Minutes of the meeting of TC39 TG1
held in Phoenix/USA on 13th February 2001

Attending:

Andrew Clinick (Microsoft), Bill Gibbons (Pixo), Chris Dollin (Hewlett Packard), Herman Venter (Microsoft), Jeff Dyer (Mountain View Compiler Company) ,Patrick Beard (Netscape), Peter Torr (Microsoft) Waldemar Horwat (Netscape)

Opening, welcome and roll call

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

Adoption of the agenda

The agenda was adopted after posting the following document:
Mr Clinick asked for WAP Technical Report and meeting schedule to be added to the agenda

WAP Technical Report

How do you find the stack location? **Mr. Venter** searches the chain of the with blocks first then does a static lookup.

Mr. Gibbons asked if the group was interested in talking about a wire format for the compact profile for version 2.0. There was general agreement that this was an interesting venture for the group to look into.

Stray quote in 5.1 in the notes section – We should remove that. The group approves the doc on the proviso that the editor corrects this typo.

Discussion about whether the compact profile should be required to have the Unicode tables in order to support case conversion

Mr. Gibbons and **Mr. Vartiainen** to think about what the scope of Compact Profile Version 2.0 including organization

Discussion about I18N sub group and what impact that might have on the compact profile. Bill will look into this for version 2.0. The group realizes the importance of I18N but the current members of the TG don't have the resources to embark on the work. **Mr. Gibbons** did express an interest in I18N.

Meeting schedule

General agreement with **Mr. Clinicks** proposed meeting schedule for the next 6 months

Continue discussion of the interaction of the class and prototype models.

Mr. Horwat is still having problems with the working on the document in Word.

What can the value of this in a method be? Does it have to be an instance of the class? What happens if you extracted a method and put it on the generic prototype object? **Mr. Venter** states that it would be a type mismatch. **Mr. Venter** says that it's not a goal to get classes and prototypes to interact; this was decided 2 years ago.

Do we consider the built in ECMA types as classes? And if so what does that mean for compatibility?

Mr. Horwat asks if there is a class called Date? **Mr. Venter** says that there is a constructor function but you can use Date as a type in Microsoft implementation. A constructor function can be used in the type context then it is interpreted as a corresponding class. The corresponding class is used for the type. If you assign it to a variable then you get the Date instance class. **Mr. Horwat** asks is if you do new Date do you get the instance class? **Mr. Venter** says that you do.

Date is a final class. No unification of derivation of prototypes with class based derivation. If you put a date instance in the prototype chain then it behaves as you'd expect.

Mr. Horwat was thinking of allowing prototype inheritance but only from instances of the class object. In the Microsoft implementation you would get the root of the class hierarchy. For ECMAScript 3 defined constructor functions you would need to maintain their existing behavior but for new types that rule would not apply.

Microsoft does have an equivalent to Netscape's generic. What does this mean in the instance? Microsoft use a static.

Much discussion over how prototype inheritance and how it applies to classes. **Mr. Horwat** explained Netscape's proposal and then looked at it from **Mr. Venter's** implementation and saw that the end result was very similar except that the Microsoft's implementation is more backwards compatible (in Microsoft's view)
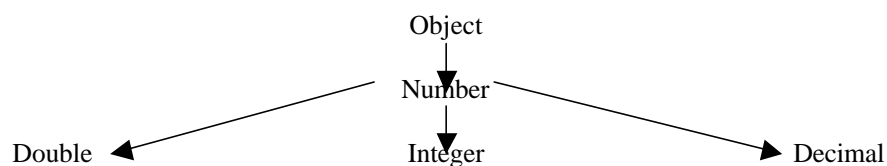
Waldemar would like x.m to be a closure if m is a method of a class of which x is an instance. Herman said that there was a debate within Microsoft about this, but he wasn't sure why that isn't a closure

Object Semantics

Mr. Horwat was hoping to present the equivalent of chapter 8 in the current spec but hasn't finished that yet so will talk about it at the March meeting
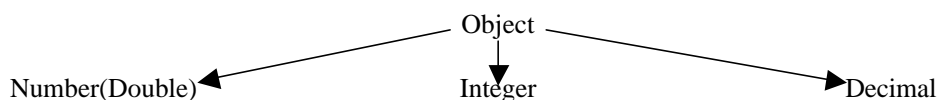
Numeric class hierarchy

Mr. Horwat suggested having a hierarchy of number classes
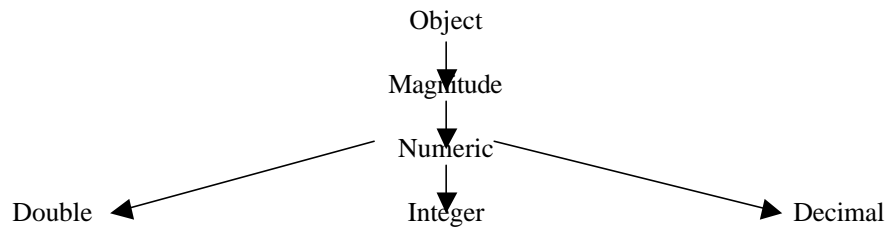
Object
→ Number
Double ← Integer → Decimal

Mr. Venter informed the group that Microsoft implementation of ECMAScript 4 is that Number is a sealed (final) class.

Microsoft proposal is:

Object
Number(Double) ← Integer → Decimal

Much discussion over precision losing calculations based on types and how that applies to the Microsoft proposal.

Mr. Dollin submitted an alternative

```
              Object
                |
            Magnitude
                |
             Numeric
       /        |        \
  Double     Integer     Decimal
```

Mr. Venter explained that it would be very difficult for Microsoft to change their implementation to meet the Netscape proposal given Microsoft's current implementation strategy.

A possible compromise was to define a Numeric interface rather than a class and the classes would implement that interface. This could potentially allow Microsoft to use CLI and for Netscape to implement using their own base class.

Mr. Horwat asked what the result of the following equation would be:

$$1/-(10000000000 - 10000000000)$$

The group disagreed on whether 4 instanceof Number should be true

This brought up discussion of how do you specify a long constant that requires 58 bit precision or anything bigger than 53 bits? How would the masking operators be expanded to deal with longs and remain backwards compatible?

Coercions

Mr. Horwat asks: Should we bother with the feature that would allow users to define their own coercions to and from system classes?

Mr. Venter explains that the Microsoft implementation honors the CLR mechanism to allow this via operator overloading. **Mr. Venter** detailed how the Microsoft implements this. JScript consumes coercion but doesn't have any syntax for defining them.

Mr. Horwat and **Mr. Dollin** were concerned about f(a*b) having different arithmetic behavior from c = a*b, where c has type Long and f evaluates to a function that takes an argument of type Long but the compiler isn't smart enough to know that statically

General discussion

Mr. Horwat is concerned about the pollution of the global namespace via type annotations, attributes etc. **Mr. Venter** explained that users were concerned about having to import namespaces before using the expression in a type.

Escape char for reserved words

Mr. Venter discussed that the \q is pretty ugly since it makes reading the reserved word difficult to read and suggested that a \reservedword would suffice. **Mr. Horwat** asked about words beginning with u. **Mr. Venter** suggested that it should be just the list of reserved words in the spec. **Mr. Beard** suggests _ as a possible compromise. Backtick was also suggested as an alternative. Rather than rush a decision further discussion of this will be postponed to the next meeting to allow people to consider the alternatives

Should ECMAScript differentiate between void and none?

Mr. Venter felt that there really wasn't much of a difference for ECMAScript programmers. Much discussion and disagreement about this assertion. **Mr. Horwat**, **Mr. Dollin** & **Mr. Beard** felt there was a very real difference.

Mr. Horwat suggested renaming none to never and the group agreed with this and **Mr. Horwat** will change his proposal

Named parameters

Mr. Venter explained that there is a very definite concept of named parameters in Microsoft's context that differs considerably from the current proposal. **Mr. Venter** felt they were different because the current proposal doesn't use the formal name.

Read only arrays

Mr. Venter explained that he liked the notion of read only arrays but it's not implemented in the framework that Microsoft is implementing on so he can't implement it. **Mr. Dollin** suggested the following text for the standard "It is illegal to assign to an element of a const array and implementation is encouraged to detect this and report an error"

Extensible arrays

Mr. Venter explained he liked the notion of extensible arrays but it's not possible on their current implementation. **Mr. Horwat** thought that having an array literal change identity when being assigned to a variable of array type was seen as a problem.

Conveners report

The group discussed what would content should be added to the TG1 conveners report to the TC39 chairman.

Accomplishments:

1. Compact Framework
2. Concrete progress on the standard

Plan:

1. Aim for next June GA approval of the spec

Issues:

1. Have the ability to decouple the location of the meetings to allow more flexibility. This would start from June onwards

Action Items

1. Editor of Compact Profile to fix typos in the technical report
2. **Mr. Clinick** to send details of proposed meeting times to the reflector
3. **Mr. Venter** to look into why Microsoft don't form closures in JScript and why the decision was made
4. **Mr. Horwat** and **Mr. Dollin** to develop proposal for coercion syntax for the March Meeting.
5. **Mr. Horwat** change none to never in proposal
6. **Mr. Dollin** will liaise with CLI TG with reference to adding extensible arrays to the CLI to better support ECMAScript
7. **Mr. Venter** to send out other concerns to the reflector for discussion before the March meeting