Types and Type Annotations

A Stage 0 Proposal

Jonathan Turner | Brian Terlson
GOALS

• Short term
  • Reserve syntax used by TypeScript, Flow, etc. for some form of annotation
  • Venue for collaboration among interested committee members

• Long term
  • Consensus on a shared syntax for many varied type annotation implementations
  • Consensus on a shared semantics for type checking or annotations
GOALS

• Additionally, a shared syntax for interface definitions for documenting API boundaries (.d.ts files)
Examples & Demo
Rationale: Why Type Annotations?

- Toolability
  - Closure
  - TypeScript
  - Flow
  - JSDoc
- Performance
  - Asm.js
  - Hidden classes/runtime type inference
- API specification
  - DefinitelyTyped/.d.ts
  - WebIDL
  - JSDoc
- Runtime checks/guarantees
  - Guards
  - Contracts
Rationale: Why Standardize?

- Unify syntax used by many varied types/annotations tools and libraries
- Various tools already exist using a common syntax
- Carve out syntax within which many parties can experiment
- Venue for collaboration on developing a common subset of semantics that supports varied approaches already shipped and more to come.
- .d.ts files see a lot of use in the community – standardizing would allow other tools to take advantage of this
Prior Art

• In JS
  • TypeScript, SafeTypeScript
  • Flow
  • Using different syntax: Closure Compiler, Traceur Types

• Elsewhere
  • Python PEP 3107 / Python 3.5 Plans
    •