

Why I Was Wrong About TypeScript

TJ VanToll





October 1-2, 2013
Sofia, Bulgaria

DevReach 2013

THE PREMIER DEVELOPER CONFERENCE IN CENTRAL & EASTERN EUROPE

TypeScript

A word cloud centered around the word "TypeScript". The word "TypeScript" is the largest and is positioned in the center. Surrounding it are various TypeScript features and concepts, arranged in a circular pattern. The words are of different sizes and are rotated at various angles to fit around the central word.

Declaration files

Triple-Slash Directives

Namespaces

Structural detection

Classes

Compiler options

Type Inference

TypeScript

Modules

Decorators

Declaration merging

Generators

Generics

Symbols

Mixins

Sequential piping

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Why I Was Wrong About TypeScript

Whether TypeScript is
a good fit for your
next project

Why I Was Wrong About TypeScript

"A typed superset of
JavaScript that
compiles to plain
JavaScript"

**"A typed superset of
JavaScript that
compiles to plain
JavaScript"**



Geo for Bootstrap, a Timeless

Not Secure | code.divshot.com/geo-bootstrap/

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Geo for Bootstrap

A theme for Twitter Bootstrap, from Divshot.





To get started, download the "bootstrap.css" or "bootstrap.min.css" file and include it in your

Typography

Navbar

 Buttons

Forms

Tables

 Miscellaneous

Typography

h1. Heading 1

h2. Heading 2

h3. Heading 3

h4. Heading 4

h5. Heading 5

h6. Heading 6

Example body text

Nullam quis risus eget urna mollis ornare vel eu leo. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Nullam id dolor id nibh ultricies vehicula ut id elit.

Vivamus sagittis lacus vel augue laoreet rutrum faucibus dolor auctor. Duis mollis, est non commodo luctus, nisi erat porttitor ligula, eget lacinia odio sem nec elit. Donec sed odio dui.

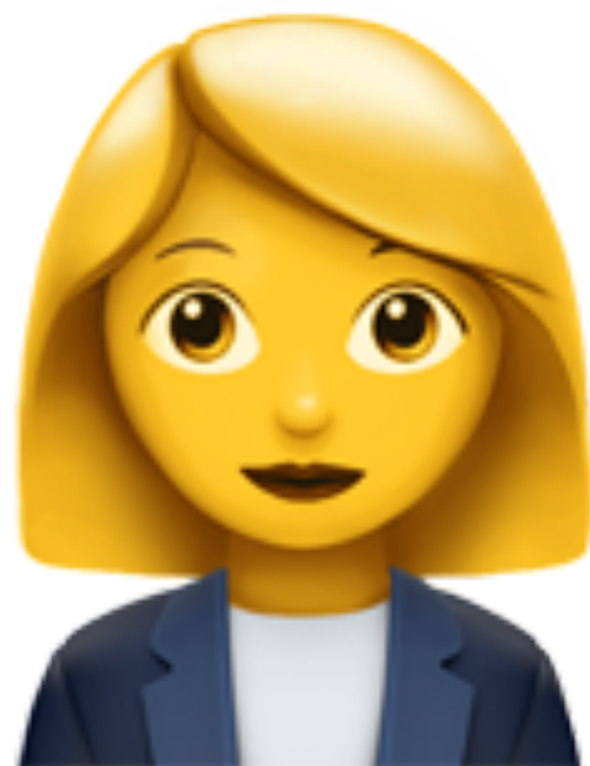
Example addresses

 **Twitter, Inc.**
795 Folsom Ave, Suite 600
San Francisco, CA 94107
P: (123) 456-7890

Full Name
 first.last@gmail.com

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer posuere erat a ante.

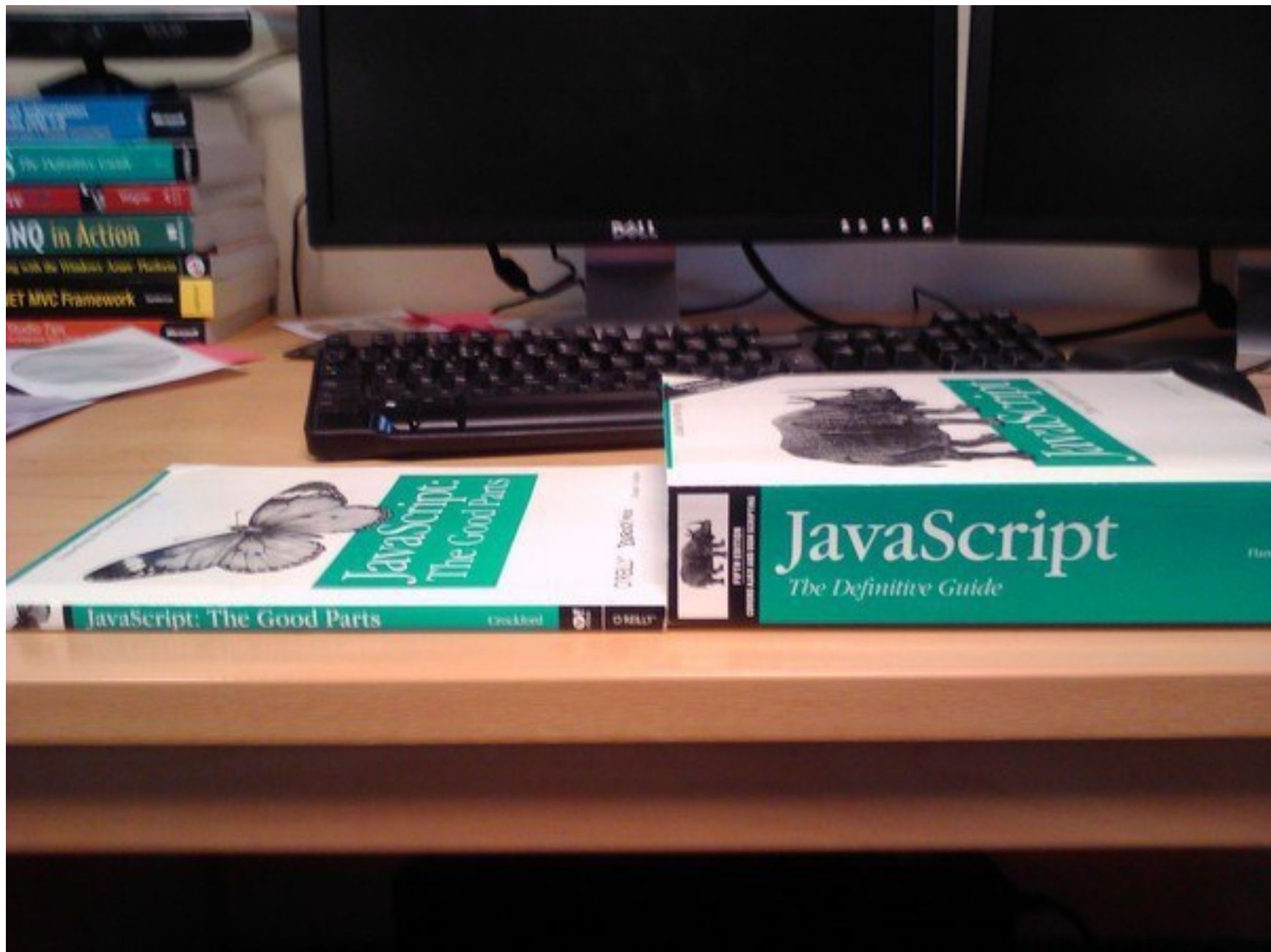
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer posuere erat a ante.







1	<code>true == 1</code>	<code>→ true</code>
2	<code>true == "1"</code>	<code>→ true</code>
3	<code>false == 0</code>	<code>→ true</code>
4	<code>false == "0"</code>	<code>→ true</code>
5		
6	<code>false == undefined</code>	<code>→ false</code>
7	<code>false == null</code>	<code>→ false</code>
8		
9	<code>null == undefined</code>	<code>→ true</code>



Compile to JavaScript tools

- There are a lot.
 - 345
 - Source: <https://github.com/jashkenas/coffeescript/wiki/List-of-languages-that-compile-to-JS>
- Ruby, Python, Erlang, Java, Scala, C#, F#, Lisp, Scheme, Haskell, Smalltalk, C, C++, Basic, Go, PHP, and way more.

Fun names of compile-to-JS tools

- treehugger
- jangaroo
- Waterbear



The
WATERBEAR
welcomes you!

Waterbear is a toolkit for making programming more accessible and fun. Having a visual language means you don't have to focus on learning a syntax to start programming.

Try it out

<http://waterbearlang.com/>

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CoffeeScript is a little language that compiles into JavaScript. Underneath that awkward Java-esque patina, JavaScript has always had a gorgeous heart. CoffeeScript is an attempt to expose the good parts of JavaScript in a simple way.

The golden rule of CoffeeScript is: *"It's just JavaScript"*. The code compiles one-to-one into the equivalent JS, and there is no interpretation at runtime. You can use any existing JavaScript library seamlessly from CoffeeScript (and vice-versa). The compiled output is readable, pretty-printed, and tends to run as fast or faster than the equivalent handwritten JavaScript.

The CoffeeScript compiler goes to great lengths to generate output JavaScript that runs in every JavaScript runtime, but there are exceptions. Use [generator functions](#), [for...from](#), or [tagged template literals](#) only if you know that your [target runtimes can support them](#). If you use [modules](#), you will need to [use an additional tool to resolve them](#).

Latest Version: [1.12.5](#)

```
npm install -g coffee-script
```

CoffeeScript 2 is coming! It adds support for [ES2015 classes](#), [async/await](#), and generates JavaScript using ES2015+ syntax. [Learn more](#).

● CoffeeScript
Programming language

+ Compare

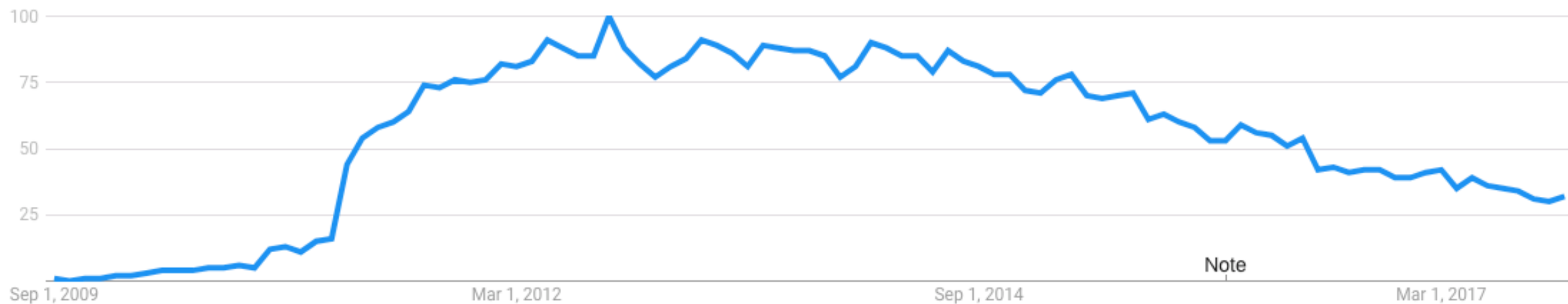
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9/1/09 - 11/1/17 ▼

All categories ▼

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Interest over time ⓘ



Note

Objects:

math =

 root: Math.sqrt

 square: square

 cube: (x) -> x * square x

Splats:

race = (winner, runners...) ->

 print winner, runners

Existence:

alert "I knew it!" if elvis?

Array comprehensions:

cubes = (math.cube num for num in list)



[Watch the videos for Dart Developer Summit 2016.](#)

```
import 'dart:async';
import 'dart:math' show Random;

main() async {
  print('Compute  $\pi$  using the Monte Carlo method.');
```

[Open in DartPad](#)

```
  await for (var estimate in computePi()) {
    print('n = $estimate');
  }
}

/// Generates a stream of increasingly accurate estimates of  $\pi$ .
Stream<double> computePi({int batch: 1000000}) async* {
  var total = 0;
  var count = 0;
  while (true) {
    var points = generateRandom().take(batch);
    var inside = points.where((p) => p.isInsideUnitCircle);
    total += batch;
    count += inside.length;
    var ratio = count / total;
    // Area of a circle is  $A = \pi \cdot r^2$ , therefore  $\pi = A/r^2$ .
    // So, when given random points with  $x \in <0,1>$ ,
```

Dart is an application programming language that's easy to learn, easy to scale, and deployable everywhere.

Google depends on Dart to make very large apps.

[Get Started](#)[Install Dart](#)

[**Click underlined text or code to learn more.**]

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● Dart
Programming language

+ Compare

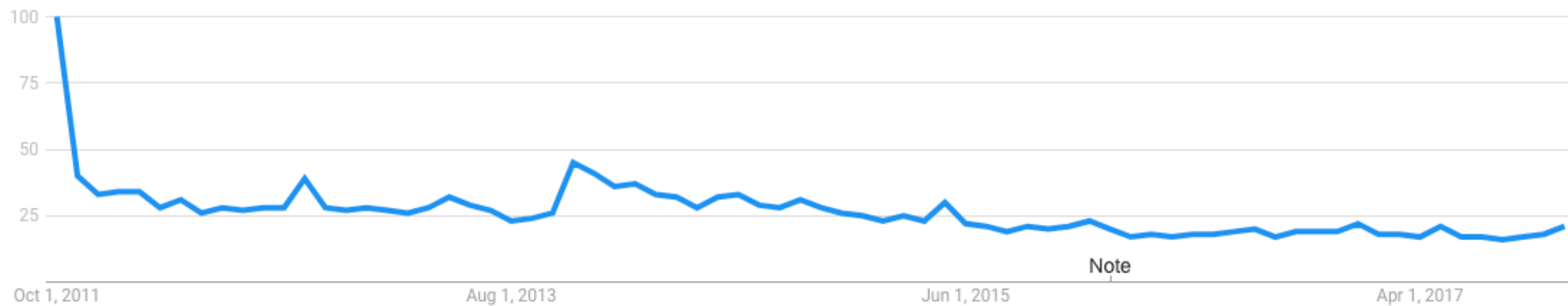
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Interest over time ⓘ



```
// Copyright (c) 2011, the Dart project authors. Please see the AUT
// for details. All rights reserved. Use of this source code is gove
// BSD-style license that can be found in the LICENSE file.
// Simple test program invoked with an option to eagerly
// compile all code that is loaded in the isolate.
// VMOptions=--compile_all

class HelloDartTest {
  static testMain() {
    print("Hello, Darter!");
  }
}

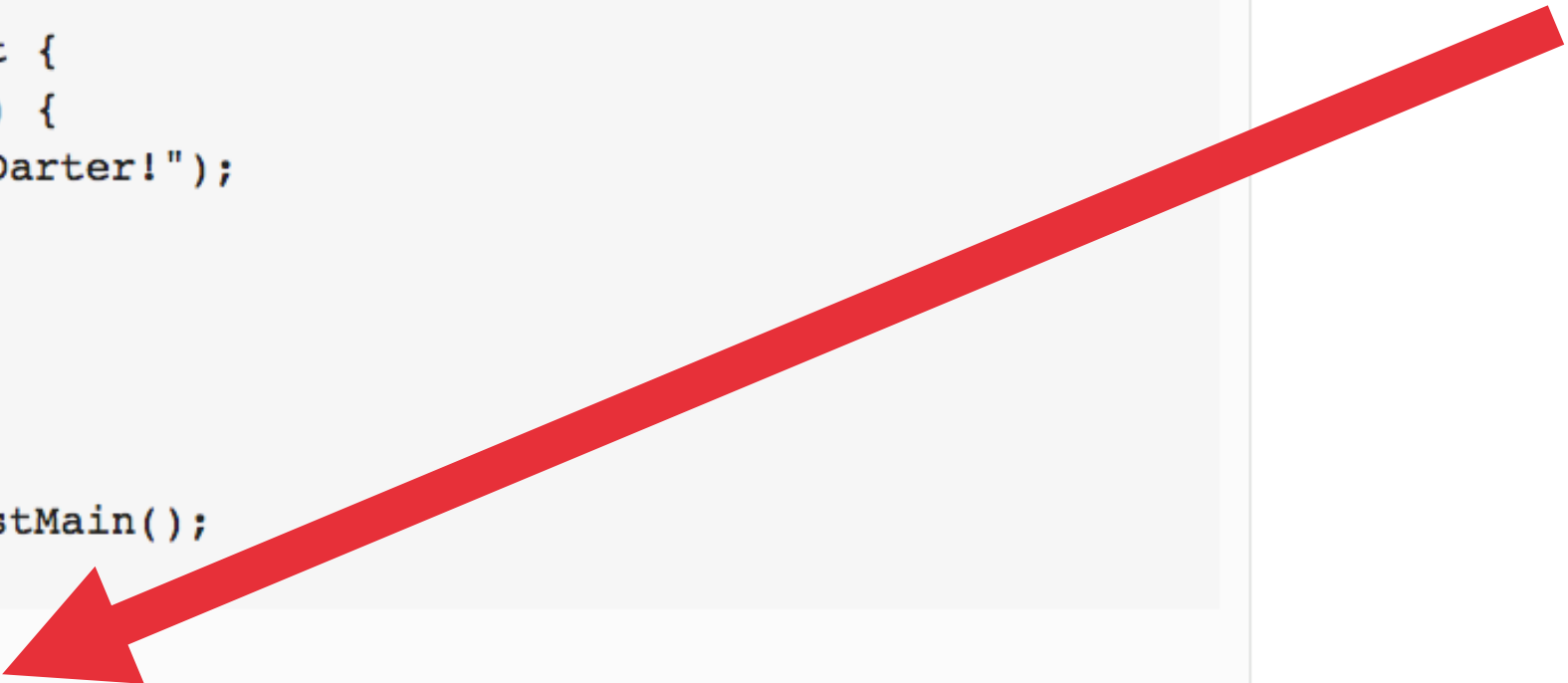
main() {
  HelloDartTest.testMain();
}
```

Compiles to 17259 lines of JavaScript code. Now, most of it is just the library core, but it shows what you have to do to bolt static typing on top of a prototype-based, dynamic, truly object-oriented language.

```
// Copyright (c) 2011, the Dart project authors. Please see the AUT
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Dart

Developer Summit

2016

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Dart Dev Summit

2 days. 17+ talks.

October 26–27
Munich, Germany



WATCH

Microsoft augments JavaScript for large-scale development

In an extension to JavaScript, Microsoft provides static typing, classes and modularization



By **IDG News Service staff**

IDG News Service | OCT 1, 2012

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Interest over time ?



Why I Was Wrong About TypeScript



Progress®



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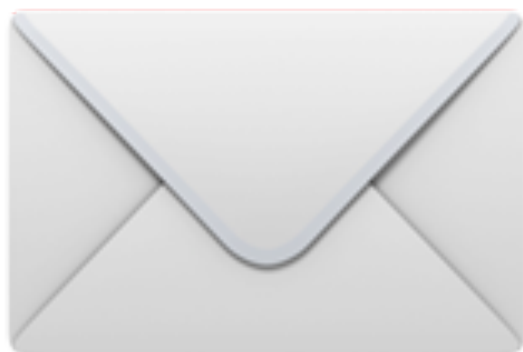
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Interest over time ?









“We risk a lot by
building our core on
top of TypeScript.”

“I don’t hear anyone
talking about
TypeScript.”

"I like to keep my
JavaScript pure, as
God intended."

Build better NativeScript apps with TypeScript

TypeScript is a first-class citizen in NativeScript.

TypeScript is a typed superset of JavaScript that compiles to plain JavaScript. In addition to the great features you like about JavaScript, TypeScript offers benefits of special interest to developers coming from Strongly Typed, or Object Oriented backgrounds.

Why TypeScript?



"TypeScript helped us to reuse the team's knowledge and to keep the same team velocity by providing the same excellent developer experience as C# ... A huge improvement over plain JavaScript."

● TypeScript
Programming Lan...

● Dart
Programming lang...

● CoffeeScript
Programming Lan...



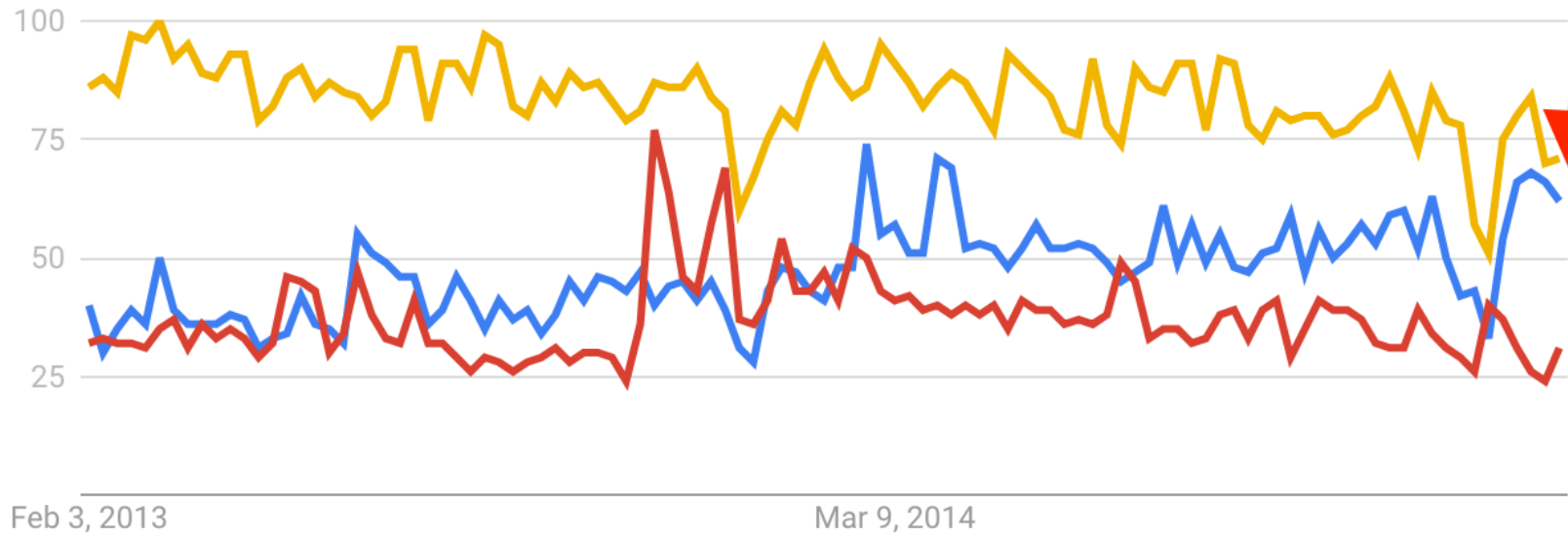
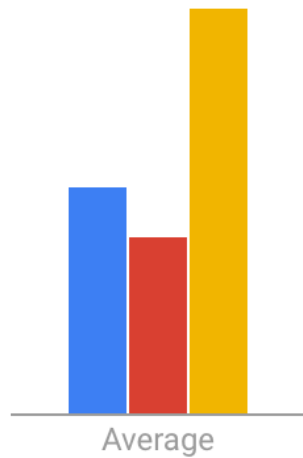
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Interest over time ?



● TypeScript
Programming language

● Dart
Programming language

● CoffeeScript
Programming language

+ Add comparison

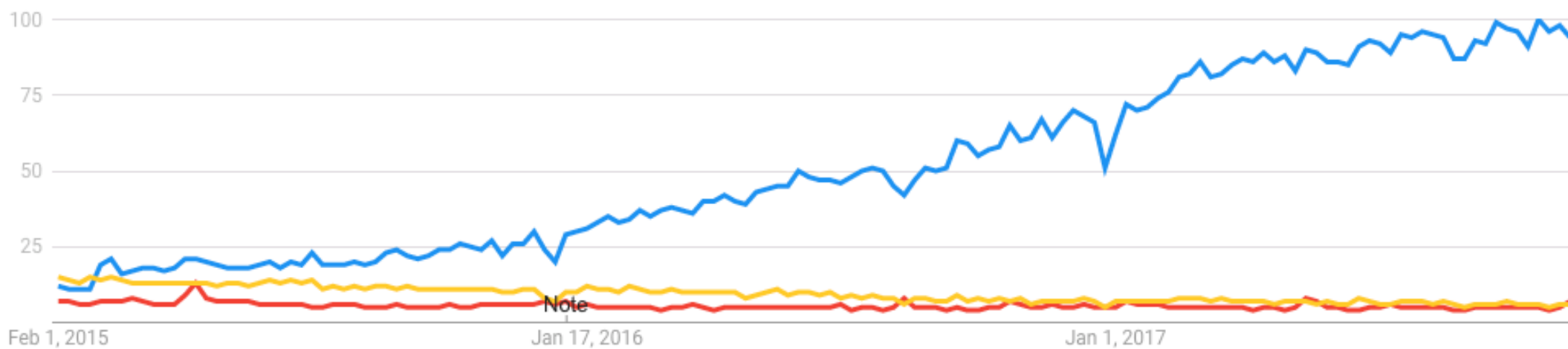
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Interest over time ?



Note

Average

Why I Was Wrong About TypeScript

Microsoft And Google Collaborate On Angular 2 Framework, TypeScript Language

Posted Mar 5, 2015 by [Frederic Lardinois \(@fredericl\)](#)



Next S

ADVERTISEMENT

```
todo.ts

import {Component, Template} from 'annotations';
import {bootstrap, Foreach} from 'angular2/angular2';
import {bind} from 'angular2/di';
import {AngularFire, FirebaseArray} from 'firebase/AngularFire';

@Component({
  selector: 'todo-app',
  componentServices: [
    AngularFire,
    bind(Firebase).toValue(new Firebase('https://webapi.firebaseio-demo.com/test'))
  ]
})
@Template({
  url: '/todo.html',
  directives: [Foreach]
})
class TodoApp {
  todoService: FirebaseArray;
```

Foreach	alias
FormData	interface

Crunchbase

Microsoft Launches Visual Studio Code, A Free Cross-Platform Code Editor For OS X, Linux And Windows

Posted Apr 29, 2015 by [Frederic Lardinois \(@fredericl\)](#)

[Next Story](#)

At its [Build developer conference](#), Microsoft today announced the launch of [Visual Studio Code](#), a lightweight cross-platform code editor for writing modern web and cloud applications that will run on OS X, Linux and Windows. The application is still officially in preview, but you can now download it [here](#).

Crunchbase

Microsoft

FOUNDED

1974

OVERVIEW

Microsoft is an American multinational corporation that develops, manufactures, licenses, supports, and sells a range of software products and services. Microsoft's devices and consumer (D&C) licensing segment licenses Windows operating system and related software; Microsoft Office for consumers; and Windows Phone operating system. The company's computing and gaming hardware segment provides ...

LOCATION

Redmond, WA

CATEGORIES

Collaboration, Developer Tools, Cloud Computing,

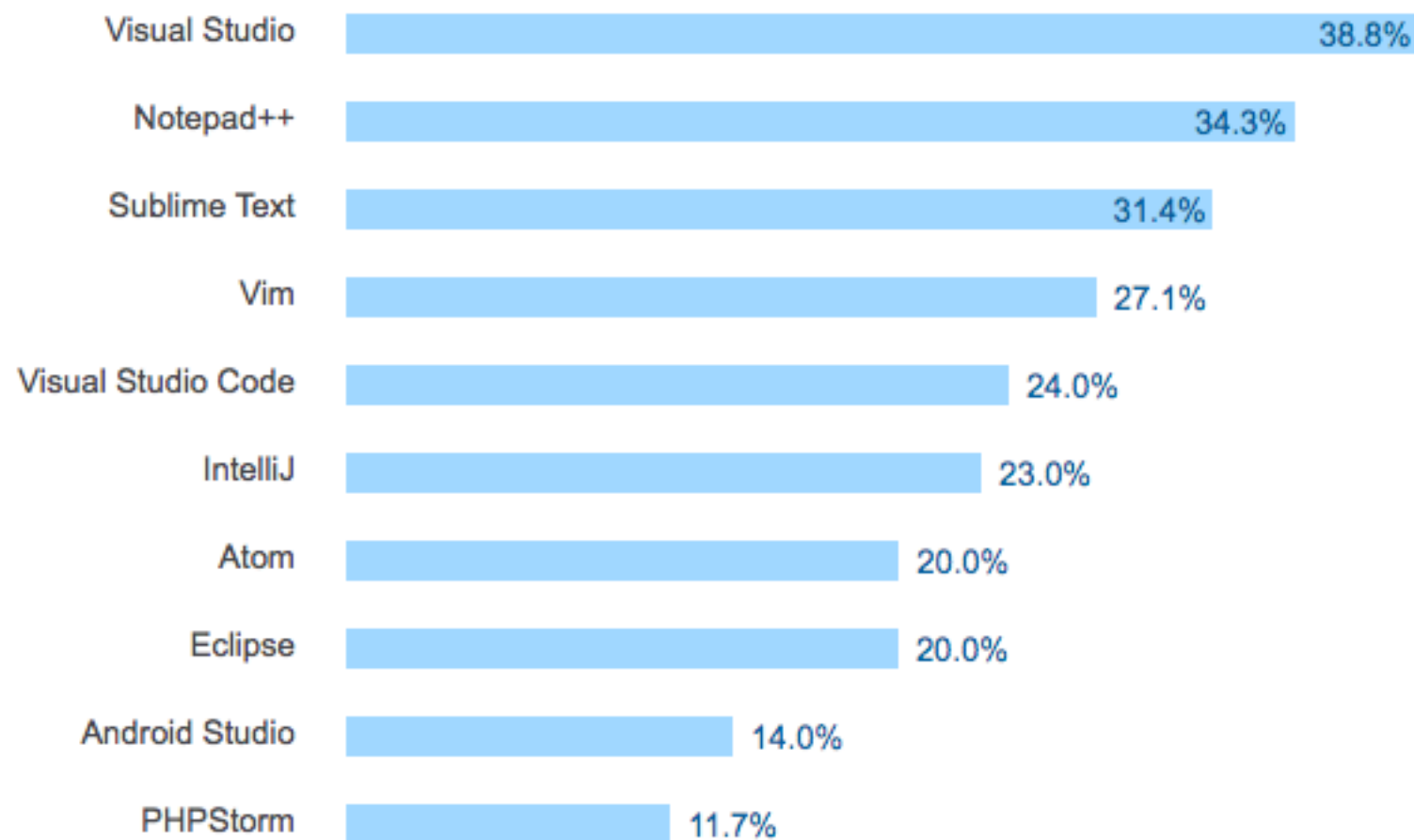
Most Popular Developer Environments by Occupation

Web Developer

Desktop Developer

Sysadmin / DevOps

Data Scientist/Engineer





Tom Dale

@tomdale

 Follow



I'm sold on TypeScript. Would like to move as many of my projects to it as I can, not sure about the Node workflow though.

RETWEETS

27

LIKES

44



3:43 PM - 20 Jan 2016

 21

 27

 44



Dave Herman @littlecalculist

I ported my first nontrivial JS lib to [@typescriptlang](#) and it was a pure joy.
What a lovely piece of technology.



Felix Rieseberg

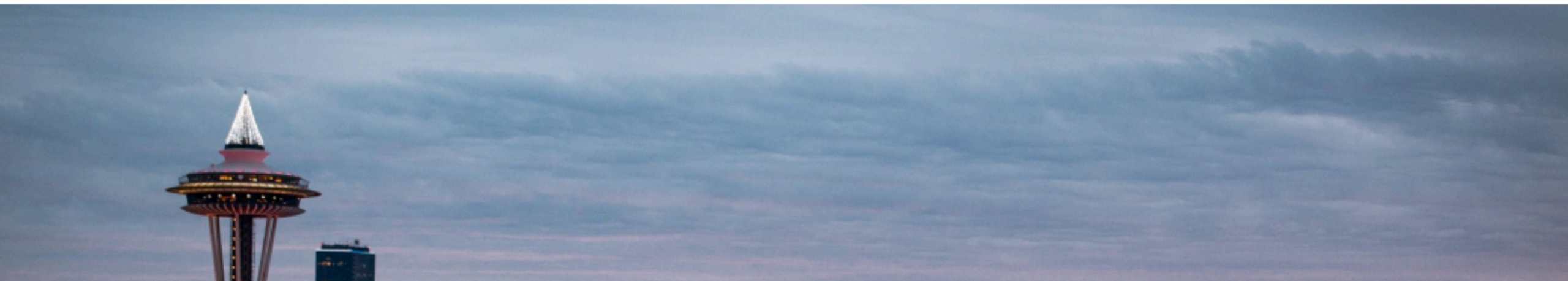
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Apr 11 · 7 min read

TypeScript at Slack

Or, How I Learned to Stop Worrying & Trust the Compiler













Why?

3 reasons

1) Commitment to the
ECMAScript standard

“Some examples [of compile-to-JavaScript frameworks], like Dart, portend that JavaScript has fundamental flaws and to support these scenarios requires a “clean break” from JavaScript in both syntax and runtime. We disagree with this point of view. We believe that with committee participant focus, the standards runtime can be expanded and the syntactic features necessary to support **JavaScript at scale can be built upon the existing JavaScript standard.**”

		Compilers/polyfills					
		97%	56%	71%	48%	59%	18%
Feature name	►	Current browser	Traceur	Babel + core-js ^[2]	Closure	Type-Script + core-js	es6-shim
Optimisation							
● proper tail calls (tail call optimisation)	►	0/2	0/2	0/2	0/2	0/2	0/2
Syntax							
● default function parameters 	►	7/7	4/7	4/7	4/7	5/7	0/7
● rest parameters 	►	5/5	4/5	3/5	2/5	4/5	0/5
● spread (...) operator 	►	15/15	15/15	13/15	12/15	4/15	0/15
● object literal extensions 	►	6/6	6/6	6/6	4/6	6/6	0/6
● for..of loops 	►	9/9	9/9	9/9	6/9	3/9	0/9
● octal and binary literals	►	4/4	2/4	4/4	4/4	4/4	2/4
● template literals 	►	5/5	4/5	4/5	3/5	3/5	0/5
● RegExp "y" and "u" flags 	►	5/5	3/5	3/5	0/5	0/5	0/5
● destructuring, declarations 	►	22/22	20/22	21/22	19/22	15/22	0/22
● destructuring, assignment 	►	24/24	23/24	24/24	17/24	19/24	0/24
● destructuring, parameters 	►	23/23	19/23	20/23	18/23	15/23	0/23
● Unicode code point escapes	►	2/2	1/2	1/2	1/2	1/2	0/2

2) Types are opt-in

3) Tooling

So should you use TypeScript?

- Are your apps big?
- Do you work on a team?
- Unfamiliar codebases?
- Non JS developers that need to write JS code?

Thanks!

@tjvantoll

<http://bit.ly/DR2017-vantoll>

