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ARTICLES

Safe and Flexible Objects with Subtyping	5
<i>By Lorenzo Bettini, Viviana Bono and Silvia Likavec</i>	

In this paper the authors present a calculus endowed with width subtyping supporting both classes and mixins, where “incomplete objects” can be created by instantiating mixins, and can be completed in an object-based fashion.

Freely Annotating C#	31
<i>By Walter Cazzola, Antonio Cisternino and Diego Colombo</i>	

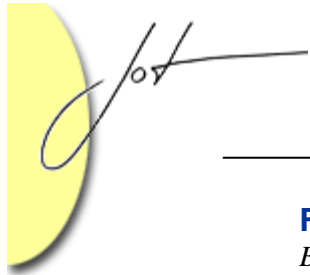
This paper proposes an extension to the C# annotation model that allows programmers to annotate statements and code blocks and retrieve these annotations at run-time.

Reflection-based implementation of Java extensions: the double-dispatch use-case	49
<i>By Remi Forax, Etienne Duri and Gilles Roussel</i>	

This paper shows how reflection can be exploited to develop an efficient and general double-dispatch solution for Java without modifying the language nor the virtual machine.

Global and Local Virtual Functions in C++	71
<i>By Christian Heinlein</i>	

These paper presents the two novel notions of global and local virtual functions in C++. Despite the relative simplicity of these two concepts, global and local functions can be exploited for expressing single, multiple, and predicate-based method dispatch, as well as aspect-oriented mechanisms.

**Flexible Method Combination based on Mixin Subtyping** 95*By Tetsuo Kamina and Tetsuo Tamai*

The authors tackle the problem of accidental overriding in mixin-based composition by proposing a selective method combination that selects where the method invocation starts, and where method body execution jumps in the case of super invocation, by using the static type information of the receiver.

On Access Restriction with Java Wildcards 117*By Mirko Viroli and Giovanni Rimassa*

In this paper the authors develop on the theory of variant parametric types from which wildcards originated, and study a framework to describe these access restriction issues in detail, promoting the understanding and fruitful exploitation of this new programming concept.

OUTLOOK

A brief outlook to the next issue 141
