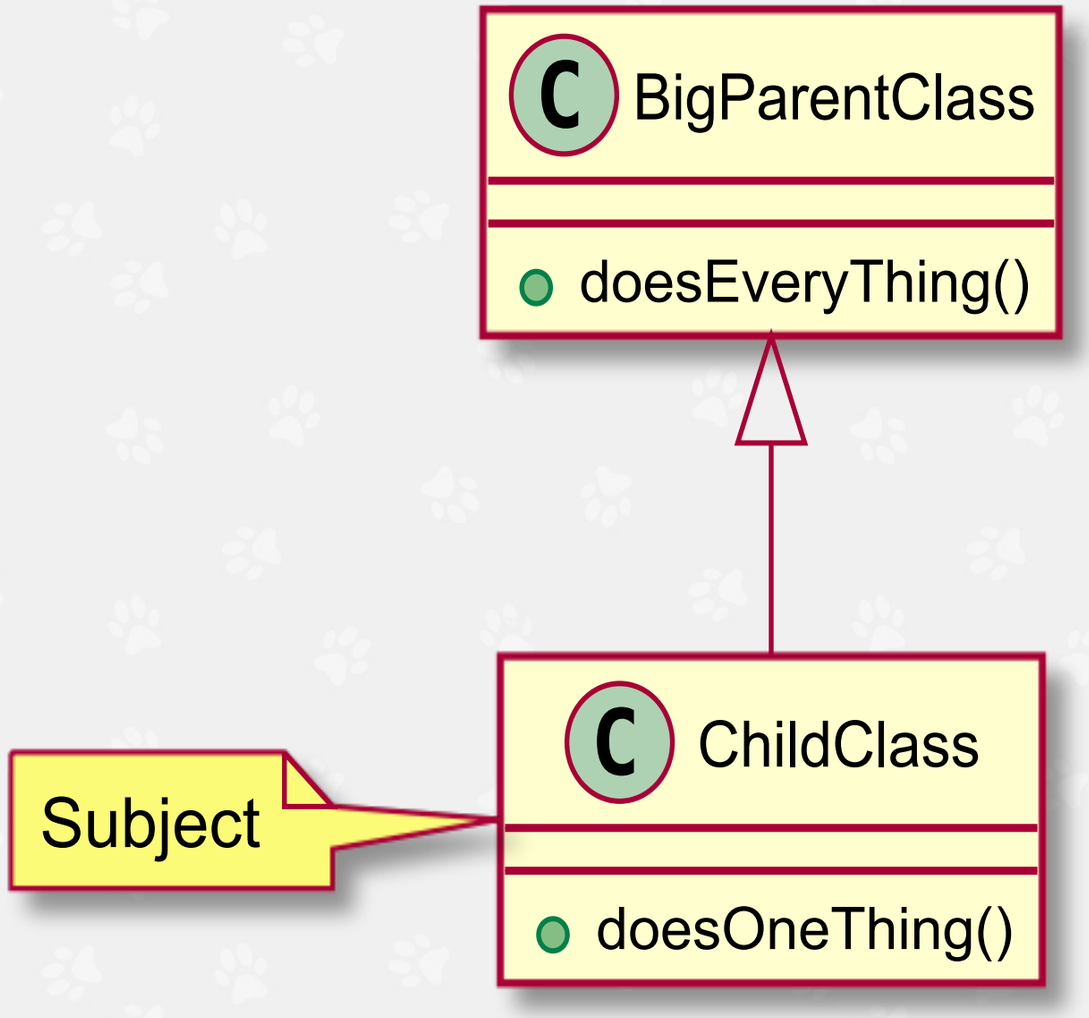
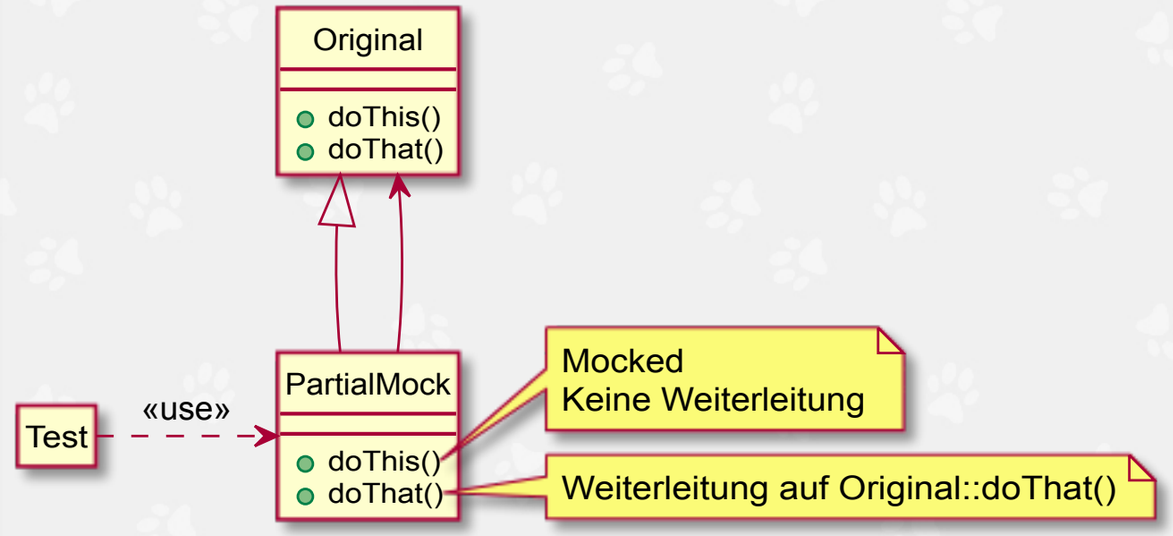
BIG PARENT CLASS

```php
class BigParentClass
{
    public function doesEverything()
    {
        // sets up database connections
        // writes to log files
    }
}
```

```php
class ChildClass extends BigParentClass
{
    public function doesOneThing()
    {
        // but calls on BigParentClass methods
        $result = $this->doesEverything();
        // does something with $result
        return $result;
    }
}
```



PARTIAL MOCKS



- Bestimmte Methoden werden gemockt
- Andere werden an das Original geleitet

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TEST IN MOCKERY

```
$childClass = Mockery::mock('ChildClass')->makePartial();

$childClass->shouldReceive('doesEverything')
    ->andReturn('some result from parent');

$childClass->doesOneThing(); // string("some result from parent");
```

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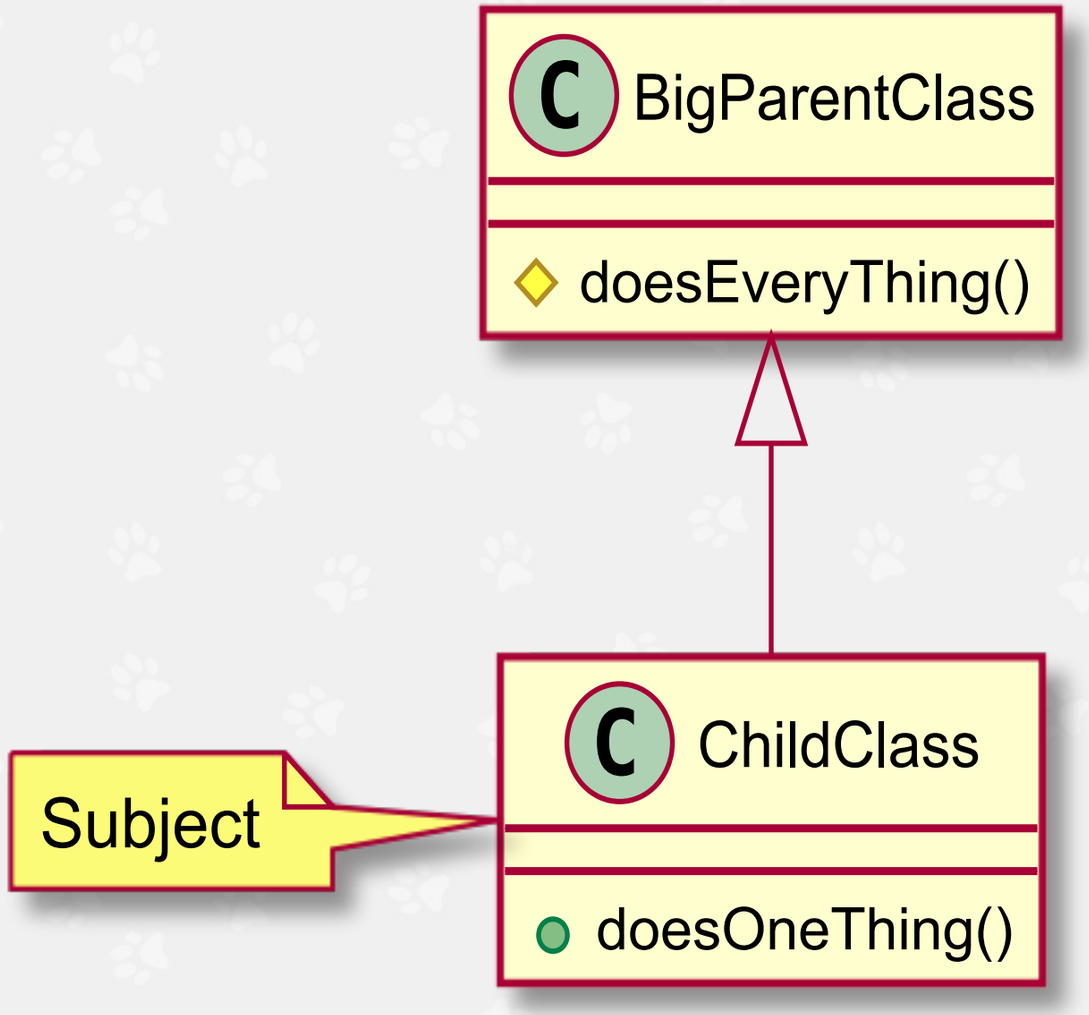
BIG PARENT CLASS

Protected Edition

```php
class BigParentClass
{
    protected function doesEverything()
    {
        // sets up database connections
        // writes to log files
    }
}
```

```php
class ChildClass extends BigParentClass
{
    public function doesOneThing()
    {
        // but calls on BigParentClass methods
        $result = $this->doesEverything();
        // does something with $result
        return $result;
    }
}
```



MOCKING PROTECTED METHODS

Mit Mockery ist es möglich `protected function` zu mocken.

```php
class MyClass
{
  protected function foo(){}
}
```

```php
$mock = Mockery::mock('MyClass')
  ->shouldAllowMockingProtectedMethods();

$mock->shouldReceive('foo');
```

TEST IN MOCKERY

```
        $childClass = Mockery::mock('ChildClass')->makePartial()
            ->shouldAllowMockingProtectedMethods();

        $childClass->shouldReceive('doesEverything')
            ->andReturn('some result from parent');

        $childClass->doesOneThing(); // string("some result from parent");
```

THE DREADED NEW OPERATOR

```php
class Service
{
    function callExternalService($param)
    {
        $externalService = new Service\External();
        $externalService->sendSomething($param);
        return $externalService->getSomething();
    }
}
```

MOCKING HARD DEPENDENCIES

Mockery ermöglicht es das Autoloading von Klassen zu überschreiben.
Damit sind auch `new`-Operatoren kein Problem mehr.

```php
class Blub {
  public function foo()
  {
    $bar = new Bar();
    $bar->baz();
  }
}
```

```php
$mock = m::mock('overload:' . Bar::class);

$mock->shouldReceive('baz');
```

TEST

```php
<?php
namespace Zooroyal\MeetUpExample\Tests\Snippets;

use Mockery as m;
use PHPUnit\Framework\TestCase;
use Zooroyal\MeetUpExample\Snippets\Service;

class ServiceTest extends TestCase
{
    /**
     * @runTestsInSeparateProcesses
     * @preserveGlobalState disabled
     */
    public function testCallingExternalService()
    {
        $param = 'Testing';

        $externalMock = m::mock('overload:' . External::class);
        $externalMock->shouldReceive('sendSomething')->once()
            ->with($param);
        $externalMock->shouldReceive('getSomething')->once()
            ->andReturn('Tested!');

        $service = new Service();

        $result = $service->callExternalService($param);

        $this->assertSame('Tested!', $result);
    }
}
```

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COMPLICATED CALLBACKS

```php
class Archivist
{
    /** @var Storage */
    private $storage;

    public function __construct(Storage $storage)
    {
        $this->storage = $storage;
    }

    public function copyAndStore($object)
    {
        $copy = $this->copyObject($object);
        $this->storage->add($copy);
    }
    // ...
}
```

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HAMCREST

Matchers that can be combined to create flexible expressions of intent.
– hamcrest.org

```
MatcherAssert::assertThat(
  ['asd', 'qwe'],
  both(hasItem('asd'))
  ->andAlso(everyItem(is(stringValue()))))
);
```

Core	Logical	Object	Number
anything	allOf	equalTo	closeTo
describedAs	anyOf	anInstanceOf	greaterThan
is	not	nullValue	
	both	sameInstance	

$subject is both anInstanceOf $type andAlso not sameInstance $object

```
is(
  both(
    anInstanceOf($type)
  )->andAlso(
    not(
      sameInstance($object)
    )
  )
);
```

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TEST

```php
class ArchivistTest extends TestCase
{
    public function copyAndStoreSendCopyToStorage()
    {
        $mockedItem = new stdClass();
        $mockedStorage = Mockery::mock(Storage::class);

        $mockedStorage->shouldReceive('add')->with(
            is(
                both(anInstanceOf(Storage::class))
                ->andAlso(not(sameInstance($mockedItem)))
            )
        );

        $subject = new Archivist(Storage::class);
        $subject->copyAndStore($mockedItem);
    }
}
```