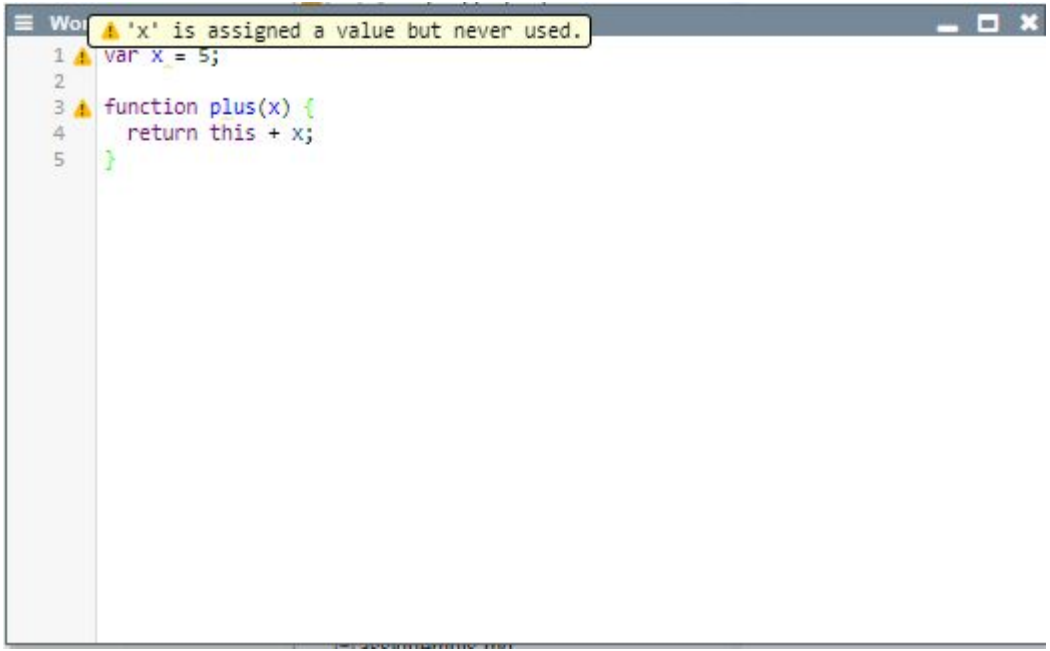
Use Babel AST in ESLint

Programming Experience 2019

Ulrike Bath, Maximilian Götz

Context



https://github.com/LivelyKernel/lively4-core/

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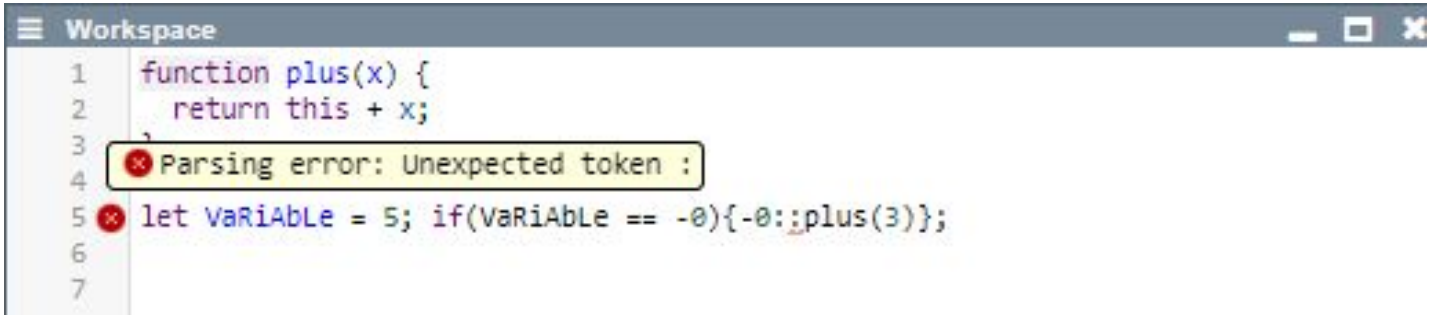
Motivation

- ESLint is a convenient tool for programming
- For code unknown to ESLint, we can’t utilize it
- False positives -> Bad Code

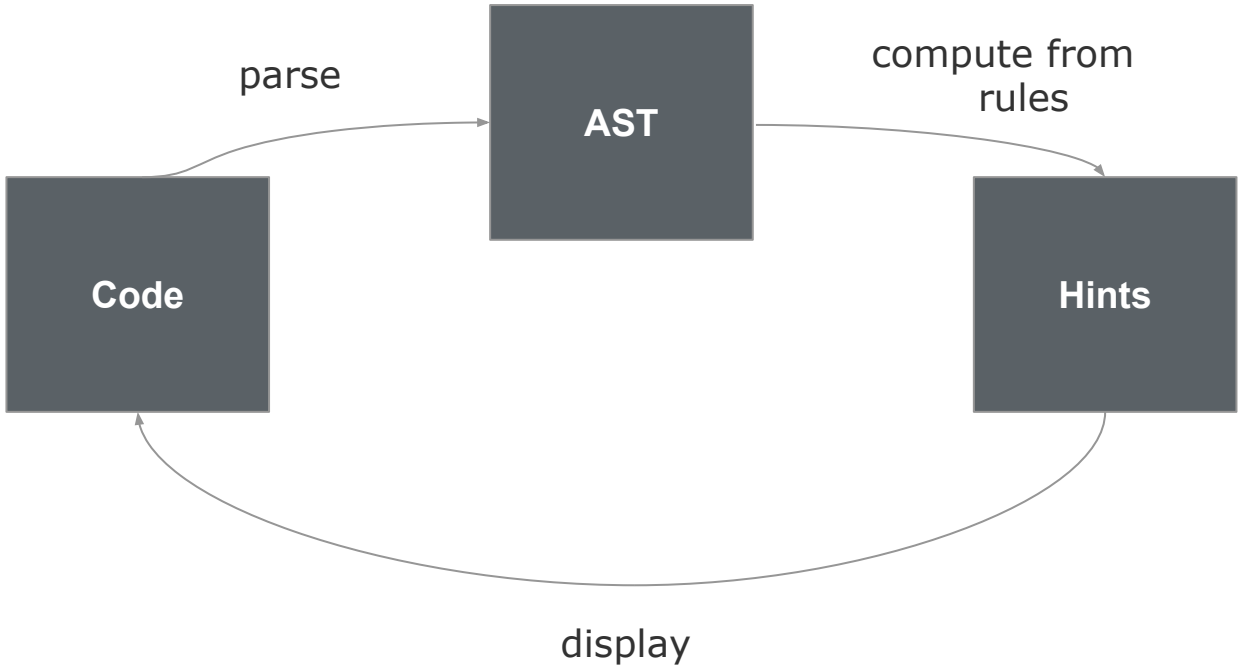


ESLint

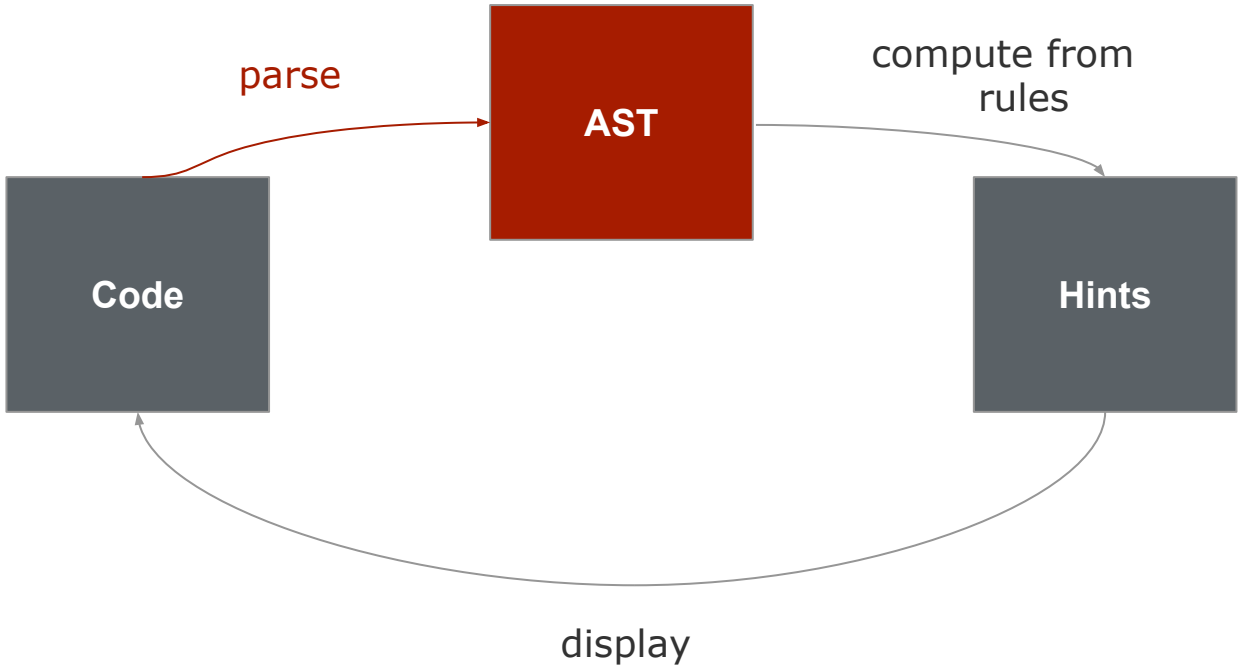
- ESLint = ECMAScript Lint
- static code analysis
- supports current standards of ECMAScript

michelenasti.com

ESLint - Hinting



ESLint - Hinting



Babel

- Javascript* ≠ Javascript
- experimental features like binding operator
- compile down to ECMAScript
- we can correctly compile a babel AST already

Babel AST vs Espree AST

Babylon

```
Program {
   type: "Program"
   start: 0
   end: 476
 + range: [2 elements]
 - body: [
    + VariableDeclaration {type, start, end, range, declarations,
    + FunctionDeclaration {type, start, end, range, id, ... +5}
   ]
   sourceType: "module"
}
```

https://astexplorer.net/

Espree

```
File {
   type: "File"
   start: 0
   end: 476
 + loc: {start, end}
 - program: Program {
      type: "Program"
      start: 0
      end: 476
    + loc: {start, end}
      sourceType: "module"
    - body: [
       + VariableDeclaration {type, start, end, loc, declarations, ... +2}
       + FunctionDeclaration {type, start, end, loc, id, ... +5}
```

Idea

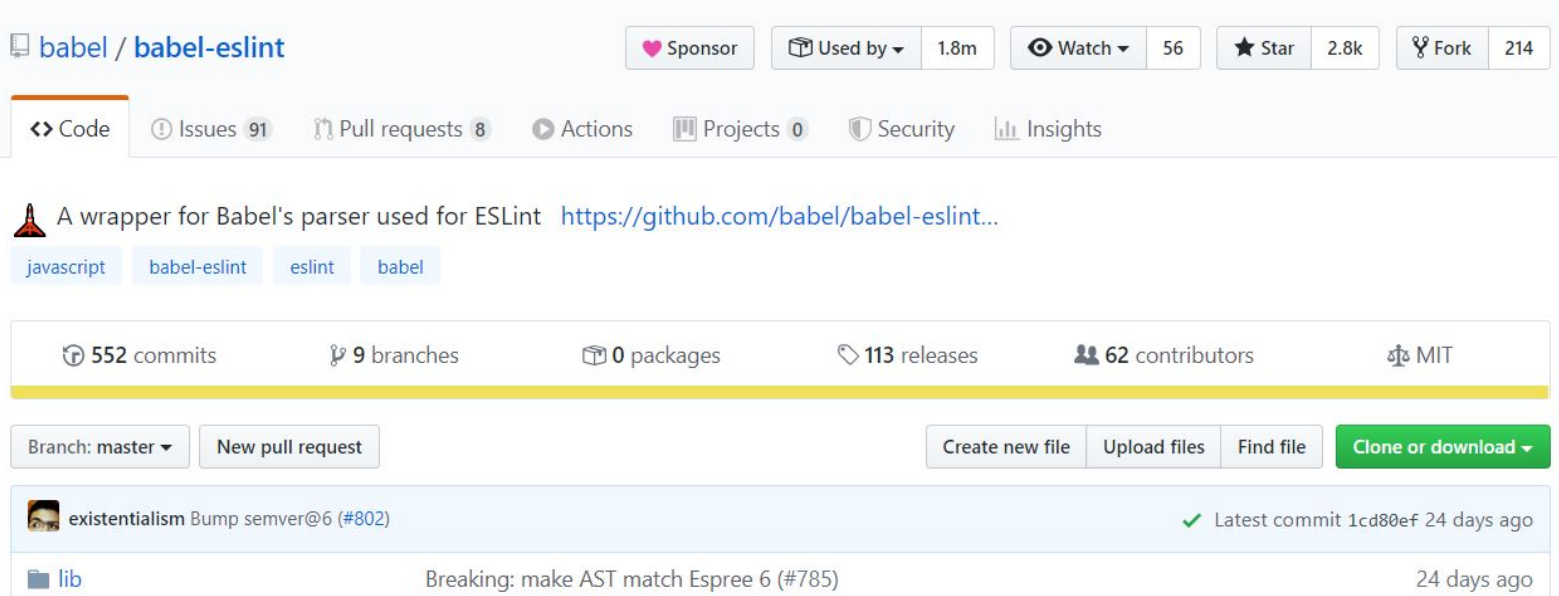
Get ESLint to use the correct Babel AST

Bild: thenounproject.com

State of the Art

Github repository: babel-eslint

- converts Babylon AST into Espree Ast
- based on Node.js



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State of the Art

Example:

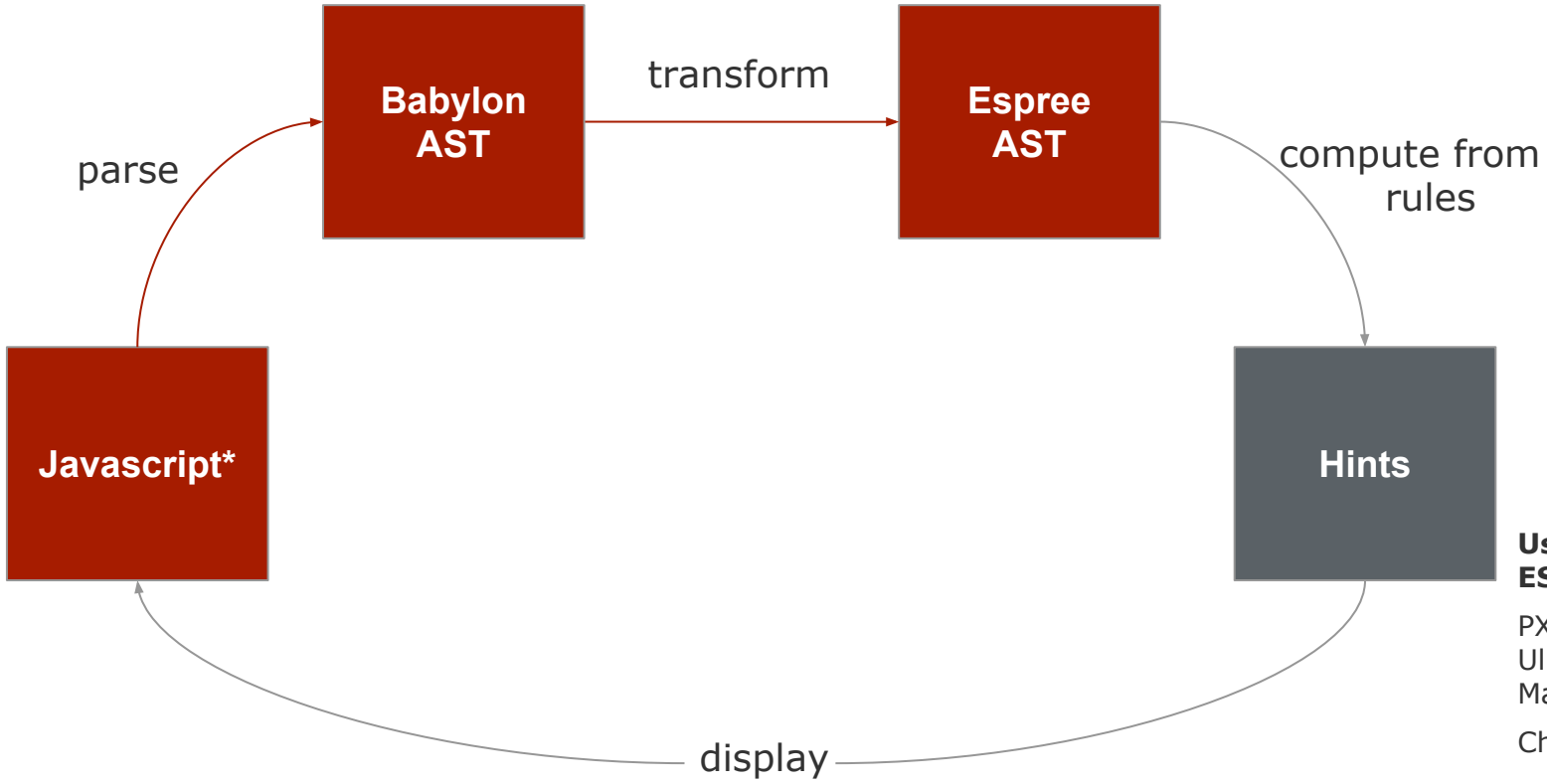
- babel-eslint/lib/babylon-to-espree/convertProgramNode.js

```
3   module.exports = function(ast) {
4     ast.type = "Program";
5     ast.sourceType = ast.program.sourceType;
6     ast.directives = ast.program.directives;
7     ast.body = ast.program.body;
8     delete ast.program;
9
```

Approach

1. “Browserify” Node.js based approach
2. Convert existing Babylon AST into Espree AST
3. Customize ESLint parser in Lively4

ESLint - Hinting



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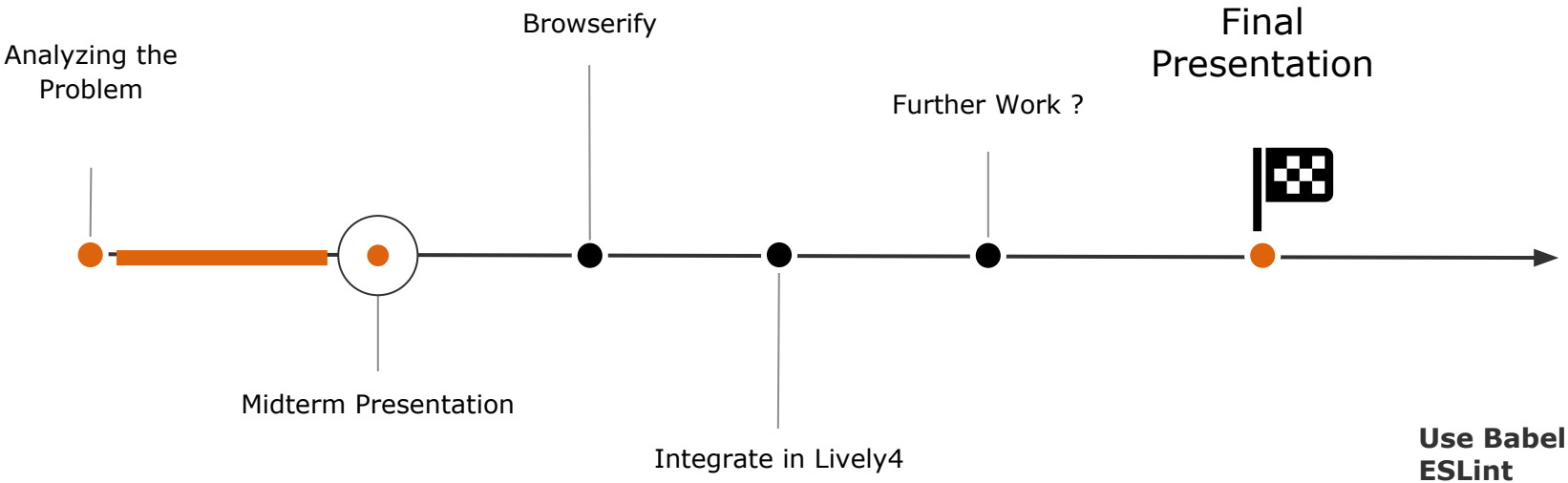
Roadmap



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Thank you for your Attention

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