Minutes of the: Ecma TC39-TG1

held in: Phone Conference

on: 27th January 2006

Attendees

- Brendan Eich, Mozilla Foundation
- Ed Smith, Adobe Systems
- Graydon Hoare, Mozilla Foundation
- Jeff Dyer, Adobe Systems

Agenda

- Make it up as we go
- Will get one together in advance of next meeting

Process Stuff

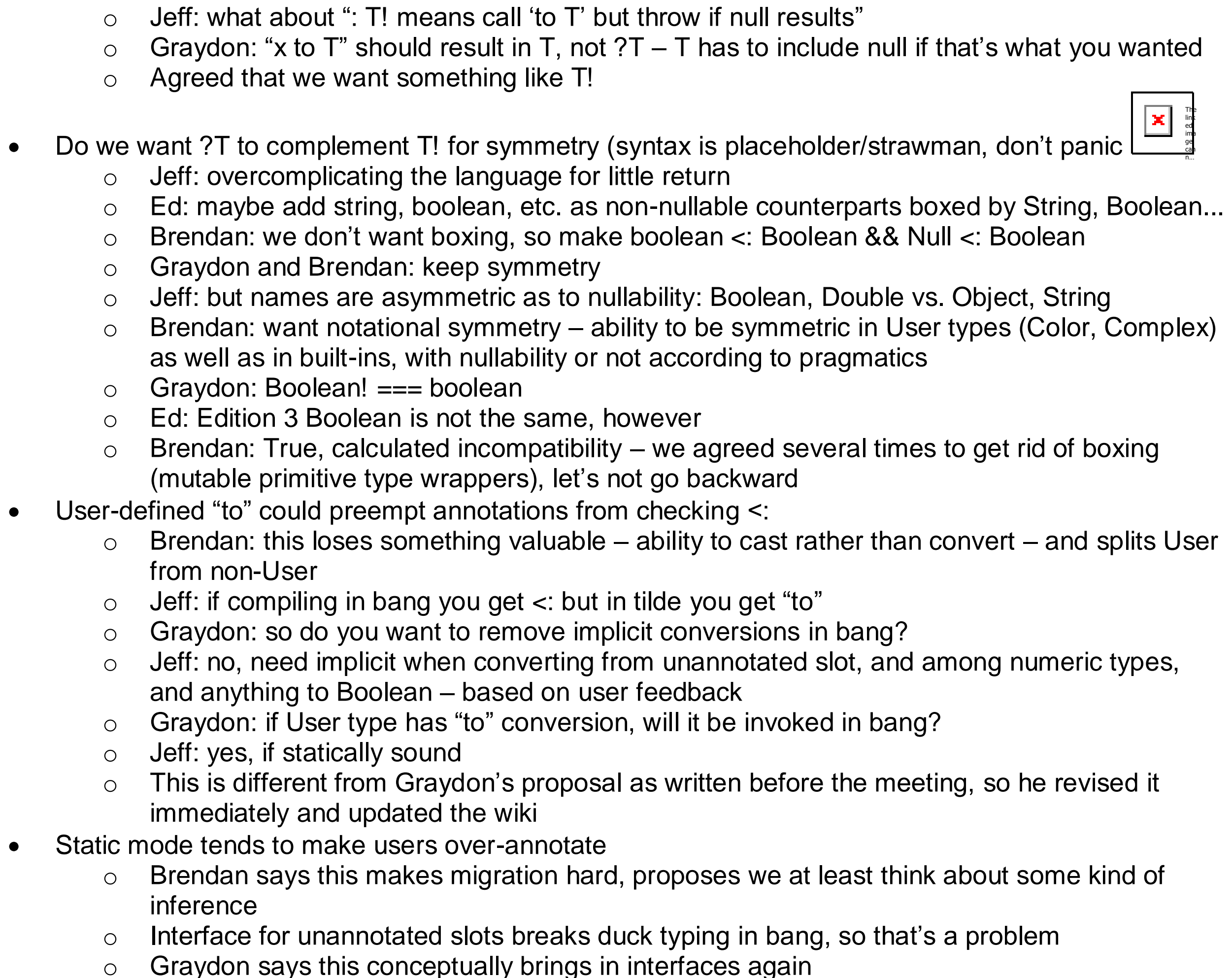
- Kudos to Graydon for setting up the wiki
  - http://wiki.mozilla.org/ECMA/wiki/doku.php?id=start
- ECMA wants “visibility”, meaning:
  - Minutes for each meeting
  - Word doc updates occasionally
- Why not make part of the wiki readable to the world?
  - We could blog about it
- Graydon asks about reserving new identifiers
  - Can’t in web embeddings without new version selection
  - We are trying not to reserve if keyword-in-context suffices
- Jeff: how do we call out what is agreed on vs. not
  - Graydon: categories such as proposals: vs. spec:
  - But the spec: was imported wholesale, yet not all agreed on
  - Proposals are good for small, readable straw-men
  - As they become agreed upon they move into the spec and may cause sweeping changes to the spec
  - Spec therefore will not be frozen to the same degree everywhere
  - So we want a way to call out less-agreed-upon parts of the spec

Type Annotations

- Graydon’s proposal: is_as_to
- Brendan proposed operator “to” for explicit conversions
- We affirmed that “as” is not the right operator
- Ed proposed: “switch class (x) {case C1: ... case C2: ... etc.}”
  - Order of matching is order of cases, not sorted by <:
- Need a way to write non-nullable T: T!
  - Ed: T! means don’t call “to T” conversion, just do <: T

  - Jeff: what about ": T! means call 'to T' but throw if null results"
  - Graydon: "x to T" should result in T, not ?T – T has to include null if that's what you wanted
  - Agreed that we want something like T!

- Do we want ?T to complement T! for symmetry (syntax is placeholder/strawman, don't panic



  - Jeff: overcomplicating the language for little return
  - Ed: maybe add string, boolean, etc. as non-nullable counterparts boxed by String, Boolean...
  - Brendan: we don't want boxing, so make boolean <: Boolean && Null <: Boolean
  - Graydon and Brendan: keep symmetry
  - Jeff: but names are asymmetric as to nullability: Boolean, Double vs. Object, String
  - Brendan: want notational symmetry – ability to be symmetric in User types (Color, Complex) as well as in built-ins, with nullability or not according to pragmatics
  - Graydon: Boolean! === boolean
  - Ed: Edition 3 Boolean is not the same, however
  - Brendan: True, calculated incompatibility – we agreed several times to get rid of boxing (mutable primitive type wrappers), let's not go backward
- User-defined "to" could preempt annotations from checking <:
  - Brendan: this loses something valuable – ability to cast rather than convert – and splits User from non-User
  - Jeff: if compiling in bang you get <: but in tilde you get "to"
  - Graydon: so do you want to remove implicit conversions in bang?
  - Jeff: no, need implicit when converting from unannotated slot, and among numeric types, and anything to Boolean – based on user feedback
  - Graydon: if User type has "to" conversion, will it be invoked in bang?
  - Jeff: yes, if statically sound
  - This is different from Graydon's proposal as written before the meeting, so he revised it immediately and updated the wiki
- Static mode tends to make users over-annotate
  - Brendan says this makes migration hard, proposes we at least think about some kind of inference
  - Interface for unannotated slots breaks duck typing in bang, so that's a problem
  - Graydon says this conceptually brings in interfaces again

Compact Profile

- Ed brought up lack of complete method name-to-slot optimizability in CP
  - CP doesn't say "can't shadow prototype functions" – should it?
  - CP do this without breaking method extraction meaning this-binding?
- Should we do a CP for Edition 4
  - CP for Edition 4 could be done by subsetting/restricting only
- Graydon: *this* binds to type and value, or one of type and value, or neither?
  - To value implies by type, backward compatibility requires neither, so the question is do we need this binding to type? Probably not.

Host Objects

- I want to restrict how "host objects" might be different
  - Especially for callable objects
    - e.g. apply is not an operator, host callable doesn't delegate to Function.prototype