JavaScript 的困境与挑战

GMTC 2019 全球大前端技术大会·深圳站

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360高级前端架构师

360技术委员会Web前端TC委员

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2019年7月起
TC39代表

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1998

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JavaScript

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IE 4

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- 前ES3时代 *1995~1999*
- ES3时代 *2000~2010*

- Harmony时代 *2008~2016*
- ES6/Babel时代 *2014~2020*
- TS/JS生态新时代 *2019~*

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2011：ES5 — Improve the Safety of JavaScript

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- API扩展和标准化：JSON、Array.protoype.forEach/map/filter...
- 通用化，可实现平台对象：get/set accessor、Object.defineProperty、etc.

- 适应于PITL（programming-in-the-large）

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2014：透过ES6看JS未来

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- Module 使得 JS 生态系统能重新统一
- Module / Class 等让 JS 更适合大型编程

- Promise 等将最佳实践标准化
- Generator / Proxy 等提供了现代语言所需的重要设施
- Arrow function / Destructring 等不仅是语法糖，而且填了长期以来的一些坑

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2015~2017：JS — 世界第一程式設計語言

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Babel makes the language

Modular

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22% stage 4

20% stage 3

25% stage 2

33% stage 0/1

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Enable language features

incrementally

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Hardest to upgrade

–> Always use

latest feature!

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Ecosystem

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JavaScript have:

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The most **ubiquitous** platform:

Browser

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The most **active** platform:

Node.js

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The **largest** companies:

Google Microsoft

Apple Facebook

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The most experienced experts
in the language committee
---------- & ----------
The largest developers

Community

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立了 Flag

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隐忧浮现

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JS fatigue

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学不动了

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边际效用

性价比

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前端开发编程语言的过去、现在和未来

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TS/JS未来面临的挑战

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TS背着JS包袱

JS背着历史包袱

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社区复杂、差异性
怎么做tradeoff?
委员会语言弊病?

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历史包袱

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不能破坏
兼容性

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只能通过增加特性
来解决以前的问题

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Arrow Function

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lexical `this`

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不可避免地使得

`this`语义更加复杂

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- 工程方案
- 事实标准

- 真·标准

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长期共存

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- CommonJS
- ES module

- Bundle

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CJS/ESM互操作性问题

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```
--experimental-modules
```

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包入口可不可以

分别指定CJS/ESM?

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```
<script></script>
<script type=module></script>
<script type=module async></script>
```

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Polyfill+Transpiler

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Polyfill

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狭义Polyfill

广义Polyfill

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- Global
- Prototype

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- Array.prototype.flatten (MooTools)
- Array.prototype.flat (HighChart)

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- Polyfill
- Experimental implementation

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Babel

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Stage-x Preset

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22% stage 4

20% stage 3

25% stage 2

33% stage 0/1

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无意中在Production中
使用了unstable features

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JavaScript

BabelScript

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babel-plugin-macros

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长得像函数
其实并不是

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TypeScript

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Stage 3

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2012

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- arrow function
- class

- es module
- decorator
- private property / private field

- public property / public field

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ESLint

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Stage 4

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- 早期stage也/更需要保护
- 标准缺乏lint社区的反馈

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Maximally Minimal

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先解決温饱

再考虑小康

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每个人的需求不一样

谁能代表开发者?

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`Map.prototype.upsert()`

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如何衡量成本和收益?

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有争议的提案

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Top-level Await

Class fields

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『改革进入深水区』

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好做的都已做完了
剩下的都是难搞的

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Pipeline Operator

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```
value |> f
```

```
f(value)
```

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```
value |> f(...args)
```

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- `f(...args)(value)`
- `f(...args, value)`

- `f(value, ...args)`
- `f.call(value, ...args)`

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F# Style

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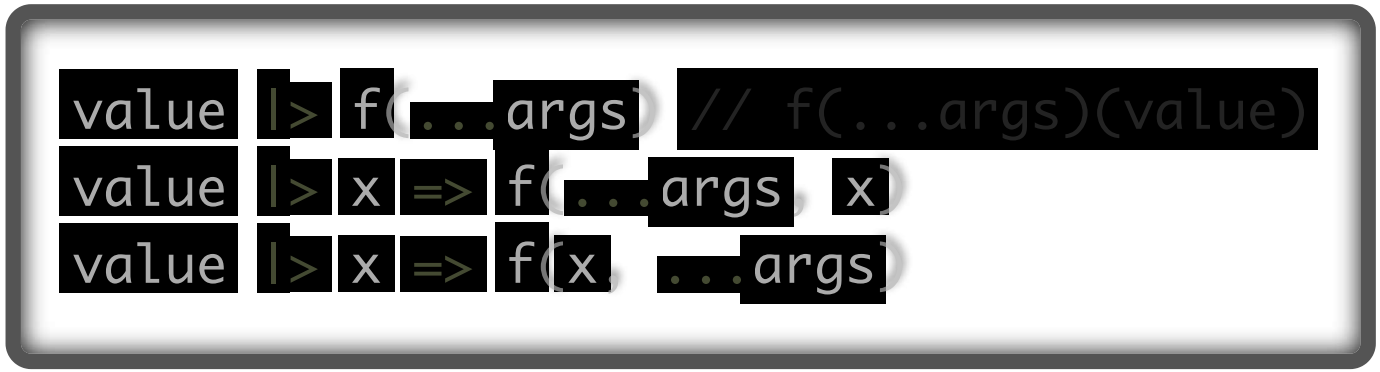

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Smart Style

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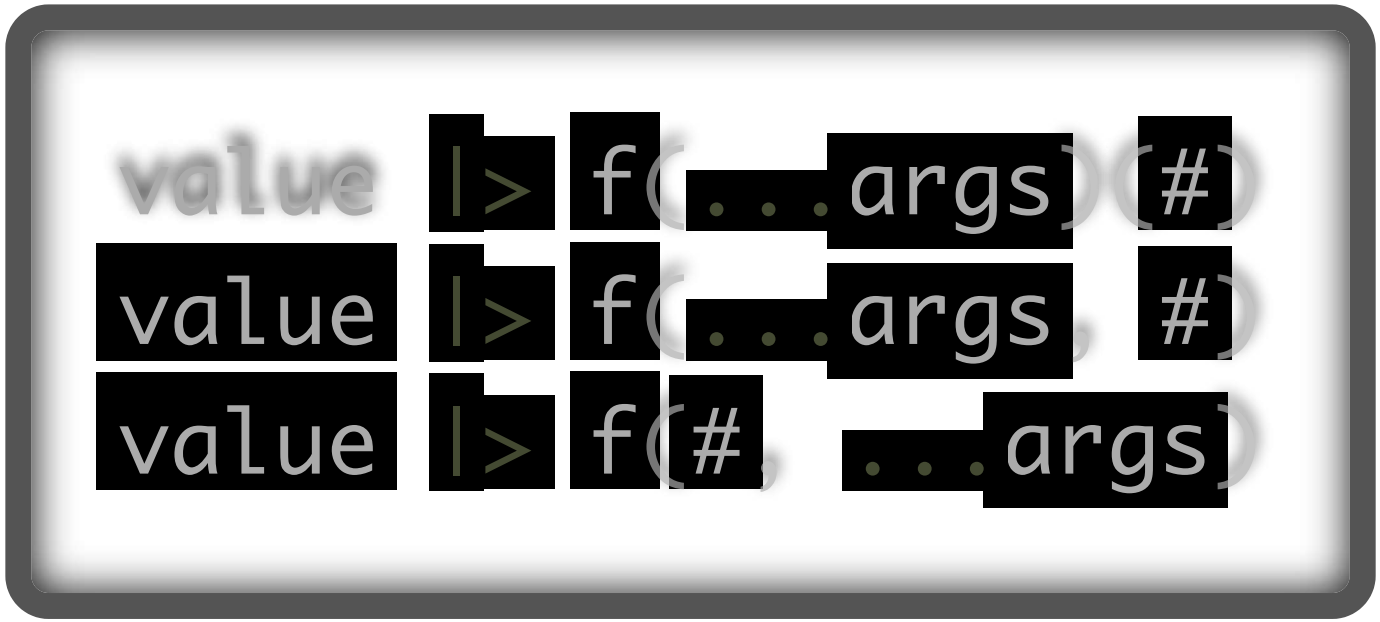

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- 更符合FP主流?
- 更普适JS?

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Binary AST

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- 不同平台的需求
- 性能和动态性的矛盾

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Roadmap?

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主导者?

全局观?

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总结

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QA

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