Minutes of the: *Ecma TC39-TG1*

held in: *San Francisco, CA*

on: *8 - 9 November 2007*

Logistics

- September 27, 1200-1700 PDT
- September 28, 1100-1600 PDT
- Adobe Systems, 601 Townsend St, San Francisco, CA

Attendees

- Douglas Crockford, Yahoo! (DC)
- Michael Daumling, Adobe (MD)
- Jeff Dyer, Adobe (JD)
- Brendan Eich, Mozilla (BE)
- Cormac Flanagan, UCSC (CF)
- Geoff Garen, Apple (GG)
- Lars T Hansen, Adobe (LH)
- Graydon Hoare, Mozilla (phone) (GH)
- Dave Herman, Northeastern University (DH)
- Waldemar Horwat, Google (WH)
- Dave McAllister, Adobe (DMcA)
- John Neumann, Toshiba (JN)
- Pascal-Louis Perez, Google (PP)
- Chris Pine, Opera (CP)
- Tom Reilly, Adobe (TR)
- Alex Russell, Dojo (AR)
- Scott Wiltamuth, Microsoft (SW)
- Allen Wirfs-Brock, Microsoft (AWB)

Agenda

- Opening
    - Introductions
    - Host facilities
    - Dinner arrangements
    - Lunch (Cafe Royale @ Adobe)
- Adoption of the agenda
- Approval of the October 30th minutes
- Openness policies of Ecma and TG1
- TG1 charter discussion
- Project editor's report
- Open issues on which there is probably not much disagreement
    - #166: Namespaced constructor functions

- o #167: When are redefinitions allowed?
  - o #172: A Function constructor that can deal with type annotations
  - o #196: Does Vector need to be final, or have some final methods? (Depends on #214)
  - o #214: Details surrounding catch-all methods
  - o #219: Must a record type match the object it is annotating exactly?
  - o #226: How does "eval" handle versions?
  - o #234: The nature of byte / the new ByteVector (Depends on #196)
  - o #247: Scoping of type declarations
  - o #274/#275: parseInt, parseFloat, and Number.parse
  - o #276: Specific rules of this propagation
  - o #282: Removing restrictions on "use" and "import"
  - o #283: Removing aliasing "import" from the language
- Open issues that may involve significant discussion
  - o #112: The semantics of const
  - o #212: Remove JSON
  - o #258: How does "like" play with convertible types?
- Technical topics
  - o Microsoft position on ES4
- Date and place of next meeting
- Adjournment

Minutes – 8 November

Introductions

- Several new faces

Adoption of the agenda

- BE: Explanation of workflow around wiki.ecmascript.org and bugs.ecmascript.org; the reference implementation; the monotone repository

- AWB: We have a position paper we'd like to distribute to the group today (currently paper only), maybe discuss tomorrow? Could possibly be distributed to the TG1 reflector.

- BE: We can make time for it tomorrow. Generally we benefit from openness.

- JD: OK to add it to the Technical Topics?

- AWB: OK.

- SW: We should discuss the practice of having everything in the open, strikes me that this is not common Ecma practice.

- BE: The history here is that we have agreement from Ecma staff (Jan van den Beld, Istvan Sebastian) for this, and my reading of the Ecma rules is that it's allowed.

- JN: We should have a discussion on the operational procedures, and a general discussion on the results of the coordinating committee meeting two weeks ago.

- BE: Could do it right away.

- **Agenda approved**

Approval of the Oct 30 minutes

- No objections

- **Minutes approved**

Openness policies of Ecma and TG1

- JN: History and structure of Ecma as issuer of technical standards.

- CC meeting two weeks ago.

- Review of TC reports, among them the TC39 report, of which the TG1 status report was the only part.

- It was clear TC39 was not attending TG1 meetings.

- The question of openness is not yet settled. Ecma is very open compared to other bodies, this is deliberate, but the question of "how open" is still not settled.

- TG1 docs were generally not posted on Ecma's website, this has been rectified, but what is Ecma to think?

- Ecma can't know what's going on if the docs are not there (agendas, minutes, venue notices), this impacts other Ecma members who want to participate in TC39/TG1 work. And this is a kind of openness that is also important (as contrasted with openness to the public.)

- Wiki is fine, but leaving Ecma out is not good.

- Also no links from the Ecma public area to ecmascript.org

- **In particular:** In the future, post all meeting announcements, all agendas, all minutes, all output documents (including intermediate drafts) on the Ecma web sites; keep Ecma in the loop!

- There are questions about the scope of the technical work, we really prefer for TG1 to resolve that and not pass the problem on to Ecma management. Nor should the problems be solved in the public space.

- JD: This must have happened before? There are multiple DVD formats.

- JN: That's right, there were battles but they coexist in the market, and multiple specs were published. That may or may not work here, but conflicts need to be resolved.

- Everyone showing up at a meeting must be an Ecma member, unless an invited expert.

- Every member must abide by Ecma rules, notably IPR rules.

- DMcA: Do you mean not resolve on ecmascript.org or not on any web site?

- JN: Mainly what I mean is, don't fight over this on blogs.

- JD: Likely there will be more needs for this, a lot of what we've been doing is clarifying issues to the public.

- JN: You meet weekly on the phone and monthly in person, why not resolvable in those fora?

- JD: Not everyone meets here, which is ne of the problems.

- JN: If you can't resolve it here, you're unlikely to have much luck in TC39 or in the CC or GA.

- BE: The convenor has been reporting through the TC39 chair, is that not sufficient?

- JN: The TC39 chair will decide whether to send representation to TG1 meetings, based in part on my report from the meeting.

- ...

- SW: Generally everything that goes out should be approved by the group, IMO.

- DMcA: There needs also be re-circulation of TC materials to the TGs.

- JN: I have recommended to Ecma that some organizational changes be made, since TCs/TGs evolve. In particular, that TC39-TG1 should become TC39. It's not up to me, but it would be advantageous.

- BE: Is Ecma becoming a valuable brand?

- JN: We don't market in our members' space, but ES is a very valuable standard to us when we market Ecma.

- DC: One tension in TG1 is the question of openness, most of which is very good. But there is confusion about whether the official products are final / inevitable. Guidance?

- JN: At a minimum, the doc that goes to the GA must be distributed to JTC1. But it's up to the TC to decide at what level intermediate docs should be made available, just be careful about IPR and about misleading the reader about what's final and what might change.

- DC: But we've been publishing things as a group that the group has not approved.

- JN: Not clearly a good idea.

- DC: The white paper was a clear case, in my opinion.

- BE: Though it was clearly labelled as a majority view.

- AWB: How do we know it was the majority?

- LH: In part because the 3.1 proposal has languished and was finally sidelined in September, we're working on ES4 here, not 3.1

- AWB: Are we working only on 3.1?

- JN: A 2:1 vote is much weaker than we'd hope for

- BE: ECMAScript is the brand, and ES4 is what we're working on for eight years

- SW: Naming more complex than that (ES4 vs JS2 vs E4X)

- BE: This is the work that's been ongoing since 1999. There is contention about what should be the fourth edition. Since March there has been space to work on a compatible smaller (intermediate) edition ("3.1"). But that has not gone well, not much has happened with 3.1 since April. We can't tell what's going on with 3.1.

- We're not going to stop work on the fourth ed to wait for 3.1.

- JN: And it's all in this group?

- BE: Yes.

- AWB: But you've heard from us since March, including the JScript deviations doc and status reports.

- BE: Useful, but not a proposal.

- AWB: Not claimed as a proposal. But we have concerns, and we've tried to make those clear along the way, as our position stmt will show.

- JD: Pratap Lakshman made strong statements on the 4th edition last meeting

- AWB: At a minimum we make it clear that we don't agree that what's described in the proposal space / WP right now is not what we want.

- JN: Hoping Istevan or Onno will be at the f2f from now on.

- BE: It's possible we'll propose two specs, one a proper subset of the other. But the minority position is that the current 4th edition should be deferred until the 3.1 work has been completed.

- JN: Why would be produce two specs, version 4 is the one that is "later", therefore better, in the mind of the consumer.

- DC: Consumers get no choice, it's more important to Yahoo to keep things stable than to upgrade if that will not benefit all. We think the 4th Ed should be a more modest proposal that should correct large problems with the current language.

- JN: Have you identified these problems?

- DC: In the 3.1 proposal

- BE: Those documents are incomplete and questions have gone unanswered, there is no proposal we can discuss.

- AWB: The convenor's position is that 3.1 must be a strict subset of the proposed ed 4. We don't necessarily agree. We could split this into two branches of the language, one dynamic and one more typed.

- WH: Google does not want to see that split. We're one of the largest users of script in the world. ES3.1 is not different enough form ES3 to warrant a new spec.

- AWB: But the 3.1 spec is a compromise, a starting point. We're interested in including, say, JS1.7

- BE: That is not correct. We've heard from Pratap among others that nothing is acceptable beyond the current "3.1" proposal

- *Microsoft Clarification: BE's statement is not Microsoft's position regarding the current "3.1" proposal. Microsoft is open to discussion of any and all proposal relating to "3.1". Pratap is either being misinterpreted or perhaps he may have misspoken.*

- JD: What if we're doing two languages?

- BE: The forward/backward compatibility requirement came from the fact that we're working on "ECMAScript", that's why there's conflict.

- WH: No reason for incompatibilities between ES3.1 and ES4

- AWB: Some of use want to see ES evolve as a browser scripting language, not a broader programming language.

- WH: Scripts are not the same now as in 1999. We need ES4.

- AWB: Well, that's opinion.

- BE: If you look at gmail, you see how it stresses ES3 and would be better served by ES4.

- WH: ES4 fixes some security problems.

- DC: Security is binary. Neither 3.1 nor 4 address all security problems, ergo they solve none. We need a new language.

- WH: I do not believe that, not appropriate for discussion here.

- BE: I believe there are open research problems here. ES4 improves integrity here. But it won't be settled here, now.

- MD: JS/ES has long ago left the browser -- Flash, scripting in applications, very large scripts. 3.1 does nothing here.

- AWB: I think of that as a dialect, not the main branch of the language.

- WH: Photoshop scripting is ES3

- GG: And widgets, and installers, and ...

- AWB: The browser use case should decide what the language should be

- PP: ES3 is not successful in the browser, it is inadequate for browser use, other technologies need to prop it up

- AWB: But other users, even large users, find it adequate

- BE: There are integrity issues in ES3 that ES4 solve. Anyhow it's circular to argue that because things are done a certain way, that's how they should be done.

- AWB: But it's a huge jump, and that is not the way to evolve the language. Smaller steps are more appropriate.

- MD: It's not like the user is required to use new features

- AWB: There will be no textbooks for the ES3 subset, nor will implementations support the ES3 subset performantly.

- WH: Implementations will optimize for the web, as always, not for a static subset

- BE: This is all speculation

- JD: Sounds like you're not opposed to all of the ES4 proposals.

- AWB: There are tradeoffs. Some features of ES4 are fine.

- JD: Can we develop both languages in the same group?

- AWB: More fundamentally, how will the web evolve? Will it have one language? Multiple languages, dialects?

- BE: Out of scope...

- JD: We're trying to create a language for the web as it exists today.

- SW: The use cases have changed, and the standard has not moved forward sufficiently, to be sure.

- BE: We've had this argument before. It's high level and does not have adequate detail. We are not making progress here, we should not spend more time at this level in this meeting.

- BE: But the previous argument from AWB that 3.1 need not be compatible is new, and means that language may not belong in TG1.

- DC: And when I said breaking the language for security, I meant a new, incompatible language.

- BE: We can't do an incompatible language in this group.

- AWB: We're not in agreement about some of the high-level issues, so why get technical? We care about the overall direction of the language. We feel this is all within the scope of TG1 / TC39 to discuss, not to assume compatibility is required. The 3.1 compromise was a starting point, but not the end point.

- BE: If we don't agree about goals and about compatibility, then I've a hard time seeing that both languages belong under TG1. If you're proposing an incompatible language then a number of group members would not be interested in participating. It's outside the current charter IMO, it's undesirable.

- *(coffee break)*

- (AWB distributes a Microsoft position statement. DC states that Yahoo! supports the position.)

- AWB: We're concerned about the privacy of some of the materials.

- BE: Since March, the lack of openness did not prevent there from being updates to the 3.1 section in the wiki.

- SW: We're just concerned about openness having a chilling effect on discussion.

- BE: Agreed, but why no movement on 3.1?

- *Microsoft Clarification: We disagree with the assertion that there has been "no movement on 3.1" since March (or April). In addition to material in the April minutes we have contributed two significant documents relevant to "3.1": "JScript Conditional Compilation Features" and "JScript Deviations from ES3".*

- AWB: It's not a statement about the wiki, we're happy that that's public. But it's a PR issue for us, so our position statement is distributed on paper for now.

- BE: So what about 3.1?

- AWB: We posted some notes recently, mostly working notes about implementation dependencies etc.

- BE: However, you have shown materials to web developers but not to the TG

- AWB: Early drafts of the position paper, not a language design.

- BE: But no namespaces a la E4X?

- AWB: In drafts of the white paper E4X or some sort of namespace mechanism have been mentioned as suggestions for something to possibly include in an ES3 update

- WH: Funny you should mention it to bloggers but not to us

- AWB: Standard operating procedure for vetting materials in progress?

- CP: Nothing we do.

- BE: An obstacle to comity in the group.

- AWB: Still, it's the way we can come to a consensus internally at Microsoft.

- *Microsoft Clarification: Microsoft has circulated no technical feature proposals outside of TG1. We routinely consult with our customers and other stakeholders to obtain input used in the formulation of our positions. We find nothing improper or extraordinary about such consultation.*

- ...

- BE: Action point: new page on ecmascript.org representing the minority position? A short disclaimer?

- AWB: Something like that.

- BE: Please propose a draft.

- SW: Maybe we can revert to the issues discussed before the break, the work items for the group. Sounded like there might be three: ES3.1, ES4, and perhaps an evolved, incompatible language. Can we find consensus here? What is the charter for the group, and are these items under the charter?

- BE: (Consensus meaning you agree that an activity can continue.)

- BE: Let's put it on the agenda.

- *(broken off for next item, then returned to)*

- DC: In general I'm in favor of everything being public

- SW: What precisely do we want to be public, topic-wise: agenda, minutes, ... PR people get involved if everything is public, and misunderstandings are inevitable.

- JD: Meeting notes were closed until recently...

- BE: But closing them again may harm us as much as just releasing, if we stop publishing them now.

- **Agreement, segregate into private/public, we publish all uncontroversial materials as we have been doing**.

TG1 charter discussion

- Straw poll for TG1 Activity Consensus:

    o ES3.1: 6 hands / 5 members [MS, Yahoo!, Apple, Google, Mozilla]

    o ES4: 17 hands (all)

    o Secure dialect (incompatibilities allowed): 7 hands, 4 members [MS, Yahoo!, Apple, Google]

- AWB: A lot of work to do three dialects at once

- BE: New TC with TGs under it?

- JN: Probably not my advice to form TGs under an new TC, TGs tend not to talk to each other

- SW: The original purpose of the TG was to work for a short time, then defer to the TC

- ...

- BE: This would be easier if we had some agreements:

    o ES3.1 < ES4

    o Secure ES < ES4

- JD: The first of those was an agreement, but it seems to be broken. Hard to see how we might cooperate if we don't use the same materials (eg, a subset RI for ES3.1)

- AWB: Obviously we'll harvest what we can, we haven't started.

- AWB: What should an ES3.1 spec look like: ES3 or ES4? (And what does the ES4 spec look like?)

- DH: There isn't a lot of difference, it's just the semantics are executable in the proposed ES4 spec.

- AWB: Agree strongly that any feature should be tested in an implementation for implementability or usefulness. It's a finer point whether the RI is adequate or a commercial implementation is required

- DH: Executability lets you test, crucially.

- WH: We had a lot of problems with the pseudocode for ES3.

- (Discussion: ES3 reference implementation carved out of ES4 in some way, maybe as a basis for ES3.1)

- Jeff will do a little writeup on how this might work out and what we might agree about.

- SW: The subset relationship between SES and ES4 is an open issue, but the initial thought is that it would be good for SES to be an actual subset.

- JD: SES needs an owner if it's going to progress.

Next face-to-face meeting

- Hosted by Google in Mountain View, 24-25 January 2008

- We'll try 11-17 and 10-16 to facilitate domestic travellers

Editor's report

- See separate document

- The schedule in the report is a working schedule, but subject to change (as always)

Minutes – 9 November

MS position paper on ECMAScript 4

- DC: The paper also reflects the Yahoo! position. [This statement was made during the agenda discussion on day 1]

- JD: Two observations
    - MS is not aligned with the vision of the rest of TG1
    - MS has not appreciated the depth of the work that has been done

- JD: The MS design principles have been pursued by TG1

- AWB: We do think we've appreciated the depth, but we question:
    - whether that's the kind of work that's needed for ES4
    - the realism in getting multiple implementers to produce compatible implementations

- AWB: We think it's premature to standardize before implementation

- JD: We've not seen any proposals or actions or work from MS/Y! that adress your concerns constructively

- AWB: We consider our work on compatibility a significant piece of work (though it isn't a plan of work). It adresses our concerns

- BE: The position paper overstates the performance goals of ES4

- AWB: I found the overview doc pleasant in that regard, and took it as a change in the group's mood

- BE: It was not a change

- BE: Also notable wrt the MS/Y! position is that it misrepresents our position as attempting to replace ES3; proposed ES4 extends ES3. We have to agree to disagree about scope / language size

- AWB: Some features, if deployed in ES4, will be the first in a production language

- JD: What are your success criteria for the language?

- AWB: Commercial implementation with real users

- SW: And also that a broad base of customers can successfully make the transition; complexity and conceptual overhead can be barriers

- WH: The base will not move unless there is a proposed/adopted standard

- BE: The base of JS on the web will not move to something new quickly, and niche implementations (FF, Opera) will not prove that the language is worthy of standardization.

- SW: But there can be early indicators of success/failure, we do talk to our customers about this

- DMcA: It's hard to get credible data here, it's much too easy to bias any survey, it's not clear this is a good basis for standards work

- GH: Most users of languages have very crude models of their languages; their answers are normally extremely biased

- SW: We're just suggesting that input from customers should be used in the design of the language

- GH: But there's a difference between letting them use the language or asking them abstract questions about the proposed design

- AWB: So how do we move forward? One vendor inventing does not advance the language.

- GG: The example of Array extras in JS1.7 shows that the invention-imitation cycle is quite hurtful, because specs are not relevant, only the de facto spec that results from the combined functioning of the implementations

- AWB: So we need to spec, but if the increments are very large, then it's very hard to do it.

- BE: We are working from 8 years of experience and experience from implementations, proposals are based on actual implementations. There are de facto extensions to ES3 that provide more experience. MS (Pratap) were committed to implementing in mid-2006. Getting a lot of experience with the language means implementing broadly, there's not much to do about that.

- AWB: The large increment calls for significant "field testing" before standardization. Smaller increments can use smaller test groups. And sometimes it may be enough to see some large applications written in the language.

- BE: The cost of small steps is the overhead of the standards process, it slows everything down.

- AWB: Smaller steps may not need to involve the standards process.

- BE: But the Array extras are complicated enough that there are interop problems.

- WH: Smaller steps lock you in along the way, it's easier to make wrong decisions because you don't see the eventual whole

- BE: On the whole I prefer making bigger steps based on collective extensions

- SW: We agree with the intent of having a subset order ES3.1 < ES4, and with the goal of a more solid base for ES3, but before we contribute code to the RI -- or before we view code that's been created -- we'll need to get clearance from MS

- GH: It is always possible to perform experiments in one's own code base

- SW: We'll follow up at the next meeting

Open issues

#112 ("const")
- **Unresolved, but some progress recorded in the ticket**

#212 ("JSON")
- LH: Summary of current recommendations
    - remove current JSON proposal
    - remove JSON altogether, or adopt json2 if this is not acceptable
- DC: Current "json2" proposal on json.org is pretty fresh still, could wait
- **We remove current JSON proposal**
- **We leave a JSON placeholder for consideration before ES4 is finalized**

#258 ("like" and convertibility)
- **Convertibility is never deep.**

- **LH creates ticket if necessary on depth of "like"**

#166 (guarding against injection attacks)
- **Solution (3) to avoid injection attacks.**

#167 (redefinitions)
- **function and var are rebindable in some contexts, none of the other other forms**
- Debate about whether type annotations should be allowed on redundant definitions, provided the annotations are all equivalent
- Debate about equivalence (spelling vs meaning)
- **Agreement that it's ok with redundant definitions provided they have the same type**
- **Normalized types (mean the same thing)**
- **Some open technical issues about type normalization**

#172 (Function error)
- **General agreement that we want to extend the Function constructor**
- **First n-1 are concatenated with commas**
- **If it starts with leftparen -- no leading spaces! -- then a return type may follow the rightparen**
- **No further rules**

#214 (catchalls)
- **Attendees agree to the proposal**
- **LH to open separate ticket on possible information leakage, see comment in ticket**

#196 (Vector finality)
- WH: Not happy about Vector not being final, and if it isn't, about its methods being overridable.
- BE: Philosophical difference; JS is permissive by default
- AR: Always possible to make the subclass final, non-dynamic
- WH: Terrible things will happen.
- **We keep it non-final, dynamic.**

#234 (ByteVector)
- LH: Getting rid of byte is Good
- LH: We could also go back to ByteArray
- CF: Or we could have a separate ByteVector type with similar methods
- **We're not doing anything with this right now because there are several options available**

#219 (Record types)

- WH: Permissiveness does nothing for typo detection

- LH: Stronger cases for (1) and (2) being errors than (3)

- **We're making cases (1) and (2) errors**.

#226 (eval versioning)

- **Deferred until the next meeting after brief discussion**

All other tickets deferred to later meetings.