**Minutes of the:**    **19<sup>th</sup> meeting of Ecma TC39**

**held in:**    **Kamuela, Hawai'i, USA**

**on:**    **11 March 2004**

| | |
|---|---|
| **Chairman:** | Mr. J. Marcey (Intel) |
| **Vice-Chairman:** | Mr. A. Clinick (Microsoft) |
| **Secretary:** | Mr. J. van den Beld (SG Ecma International) |
| **Attending:** | Mr. J. Dyer (Macromedia), Mr. R. Jaeschke (Microsoft), Mr. B. Kadhim (Fujitsu), Mr. N. Perry (University of Canterbury), Mr. T. Plum (Plum Hall), Mr. P. Sestoft (University of Copenhagen) and Mr. Stapf (teleconf. only). |
| **Excused:** | Mr. W. Schulze (Macromedia) |
| **Guests:** | Mr. T. Kurokawa (CSK Japan) |

## 1  Opening, welcome and roll call

**Mr. Marcey,** Chairman of TC39, opened the meeting. A roll call was held.

## 2  Adoption of the agenda (2005/004)

The agenda was adopted.

## 3  Approval of the minutes of the 18<sup>th</sup> meeting (2004/046)

The minutes of the 18<sup>th</sup> meeting were approved.

## 4  Matters arising from the minutes not covered elsewhere

None.

## 5  Reports/actions from TC39 Task Groups

The reports have been attached to the pdf version of these minutes

### 5.1  Status report from Task Group 1: Dynamic Scripting Language

**Mr. Dyer** presented the TG1 report and status: see TG1/2005/003.

TG1 is taking a fairly straight marketing approach to arrive at the next, i.e., 4<sup>th</sup> Edition of ECMA--262: ECMAScript. Some of the enhancements to be interpreted in the 4<sup>th</sup> Edition are classes, runtime type checking and the integration of the E4X language features. The current approach is first to have at least one implementation completed – to be used as a reference – before publication of the next Edition. Mozilla is finishing such an implementation.

The E4X standard ECMA-357 has been approved as ISO/IEC 22537, with one negative vote. TG1 is preparing the Disposition of Comments report and the final DIS text.

## 5.2 Status report from Task Group 2: C#

**Mr. Perry**, Convenor of TG2, presented the TG2 report and status: see TG2/2005/009.

The new, i.e. 3$^{rd}$ Edition is complete. The standard has been changed substantially.

## 5.3 Status report from Task Group 3: Common Language Infrastructure

**Mr. Marcey**, Convenor of TG3, presented the TG3 report and status: see TG3/2005/022.

After six months of hard work the new, i.e. 3$^{rd}$ Edition of the standard is complete. The current working draft of the specification is WD2.11, which means that eleven iterations of the specification have been edited and circulated since the 2$^{nd}$ Edition.

TG3 thanked **Mr. Marcey** for his persistent behaviour as the perfect 'tracking machine', and **Mr. Jaeschke** for his meticulous editing efforts.

## 5.4 Status report from Task Group 4: Eiffel

**Mr. Stapf**, Convenor of TG4, presented the TG4 report: see TG4/2005/003. TG4 uses ETL3 ("Eiffel the Language 3") as base document for the standard: the 1$^{st}$ Edition is now complete.

## 5.5 Status report from Task Group 5: CLI Binding for C++

**Mr. Plum**, Convenor of TG5, presented the TG5 report and status: see TG5/2005/013.

The current working draft of the specification is WD1.8, which means that eight iterations of the specification have been edited and circulated since the start of TG5. The goal of TG5 is to complete and approve its Standard in December 2005. TG5 had hoped to complete the standard for June 2005 but a lot of recent comments have made this not feasible. C++ for CLI needs to be able to compile all existing C++ code, and to support all existing platforms. C++ has a 20-year trail history, and is very complex. Also the priority assigned to an implementation over the development of the standard is causing some delays. But TG5 does not see negative implementations of the half-year slip in the publication of the standard.

There are currently 50 outstanding action items.

# 6 Presentation and discussion of Final Drafts for next GA

## 6.1 TG2: C#, Final Draft for the 3rd Edition

TC39 unanimously approved the Final Draft of the 3$^{rd}$ Edition of ECMA-334, C# Language Specification, for approval by the GA in June 2005, and for adoption by ISO/IEC JTC 1 under their fast-track procedure as the 2$^{nd}$ Edition of ISO/IEC 23270.

Microsoft and Mono implementations for C# are available.

## 6.2 TG3: CLI, Final Draft for the 3$^{rd}$ Edition

TC39 unanimously approved the Final Draft of the 3$^{rd}$ Edition of ECMA-335, Common Language Infrastructure (CLI), for approval by the GA in June 2005, and for adoption by ISO/IEC JTC 1 under their fast-track procedure as the 2$^{nd}$ Edition of ISO/IEC 23271.

TC39 unanimously approved the Final Draft of the 3$^{rd}$ Edition of ECMA TR/84, 'Technical Report on CLI: Information derived from Partition IV XML File' (title to be confirmed), for approval by the GA in June 2005, and for adoption by ISO/IEC JTC 1 under their fast-track procedure as the 2$^{nd}$ Edition of ISO/IEC TR 23272, a Type 3 TR.

TC39 unanimously approved the Final Draft of the 1$^{st}$ Edition of the Ecma TR on 'Common Generics', for approval by the GA in June 2005, and for adoption by ISO/IEC JTC 1 under their fast-track procedure as a Type 2 TR.

### 6.3 TG4: Eiffel, Final Draft for the 1$^{st}$ Edition

TC39 unanimously approved the Final Draft of the 1st Edition of the Ecma Standard on 'Eiffel analysis, design and Programming Language' for approval by the GA in June 2005, and for adoption by ISO/IEC JTC 1 under their fast-track procedure.

## 7 Special election of Officers

### 7.1 Vice-Chairman

**Mr. Clinick**, who has been in TC39 since 1997 – the 4$^{th}$ meeting of TC39 – is leaving TC39 and changing jobs in Microsoft. On behalf of Microsoft he proposes **Mr. K. Hoover** as his successor as Vice-Chairman of TC39. **Mr. Hoover** is also prepared to become Chairman when the TC39 Officers for 2006 have to be elected, in the meeting in September 2005. TC39 unanimously elected **Mr. Hoover** as Vice-Chairman for the rest of 2005.

TC39 rendered many thanks to **Mr. Clinick** for his numerous constructive and positive contributions to make TC39 recognized worldwide for its very important results, and for his steadfast gentlemanlike behaviour. TC39 wishes him all the best for the future.

## 8 Any other business

None.

## 9 Date and place of next meeting

No 20, Redmond/WA-USA, 23$^{rd}$ of September 2005, starting at 13:00, on kind invitation by Microsoft.

The 20$^{th}$ TC39 Plenary meeting is preceded by TG (TG1, TG2, TG3, TG5) meetings during this week of 19-23 September 2005.

No 21, Sacramento or Montreux, 24$^{th}$ March 2006 (venue and date to be confirmed).

The 21$^{st}$ TC39 meeting is probably combined with the ballot resolution meetings, if any, for the five fast-tracked standards and TRs.

## 10 Closure

**Mr. Marcey**, Chairman of TC39, thanked Plum Hall for the excellent logistics, hospitality and meeting facilities, and Ecma for a well-attended pleasant social event.

The meeting was then closed shortly after noon.

## TG1 Convener's Report to TC39
### 11 March 2005

## Officers

Convener: Mr. William A. Schulz, Macromedia, Inc.

Editor: Mr. Jeff Dyer, Macromedia, Inc.

## Meetings

The following meetings and phone conferences have occurred since the September 2004 report:

| | |
|---|---|
| 28 October 2004 | Redmond, WA, USA, hosted by Microsoft |
| 9 December 2005 | San Francisco, CA, hosted by Macromedia |
| 20 January 2005 | San Francisco, CA, hosted by Macromedia |
| 17 February 2005 | San Francisco, CA, hosted by Macromedia |

The next upcoming meeting is:

| | |
|---|---|
| 21 April 2005 | Mountain View, CA, to be hosted by Google |

## Attendees

The meetings were attended by representatives from member companies Macromedia, Microsoft, BEA, Mozilla Foundation, IBM Corporation. Invited guests included representatives from Google.

## Progress

Over the last 6 months, TG1 has submitted comments on behalf of Ecma to the ISO Fast-Track DIS-22537 (E4X), and has begun drafting responses to comments received, and revising the specification for submission to ISO. TG1 has also continued working on edition 4 of Ecma-262.

## Latest Status

TG1 expects to have a draft of DIS-22537 ready for submission to ISO by the end of our next face-to-face meeting on April 21st. Work on ECMA-262 edition 4 will then become the group's primary focus.

Mr. John Schneider has resigned as co-editor of TG1.

## Drafts to be submitted to TC for adoption

None.


William A. Schulze

**Convener TG5**

## TG2 Convener's Report to TC39

### 11 March 2005

## Officers

Convener: Dr. Nigel Perry, University of Canterbury (NZ)

Editor: Mr. Rex Jaeschke, Microsoft Corporation

## Meetings

The following meetings have occurred since the September 2004 report:

Jan 2005        Face-to-Face, Redmond, WA, USA, hosted by Microsoft Corporation

Mar 2005        Face-to-Face, Kohala Coast, HI, USA, hosted by Plum Hall

The next upcoming meetings are:

April 2005        Tele-conference

Sept 2005        Face-to-Face. Location to be decided

## Attendees

The meetings were attended by representatives from member companies IT University of Copenhagen, Microsoft, Novell, Plum Hall and University of Canterbury (NZ). Invited guests attended from CSK (Japan) and from Jagger Software (UK, via tele-conference).

## Progress

Edition 3 is now complete. The Standard contains several new core features: generics, nullable types, iterators, anonymous methods, partial types, static classes, #pragma, and an explicit namespace qualifier.

TG2 plans to meet in Sept 2005 to determine if any submission to the ISO/IEC JTC 1 fast track process is required, and in early 2006 if required to address public comments to ISO.

The convener would like to thank the task group members for all of their hard work during the last six months.

## Latest Status

As reported in the previous TG2 convenors report, TG2 is now pleased to present edition 3 of the C# specification for approval by TC39.

## Drafts to be submitted to TC for adoption

Working draft 2.11 of edition 3 of the C# specification.

## Recommendations

TG2 recommends that WD 2.11 be adopted, and submitted to the GA for approval as a Standard, and then bring the specification into ISO's fast track process.


Nigel Perry

**Convener TG2**

## TG3 Convener's Report to TC39

### 11 March 2005

## Officers

Convener: Mr. Joel Marcey, Intel Corporation

Editor: Mr. Rex Jaeschke, Microsoft Corporation

## Meetings

The following meetings and phone conferences have occurred since the September 2004 report:

| | |
|---|---|
| 30 September 2004 | Phone conference |
| 12 October 2004 | Phone conference |
| 19-21 October 2004 | Face-to-Face, Redmond, WA, USA, hosted graciously by Microsoft |
| 28 October 2004 | Phone conference |
| 11 November 2004 | Phone conference |
| 22 November 2004 | Phone conference |
| 6 December 2004 | Phone conference |
| 20 December 2004 | Phone conference |
| 24-27 January 2005 | Face-to-Face, Redmond, WA, USA, hosted graciously by Microsoft |
| 16 February 2005 | Phone conference |
| 8-9 March 2005 | Face-to-Face, Kamuela, HI, USA, hosted graciously by Plum Hall |

The next upcoming face-to-face meeting is:

Unknown

## Attendees

The meetings were attended by representatives from member companies Intel Corporation, Fujitsu, Eiffel Software, Microsoft Corporation, University of Canterbury New Zealand, Borland Software, Novell Corporation, IT University of Copenhagen, and Plum Hall.

## Progress

Over the last 6 months, the TG3 has had 3 face-to-face (F2F meetings and 9 phone conferences.

These 6 months have been primarily preparation in finalizing edition 3 of the CLI specification for a recommended TC39 adoption, after the technical group's decision to push out the recommendation from September 2004 to March 2005.

The key areas of focus for the TG3 during its meetings were ensuring a solid foundation for generics (e.g. constraints), a quality set of generics collections class library types, solid CLS rules supporting

generics, enhancing and fixing existing library types, and prioritizing and reducing the 150+ action items and comments to zero.

Some of the areas that required special attention over the last 6 months were deciding how to deal with the unification of methods on specific type instantiations, incorporating generics with type and reflection operations, determining the constraints on generics and deciding the balance between a quality set of generics collection classes vs. quality of types available and time available for review.

## Latest Status

The CLI specification is at its edition 3 "stopping point" from a TG3 perspective and a recommendation to the TC39 is the next step.

The current working draft of the specification is WD2.11 (as of the March meeting), which means that eleven iterations of the specification have been edited and circulated since edition 2.

Incorporated in this working draft are improvements/edits to the edition 2 specifications (including the libraries), the core of the generics technology, relaxed exception ordering and disablement of runtime checks – both of which allow for more performant CLI implementations, a methodology for exchanging debugging information across implementations, a parallel API to allow for easy programming of multithreaded applications, a alternative representation for generic types (as a TR), new library types to support generics, new CLS rules to support generics, new generic members on existing library types, removal or modification of existing CLS rules to match existing practice and/or allow for greater flexibility, and other technologies.

The compact profile is still in tact after being assured by the primary implementation (Microsoft CF) that it is prepared to work to be compliant.

All priority action items and comments have been resolved and incorporated, withdrawn or postponed.

The convener would like to thank the task group for all of their hard work during the last six months. The convener would like to extend a special thank you to the editor of the CLI specification, Rex Jaeschke, for his unwavering dedication to creating a quality specification. There was a lot to do over the last 6 months – thank you Rex.

## Drafts to be submitted to TC for adoption

Edition 3 of the CLI Specification (Partitions, Library XML) and 2 accompanying Technical Reports

## Recommendations

The TG3 recommends the TC39 approve and adopt edition 3 of the CLI Specification for CC and GA approval into ECMA standard, and then bring the specification into ISO's fast track process.

Joel Marcey

Convener TG3

## TG4 Convener's Report to TC39
### 11 March 2005

## Officers

Convener: Emmanuel Stapf

Editor: Prof. Bertrand Meyer

## Meetings

There have been four face-to-face meetings of TG4 since the March 2004 TC39 Meeting:

27-29 September 2004      Zurich, Switzerland, hosted by ETH

9-11 December 2004      Orinda, USA, hosted by Axa Rosenberg

4-6 February 2005      Zurich, Switzerland, hosted by ETH

25-27 February 2005      Goleta, USA, hosted by Eiffel Software

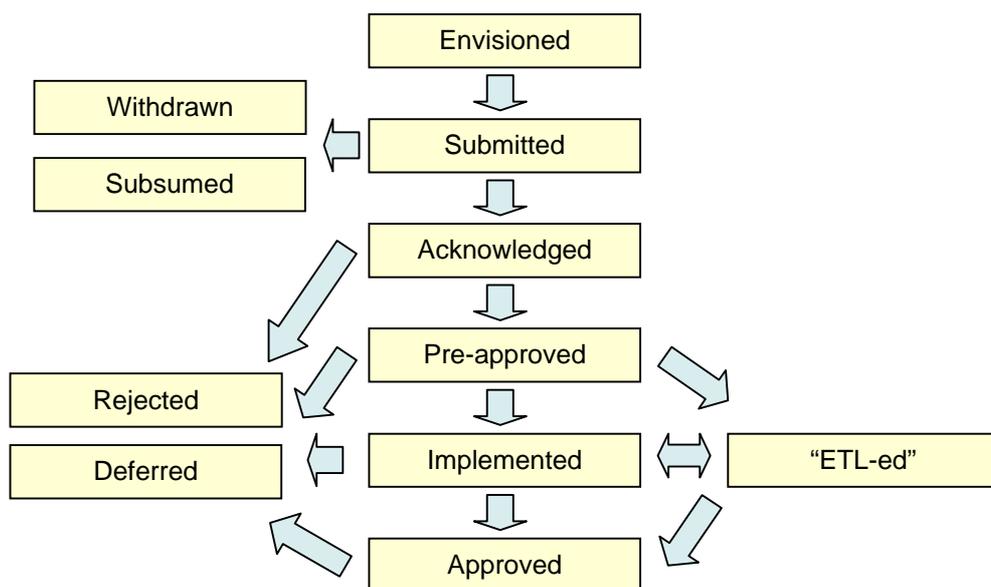We also had five phone conferences: 2,3,4,5 and 10 March 2005.

We will hold frequent phone conferences over the next month. The first one will be on March 14th; the task group will during that conference determine the planning for the following ones.

## Attendees

The meetings were attended by representatives from member companies Axa Rosenberg, Eiffel Software, Enea Business Software, ETH Zurich, LORIA, EMC.

## Standard issue handling process

The following diagram represents the process followed by TG4 to evaluate issues and explains the mentions of issue status appearing below, such as "pre-approved".

Envisioned

Submitted

Withdrawn

Subsumed

Acknowledged

Pre-approved

Rejected

Deferred

Implemented

"ETL-ed"

Approved

A proposal will not be "approved" until it has been both "implemented" successfully by at least one compiler and "ETL-ed", that is to say fully specified in the draft language reference, implying that all of its interactions with other language mechanisms have been carefully analyzed and documented.

Although the task group really wanted the both `implemented' and `ETL-ed' for all the proposals, we agreed that the text of the standard might contain a few elements that might not be implemented at the time of the adoption.

## Progress

The task group spent most of the time resolving remaining open issues in various proposals in order to finalize the text of the standard. At the last face-to-face meeting and at the following conference calls, we started reviewing the final text of the standard.

## Latest Status

We have 103 proposals under consideration with the following status:

- 22 withdrawn
- 7 subsumed
- 25 deferred
- 3 rejected

- 20 pre-approved
- 1 implemented
- 11 ETL-ed
- 14 approved

## Drafts to be submitted to TC for adoption

The task group expects to submit the specification to the TC for adoption.

## Recommendations

TG4 recommends that the above-mentioned specification be adopted, and submitted to the GA for approval as the first edition of the Eiffel standard.

Emmanuel Stapf

Convener TG4

# TG5 Convener's Report to TC39

## 11 March 2005

## Officers

Convener: Dr. Thomas Plum, Plum Hall Inc

Editor: Mr. Rex Jaeschke, Microsoft Corporation

## Meetings

The following meetings and phone conferences have occurred since the September 2004 report:

| | |
|---|---|
| 22-23 October 2004 | Face-to-Face, Redmond, WA, USA, hosted by Microsoft |
| 20-21 January 2005 | Face-to-Face, Westfield NJ, USA, hosted by EDG and Dinkumware |
| 3 February 2005 | Phone conference |
| 10 February 2005 | Phone conference |
| 17 February 2005 | Phone conference |
| 20-21 7, 8, 11 March 2005 | Face-to-Face, Kamuela, USA, hosted by Plum Hall |

The next upcoming face-to-face meeting is:

| | |
|---|---|
| 19,20, 23 September 2005 | Face-to-Face, Redmond, WA, USA, hosted by Microsoft |

## Attendees

The meetings were attended by representatives from member companies Borland, Dinkumware Ltd, Edison Design Group, IBM, Microsoft, and Plum Hall. Invited guests included representatives from Jagger Software.

## Progress

Over the last 6 months, the TG5 has had 3 face-to-face meetings and 3 phone conferences.

## Latest Status

The current working draft of the specification is WD1.10 (as of the March meeting). The TG agreed to push the finalization of edition 1 from March 2005 to September 2005. The TG did not want to rush a specification that was not ready. As of 8 March 2005, there are 50 outstanding technical action items, and 1 editorial action item, some of which just need an official re-visit to resolve. The convener would like to thank the task group for all of their hard work during the last six months.

## Drafts to be submitted to TC for adoption

None

Thomas Plum

**Convener TG5**