

Andrew P. Black (Ed.)

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Preface

The 19th Annual Meeting of the European Conference on Object-Oriented Programming—ECOOP 2005—took place during the last week of July in Glasgow, Scotland, UK. This volume includes the refereed technical papers presented at the conference, and two invited papers. It is traditional to preface a volume of proceedings such as this with a note that emphasizes the importance of the conference in its respective field. Although such self-evaluations should always be taken with a large grain of salt, ECOOP is undisputedly the preeminent conference on object-orientation outside of the United States. In its turn, object-orientation is today's principal technology not only for programming, but also for design, analysis and specification of software systems. As a consequence, ECOOP has expanded far beyond its roots in programming to encompass all of these areas of research—which is why ECOOP has remained such an interesting conference.

But ECOOP is *more* than an interesting conference. It is the nucleus of a technical and academic *community*, a community whose goals are the creation and dissemination of new knowledge. Chance meetings at ECOOP have helped to spawn collaborations that span the boundaries of our many subdisciplines, bring together researchers and practitioners, cross cultures, and reach from one side of the world to the other. The ubiquity of fast electronic communication has made maintaining these collaborations easier than we would have believed possible only a dozen years ago. But the role of conferences like ECOOP in *establishing* collaborations has not diminished. Indeed, as governments make it harder to travel and emphasize the divisions between nations, it becomes ever more important that we strengthen our personal and professional networks and build bonds between individuals, institutions, and countries.

As we have moved into the electronic age, we have realized that it is not so much a shared locality or a shared language that defines a community, but a shared set of values. As a scientific community, we value evidence-based inquiry. We value truth, and demand a high standard of evidence in ourselves and in our colleagues as we search for it. We value integrity, because without integrity we cannot build upon the results of our colleagues, and the scientific process will grind to a halt. We value technology, because technology gives us new tools in the search for truth. We value clear communication, because without communication new knowledge cannot be evaluated by our colleagues, or influence the way that others think. We value the slow social process by which one individual's discoveries become accepted knowledge, because we recognize that this process is the best way yet found to minimize subjectivity.

ECOOP's refereed technical program consisted of 24 papers that were selected by the Program Committee from 172 submissions. Every paper was read by at least three members of the Program Committee; some papers, which

appeared controversial, were read by four or five PC members. In addition, the committee sought the opinions of 147 co-reviewers, selected because of their expertise on particular topics. As is usual, the selection took place at a two-day meeting. However, because of the difficulty that many of the European PC members would have experienced in traveling to my home institution in the United States, the meeting was held in Bern, Switzerland. I am very grateful to Prof. Oscar Nierstrasz, a founding member of AITO and Programme Chair for ECOOP '93, for offering the use of his facilities at the SCG in Bern, and to Oscar, Therese Schmid and the students of the SCG who went to extraordinary lengths to help me with the local arrangements.

For many of us, the invited talks, tutorials and workshops at ECOOP are at least as important as the talks based on refereed papers. This year, we featured two invited technical talks, described more fully on page VII, in addition to the banquet address, which was given by Dr. Gilad Bracha. The schedule for the week included 19 workshops and 16 tutorials, selected for their topicality, interest and diversity. Many of the tutorials were offered more than once, to reduce scheduling conflicts for attendees who wished to attend multiple events. It also gave me great pleasure to host Prof. Emeritus Peter Wegner as guest of honor at the conference banquet. Peter has the distinction of having defined the term "object-oriented language" in his 1987 OOPSLA paper, and has been involved with ECOOP as a workshop participant and panelist at least since 1988. While traveling to Lisbon to give the banquet address at ECOOP '99, Peter was struck down by a bus in London, and suffered life-threatening injuries. He has made a most remarkable recovery, and I was absolutely delighted to be able to welcome him back into the ECOOP community.

The continued success of ECOOP depends on the dedication and hard work of a large number of people; not only is most of this work performed voluntarily, but we compete with each other to volunteer! In addition to me, 24 distinguished researchers served on the Program Committee, writing sometimes lengthy reviews of many papers, working very long hours to meet the conference deadlines, and behaving (almost always!) in a most professional manner. The conference could not have taken place at all without the efforts of the 373 authors who submitted papers, the board of AITO, which sponsored the conference, the conference Organizing Committee, the Tutorials and Workshops Committees, and the local organizers and student volunteers. Richard van de Stadt also deserves a special mention for the excellence of his technical support through CyberChairPRO.

June 2005

Andrew P. Black
ECOOP 2005 Program Chair

The AITO Dahl-Nygaard Prize

It was a great loss to our community when both Ole-Johan Dahl and Kristen Nygaard passed away in 2002, not long after ECOOP in Málaga. Pioneers in the areas of programming and simulation, their foundational work on object-oriented programming, made concrete in the Simula language, can now be seen as one of the most significant inventions in software engineering. Their key ideas took shape around 1965, but more than 20 years were to pass before these ideas were fully absorbed into and appreciated by the broader software community. Since then, object-orientation has profoundly transformed the landscape of software design and the process of software development.

In remembrance of Dahl and Nygaard's scholarship and their enthusiastic encouragement of young researchers, AITO has established a pair of annual prizes. The senior prize is awarded to a researcher with outstanding career contributions, and the junior prize is awarded to a younger researcher who has demonstrated great potential for following in the footsteps of these pioneers.

This year, the first time that the prizes have been awarded, the Prize Committee selected Bertrand Meyer to receive the Dahl-Nygaard Senior Prize, and Gail Murphy to receive the Dahl-Nygaard Junior Prize.

Bertrand Meyer was one of the most influential researchers in the 1980s, in the initial period of wide adoption of object-oriented programming. He designed the Eiffel language, which pioneered the concept of *design by contract*. He provided strong arguments for object-oriented software architecture in his book "Object-Oriented Software Construction", which remains to this day a highly influential work. Many of his contributions have proven to be of lasting value.

Like Nygaard, Meyer has not backed away from controversy and has consistently followed his own vision of object orientation. Design by contract established an essential bridge between axiomatic specification and object-oriented programming. Bertrand Meyer is currently Professor of Software Engineering at ETH Zürich in Switzerland. His research on trusted components continues to explore challenging problems in software engineering.

Gail Murphy has shown promising potential as a young researcher by proposing innovative ideas and by proving that these are conceptually sound and realistically implementable. She focuses her research and teaching on software engineering, and she has made contributions to understanding and reducing the problems associated with the evolution of large software systems.

Gail Murphy is currently an Associate Professor at the University of British Columbia in Canada. Like Dahl and Nygaard, Murphy challenges students to examine new proposals with a disciplined and questioning eye. She is preparing a new generation of researchers by encouraging the development of sound theories backed by solid prototype implementations.

Both Meyer and Murphy agreed to present lectures at ECOOP 2005. Invited papers corresponding to these lectures are included in this volume. Meyer's paper is entitled "Attached Types and Their Application to Three Open Problems of Object-Oriented Programming" and begins on page 1. Murphy's paper is entitled "The Emergent Structure of Development Tasks" and begins on page 33.

June 2005

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AITO Dahl-Nygaard Prize Committee

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ECOOP 2005 was organized by the Universities of Glasgow and Strathclyde, under the auspices of AITO (Association Internationale pour les Technologies Objets), and in cooperation with ACM SIGPLAN.



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As Organizing Chair I would like to thank the support staff and event planners at the Glasgow Convention Bureau, the Scottish Exhibition and Conference Centre, the Moat House Hotel Glasgow, the Glasgow Science Centre and the Arches. Administrative and support staff at the Universities of Glasgow and Strathclyde also contributed to the organization of ECOOP 2005 and their efforts are much appreciated. Most importantly, thanks are due to the many student volunteers who kept things running smoothly during the meeting and who were critical to the success of the conference.

Peter Dickman

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Table of Contents

Invited Talks

Attached Types and Their Application to Three Open Problems of Object-Oriented Programming <i>Bertrand Meyer</i>	1
The Emergent Structure of Development Tasks <i>Gail C. Murphy, Mik Kersten, Martin P. Robillard, Davor Čubranić</i>	33

Java

Loosely-Separated “Sister” Namespaces in Java <i>Yoshiki Sato, Shigeru Chiba</i>	49
Efficiently Refactoring Java Applications to Use Generic Libraries <i>Robert Fuhrer, Frank Tip, Adam Kiezun, Julian Dolby, Markus Keller</i>	71
Sharing the Runtime Representation of Classes Across Class Loaders <i>Laurent Daynès, Grzegorz Czajkowski</i>	97

Aspects and Modularity

Aspect-Oriented Programming Beyond Dependency Injection <i>Shigeru Chiba, Rei Ishikawa</i>	121
Open Modules: Modular Reasoning About Advice <i>Jonathan Aldrich</i>	144
Evaluating Support for Features in Advanced Modularization Technologies <i>Roberto E. Lopez-Herrejon, Don Batory, William Cook</i>	169
Separation of Concerns with Procedures, Annotations, Advice and Pointcuts <i>Gregor Kiczales, Mira Mezini</i>	195
Expressive Pointcuts for Increased Modularity <i>Klaus Ostermann, Mira Mezini, Christoph Bockisch</i>	214

Sustainable System Infrastructure and Big Bang Evolution: Can Aspects Keep Pace?
Celina Gibbs, Chunjian Robin Liu, Yvonne Coady 241

Language Design

First-Class Relationships in an Object-Oriented Language
Gavin Bierman, Alisdair Wren 262

The Essence of Data Access in Cw
Gavin Bierman, Erik Meijer, Wolfram Schulte 287

Prototypes with Multiple Dispatch: An Expressive and Dynamic Object Model
Lee Salzman, Jonathan Aldrich 312

Efficient Multimethods in a Single Dispatch Language
Brian Foote, Ralph E. Johnson, James Noble 337

Program Analysis

Interprocedural Analysis for Privileged Code Placement and Tainted Variable Detection
Marco Pistoia, Robert J. Flynn, Larry Koved, Vugranam C. Sreedhar 362

State Based Ownership, Reentrance, and Encapsulation
Anindya Banerjee, David A. Naumann 387

Consistency Checking of Statechart Diagrams of a Class Hierarchy
Vitus S.W. Lam, Julian Padget 412

Types

Towards Type Inference for JavaScript
Christopher Anderson, Paola Giannini, Sophia Drossopoulou 428

Chai: Traits for Java-Like Languages
Charles Smith, Sophia Drossopoulou 453

A Type System for Reachability and Acyclicity
Yi Lu, John Potter 479