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About *FACS FACTS*

FACS FACTS [ISSN: 0950-1231] is the newsletter of the BCS Specialist Group on Formal Aspects of Computing Science (FACS). *FACS FACTS* is distributed in electronic form to all FACS members.

Submissions to FACS FACTS are always welcome. Please visit the newsletter area of the FACS website [http://www.bcs-facs.org/newsletter] for further details.

Back issues of *FACS FACTS* are available to download from:

http://www.bcs-facs.org/newsletter/facsfactsarchive.html

The *FACS FACTS* Team

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Contributors to this Issue

Paul Boca, Jonathan Bowen, Tim Denvir. Margaret West

The activities of FACS (e.g., **sponsoring conferences and workshops**, **offering student bursaries** and **hosting evening seminars**) are funded solely from membership subscriptions. The more paid-up FACS members we have, the more we can do. ☺

If you would like to become a FACS member – or renew your lapsed membership – please complete the membership form on **Page 24** of this issue of *FACS FACTS*.

If you have any questions about FACS, please send these to Paul Boca [Paul.Boca@virgin.net]

Newsletter Editor, Algarve, Portugal, September 2007

From Margaret West: I am sorry for the rather sparse News Letter. I hope to make up for this next year! The next copy should include items omitted from this issue.

Editorial
Jonathan Bowen, Chair, BCS-FACS

Please accept our apologies for the long delay since the last edition of the FACS FACTS Newsletter in 2006. This has not been due to inactivity. Rather, the previous Newsletter Editor, Paul Boca, has been highly active in organizing meetings for FACS, not to mention a planned book of collected chapters associated with our evening seminars. Finally, Margaret West has gallantly stepped into the breach and offered to be the new Newsletter Editor. Many thanks are due to Paul for his excellent work in revitalising FACS FACTS previously, and for the highly polished and content-rich newsletters that resulted. Good luck to Margaret for the future in continuing the FACS newsletter tradition. We have produced this newsletter to coincide with the end of 2007 and hope that future newsletters will be a little more regular. Of course, this depends on good contributions, so I would urge readers to send material to Margaret. We especially encourage reports on meetings but technical material is also very welcome, particularly if it is designed to promote debate.

The last year has been an active one for FACS. We ended 2006 with a successful Christmas meeting in the FACS tradition, with a mulled wine and mince pies reception at the end. This was a one-day meeting at the BCS offices in central London, held on 15 December 2006. It was the second in a series of workshops on *Teaching Formal Methods* (TFM 2006), organized by Prof. David Duce of Oxford Brookes University, Paul Boca and myself. The meeting was co-organized with the help of Oxford Brookes University. We also received welcome sponsorship from Formal Methods Europe and Escher Technologies. The former allowed us to invite Prof. Ralph-Johan Back, Professor of Computer Science at Åbo Akademi University in Finland, to give the keynote talk on *Invariant Based Programming*. The proceedings appeared in the BCS eWiC (Electronic Workshop in Computing) series. A major advantage of this form of purely electronic publication is that it is freely available to all online.

The major activity for 2007 has been the continuance of the successful BCS-FACS Evening Seminars series, enthusiastically and ably organized by Paul Boca with the help of Jawed Siddiqi and myself. Speakers have included Prof. Michael Jackson (The Open University), Prof. Egon Börger (University of Pisa, Italy), Prof. Ursula Martin (Queen Mary, University of London, jointly with the BCSWomen Specialist Group), Prof. Michael Butler (University of Southampton), Dr Ben Moszkowski (De Montfort University), Prof. Samson Abramsky (Oxford University, jointly with the London Mathematical Society and held at their premises, De Morgan House, in Russell Square, thanks to our LMS Liaison Officer, Prof. Rick Thomas) and Professor Jane Hillston (University of Edinburgh, jointly with BCSWomen). A book of chapters associated with earlier FACS Evening Seminars is in preparation, to be published by Springer.

In the past, FACS has sponsored a number of conferences. We have cut down on this activity, instead concentrating on funding our own meetings, especially the Evening Seminars series. However, we did sponsor the *23rd British Colloquium on Theoretical Computer Science* (BCTCS 2007, cms.brookes.ac.uk/bctcs2007), held in Oxford, 2–5 April 2007. We also

supported the *5th IEEE International Conference on Software Engineering and Formal Methods* (SEFM 2007, www.iist.unu.edu/SEFM07), London, UK. 10–14 September 2007. For the *3rd South-East European Workshop on Formal Methods* (SEEFM07, www.seefm.info/seefm07), held in Thessaloniki, Greece, 30 November – 1 December 2007, we provided prizes for the best paper and the best student presentation, as for the previous event, SEEFM05.

The BCS-FACS AGM was held on 17 July 2007 at Sheffield Hallam University. Thanks are due to Jawed Siddiqi for hosting us there. I won't bore you with the details (minutes are available) but a good time was had by those that attended, especially in the evening! See below for a group photograph.

BCS-FACS committee members after the 2007 AGM in Sheffield – left to right: Jonathan Bowen (Chair), Roger Carsley (Minutes Secretary), Jawed Siddiqi (Treasurer), Paul Boca (Secretary and former Newsletter Editor), Margaret West (BCS Liaison and new Newsletter Editor), John Cooke (Publications, FAC journal).

The BCS Specialist Groups Assembly was held on 1 November 2007 at the BCS London offices. Paul Boca and Jonathan Bowen attended. Paul Boca has recently been elected to the heady position of membership of the BCS Specialist Groups Executive Committee. This means that we do have someone on the FACS committee with inside knowledge of developments within the BCS. A major issue raised at the meeting was changes in the way BCS Specialist Groups are run financially. Specifically, centralization of financial aspects of FACS and all other Specialist Groups within the BCS itself means that we must justify and budget much further ahead of time than was previously necessary. We no longer have a separate bank account and the surplus previously in our

account has now been absorbed within the BCS. From now on, we must present our annual budget to the BCS ahead of any spending. This especially affects items such as sponsorship which now need to be planned well in advance to avoid applying for the money on a case-by-case basis later. Thus, if anyone would like a meeting to be considered for BCS-FACS sponsorship, please contact me as soon as possible.

To bring the year full circle, the 2007 BCS FACS Christmas meeting on 17 December features *Formal Methods in Industry*. It is being co-chaired by Paul Boca, Peter Gorm Larsen and Jonathan Bowen. The invited speakers are Prof. Tony Hoare (Microsoft Research, Cambridge), Peter Gorm Larsen (The Engineering College of Aarhus, Denmark) and Prof. Jim Woodcock (University of York). Thanks to Paul, we have received sponsorship from Google, the British Computer Society and the BCS Engineering and Technology Forum. As for the 2006 Christmas meeting, the proceedings will appear in the eWiC series in due course.

An associated *Workshop on the Verifiable File Store Mini-Challenge* is being held in the same location on 18 December 2007. This is being organized by John Fitzgerald under the auspices of the Grand Challenge 6 (GC6) on *Dependable Systems Evolution*, also with the support of the EPSRC VSR-net Network on the *Verified Software Repository*. The meeting is open to all those who are interested and is free to attend, but requires registration. See details linked under www.fmnet.info/gc6.

The first FACS Evening Seminar in 2008 will be delivered by Prof. Steve Schneider (University of Surrey) on 3 March at the BCS London offices. You would be very welcome to attend this and future seminars. Details are maintained on the FACS website (www.bcs-facs.org) and the full 2008 programme will be added when available. Attendance is free for all although registration is required for security reasons. Regular attendees are strongly encouraged to join FACS to help support the events.

A major event being organized by BCS-FACS is the ABZ Conference on three major formal methods, ASM, B and Z, at the BCS offices on 16–18 September 2008. The chairs are Egon Börger (ASM), Michael Butler (B), Jonathan Bowen (Z), Paul Boca (finance) and Ian Oliver (industry). The conference is being supported by the ASM User Group, Association de Pilotage des Conférences B, British Computer Society, BCS-FACS Specialist Group, EPSRC VSR-net Network, London South Bank University and the Z User Group. A major focus of the conference will be a case study for a flash-based file system. An associated VSR-net Workshop will be held on 15 September immediately beforehand. We have sponsorship secured from Nokia, but additionally sponsorship is sought. Do contact Paul Boca with suggestions if you have any. For further information about ABZ 2008, see www.abz2008.org.

Most FACS events are held at the BCS offices since as a BCS Specialist Group, we can use these excellent facilities, including refreshments at no charge. Thanks are due to the British Computer Society for this wonderful facility. However, if FACS members wish to organize events elsewhere, please do feel free to contact Paul Boca or me to discuss this at any time. I look forward to seeing you at future BCS-FACS events in any case.

Seasons greetings and best wishes for 2008!

Rigorous Methods for Software Construction and Analysis, Dagstuhl Seminar 06191

Jonathan P. Bowen

Background

A week-long seminar on "Rigorous Methods for Software Construction and Analysis" was organized by Jean-Raymond Abrial (currently affiliated with ETH Zürich, Switzerland) and Uwe Glässer (of Simon Fraser University, Burnaby, Canada) at Schloss Dagstuhl in Saarland, Germany, close to the French border on 7–12 May 2006.

Schloss Dagstuhl, Saarland, Germany

For readers that have not visited, Dagstuhl [www.dagstuhl.de] is a wonderful retreat for computer scientists, holding residential seminars on a variety of computing topics, normally by invitation. It is deep in the Germany countryside, so there are few distractions apart from walks and cycle rides. The "Schloss" is more like a French château, with a wonderful music room and other facilities including a well-stocked and good-value bar. The atmosphere is informal and conducive to discussion that can extend into the small hours. Attached to the historic house by a covered bridge is a modern conference centre with an excellent library (including an entire set of the Springer Lecture Notes in Computer Science series). Access to more modern publications is increasingly electronic. A feature is that books and proceedings in the library by delegates are displayed and are often signed by the authors and editors.

The seminar was organized in collaboration with Bertrand Meyer (also based at ETH Zürich), although he could not be present for personal reasons. The idea of the seminar was to cover three major formal approaches, Abstract State Machines (ASM), the B-Method and the "design by contract" Eiffel approach, with attendees consisting of researchers from academia and industry representing these communities. (Even the drinks available for delegates were chosen appropriately – see left.) The approaches are academically and theoretically well-founded as well as being industrially relevant. However, the communities involved are largely disjoint and an intention of the workshop was deliberately to encourage communication between them.


Z and Eiffel refreshments!
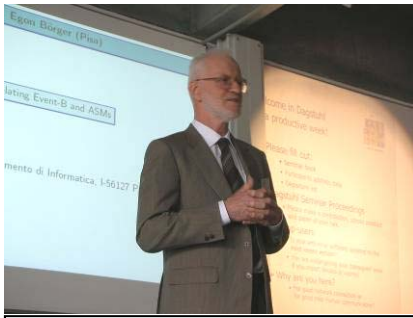
Prof. Egon Börger

Selected contributions

It is impossible to include information on all the presentations here, and these are available online in any case, for those that are interested [www.dagstuhl.de/06191]. The seminar was introduced by Prof. Egon Börger (University of Pisa, Italy), a — if not the — leading promulgator of the ASM community. He gave a talk on characterizing Event-B using Abstract State Machines.

Jean-Raymond Abrial gave an excellent exposition of a B case study, including visual animations on the screen during his talk. Uwe Glässer presented work on an abstract operational model for business process management based on web services using Business Process Execution Language (BPEL). Carroll Morgan from the University of New South Wales, Sydney, Australia, gave an interesting account of the formalisation of security and privacy properties using weakest precondition (wp) style (and hence B-style) reasoning. His examples included dining cryptographers!
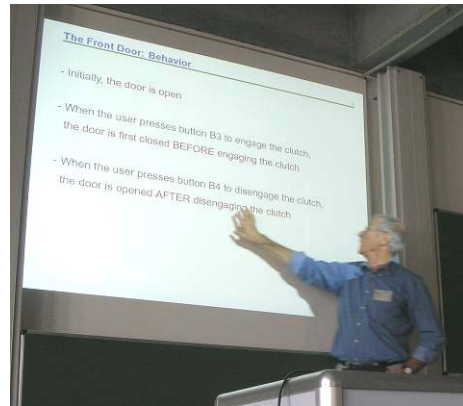
Prof. Jean-Raymond Abrial

Jonathan Bowen (your correspondent) presented a re-evaluation of "*The Ten Commandments of Formal Methods*", originally published in IEEE *Computer* in 1995, with an associated follow-up article in the same publication a little over ten years later. Also included was a summary of the activities with relation to the planned *Verified Software Repository* and the associated EPSRC VSR-net Network that is already underway [www.fmnet.info/vsr-net].

Gerhard Schellhorn based at the University of Augsburg, Germany, has been contributing to the efforts of VSR-net. He presented a machine-checked proof of the Mondex electronic purse, originally undertake by Susan Stepney,

LNCS volumes 1–10

David Cooper and Jim Woodcock using the Z notation with hand proofs. He used the KIV (Karlsruhe Interactive Verifier) specification and verification system, based on a structured algebraic specification style. The machine-checked approach found small errors in the hand-proofs.

The presentations are being edited into a set of papers that are being reviewed for a proceedings that is due to appear in the Springer-Verlag *Lecture Notes in Computer Science* series in due course. No doubt this will join the shelves of the Dagstuhl library. (See left for the first ten LNCS volumes in the library.)

Other activities

Porta Nigra, Trier

A feature of Dagstuhl seminars is an afternoon of outdoor activity during the middle of the week. Often this consists of a long walk through the countryside surrounding the castle. However at alternative option is to visit the local city of Trier, a northern outpost of the Roman Empire. Impressively, it includes the largest surviving Roman gateway north of the Alps, an entrance for the originally walled city, Porta Nigra. This survived as a converted church but was then restored as a triumphal gateway by Napoleon. It has been designated a World Heritage Site along with other Roman remains in Trier [http://en.wikipedia.org/wiki/Porta_Nigra].

Trier was also the birthplace of Karl Marx. For any readers planning to attend a Dagstuhl seminar who have already taken the walking option, Trier is a recommended alternative.

Group in Trier

Conclusion
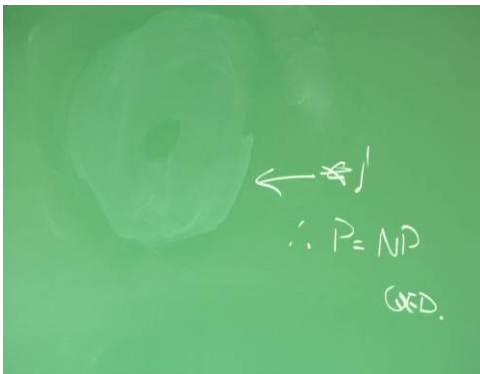
Blackboard at Dagstuhl!

This workshop successfully drew together different formal methods communities that otherwise largely undertake research separately. As mentioned earlier, a proceedings in the Springer-Verlag *Lecture Notes in Computer Science* series of papers based on presentations at the workshop is being prepared.

For the future, a joint conference between the ASM, B and Z formal methods communities was discussed at the Dagstuhl seminar. This conference (now dubbed "ABZ") is planned for September 2008 at the BCS London offices in Southampton Street, Covent Garden. It will be supported by BCS-FACS, as well as the relevant user groups. It is intended that this will draw together the ASM, B and Z notation communities in a similar manner to the Dagstuhl seminar. More information will be issued in the FACS FACTS newsletter in due course.

ICLP 2007, Porto, Portugal, September 2007
Margaret M. West

The 23rd International Conference on Logic Programming (ICLP) took place in Porto, Portugal during 8–13 September 2007. Porto is the second largest city in Portugal, located by the Douro River and the Atlantic.

Bridges on the Douro River

Porto is built on the slopes of the steep hills that overlook the River Douro and its historic centre has been classified by UNESCO as a World Heritage site. The 'granite city' is also known for its striking bridges and the much celebrated Port wine. In 2001, Porto (together with Rotterdam) was a European Cultural Capital. Porto's important cultural buildings include the new House of Music, created by Rem Koolhaas, and "Museu de Serralves", a Museum of Modern Art. Porto now has five bridges crossing the river, one of which was designed by Gustave Eiffel – two more are being built. A river cruise and banquet was organised for participants of the conference – the above photograph was taken on the cruise.

Porto is famous for its Port Wine – an industry which commenced in the late 17th century and culminated in the Methuen Treaty (1703). The conference banquet was hosted by Taylor's port wine company and was preceded by a tour of the cellars. During the banquet we were entertained by folk singers and dancers. The picture to the left shows the tour in the wine cellar.

The first ICLP conference was held in Marseilles in 1982, and since then ICLP has been the premier international conference for presenting research in logic programming.   The Conference overall was stimulating and covered many areas of research including `Answer Set Programming', `Semantics' and `Constraint Logic Programming'. There were also several talks in application areas. I gave a short talk and poster in this area: *The Application of a Logic Programming Language to the Animation of Z Specifications.*

During the conference a Prolog Competition also took place and prizes were presented at the Conference banquet.

Invited talks

The first invited talk was given by Chitta Baral, Arizona State University, USA: *Towards Overcoming the Knowledge Acquisition Bottleneck in Answer Set Prolog Applications: Embracing Natural Language Inputs.*

An abstract follows: Answer set Prolog, or AnsProlog in short, is one of the leading knowledge representation (KR) languages with a large body of theoretical and building block results, several implementations and reasoning and declarative problem solving applications. But it shares the problem associated with knowledge acquisition with all other KR languages; most knowledge is entered manually by people and that is a bottleneck. Recent advances in natural language semantics have led to some systems that convert natural language sentences to a logical form. Although these systems are in their infancy, they suggest a direction to overcome the above mentioned knowledge acquisition bottleneck. In this talk we will discuss some recent work by us on developing applications that process logical forms of natural language text and use the processed result together with AnsProlog rules to do reasoning and problem solving. In particular we will discuss reasoning in the travel domain, textual entailment, reasoning about cardinality of sets, and solving combinatorial puzzles. The talk included joint work with Michael Gelfond, Marcello Balduccini, Richard Scherl, and my students Luis Tari and Juraj Dzifcak.

The second invited talk was given by Gerhard Brewka, University of Leipzig, Germany: *Preferences, Contexts and Answer Sets.* A short abstract follows: Answer set programming (ASP) is a declarative programming paradigm based on logic programs under stable model semantics, respectively its

generalization to answer set semantics. Besides the availability of rather efficient answer set solvers, one of the major reasons for the success of ASP in recent years was the shift from a theorem proving to a constraint programming view: problems are represented such that stable models, respectively answer sets, rather than theorems correspond to solutions. Explicit representations of contexts have quite a tradition in AI, going back to foundational work of John McCarthy. A context, intuitively, is a particular view of a state of affairs. Contexts can also be used as representations of beliefs of multiple agents.

The presentation indicated how multi-context systems based on bridge rules, as developed by Fausto Giunchiglia and colleagues in Trento, can be extended to non-monotonic context systems. Multi-context logic programming systems were first discussed, and then generalized. Techniques from answer set programming are at the heart of the framework. Finally, a brief outlook was given on how the two main topics of the talk, preferences and contexts, could be combined fruitfully. Several of the presented results were obtained in cooperation with Thomas Eiter, Ilkka Niemela and Mirek Truszczynski.

ICLP 2007 Seminars

Thomas Eiter, Vienna University of Technology, Austria
Answer Set Programming for the Semantic Web

Miroslaw Truszczynski, University of Kentucky, USA
Logic Programming for Knowledge Representation

Gopal Gupta, University of Texas at Dallas, USA
Coinductive Logic Programming and its Applications

Michael Hanus, Christian-Albrechts-Universität zu Kiel, Germany
Multi-Paradigm Declarative Languages

More details including full abstracts and slides can be found at
www.dcc.fc.up.pt/iclp07/invited.html.

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FACS FACTS Issues in 2008

Call for Submissions

We welcome contributions for the next issue of *FACS FACTS*, in particular:

- Letters to the Editor
- Conference reports
- Reports on funded projects and initiatives
- Calls for papers
- Workshop announcements
- Seminar announcements
- Formal methods websites of interest
- Abstracts of PhD theses in the formal methods area
- Formal methods anecdotes
- Formal methods activities around the world
- Formal methods success stories
- News from formal methods-related organizations
- Experiences of using formal methods tools
- Novel applications of formal methods
- Technical articles
- Tutorials
- Book announcements
- Book reviews
- Adverts for upcoming conferences
- Job adverts
- Puzzles and light-hearted items

Please send your submissions (in Microsoft Word, LaTeX or plain text) to Margaret West [editor@facsfacts.info], the Newsletter Editor.

If you would like to be an official *FACS FACTS* reporter or a guest columnist, please contact the Editor.

Forthcoming Events

BCS FACS Seminars

These take place at
BCS London Offices
First Floor, The Davidson Building
5 Southampton Street
London WC2E 7HA

December 2007

BCS-FACS Christmas Event
Formal Methods In Industry
17 December 2007
All day event
www.bcs-facs.org/events/xmas2007.html

GC6 Workshop on the Verifiable File Store Mini-Challenge
18 December 2007
All day event
www.fmnet.info/gc6/workshop-dec07.pdf

March 2008

Professor Steve Schneider (University of Surrey)
3 March 2008
Evening Seminar

ABZ 2008 Conference

BCS London Offices, Covent Garden, London, September 16–18, 2008

Call for Papers

Abstract State Machines (ASM), B and Z stand for three rigorous methods that share a common conceptual foundation and are widely used in both academia and industry for the design and analysis of hardware and software systems. This conference is dedicated to the cross-fertilization of these three related state-based and machine-based formal methods. The program spans from theoretical and methodological foundations to practical applications, emphasizing system engineering methods and tools that are distinguished by mathematical rigor and have proved to be industrially viable. A main goal of the conference is to contribute to the integration of accurate state- and machine based system development methods, clarifying their commonalities and differences to better understand how to combine related approaches for accomplishing the various tasks in modelling, experimental validation, and mathematical verification of reliable high-quality hardware/software systems.

The conference will be articulated into a one-day common program of invited lectures and two days of contributed papers. Although organized logistically as an integral event, editorial control of the joint conference remains vested in three separate programme committees, which will respectively determine its ASM, B and Z content, to be presented in parallel conference tracks with a schedule to allow the participants to switch between the sessions. The conference simultaneously incorporates the 15th International ASM Workshop, the 17th International Conference of Z Users and the 8th International Conference on the B Method. It will be preceded by a tutorial day and Verified Software Repository Network (VSR-net) workshop on Monday, September 15.

A case study for design and verification of a flash-based file system is suggested to the participants. Leo Freitas and Jim Woodcock will organize a series of intermediate workshops where those who decide to work on the problem can meet to enhance the collaborative aspect of the work. For details, see: http://www.cs.york.ac.uk/circus/mc/abz/.

The papers are planned to be published in a volume of Springer's LNCS series. Contributions are solicited on all aspects of the theory and applications of ASMs, B, Z and related approaches in software/hardware engineering, including the development of tools and industrial applications.

Two kinds of contributions are invited:

1. Research papers: full papers (not extended abstracts) of not more than 12 pages (in LNCS format), which have to be original, unpublished and not submitted elsewhere. Papers dealing with the case study are particularly welcome.

2. Short presentations of work in progress, industrial experience reports and tool demonstrations. An extended abstract of not more than 3 pages is expected and will be reviewed. The volume of accepted extended abstracts will be made available at the time of the conference on the website of the conference, a one-page abstract of each presentation will be published in the Proceedings.

Conference Chair
Egon Börger, University of Pisa, Italy

Program Chairs
Egon Börger, University of Pisa, Italy (ASM)
Michael Butler, University of Southampton, UK (B)
Jonathan Bowen, London South Bank University, UK (Z)

Local Chair and Financial Chair
Paul Boca, London South Bank University, UK

Chair of the VSR day
Jim Woodcock, The University of York, UK

Programme Committees

For ASMs:
Egon Börger, University of Pisa, Italy (Chair)
Alessandra Cavarra, Oxford University, UK
Andreas Friesen, SAP Research, Germany
Uwe Glaesser, Simon Fraser University, Canada
Susanne Graf, Verimag, France
Kristina Lundqvist, MIT, USA
Andreas Prinz, Agder University College, Norway
Elvinia Riccobene, University of Milan, Italy
Klaus-Dieter Schewe, Massey University, New Zealand
Anatol Slissenko, University of Paris 12, France
Jan Van den Bussche, University of Hasselt, Belgium
Margus Veanes, Microsoft Research, USA
Chuck Wallace, Michigan Technological University, USA

For B:
Christian Attiogbé, LINA Université de Nantes, France
Richard Banach, University of Manchester, UK
Juan Bicarregui, STFC-Rutherford Appleton Laboratory, UK
Michael Butler, University of Southampton, UK (Chair)
Dominique Cansell, LORIA, University of Metz, France
Daniel Dolle, Siemens Transportation Systems, France
Marc Frappier, Université de Sherbrooke, Canada
Jacques Julliand, LIFC Université de Besançon, France
Regine Laleau, LACL IUT Fontainebleau, France
Michael Leuschel, Heinrich-Heine-Universität Düsseldorf, Germany

Dominique Mery, Université Henri Poincaré Nancy, France
Annabelle McIver, Macquarie University, Australia
Louis Mussat, ClearSy, France
Marie-Laure Potet, LSR-IMAG Grenoble, France
Ken Robinson, University of New South Wales, Australia
Emil Sekerinski, McMaster University, Canada
Steve Schneider, University of Surrey, UK
Bill Stoddart, University of Teesside, UK
Elena Troubitsyna, Åbo Akademi University, Finland
Mark Utting, University of Waïkato, New Zealand

For Z:
Jonathan Bowen, London South Bank University, UK (Chair)
John Derrick, University of Sheffield, UK
Leo Freitas, The University of York, UK
Martin Henson, University of Essex, UK
Mike Hinchey, Loyola College in Maryland, USA
Randolph Johnson, National Security Agency, USA
Yves Ledru, LSR-IMAG, France
Steve Reeves, University of Waikato, New Zealand
Mark Utting, University of Waikato, New Zealand
Sergiy Vilkomir, The University of Tennessee, USA
Jim Woodcock, The University of York, UK

Venue
The conference will take place at the BCS London Offices, Davidson Building, 5 Southampton Street, Covent Garden, London, UK. The support of the British Computer Society, through the BCS Formal Aspects of Computing Science Specialist Group, in providing the venue and refreshments, is gratefully acknowledged.

Important dates:
March 3, 2008:
 Submission of full papers.
March 31, 2008:
 Submission of extended abstracts for short presentations.
April 14, 2008:
 Communication about acceptance/rejection of submitted papers
 and extended abstracts.
May 5, 2008:
 Camera-ready version of the accepted full papers and 1-page
 abstract for the short presentations.
September 15, 2008:
 Tutorials and VSR-net workshop.
September 16–18, 2008:
 Main ABZ 2008 conference.

Information on the procedure how to submit papers, to register, to reach London, weather conditions, etc., will be available in due time at the conference website under www.abz2008.org.

Supported by:
 ASM User Group
 Association de Pilotage des Conférences B
 British Computer Society
 BCS-FACS Specialist Group
 EPSRC VSR-net Network
 London South Bank University
 Nokia
 Z User Group

For questions concerning ABZ 2008, contact:
Prof. Egon Börger boerger@di.unipi.it

For further conference announcements, please visit the **Formal Methods Europe** (FME) website [http://www.fmeurope.org], the **EATCS** website [http://www.eatcs.org] and the **Virtual Library Formal Methods** website [http://vl.fmnet.info/meetings].

Obituary: John Backus

Tim Denvir

It is a sobering reflection of the incipient maturity of our profession that obituaries of computer scientists are beginning to appear as frequently as in other disciplines. Amongst those familiar with formal methods, the name of John Backus will most immediately evoke the formalism of *BNF*, Backus Normal Form. But this was not Backus' first achievement. While working at IBM, he proposed a language design for the first "Mathematical Formula Translating System", *FORTRAN*, for the new IBM 704, launched in 1954. This was one of the first high level languages, but users of IBM and other machines needed persuading to forgo the perceived greater execution speed of assembly language programs; execution time and storage space were to be a major part of the cost of computer usage for at least a further decade. To overcome this reluctance, *FORTRAN* compilers had to employ a fair measure of optimisation from the very first implementations. Backus led the team that developed and delivered the first *FORTRAN* compiler in 1957. *FORTRAN* continues to be used for advanced scientific computations to this day.

In 1957 and 1958 the ACM and GaMM—Gesellschaft für angewandte Mathematik und Mechanik (Society for applied Mathematics and Mechanics) were making proposals for a new universal algorithmic language. ACM and GaMM held a joint meeting in May-June 1958 to combine the two efforts. Eight people took part, John Backus being one of four representing ACM. *Algol58* was the result, the first of the Algol family. Seven of the original committee, including John Backus, were joined by six others and produced the *Algol60* report. *Algol58* saw several implementations and *Algol60*, which soon superseded *Algol58*, saw many more. Backus devised the formalism *BNF*, Backus Normal Form, in which the definition of *Algol58* was written. *BNF* was extended by Peter Naur and used to define *Algol60*, after which its expansion became known as Backus-Naur Form. *Algol58* and *Algol60* were the first language definitions that used such a rigorous means to define their syntax. Many complex scientific programs were written in *Algol60*, but perhaps the greatest use of the language was as a standard for publishing algorithms. For many years it was the standard for the CACM Algorithms Supplement and for algorithms published by the UK National Physical Laboratory. The inherently recursive structure of *BNF* definitions strongly suggested how the syntax analysis phase of compilers could be similarly structured. It is arguable that the arrival of *BNF* had an immediate influence on compiler technology and facilitated the rapid development of a series of compiler generator tools starting with Brooker and Morris's *Compiler-Compiler* and eventually leading on to *YACC* and many others.

In the 1970s Backus concentrated on pioneering ideas in functional programming and developed *FP*, a "function-level" programming language. This was the subject of his 1977 ACM Turing Award lecture, *"Can Programming be Liberated from the von Neumann Style?"*. An *FP* interpreter was distributed with the 4.2BSD (Berkeley Software Distribution) *UNIX* in 1982. Backus continued to

work on developing functional programming ideas and in 1989 produced *FL*, a dynamically typed successor to *FP*.

In addition to the ACM Turing Award, John Backus received other honours: an Honorary Doctorate from the University of Nancy, France in 1989, and the Charles Stark Draper prize from the U.S. National Academy of Engineering in 1993. Also, an asteroid, 6830, was named after him posthumously in June 2007. But perhaps his most persistent memorial will be *BNF* itself. Not many people leave behind an eponymous formalism; in John Backus' case, it is well deserved.

John Backus, born December 3rd, 1924, died March 17th, 2007.

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You can also contact the other Committee members via this email address.

Please feel free to discuss any ideas you have for FACS or voice any opinions openly on the FACS mailing list [FACS@jiscmail.ac.uk]. You can also use this list to pose questions and to make contact with other members working in your area. Note: only FACS members can post to the list; archives are accessible to everyone at http://www.jiscmail.ac.uk/lists/facs.html.

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