

## Invited Talk

Stephan Herrmann, GK Software

Monday, 07.01.2019, 14:50, APB 3105

### Title:

Role modeling meets code quality - a compiler perspective

### Abstract:

Role models can be introduced into software development on various levels, ranging from methodology, over libraries & frameworks to dedicated programming languages. While all these approaches appeal to the intuition of developers by way of the powerful metaphor of roles, a dedicated role-oriented programming language also empowers the compiler and runtime system to leverage a deep understanding of the underlying concepts.

This lecture discusses benefits for quality assurance through static analysis in the compiler, with emphasis on role-related consistency constraints. These benefits are grouped into guarantees given by a dedicated type system, and detection of anomalies in control flow and data flow.

Specific strategies will be presented using the role-oriented programming language OT/J and the implementation of its compiler, which is based on the Eclipse Compiler for Java. We will also use the opportunity to relate role-specific checks implemented for OT/J to various supplemental static analyses performed even for plain Java.

The common goal in all these efforts is to let the compiler detect more mistakes right as you type.

### Bio:

Dr. Stephan Herrmann received his PhD in 2002 at Technische Universität Berlin, where he developed the role-oriented programming model Object Teams. In the publicly funded project TOPPrax he supervised the creation of a full Eclipse-based development environment for the Java-based language OT/J.

Through the involvement with the Eclipse Compiler for Java (as the basis for the OT/J compiler) he got more and more involved also in the development of this compiler and generally the Eclipse Java Development Tools. In his spare time he continuously contributes essential implementation for new Java features, notably the new type inference introduced for lambdas in Java 8.

He earns his living working for GK Software SE, a major, saxony-based provider of software solutions for the retail business. Inside GK he is a member for the Future Lab, where he promotes a model based approach through Eclipse-based DSLs.