

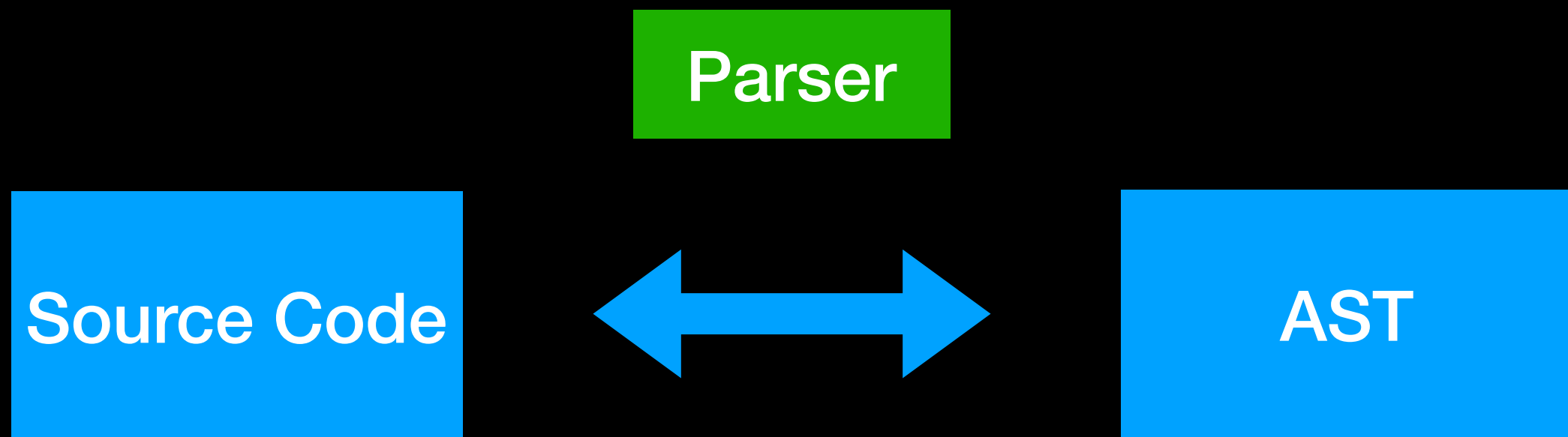
抽象语法树的入门与应用

Abstract Syntax Tree

在计算机科学中，抽象语法树是源代码的抽象语法结构的树状表现形式，这里特指编程语言的源代码。

from wikipedia

从源代码到抽象语法树



常见的JavaScript Parser

- ★ Esprima
- ★ UglifyJS2
- ★ Acorn
- ★ Traceur
- ★ ...



```
1 function add(a, b) {  
2   return a + b;  
3 }
```

Tree

JSON

☒ Autofocus ☒ Hide methods ☐ Hide empty keys ☒ Hide location data ☐ Hide type keys

```
- Program {  
  type: "Program"  
  - body: [  
    - FunctionDeclaration {  
      type: "FunctionDeclaration"  
      - id: Identifier {  
        type: "Identifier"  
        name: "add"  
      }  
      generator: false  
      expression: false  
      - params: [  
        - Identifier {  
          type: "Identifier"  
          name: "a"  
        }  
        - Identifier - $mode {  
          type: "Identifier"  
          name: "b"  
        }  
      ]  
    }  
    - body: BlockStatement {  
      type: "BlockStatement"  
      - body: [  
        - ReturnStatement {  
          type: "ReturnStatement"  
          - argument: BinaryExpression {  
            type: "BinaryExpression"  
            - left: Identifier {  
              type: "Identifier"  
              name: "a"  
            }  
            operator: "+"  
            - right: Identifier {  
              type: "Identifier"  
              name: "b"  
            }  
          }  
        }  
      ]  
    }  
  ]  
}  
  
sourceType: "module"  
}
```

AST Descriptor Syntax

```
- body: BlockStatement {  
  type: "BlockStatement"  
  start: 19  
  end: 37  
  - body: [  
    - ReturnStatement {  
      type: "ReturnStatement"  
      start: 22  
      end: 35  
    - argument: BinaryExpression {  
      type: "BinaryExpression"  
      start: 29  
      end: 34  
      - left: Identifier {  
        type: "Identifier"  
        start: 29  
        end: 30  
        name: "a"  
      }  
      operator: "+"  
      - right: Identifier - $node {  
        type: "Identifier"  
        start: 33  
        end: 34  
        name: "b"  
      }  
    }  
  ]  
}
```

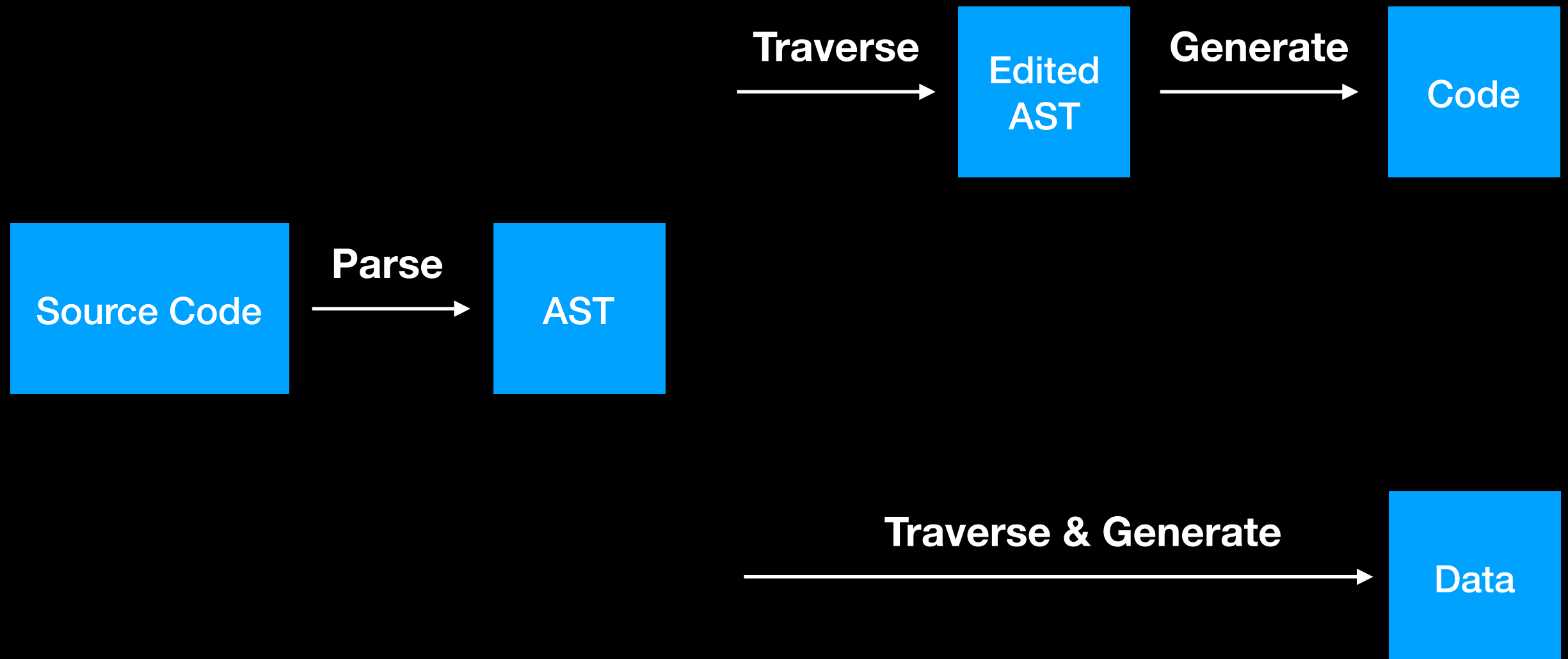
type: 节点类型

body: 节点内容

name: 节点名称

value: 值

抽象语法树的应用

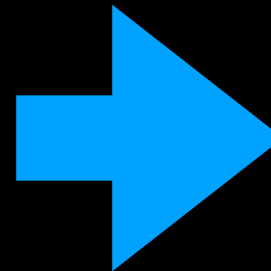


JSX to JSON

```

<Layout>
  <Row style={{ padding: 10, backgroundColor: "#EFEFEF" }}>
    <CustomDiv
      style={{ fontSize: "80%" }}
      options= {[
        { name: "选项1", value: 1 },
        { name: "选项2", value: 2 },
      ]}
    />
    <Custom.Button>buttontext</Custom.Button>
  </Row>
</Layout>

```

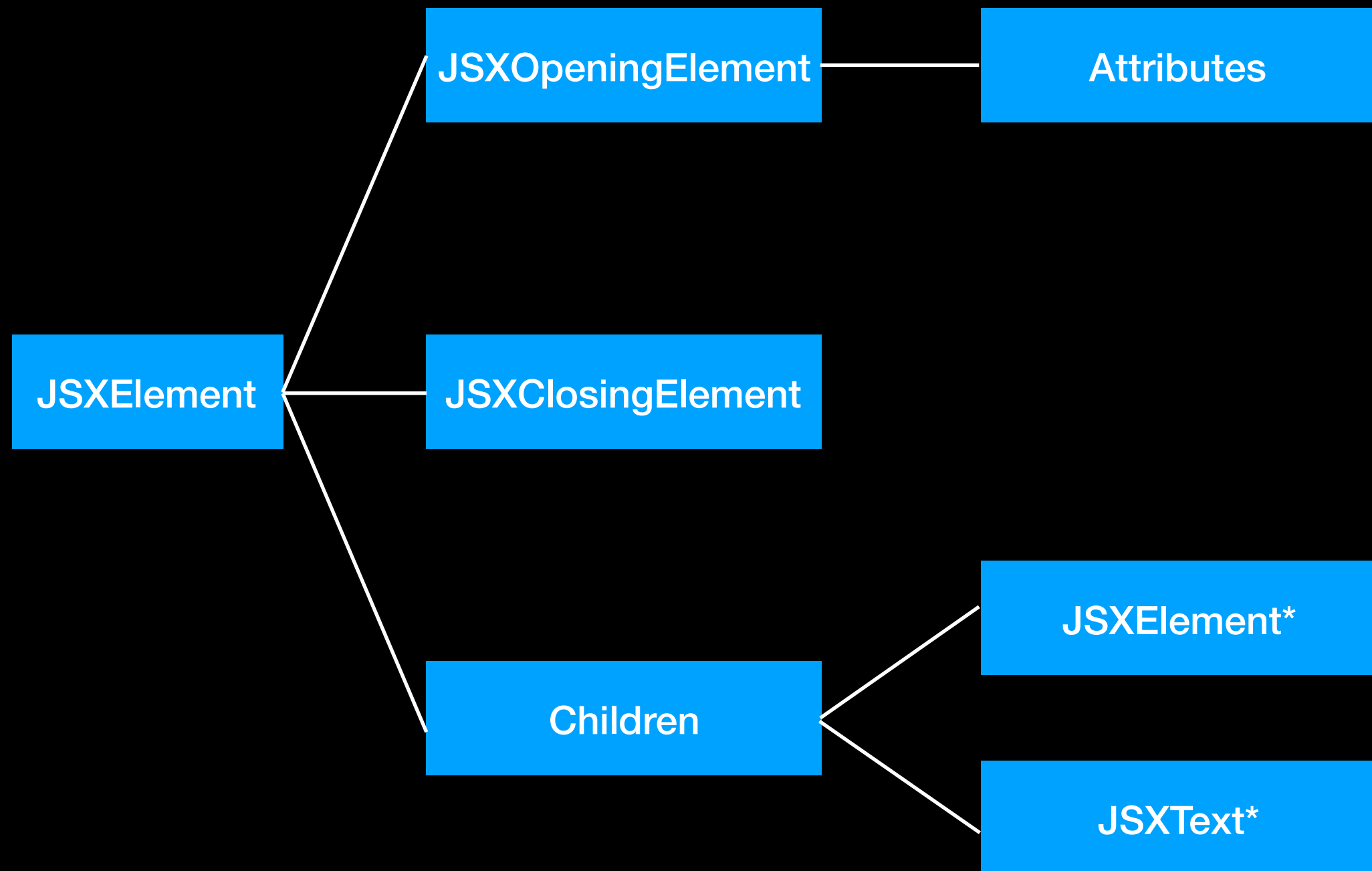


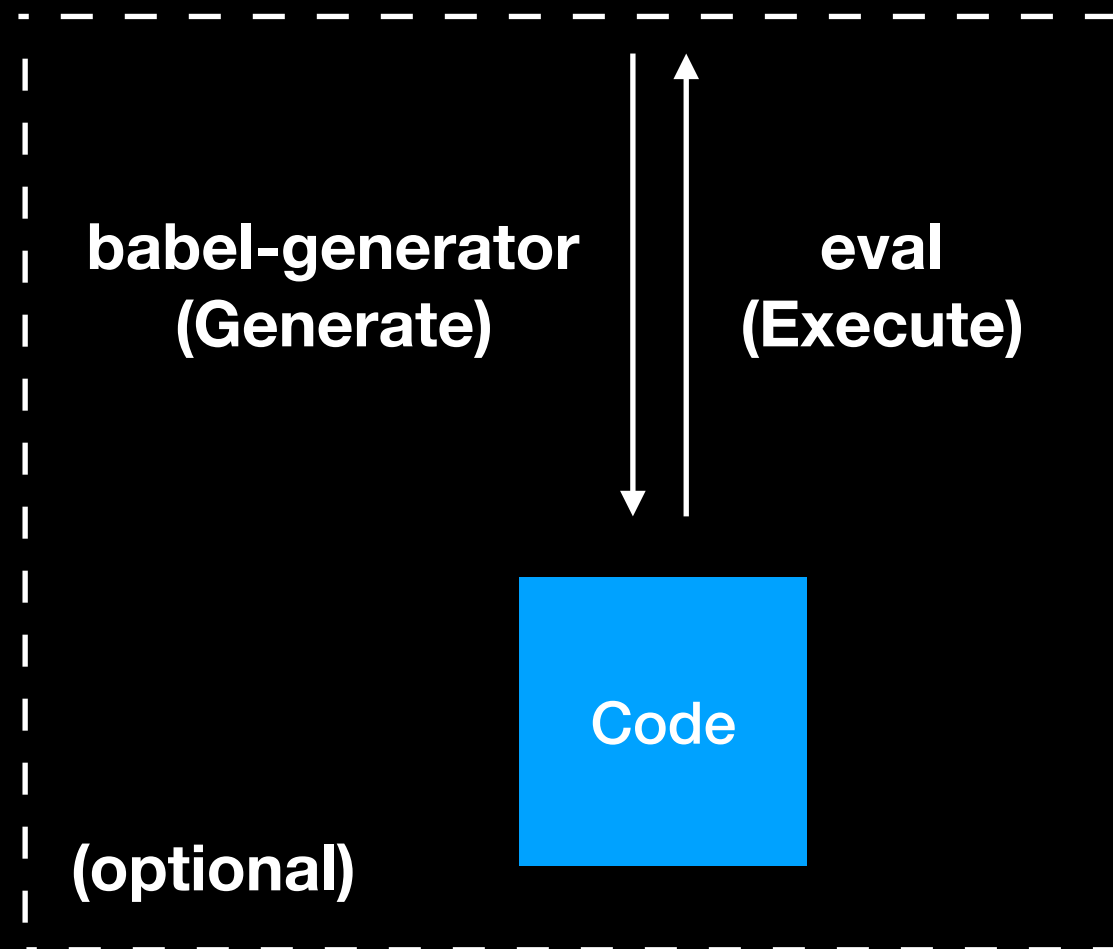
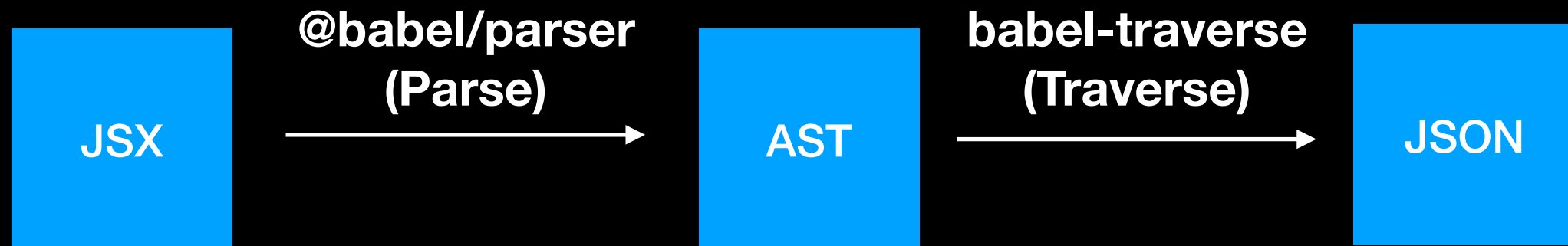
```

{
  "type": "Layout",
  "children": [
    {
      "type": "Row",
      "props": {
        "style": {
          "padding": 10,
          "backgroundColor": "#EFEFEF"
        }
      },
      "children": [
        {
          "type": "CustomDiv",
          "props": {
            "style": {
              "fontSize": "80%"
            },
            "options": [
              {
                "name": "选项1",
                "value": 1
              },
              {
                "name": "选项2",
                "value": 2
              }
            ]
          }
        },
        {
          "type": "Button",
          "parentType": "Custom",
          "children": [
            {
              "type": "text",
              "text": "buttontext"
            }
          ]
        }
      ]
    }
  ]
}

```

JSX AST structure





源码分析

Q&A