Why I Was Wrong About TypeScript

TJ VanToll

TypeScript

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

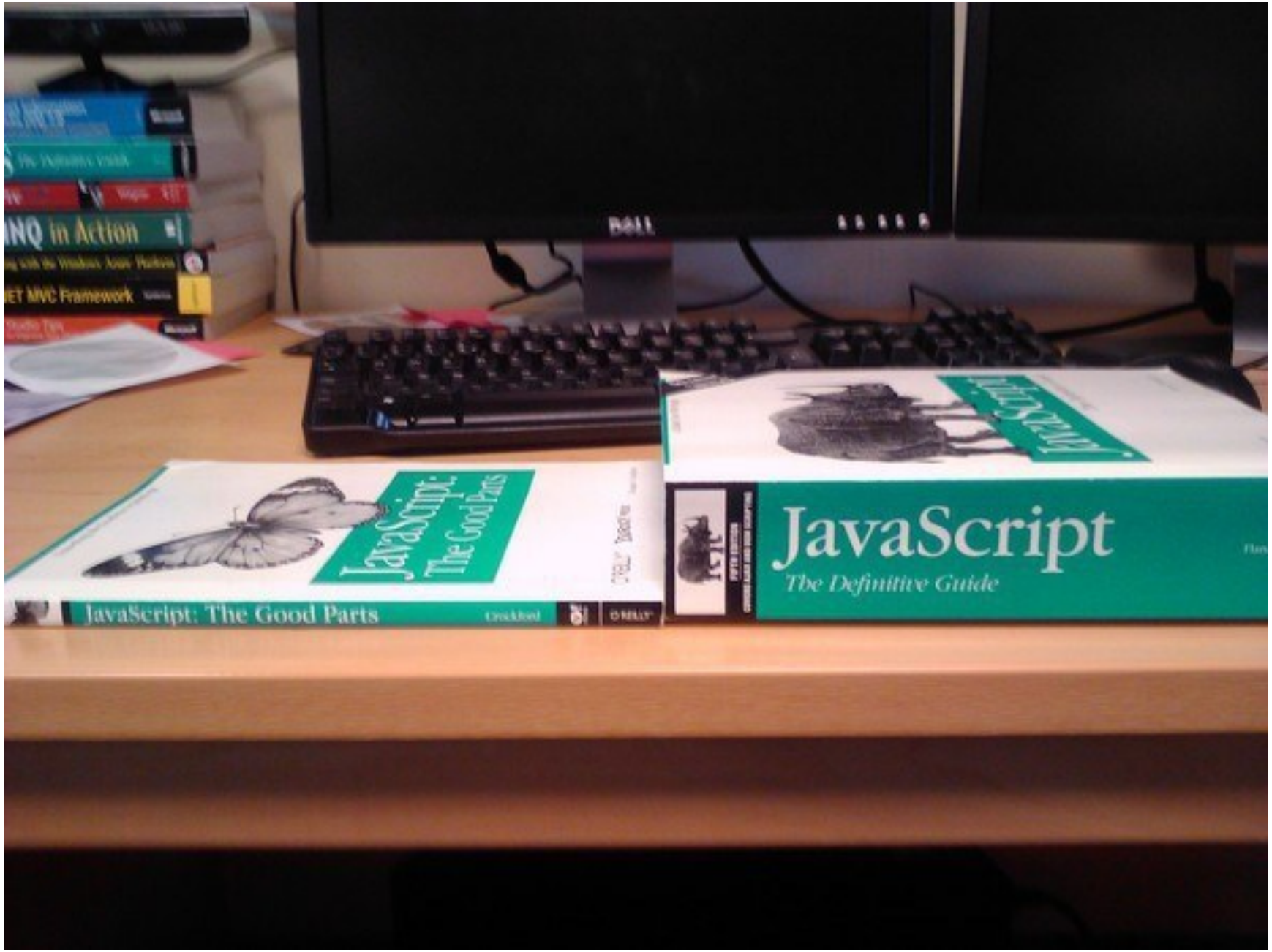
Why I Was Wrong About TypeScript

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

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

World Wide Web

```
1  true == 1                 → true
2  true == "1"               → true
3  false == 0                → true
4  false == "0"              → true
5
6  false == undefined        → false
7  false == null             → false
8
9  null == undefined         → true
```


NQ in Action
ET MVC Framework
JavaScript: The Good Parts
JavaScript
The Definitive Guide

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/

Compile to JavaScript tools

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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

Worldwide | 9/1/09 - 5/3/17 | All categories | Web Search

Interest over time

```coffeescript
# 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.

Open in DartPad

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

main() async {
  print('Compute π using the Monte Carlo method.');
  await for (var estimate in computePi()) {
    print('π ≅ $estimate');
  }
}

/// Generates a stream of increasingly accurate estimates of π.
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 = π·r², therefore π = A/r².
    // So, when given random points with x ∈ <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.]

News	API	Pub	Dart webdev	Flutter
Follow the latest.	Browse core libraries.	Find packages.	Build browser apps.	Build mobile apps.

Dart

Programming language

+ Compare

Worldwide | 10/1/11 - 5/3/17 | All categories | Web Search

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.

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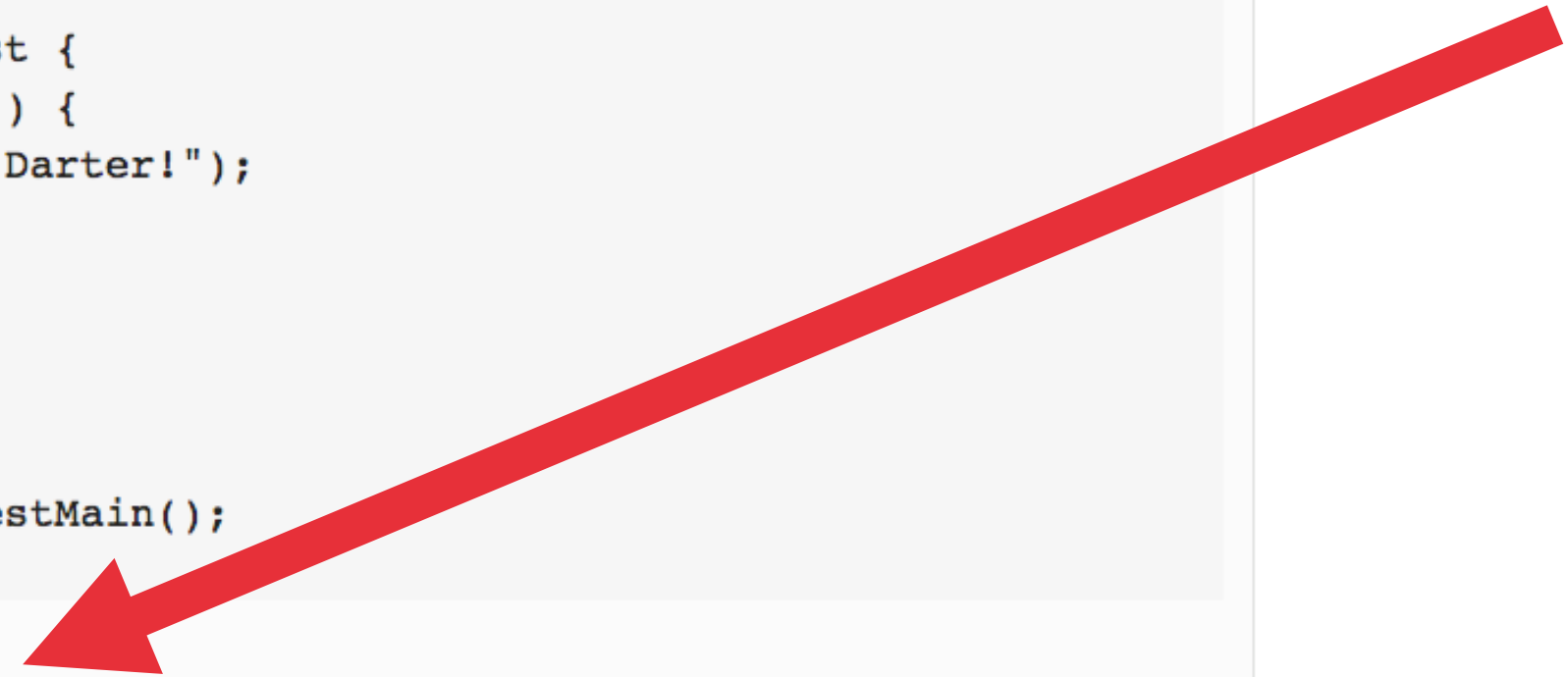

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Dart
2016
Developer Summit
Watch
Program
Speakers
Location
Info
Dart Dev Summit
2 days. 17+ talks.
October 26–27
Munich, Germany
WATCH

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

TypeScript
Programming Language

+ Compare

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Interest over time

Why I Was Wrong About TypeScript

Progress®

TypeScript
Programming Language

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Interest over time

Microsoft

Visual
Studio

“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.

TypeScript
Programming Lan...

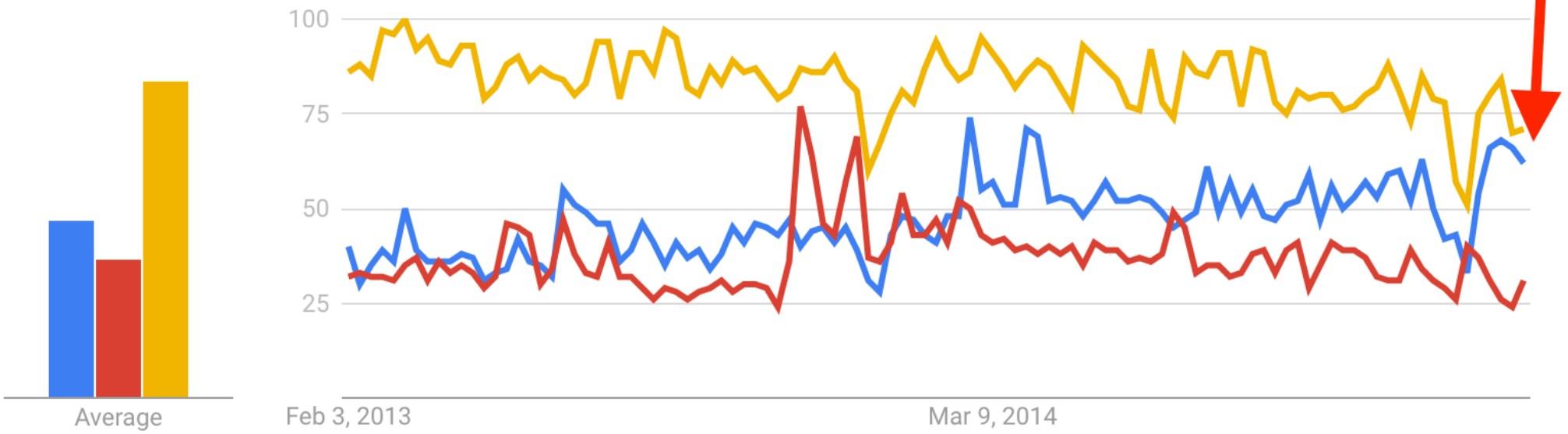
Dart
Programming lang...

CoffeeScript
Programming Lan...

+

Worldwide | 2/1/13 - 2/7/15 | All categories | Web Search

Interest over time



TypeScript
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Worldwide | 2/1/15 - 5/11/17 | All categories | Web Search

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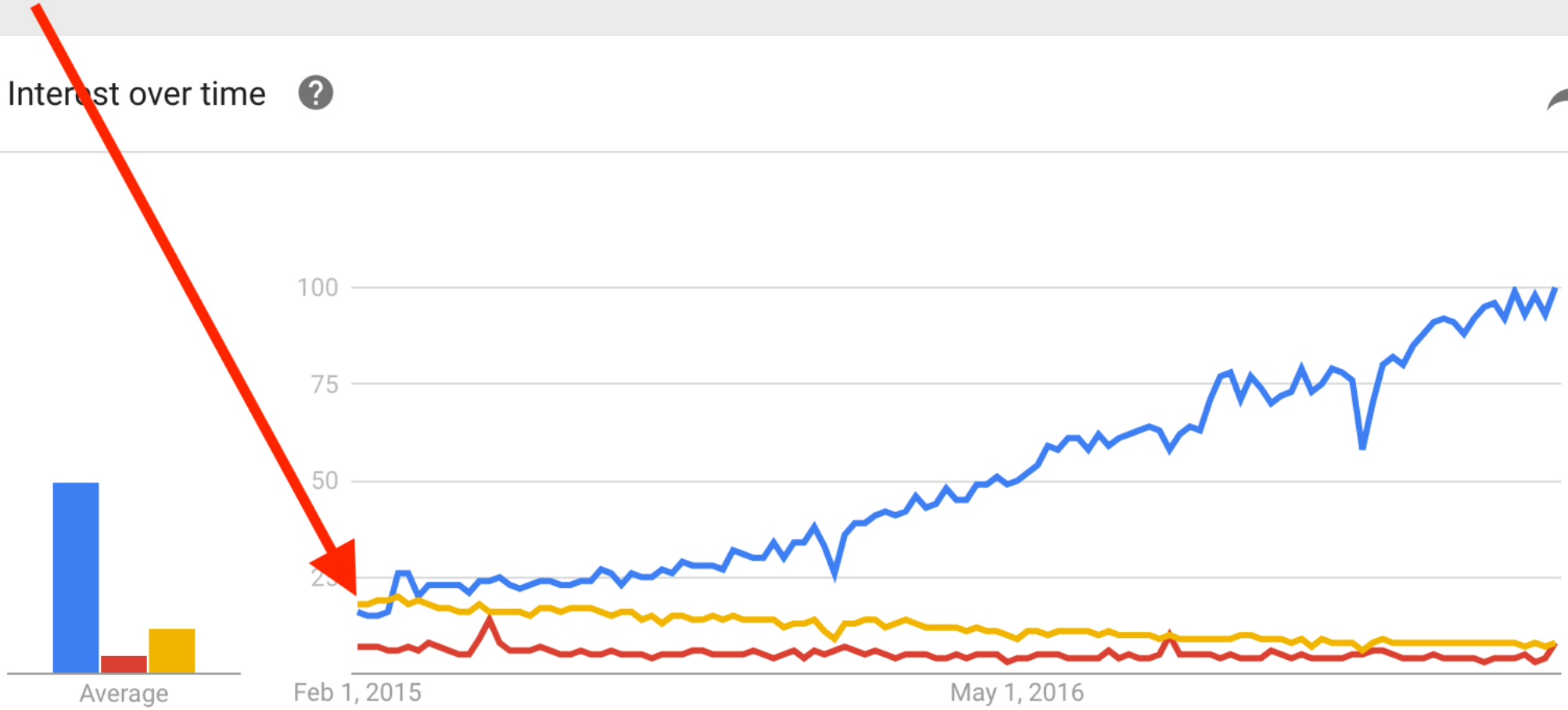


Why I Was Wrong About TypeScript

Microsoft And Google Collaborate On Angular 2 Framework, TypeScript Language

Posted Mar 5, 2015 by Frederic Lardinois (@fredericl)

Next S

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: [For]
    })
class TodoApp {
    todoService: FirebaseArray;
```

Foreach alias
FormData interface

ADVERTISEMENT

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

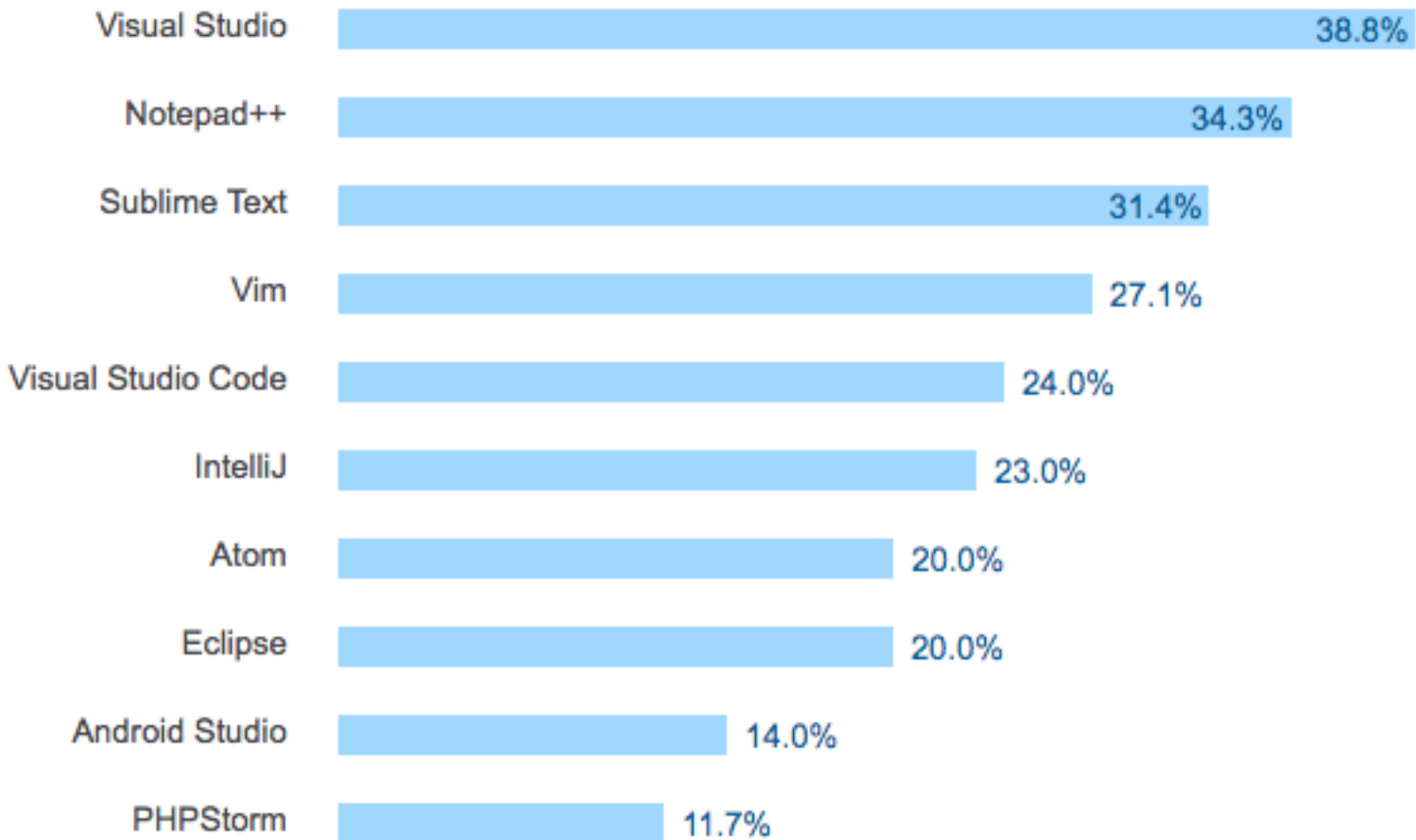
OVERVIEW
Microsoft is an American multinational corporation that develops, manufactures, licenses, supports, and sells a range of software products and services. Microsoft's devices and consumer (D&C) licensing segment licenses Windows operating system and related software; Microsoft Office for consumers;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

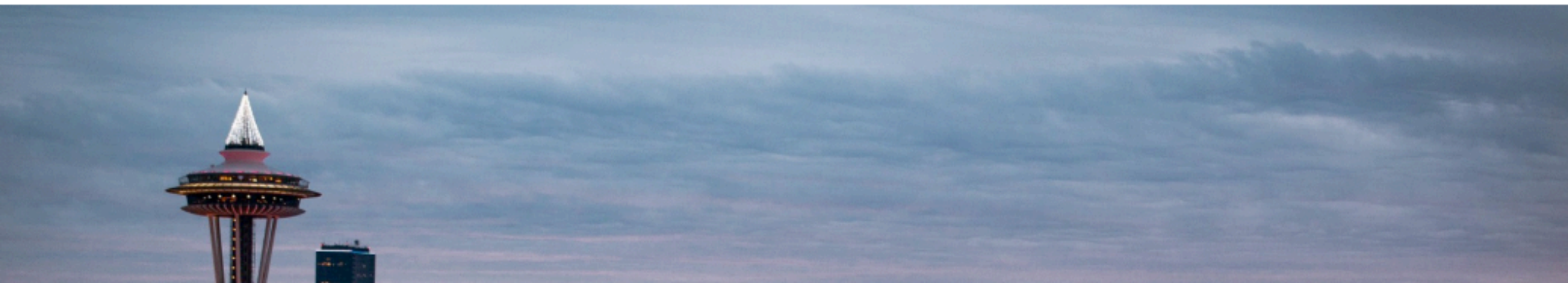
Felix Rieseberg Follow

Desktop Engineer @Slack. @TryGhost Core Team. || Previously open source @Microsoft, exec edito...

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?

http://developerday.nativescript.org/?discount=TJVANTOLL

Thanks!

@tjvantoll