Minutes of the 1st meeting of TC39 i.s.n.

held in Mountain View, CA, USA on 21st - 22nd November 1996

Acting Chairman:	Mr. J. van den Beld
Secretary:	Mr. J. van den Beld (SG ECMA)
Attending:	Mr. Cargill (Netscape), Ms. Converse (Netscape), Mr. Eich (Netscape), Mr. Fisher (NIST), Mr. Gardner (Borland), Mr. Krull (Borland), Mr. Ksar (HP), Mr. Lenkov (HP), Mr. Lie (W3C), Mr. Luu (Mainsoft), Mr. Mathis (Pithecanthropus, JTC1/SC22), Mr. Matzke (Apple), Mr. Murarka (Spyglass), Ms. Nguyen (Netscape), Mr. Noorda (Nombas), Mr. Palay (Silicon Graphics), Mr. Reardon (Microsoft), Mr. Robinson (Sun), Mr. Singer (IBM), Mr. Smilonich (Unysis), Mr. Smith (Digital), Mr. Stryker (Netscape), Ms. Thompson (Unisys), Mr. Urquhart (Sun), Mr. Veale (Borland), Mr. Welland (Microsoft), Mr. White (AAC Group, Microsoft), Mr. Willingmyre (GTW Associates, Microsoft), Mr. Wiltamuth (Microsoft).
Excused:	Mr. Huffadine (Callscan)

1 Opening/Welcome

Mr. van den Beld, acting chairman, opened the meeting on behalf of ECMA.

Mr. Stryker (VP Netscape) welcomed, as host for the meeting, the attendants to this first meeting on the standardization of a scripting language specification, an important business objective for Netscape, which has offered the functional specification of JavaScript to assist in satisfying the objective in an effective and efficient manner. **Mr. Stryker** wished the group success in developing a standard in a process with relatively little freedom for changes, i.e. deviations from the specifications of current implementations are not desirable. However, extensions may be possible in future.

2 Roll call

All attendants introduced themselves. There were 30 attendants from 19 organizations (13 industries and 6 organizations).

3 Adoption of the agenda (96/1)

The agenda was adopted without modifications.

3.1 Short introduction on ECMA

Mr. van den Beld presented a short introduction on ECMA. The work in ECMA is completely determined and controlled by its members, and this has always been so since its establishment in 1961. Companies which want to participate on a regular basis in one or more ECMA standardization projects have to join the Association which is a non-profit organization with strong links to all formal IT standardization bodies. See attachment A.

4   Presentations by Netscape

4.1   **Mr. Cargill** presented general information about the Netscape contribution to the project. This contribution consists of the specification of JavaScript. JavaScript is a product owned by Netscape, the name JavaScript is trademarked and, therefore, cannot be used in the title of the standard without legal waiver. Netscape intends to comply fully with the IPR policy of ECMA, which is equally valid for ISO. The forthcoming standard shall not infringe existing implementations. Very likely a 'version', i.e. evolutionary standard will be needed, but the first version shall be developed very rapidly: extensions can probably be added in later versions.

Note from secretary:

ECMA uses two types of IPR declarations ('patent statements'), both of which are also acceptable to ISO. One has some reciprocity element (mainly to try to prevent monopolization by a counterfeiter), one has not. The text of the two types of declarations reads (for topic XYZ, by company ABC):

1. <Company ABC> hereby declares that it is prepared to license, on reasonable terms and on a non-discriminatory basis, its patents and other intellectual property rights which are necessary for the manufacture (implementation) of <topic XYZ> to parties who wish to obtain such licenses.

2. If ECMA adopts a standard on <topic XYZ>, <company ABC> is willing to grant non-exclusive, non-transferable licenses on fair, reasonable and non-discriminatory terms and conditions under any of its patent rights, under which it has the free right to grant licenses and to the extent necessary to comply with this standard, for use in products that fully comply with this standard to any third party which has or will submit an equivalent undertaking with respect to this standard.

With respect to copyright the following can be remarked: ECMA publications (Standards, Technical Reports, etc.) are free of copyright (and free of charge). ISO Standards are copyrighted (and are not free of charge). In case of transfer of an ECMA Standard to ISO, e.g. via the so-called fast-track procedure, ISO becomes the owner of the contents and puts copyright on it. The ECMA version of the Standard remains without copyright and is freely distributed by ECMA.

<end of note from secretary>

4.2   **Ms. Nguyen** presented the specification of JavaScript 1.1 to be used as one of the bases for the language specification. Attachment B gives the presentation. A few deviations between the first implementation in Navigator 2.0 and the one in Navigator 3.0 were highlighted.

There is a large number of users of the language. The specification of JavaScript 1.1 is also available in electronic form (96/2).

5   Presentation by Microsoft

Mr. Reardon presented the specification of the Microsoft implementation Jscript (96/5), version 0.1. The name Jscript is not trademarked. Jscript intends to be JavaScript compatible, and is used as a scripting engine in Active X. Both Borland (see item 6 of these minutes) and Microsoft found it difficult to achieve full compatibility with JavaScript, and underline the need for formalization of the language.

The implementations are meant for competition, the standard for the language has to leave room for added value for competing implementations.

Mr. Reardon proposed to avoid duplication of work on object modelling and HTML, and to leave this to W3C.

The meeting agreed to focus on the language standardization.

Java and JavaScript are fundamentally different: 1996 has become the 'year' of JavaScript, although it was expected to become the year of Java (in terms of Web pages, number of programmers, etc.). JavaScript is tightly connected to Web usage (99%), much more than Java.

The language and the object model are tightly connected. Both Microsoft and Netscape have made proposals to W3C on object models. Maybe harmonization is possible.

There are several language design issues to be worked out, e.g. overwriting, indexing, scoping, case security, etc. Further development of the language, to make it usable for more applications, is another objective.

6 Presentations by Borland and Sun

Mr. Krull presented a contribution from Borland on possible extensions of the language, mainly meant to deal with more complex applications, calling into existing DLLs (96/6). Such extensions may not be ready for inclusion in the first version of the standard.

Mr. Robinson renounced from a presentation on behalf of Sun to support the project because of the large interest already shown by other companies which have already an implementation (Netscape, Microsoft and Borland).

7 Presentation by Nombas

Mr. Noorda presented the 5-year experience of Nombas in scripting languages, in particular with Cmm (C minus minus, i.e. minus type declarations and minus memory management), and its interpreter Cenvi. A typical difference between Java and Cmm is the number of keywords (50 versus 12). Cmm uses the same function library as C.

8 Issues list

The meeting agreed to prepare an 'issues list' of items to be resolved for the first version of the standard.

This issues list reads as follows:

1. Unicode support (Feature)
2. Semantics of delete (Semantics)
3. Semantic of indexing (S)
4. Binding contexts: Inheritance properties - scope for "…" - Host object model versus language (S)
5. No unified discussion of a storage model (S)
6. The argument array; semantics implication of the semantics of arrays (argument becomes a keyword); important in recursive functions
7. Arguments are currently very costly - performance related
8. EVAL on every object does not sound like a good idea
9. Caller should be optional
10. Block sharing scope - an issue when program becomes large
11. Implicit Globals are bad. It would be nice to clarify to programmers the differences between local and global variables
12. Object prototypes in user defined constructures. What is the intent of prototype ? It is unclear and needs better definition. Netscape says that this is a bug.
13. Support of CTL Z as a wide space character
14. Is NULL a type or a distinct object reference
15. Array length = 0 is illegal
16. Slot vs property
17. "this is" undefined or well-defined in function
18. Whether there is a global object
19. "this" in method call
20. Type and value of &&/|| operators
21. "For/in" loop enumerates properties in well-defined order
22. Run-time & compile time
23. Pointers: where are they defined ?
24. Versioning
25. Why reserve Java keywords ?
26. Identifier redefinition Error or last definition wins ?
27. f.prototype before newf() ?
28. Grammar per constructor not allowed for newf ?
29. Top level evaluation order
30. Can '\0' occur within a string ?
31. Bytes vs characters (a general length-issue)

9 Organization and planning

The meeting agreed to developing an ECMA Standard for a scripting language. As placeholder name is used: ECMAScript. **Mr. Wiltamuth** will collect suggestions for a name until 6th December 1996. Proposals can be sent to scottwil@microsoft.com. A check will be made which name(s) is (are) not yet in use and/or trademarked. Following

this a short list of possible names will be presented to the group for decision at the next meeting. Sun is invited to make the name Java available.

It was decided not to do work on conformance testing, and also not on a guide on the use or implementation of the language, and not to use a formal description technique, for the time being, but to focus on the development of the standard based on three input contributions (96/2, 96/5 and 96/6). The ECMA Standard is intended to be submitted to ISO/IEC for adopting by JTC 1 under the fast-track procedure.

Mr. Fisher proposed to develop a set of assertions on the forthcoming standard, instead of developing a conformance test specification. The meeting full-heartedly accepted this proposal. **Mr. Fisher** will investigate whether NIST will support his proposal, and, if so, prepare a written proposal for review by the group.

A 'library' of example programs will be built up in the near future, and made publicly available via the ECMA Server.

After some informal discussions the following, rather tight planning, was accepted:

1st draft: January 1997
Stable draft: early March 1997
Final draft: April 1997
GA vote;   June 1997
Fast-track submission to ISO/IEC JTC 1: July 1997
Publication as ISO Standard: Spring 1998

Mr. Mathis is member of JTC1/SC22, the ISO Subcommittee responsible for programming languages, and chairman of the Java Study Group (JSG) in SC22. SC22 will play a key advisory role in the JTC1 fast-track process. The email reflector of JSG is:

sc22jsg@dkuug.dk

Send email to: sc22jsg-request@dkuug.dk

Body: subscribe sc22jsg<name>

The group can be very useful for collecting comments, background information, preparation of the fast-track processing, etc.

ECMA will create a reflector, ftp site and web page for the new TC.

10   Scope and Programme of Work of new TC

After discussion the group agreed on the following scope and PoW of TC39 i.s.n.;

Scope

To standardize the syntax and semantics of a general purpose, cross platform, vendor-neutral scripting language.

Programme of Work

1. Develop a scripting language standard, based on initial submissions by Netscape, Microsoft and Borland
2. Contribute the ECMAScript Standard to ISO/IEC JTC1
3. Upon completion of 1, to investigate the further direction of the ECMAScript Standard, and to evaluate and consider proposals for complementary or additional technology
4. To maintain liaison with appropriate other ECMA TCs and TGs

11   Officers for the new TC

After discussion, the following officers were elected:

–   Chairman: **Mr. G. Robinson** (Sun)
–   Vice-Chairman: **Mr. C. Cargill** (Netscape)
–   Vice-Chairman: **Mr. S. Wiltamuth** (Microsoft)
–   Principal editor: **Mr. M. Gardner** (Borland) (to be confirmed)
–   Assistant editor: **Mr. A. Murarka** (Spyglass) (to be confirmed)

12   Any other business

Questions like 'do I want to download an applet ?' fall under the topic of 'authentication' (thrust, authorization, identity, etc.) and are not part of the standard. Safety and security are aspects to be covered by the standard.

The problem of versioning (a kernel, and several modules, for example ?) is of importance to determine the conformance (level) of an implementation with respect to the standard and, thus, has to be addressed for the future development of the standard. A version property may be useful.

With respect to future extensions, several suggestions exist:

– switch function/statement
– allow calling Java from within ECMAScript
– redefinition of identifiers.

13   Date and place of next meetings

No. 2 :   14th - 15th January 1997, Silicon Valley

No. 3 :   4th - 5th March 1997, Nice

No. 4 :   April 1997 (to be determined.