THE EFFECT OF ROLE-BASED MOCKS ON TEST COUPLING IN INTERPRETED LANGUAGES

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To Test A Mocking Bird

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If you just learn a single trick, Scout, you'll get along a lot better with all kinds of folks. You never really understand a person until you consider things from his point of view... Until you climb inside of his skin and walk around in it.

— Atticus Finch in *To Kill A Mockingbird (1962)*

ABSTRACT

Explicit Interfaces – sometimes also called Protocols – are a common feature of dynamically and statically typed, compiled languages. At compile time, an object's method signatures are checked against the signatures defined in the interface to ensure type compliance. Such an object's client object can then use any instance implementing this protocol with the type safety, the compiler provides. Programming to an interface instead of programming to concrete implementations is a practice, that decreases coupling between components and therefore increases maintainability. In the test driven development it is the foundation for the use of Mock Objects, that stand in for a collaborator and implement the same interface, to isolate the object under test from all other parts of the system it is connected to. Mock Objects are an effective tool to drive software design, as they can stand in for objects, that are not even implemented yet, and lead to the discovery of new objects and their interfaces.

In interpreted languages, that are compiled with a Just–In–Time compiler at runtime, strict type safety with interfaces is not possible. Nevertheless it is common practice – often referred to as Duck Typing – to program to a collaborator's interface, even though it is an implicitly and not externally defined interface. Mock Objects in the tests then also implement that same interface. The absence of static type checking can lead to the problem, that the Mock Object's interface and the real object's interface diverge without noticing – the tests would still pass as they use the Mock Object and really test the wrong behavior. This can be hard to debug and make the tests unreliable.

By implementing explicitly defined Protocols in a testing environment, that Mock Objects and concrete objects are checked against, this divergence could be avoided, making tests and mock objects more reliable.

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Put your acknowledgments here.

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1 Members of GuIT (Gruppo Italiano Utilizzatori di TeX e LaTeX)

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BIBLIOGRAPHY

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COLOPHON

This document was typeset using the typographical look-and-feel classicthesis developed by André Miede. The style was inspired by Robert Bringhurst's seminal book on typography "*The Elements of Typographic Style*". classicthesis is available for both LaTeX and LyX:

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DECLARATION

I hereby certify, that this material which I now submit for assessment leading to the award of Master of Science in Web Technology is entirely my own work and has not been taken from the work of others—save and to the extent that such work has been cited and acknowledged within the text of my work.

Dublin, August 3, 2014

Christian Treppo