USING TYPESCRIPT

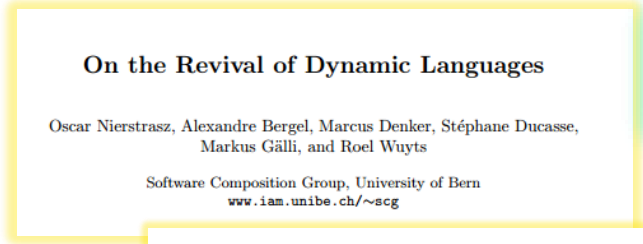
ABOUT ME

- FORTRAN, Pascal, C/C++, C#, JS, Typescript
- Engineer, currently at Pearson as UX developer
- Been working with typescript since November 2012
- Projects I currently work on have ~40k lines of ts

INTRO

- Dart, Typescript, Facebook Flow…
- Google (AngularJS team) ATScript, superset of typescript, no static type checker

- Dynamic languages with optional static typing:
- Where did this idea come from?


On the Revival of Dynamic Languages

Oscar Nierstrasz, Alexandre Bergel, Marcus Denker, Stéphane Ducasse, Markus Gälli, and Roel Wuyts

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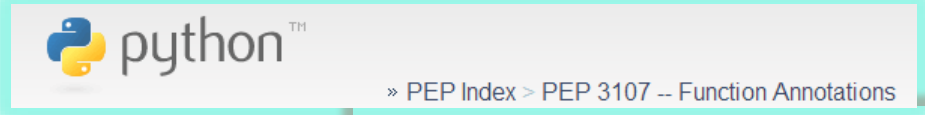
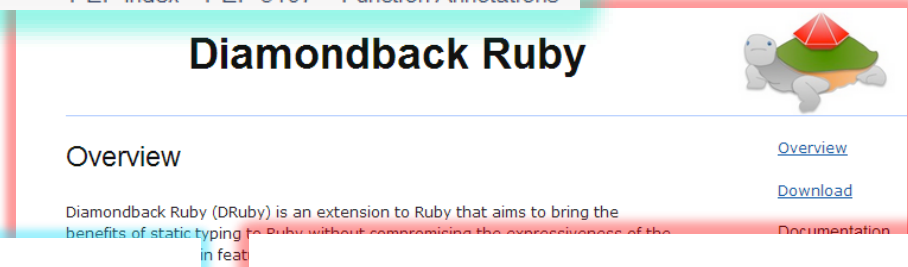
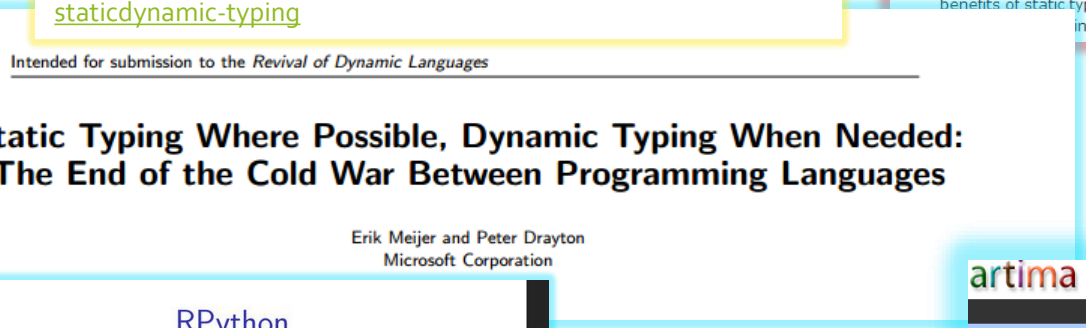
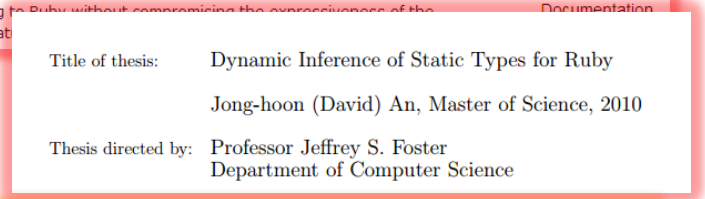
www.iam.unibe.ch/~scg

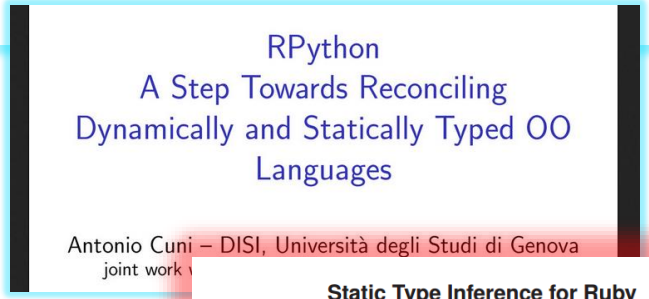


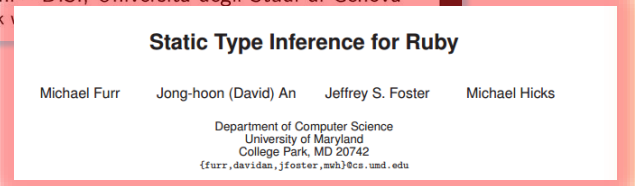
https:///sites.google.com/site/steveyegge2/is-weak-typing-strong-enough
http://herbsutter.com/2008/06/20/type-inference-vs-staticdynamic-typing

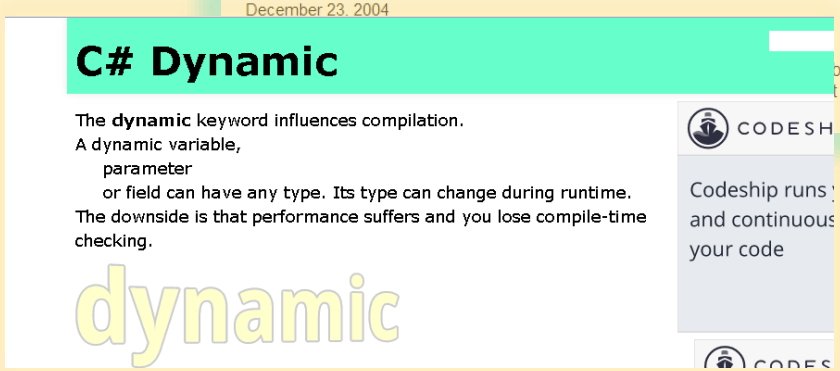












CONTENT OF THIS TALK

- Background
- Anders Hejlsberg
- What typescript gives you: ES6 stuff, typing, tooling, documentation of intend
- Where to get definition files => definitely typed
- Demo

ANDERS HEJLSBERG

- Language designer (his own words)
- Turbo Pascal, Borland
- Delphi
- C#
- “Can’t explain it in 5min -> not a good idea”, maybe
- “Typescript filters out the semantic subset of java script that makes sense”

WHAT YOU GET …

- Ecmascript6 stuff: class, extends, arrow function,get/set
  - https://github.com/lukehoban/es6features?utm_source=javascriptweekly&utm_medium=email#arrows
  - https://wiki.mozilla.org/ES6_plans
  - => handling of this pointer (lexically scoped)
  - ~ like coffee script, but not a new language
- "Optional" static typing, interface, implements
  - interfaces open ended, multiple files can contribute
  - annotations
- Static typing: not that there is anything wrong with that
  - inference, flowing the types via generics
  - inverse inference
  - lib.d.ts, the JS runtime lib and DOM
  - JS has type information but only at run time
  - typescript, not provably type safe
  - http://en.wikipedia.org/wiki/type_system

…MORE

- Statement completion
  - Sublime Text and many others, when working with large libraries helpful
- Documentation of intend
  - example: rest service format described via interface
  - write a test for what you actually get from the service against the interface
  - if you have to go back and talk with the backend people about their data, you have a piece of code as proof
- No TS “engine”/VM, no runtime library
  - impact only at design time
- Superset of JS
  - for people who know java script a shallow learning curve
- Debugging in Chrome, Firefox, Visual Studio, intelliJ, Webstorm…
  - directly in TS files via source maps
- Upgrading to a newer version of a library?
  - upgrade the .d.ts file and fix the errors
- Handling of java script module systems AMD/CommonJS
  - via compiler flag

NODE TOOLS FOR VISUAL STUDIO

- Install
- NPM manager
- Debugging
  - Break on exception
  - Immediate window context in broken context of app
  - Remote debugging (also on Linux) RemoteDebug.js
- Profiling

- VS 2015 now has Apache Cordova Typescript project template!

DEMO

- Simple examples
  - Sanity
  - ES6 features: module, class, arrow
  -
- More examples
  - inference, reverse inference, refactoring
  - changing an interface from a staging to a production scenario, rest calls, js module systems
- Code re-use
  - name spaces/modules simplify code reuse
  - more utility functions used in many places, changing these becomes very simple
- Unit tests
  - saves unit tests.
  - Convert d3.js GIST , debugging in chrome with source map

SUMMARY

- Transpiler -> JS
- Optional static typing
- ES 6 features
- IDEs and debuggers
- Saves unit tests and lets you sleep better

QUESTIONS ?

- Thank you!