Простые сложности - SQL (подобные) запросы для JSON

Алексей Охрименко aka @obenjiro (Avito)

Алексей Охрименко

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Avito

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№1

t.me/angular_msk

@obenjiro

5 min Angular

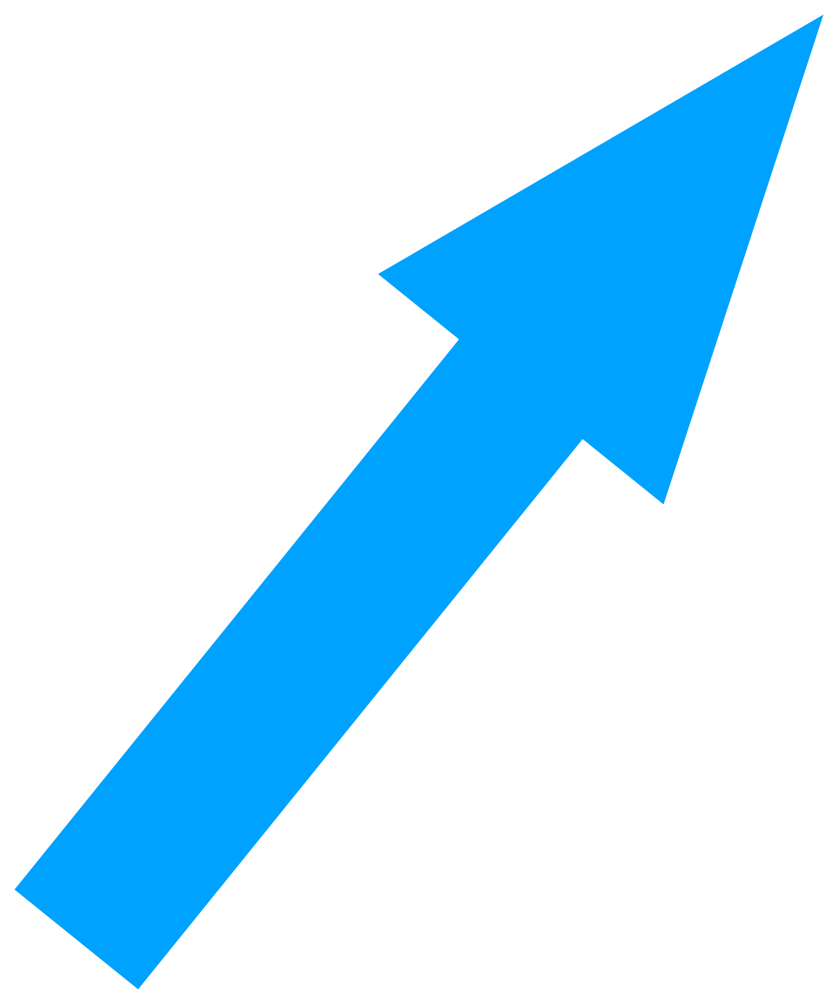
Алексей Охрименко

@obenjiro

SWI

SPOILER
ALERT!

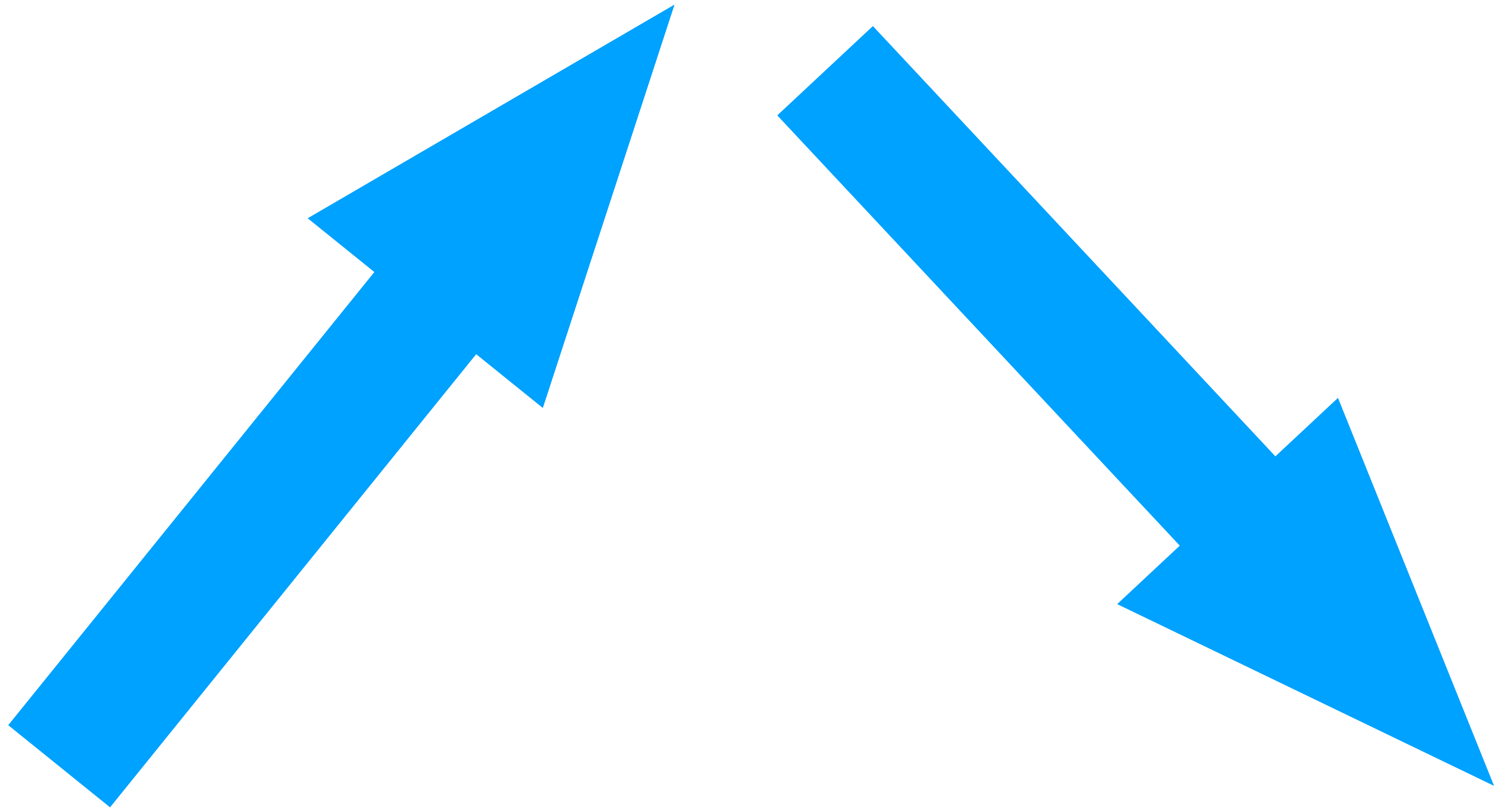
Начну с истории



Проблема

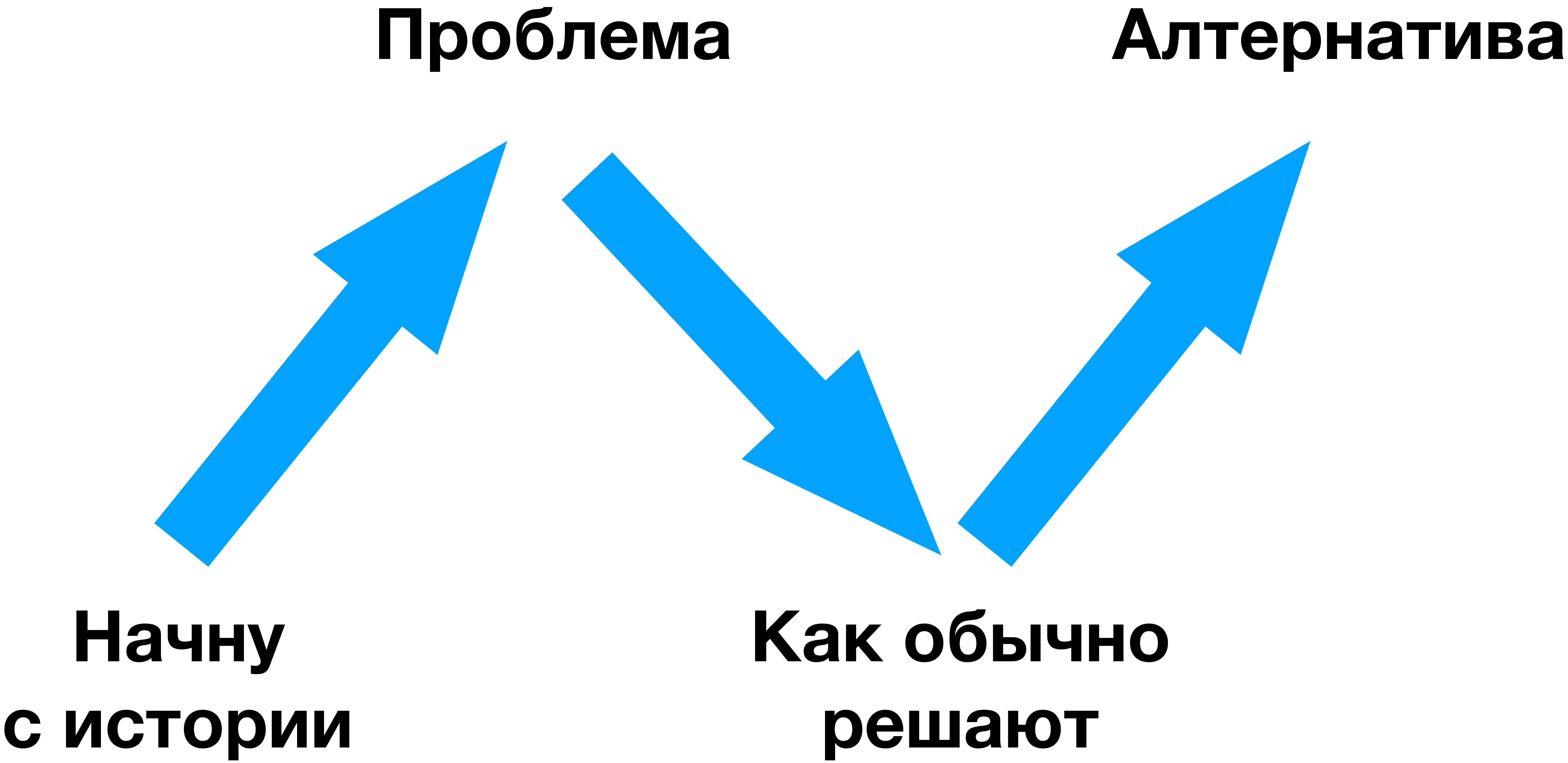
Начну
с истории

Проблема



Начну с истории

Как обычно решают

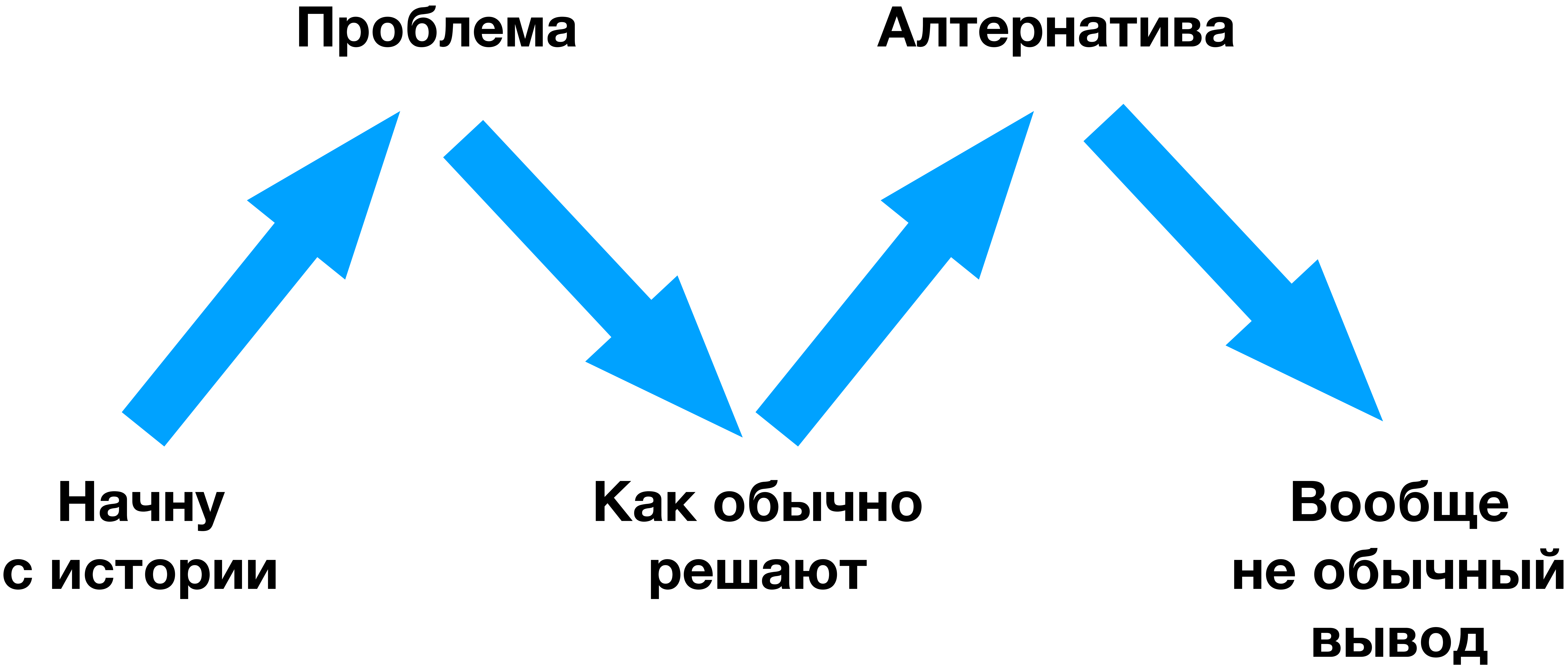


Начну
с истории

Проблема

Как обычно
решают

Альтернатива



Начну
с истории

Проблема

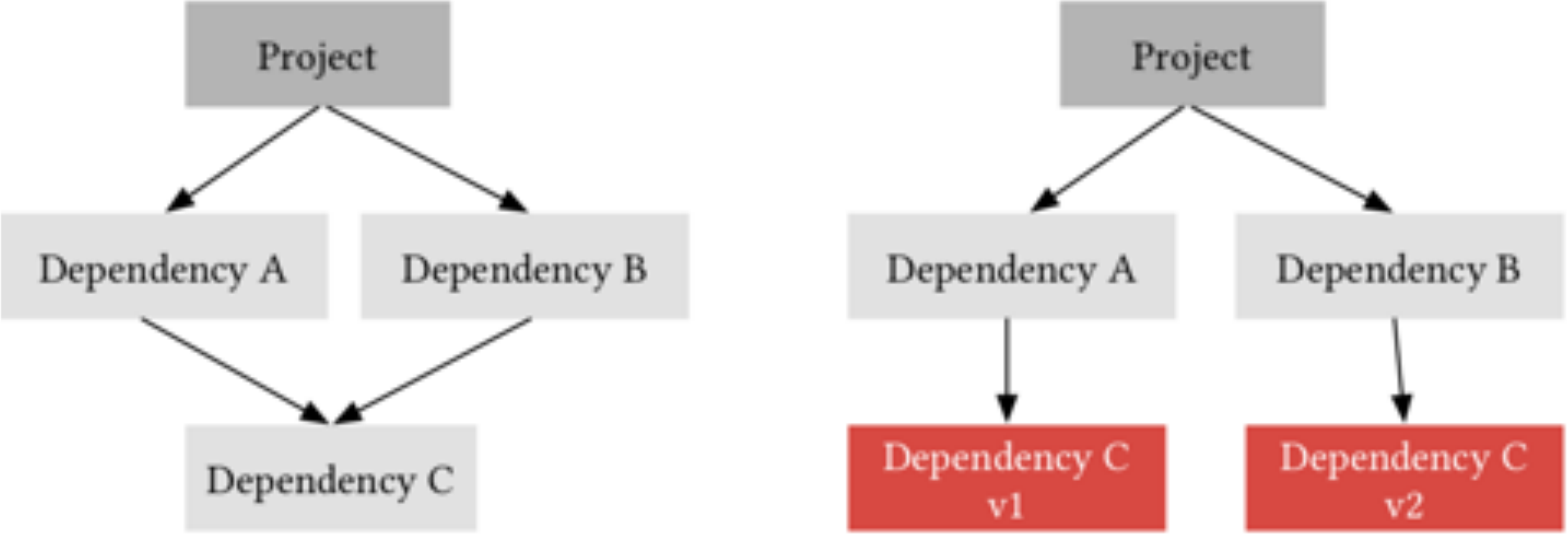
Как обычно
решают

Альтернатива

Вообще
не обычный
вывод

Выбор Хобсона

Проблема


Project
Dependency A
Dependency B
Dependency C
Project
Dependency A
Dependency B
Dependency C v1
Dependency C v2

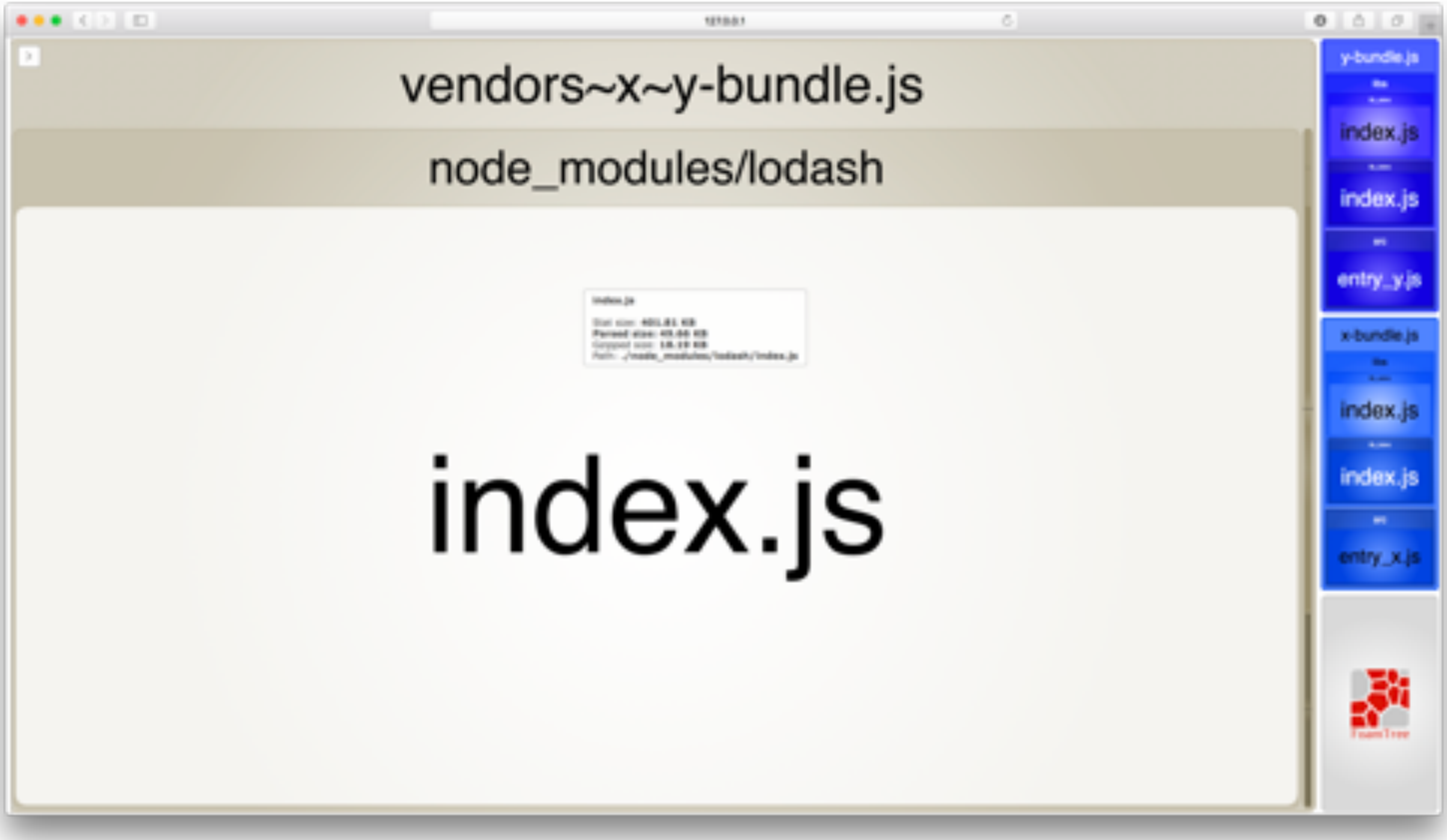
```
"dependencies": {
    "lodash": "^3.10.1",
    "lib_a": "1.0.0",
    "lib_b": "1.0.0"
}
```

Application

```
"dependencies": {
    "lodash": "^3.10.1"
}
```

lib_a, lib_b

Сколько версий lodash у нас будет в сборке?



index.js

Stat size: 401.81 KB
Parsed size: 45.66 KB
Gzipped size: 18.19 KB
Path: ./node_modules/lodash/index.js

```
"dependencies": {
    "lodash": "^3.10.1",
    "lib_a": "1.0.0",
    "lib_b": "1.0.0"
}
```

Application

```
"dependencies": {
    "lodash": "^3.10.1"
}
```

lib_a, lib_b

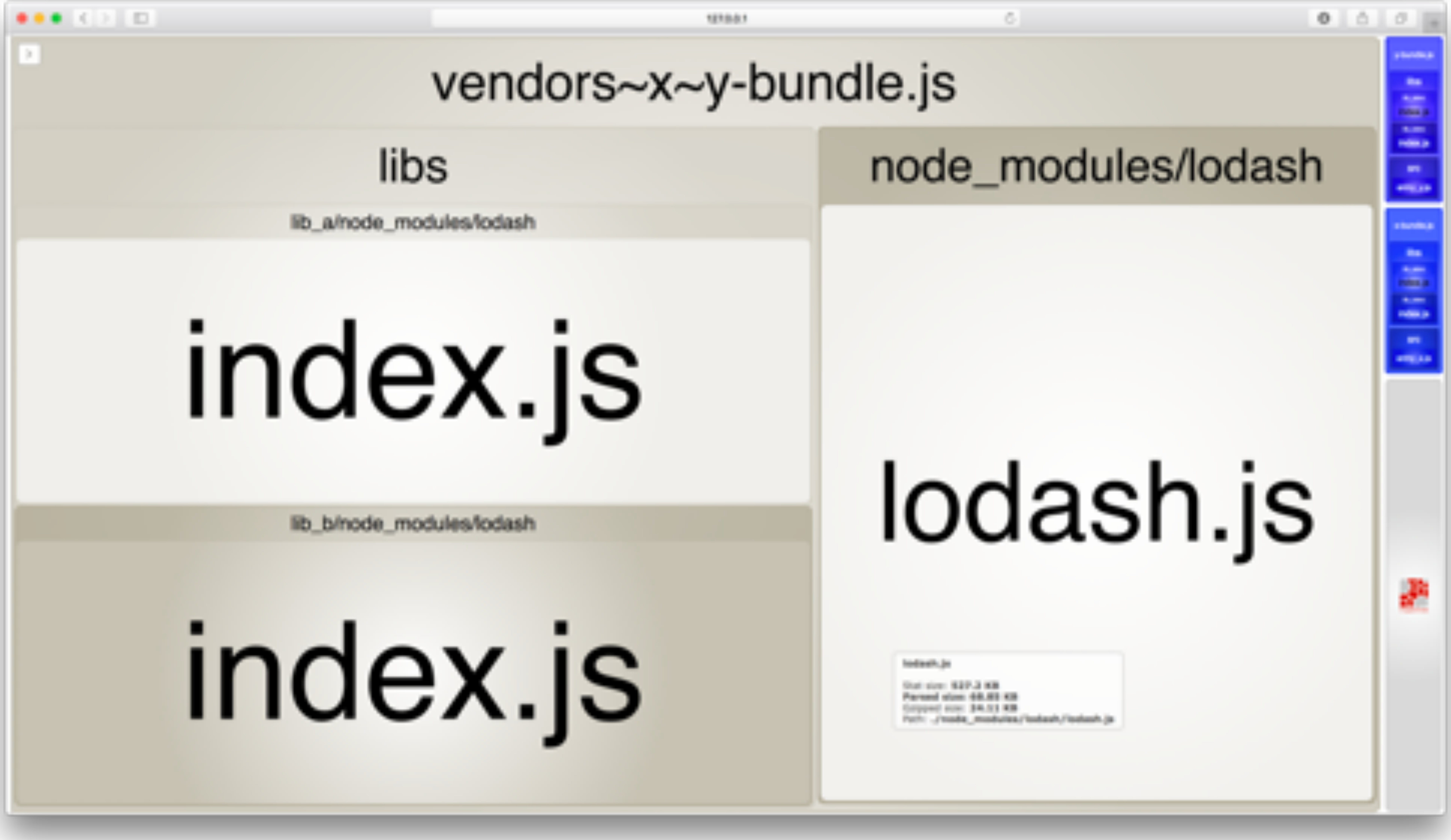
```
"dependencies": {
    "lodash": "^4.17.11",
    "lib_a": "1.0.0",
    "lib_b": "1.0.0"
}
```

Application

```
"dependencies": {
    "lodash": "^3.10.1"
}
```

lib_a, lib_b

Сколько версий lodash у нас будет в сборке?



lodash.js

Stat size: **527.3 KB**
Parsed size: 68.83 KB
Gzipped size: **24.11 KB**
Path: **./node_modules/lodash/lodash.js**

```
"dependencies": {
    "lodash": "^4.17.11",
    "lib_a": "1.0.0",
    "lib_b": "1.0.0"
}
```

Application

```
"dependencies": {
    "lodash": "^3.10.1"
}
```

lib_a, lib_b

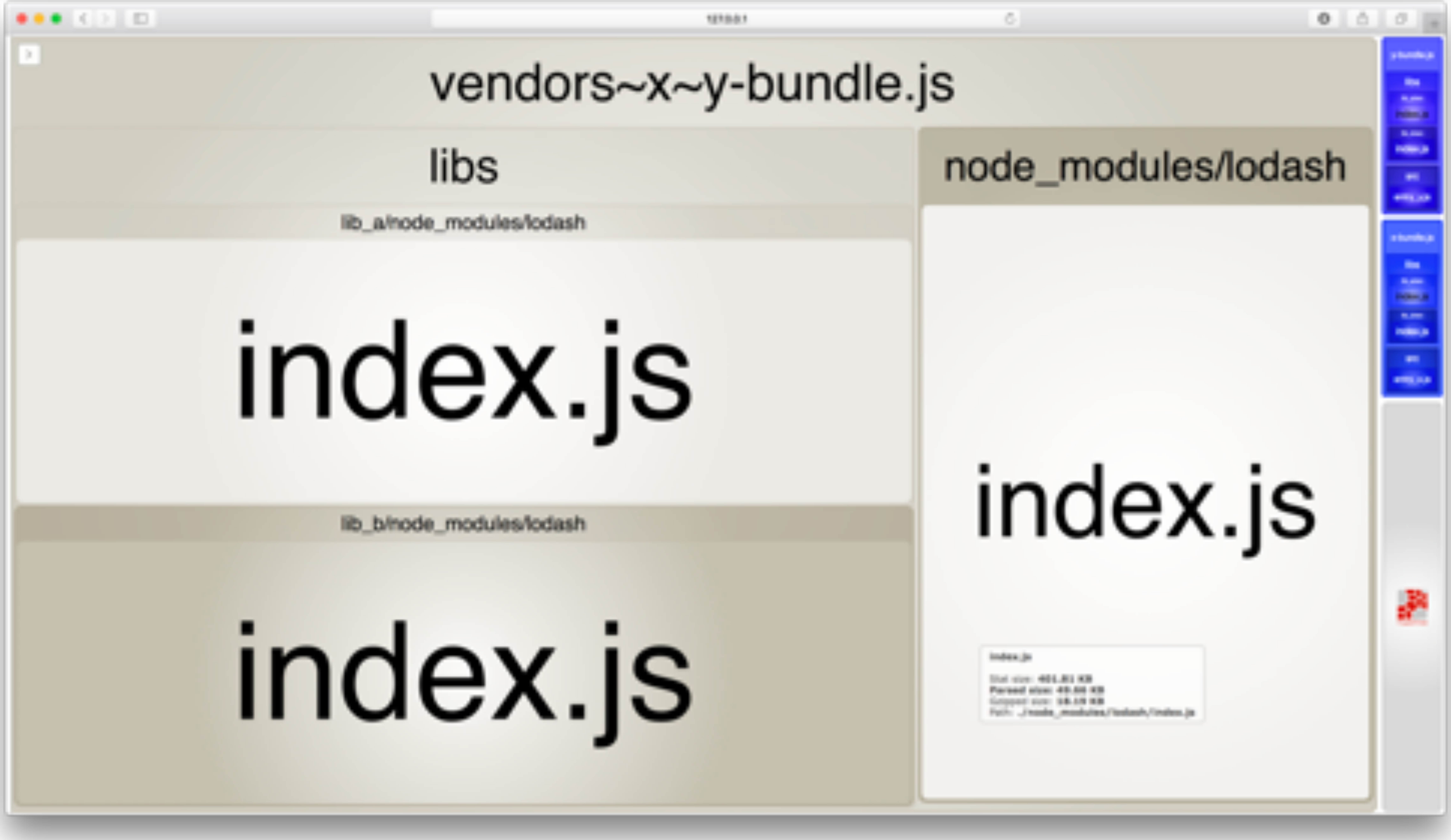
Application

```
"dependencies": {
    "lodash": "^3.10.1",
    "lib_a": "1.0.0",
    "lib_b": "1.0.0"
}
```

lib_a, lib_b

```
"dependencies": {
    "lodash": "^3.10.1"
}
```

А сейчас?



vendors~x~y-bundle.js

libs

lib_a/node_modules/lodash

index.js

lib_b/node_modules/lodash

index.js

node_modules/lodash

index.js

index.js

Stat size: 401.81 KB
Parsed size: 49.00 KB
Gzipped size: 18.19 KB
Path: ./node_modules/lodash/index.js

wat
wat
wat

```
package-lock.json
    -> lib_a
         -> lodash@3.10.1

    -> lib_b
         -> lodash@3.10.1

    -> lodash@3.10.1
```

```
package-lock.json
    -> lib_a
         -> lodash deduped

    -> lib_b
         -> lodash deduped

    -> lodash@3.10.1
```

```
package-lock.json
    -> lib_a
         -> lodash deduped

    -> lib_b
         -> lodash deduped

    -> lodash@4.17.11
```

```
package-lock.json
    -> lib_a
         -> lodash@3.10.1

    -> lib_b
         -> lodash@3.10.1

    -> lodash@4.17.11
```

```
rm package-lock.json
npm install
```

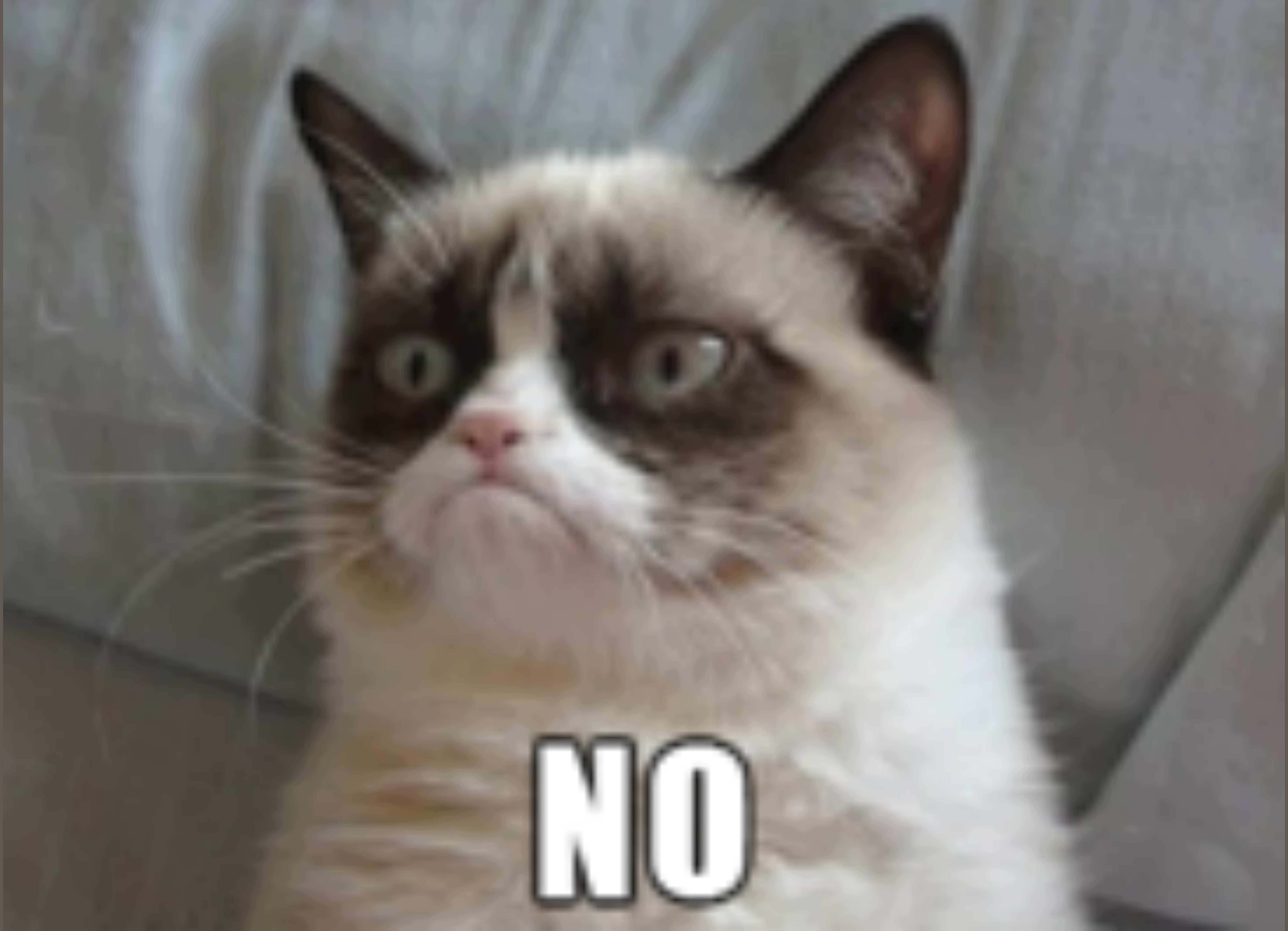
npm dedupe

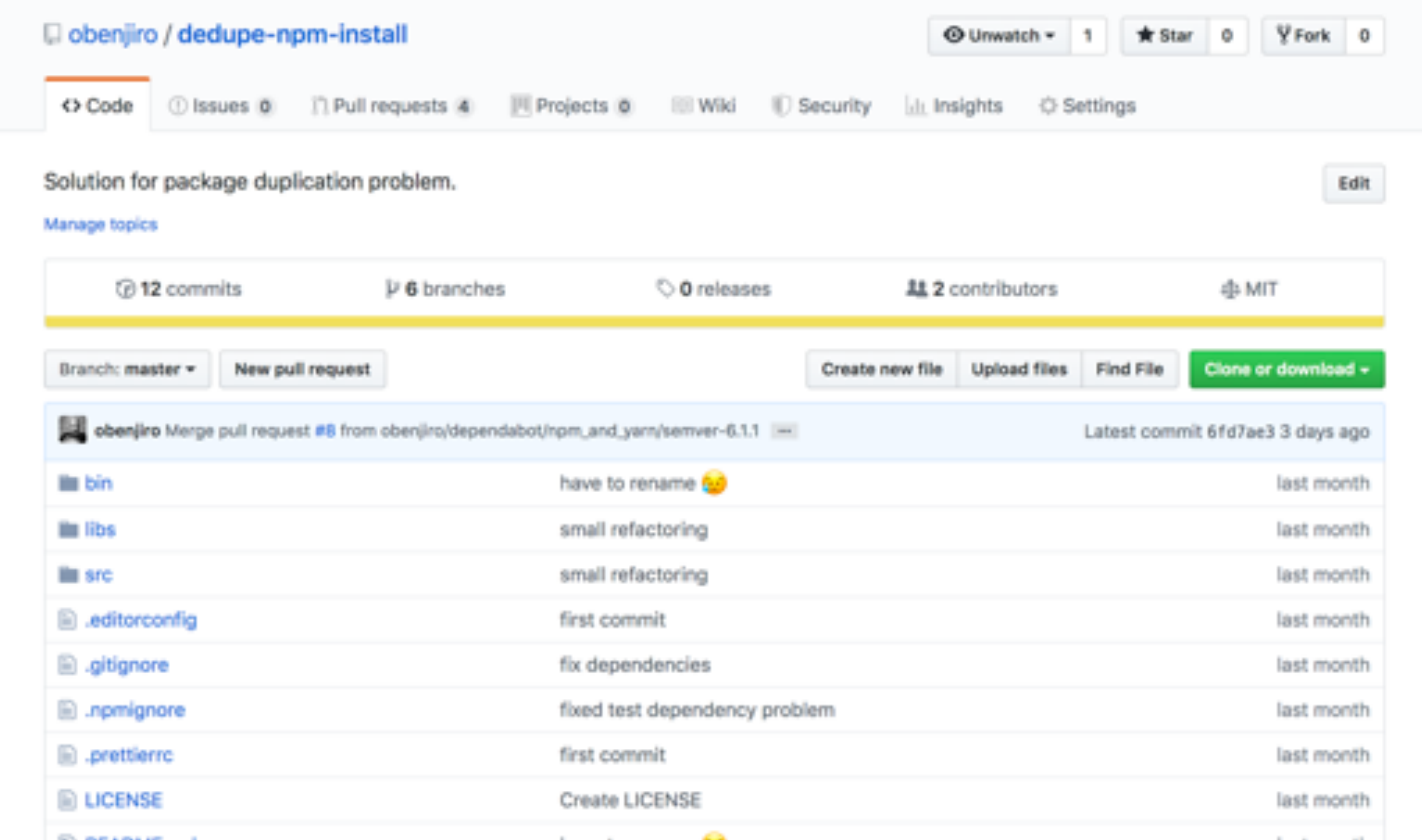
```
yarn install —flat
```

yarn resolutions

```
"resolutions": {
  "jest-message-util/micromatch": "^4.0.2",
  "anymatch/micromatch": "^4.0.2",
  "webpack/micromatch": "^4.0.2",
  "webpack-cli/**/micromatch": "^4.0.2",
  "babel-jest/**/micromatch": "^4.0.2",
  "@storybook/**/micromatch": "^4.0.2",
  "jest/**/micromatch": "^4.0.2",
  "babel-jest/**/micromatch": "^4.0.2",
  "jest-watch-typeahead/**/micromatch": "^4
}
```

Стоит на этом остановиться?


NO



Solution for package duplication problem.

obenjiro Merge pull request #8 from obenjiro/dependabot/npm_and_yarn/semver-6.1.1 … Latest commit 6fd7ae3 3 days ago

bin	have to rename 😢	last month
libs	small refactoring	last month
src	small refactoring	last month
.editorconfig	first commit	last month
.gitignore	fix dependencies	last month
.npmignore	fixed test dependency problem	last month
.prettierrc	first commit	last month
LICENSE	Create LICENSE	last month

```
npm i -D dedupe-npm-install
```

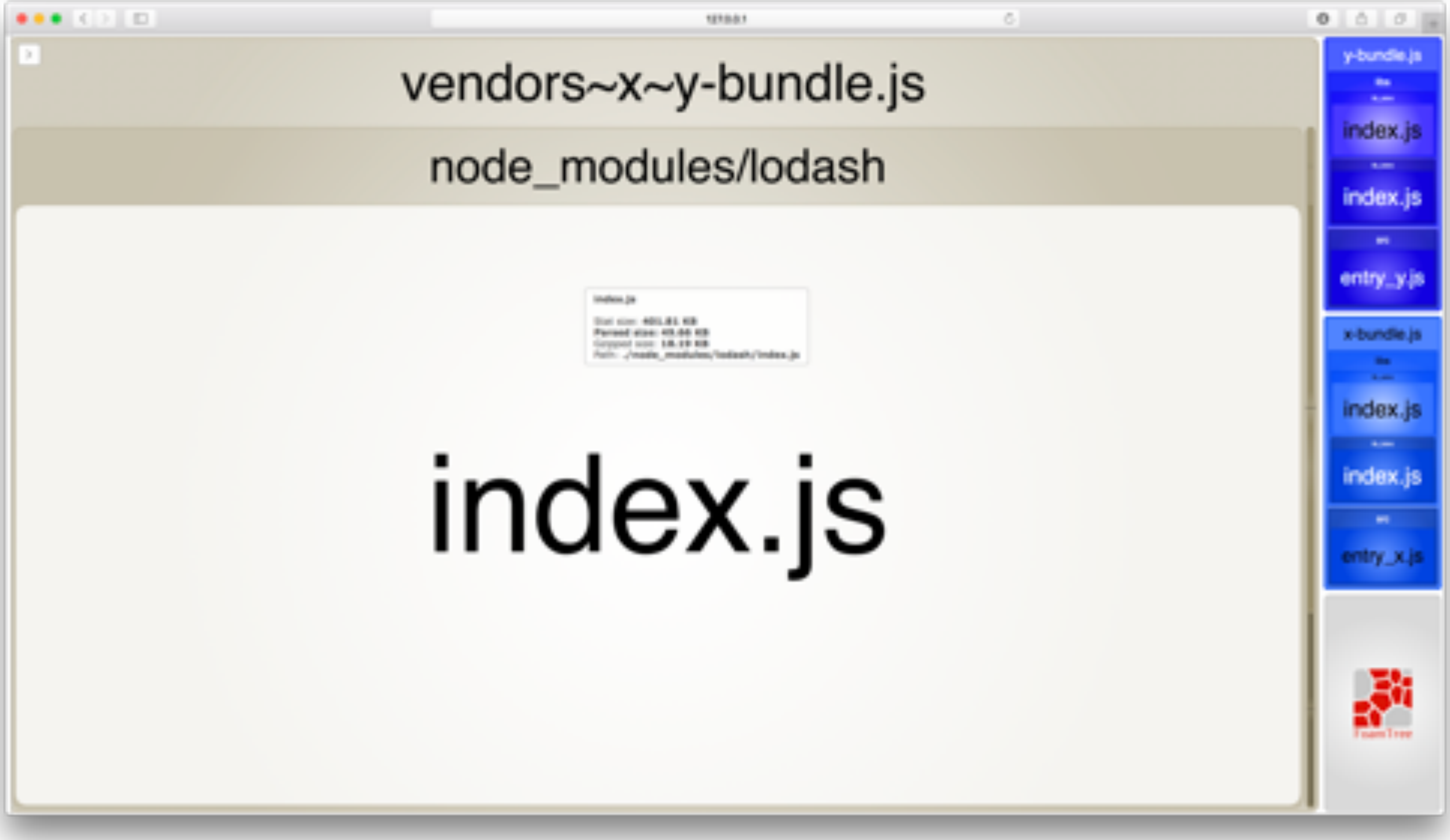
package.json

```
"scripts": {
   "dedupe": "npm run dedupe-npm-install"
}
```

dedupe-npm-install.json

```json
{
    "target_path": "./node_modules",
    "defaultCollapse": "same",
    "extraCollapse": {
        "lodash": ["*"]
    }
}
```

```
npm run dedupe
```



index.js

Stat size: 401.81 KB
Parsed size: 49.04 KB
Gzipped size: 18.19 KB
Path: ./node_modules/lodash/index.js

Просто код

Async Directory Tree

```
photos
├── summer
│   └── june
│       └── windsurf.jpg
└── winter
    └── january
        ├── ski.png
        └── snowboard.jpg
```

```
      "size": 400,
      "type": "directory",
      "children": [
        {
          "path": "photos/summer/june",
          "name": "june",
          "size": 400,
          "type": "directory",
          "children": [
            {
              "path": "photos/summer/june/windsurf.jpg",
              "name": "windsurf.jpg",
              "size": 400,
              "type": "file",
              "extension": ".jpg"
            }
          ]
        }
      ]
    },
      "size": 400,
      "type": "directory",
      "children": [
        {
          "path": "photos/summer/june",
          "name": "june",
          "size": 400,
          "type": "directory",
          "children": [
            {
              "path": "photos/summer/june/windsurf.jpg",
              "name": "windsurf.jpg",
              "size": 400,
              "type": "file",
              "extension": ".jpg"
            }
          ]
        }
      ]
    },
      "size": 400,
      "type": "directory",
      "children": [
        {
          "path": "photos/summer/june",
          "name": "june",
          "size": 400,
          "type": "directory",
          "children": [
            {
              "path": "photos/summer/june/windsurf.jpg",
              "name": "windsurf.jpg",
              "size": 400,
              "type": "file",
              "extension": ".jpg"
            }
          ]
        }
      ]
    },
```

```json
[
    {
      "v": "1.8.5",
      "name": "ast",
      "path": "/some/N_M/ast/package.json"
    },
    {
      "v": "1.8.5",
      "name": "floating-point-hex-parser",
      "path": "/some/N_M/floating-point-hex-parser/package.json"
    },
    {
      "v": "1.8.5",
      "name": "helper-api-error",
      "path": "/some/N_M/helper-api-error/package.json"
    },
    {
      "v": "1.8.5",
      "name": "helper-buffer",
      "path": "/some/N_M/helper-buffer/package.json"
```

```json
[
  [
    {
      "v": "4.17.11",
      "name": "lodash",
      "path": "/some/N_M/lodash/package.json"
    },
    {
      "v": "3.10.1",
      "name": "lodash",
      "path": "/some/N_M/lib_a/N_M/lodash/package.json"
    },
    {
      "v": "3.10.1",
      "name": "lodash",
      "path": "/some/N_M/lib_b/N_M/lodash/package.json"
    }
  ]
]
```

```
[
  [
    {
      "v": "4.17.11",
      "name": "lodash",
      "path": "/some/N_M/lodash/package.json"
    },
    {
      "v": "3.10.1",
      "name": "lodash",
      "path": "/some/N_M/lib_a/N_M/lodash/package.json"
    },
    {
      "v": "3.10.1",
      "name": "lodash",
      "path": "/some/N_M/lib_b/N_M/lodash/package.json"
    }
  ]
]
```

```json
[
  [
    {
      "v": "4.17.11",
      "name": "lodash",
      "path": "/some/N_M/lodash/package.json"
    },
    {
      "v": "3.10.1",
      "name": "lodash",
      "path": "/some/N_M/lib_a/N_M/lodash/package.json"
    },
    {
      "v": "3.10.1",
      "name": "lodash",
      "path": "/some/N_M/lib_b/N_M/lodash/package.json"
    }
  ]
]
```

Можно написать много кода, а есть варианты?

SQL?

```
var data = [ {a: 1, b: 10}, {a: 2, b: 20}, {a: 1, b: 30} ];

var res = alasql('SELECT a, SUM(b) AS b FROM ? GROUP BY a',[data]);

// res = [ { "a": 1, "b": 40},{ "a": 2, "b": 20 } ]
```

```
var data = [ {a: 1, b: 10}, {a: 2, b: 20}, {a: 1, b: 30} ];

var res = alasql('SELECT a, SUM(b) AS b FROM ? GROUP BY a',[data]);

// res = [ { "a": 1, "b[illegible]},{ "a[illegible]b": 20 } ]
```

Map / Reduce

```
function getCollapseFns(config, item) {
  const defaultCollapse = config.defaultCollapse || 'same'
  const extraCollapse = config.extraCollapse || {}

  const collapse = (extraCollapse[item.key] || [defaultCollapse])
    (v, i, a) => a.indexOf(v) === i
  )
  const versions = item.value
    .map(item => item.v)
    .filter((v, i, a) => a.indexOf(v) === i)
  const collapseCustom = collapse
    .filter(r => r !== 'same')
    .map(rule => {
      return v => semver.satisfies(v, rule)
    })
  const collapseSame = collapse.some(r => r === 'same')
    ? versions.map(rule => {
        return v => semver.satisfies(v, rule)
      })
```

```
function getCollapseFns(config, item) {
  const defaultCollapse = config.defaultCollapse || 'same'
  const extraCollapse = config.extraCollapse || {}

  const collapse = (e[illegible]Colla[illegible]tem.key] || [defaultCollapse])
    (v, i, a) => a.in[illegible](v)[illegible]i
  )
  const versions = item[illegible]
    .map(item => item.v[illegible]
    .filter((v, i, a)[illegible]Of(v) === i)
  const collapseCust[illegible]co[illegible]
    .filter(r => r [illegible]same[illegible]
    .map(rule => {
      return v => semver.satisfies(v, rule)
    })
  const collapseSame = collapse.some(r => r === 'same')
    ? versions.map(rule => {
        return v => semver.satisfies(v, rule)
      })
```

Lodash

Ramda

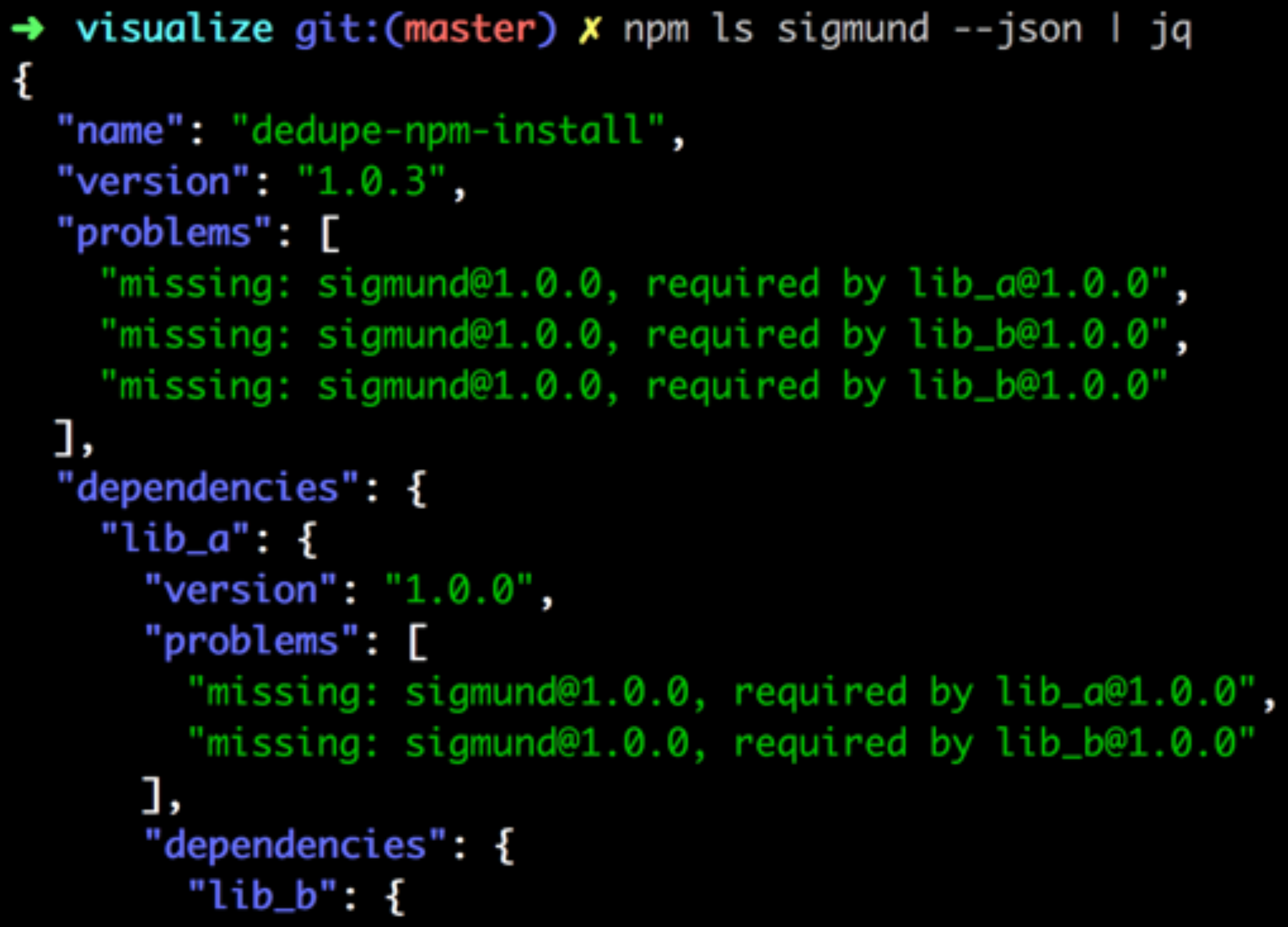
Ramda + Partial Lenses

```
const textIn = language =>
  L.compose(
    L.prop("titles"),
    L.normalize(R.sortBy(L.get("language"))),
    L.find(R.whereEq({ language })),
    L.valueOr({ language, text: "" }),
    L.removable("text"),
    L.prop("text")
  );
```

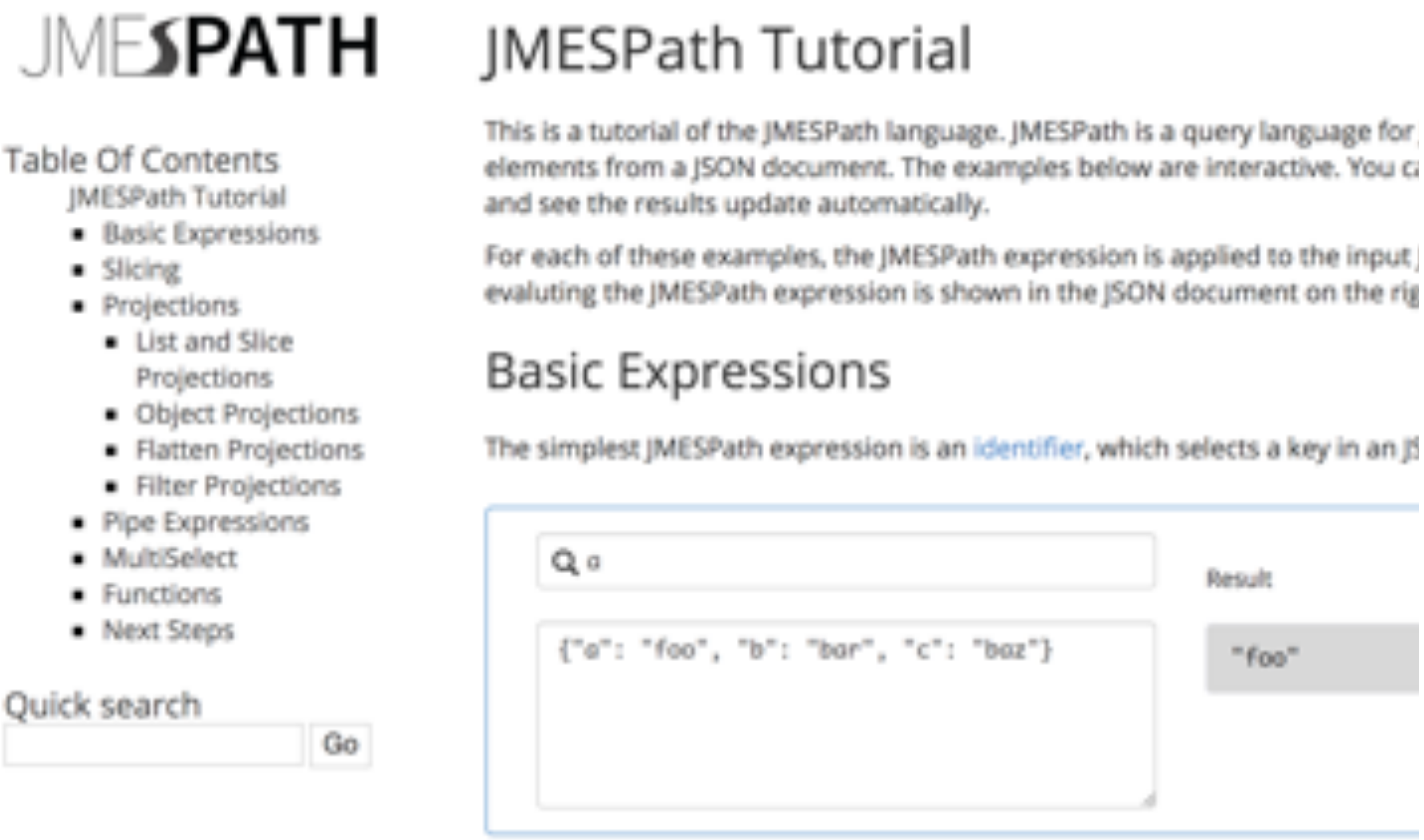
```
const textIn = l      uage =
  L.compose(
    L.prop("title
    L.normalize(R.       (L.get("language"))),
    L.find(R.where(         anguage })),
    L.valueOr({ l          text: "" }),
    L.removabl     xt"
    L.prop("tex
  );
```

Время для анекдота

JMESPath



```
➜  visualize git:(master) ✗ npm ls sigmund --json | jq
{
  "name": "dedupe-npm-install",
  "version": "1.0.3",
  "problems": [
    "missing: sigmund@1.0.0, required by lib_a@1.0.0",
    "missing: sigmund@1.0.0, required by lib_b@1.0.0",
    "missing: sigmund@1.0.0, required by lib_b@1.0.0"
  ],
  "dependencies": {
    "lib_a": {
      "version": "1.0.0",
      "problems": [
        "missing: sigmund@1.0.0, required by lib_a@1.0.0",
        "missing: sigmund@1.0.0, required by lib_b@1.0.0"
      ],
      "dependencies": {
        "lib_b": {
```



JMESPATH

JMESPath Tutorial

Table Of Contents

JMESPath Tutorial

- Basic Expressions
- Slicing
- Projections
  - List and Slice Projections
  - Object Projections
  - Flatten Projections
  - Filter Projections
- Pipe Expressions
- MultiSelect
- Functions
- Next Steps

Quick search

Go

This is a tutorial of the JMESPath language. JMESPath is a query language for elements from a JSON document. The examples below are interactive. You ca and see the results update automatically.

For each of these examples, the JMESPath expression is applied to the input evaluating the JMESPath expression is shown in the JSON document on the rig

Basic Expressions

The simplest JMESPath expression is an identifier, which selects a key in an JS

```
a
```

```
{"a": "foo", "b": "bar", "c": "baz"}
```

Result

```
"foo"
```

DOCS ✔

CLI (jq) ✔

BrowserExt ✔

Code ✔

http://jmespath.org/tutorial.html

```
brew install jq
```

```
cat data.json
cat data.json | jq ".version"
```

Больше JMESPath ничего особо не умеет

JSONata

JSONata

JSON query and transformation language

```
Address.City
FirstName & ' ' & Surname
Phone[type = 'mobile'].number
$sum(Order.Product.(Price * Quantity))
```

♪ Go play in the JSONata Exerciser ♪

DOCS ✔

CLI ✔

BrowserExt

Code ✔

http://jsonata.org/

**

```
**.children
```

```
**.children[file="package.json"]
```

```
**.children[file="package.json"]
{}
```

```
**.children[file="package.json"]
{`content.name`: []}
```

```
**.children[file="package.json"]
{`content.name`: [$]}
```

```
**.children[file="package.json"]
{`content.name`: [$.{}]}
```

```
**.children[file="package.json"]
{`content.name`: [$.{
    "path": path
}]}
```

```
**.children[file="package.json"]
{`content.name`: [$.{
    "path": path,
    "v": content.version
}]}
```

```
**.children[file="package.json"]
{`content.name`: [$.{
    "path": path,
    "v": content.version,
    "name": content.name
}]}
```

```
**.children[file="package.json"]
{`content.name`: [$.{
    "path": path,
    "v": content.version,
    "name": content.name
}]}
```

```
**.children[file="package.json"]
{`content.name`: [$.{
    "path": path,
    "v": content.version,
    "name": content.name
}]}
```

```
    const package = JSON.parse(tree.content)
    return [
      {
        v: package.version,
        name: package.name,
        path: tree.path,
      },
    ]
  }
  if (tree.children) {
      return tree.children.reduce((result, child
        return result.concat(getAllPackages(chil
      }, []);
  }
  return [];
}

function getPackagesInfo(data) {
  const packages = getAllPackages(data)
  console.log('[PACKAGES]', getAllPackages(data)
  const hash = packages
    .sort((a, b) => a.path.length - b.path.lengt
    .reduce((result, package) => {
      if (!result[package.name]) result[package.
      result[package.name].push(package)
      return result
    }, {})
  const result = Object.keys(hash).map(key => {
    return {
      key,
      value: hash[key],
    }
  })
```

```
**.children[file="pack
{`content.name`: [$.{
    "path": pa   ,
    "v": conte t versi
    "name": c  ten  nar
}]}
```

6

31

```
  const package = JSON.parse(tree.content)
  return [
    {
      v: package.version,
      name: package.name,
      path: tree.path,
    },
  ]
}
if (tree.children) {
    turn tree.children.reduce((result, child
    return result.concat(getAllPackages(chil
     []);

     [];


     getPackages   o(data  [
    packa  s = g  llPack  es(data)
    e.log(      ES]', g  llPackages(data)
    hash = packages
    t((a, b) => a.path.length - b.path.lengt
    uce((result, package) => {
     (!result[package.name]) result[package.
  result[package.name].push(package)
  return result
 }, {})
const result = Object.keys(hash).map(key => {
  return {
    key,
    value: hash[key],
  }
```

jora

HOLY JS /...

Маленький Data Science
для большого фронтенда

Роман Дворнов
Avito

Москва, 2018

DOCS

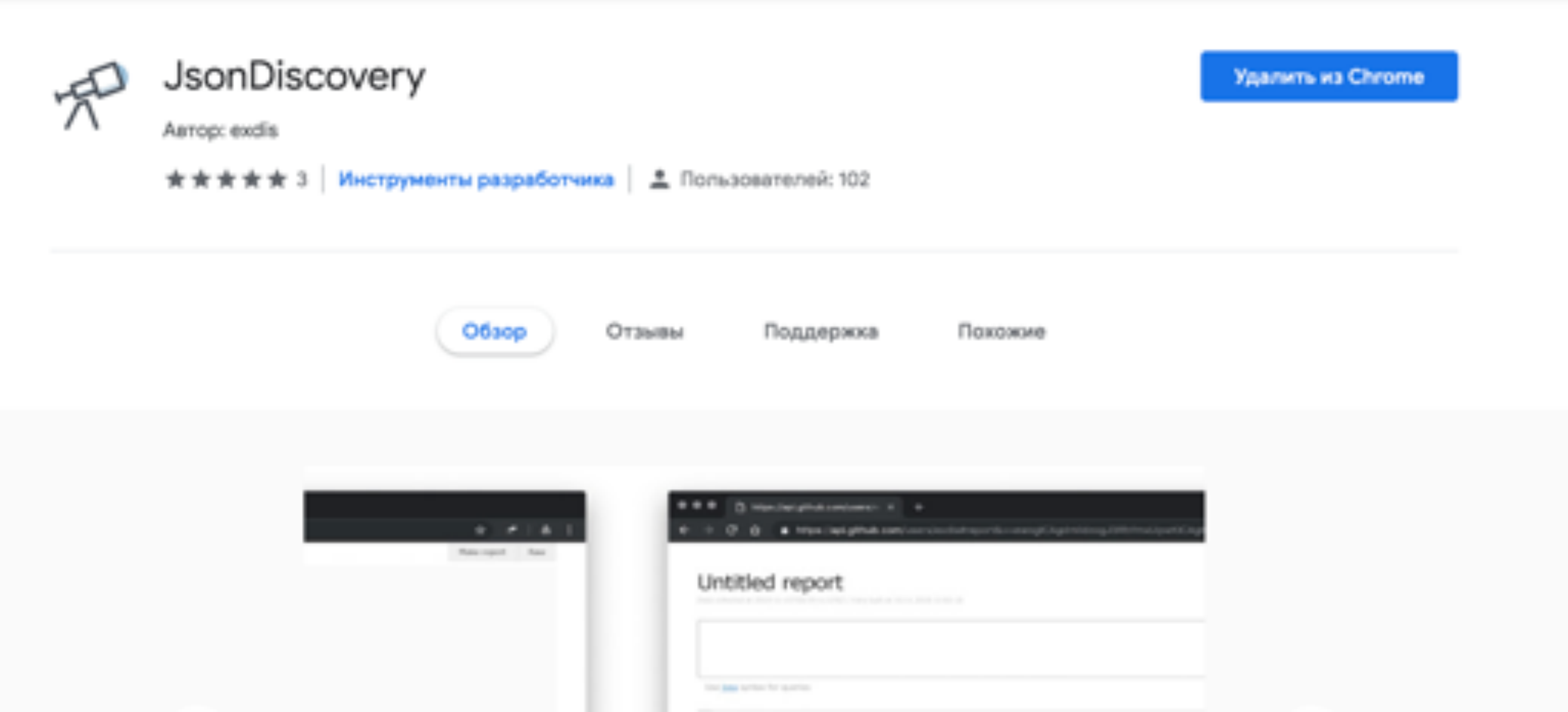
CLI ✔

BrowserExt ✔

Code ✔

https://2018.holyjs-moscow.ru/talks/1mb6giwthma6wcswmcq8wo/

@DenisKolesnikov



JsonDiscovery

Автор: exdis

★★★★★ 3 | Инструменты разработчика | Пользователей: 102

Удалить из Chrome

Обзор Отзывы Поддержка Похожие

Untitled report

```
npm install jora
```

```
const jora = require('jora');

// create a query
const query = jora(‘.version’) ;

// perform a query
const result = query(data, context);
const jora = require('jora');

// create a query
const query = jora(‘.version’) ;

// perform a query
const result = query(data, context);
const jora = require('jora');

// create a query
const query = jora(‘.version’) ;

// perform a query
const result = query(data, context);
```

```
  "size": 400,
  "type": "directory",
  "children": [
    {
      "path": "photos/summer/june",
      "name": "june",
      "size": 400,
      "type": "directory",
      "children": [
        {
          "path": "photos/summer/june/windsurf.jpg",
          "name": "windsurf.jpg",
          "size": 400,
          "type": "file",
          "extension": ".jpg"
        }
      ]
    }
  ]
},
..children[name="package.json"]
```

```
..children[name="package.json"]
```

```
..children[name="package.json"]
.group(<content.name>)
```

```
..children[name="package.json"]
.group(<content.name>, <>)
```

```
..children[name="package.json"]
.group(<content.name>, <({})>)
```

```
..children[name="package.json"]
.group(<content.name>, <({
    path
})>)
```

```
..children[name="package.json"]
.group(<content.name>, <({
    path,
    v: content.version
})>)
```

```
..children[name="package.json"]
.group(<content.name>, <({
    path,
    v: content.version,
    name: content.name
})>)
```

```json
[
  [
    {
      "v": "4.17.11",
      "name": "lodash",
      "path": "/some/N_M/lodash/package.json"
    },
    {
      "v": "3.10.1",
      "name": "lodash",
      "path": "/some/N_M/lib_a/N_M/lodash/package.json"
    },
    {
      "v": "3.10.1",
      "name": "lodash",
      "path": "/some/N_M/lib_b/N_M/lodash/package.json"
    }
  ]
]
```

Таблица

	Jq + JMESPath	jora	JSONata
DOCS	✓	✗*	✓ ✓
CLI	✓	✓	✓
Browser Ext	✓	✓ ✓	✗
Code	✓	✓	✓

	Jq + JMESPath	jora	JSONata
DOCS	✓	X*	✓ ✓
CLI	✓	✓	✓
Browser Ext	✓	✓ ✓	X
Code	✓	✓	✓

Ок… но только ради этого?

Очень короткий взгляд в будущее

AST Explorer
Snippet
JavaScript
esprima
Transform
default
?
Tree
JSON

Parser: esprima-4.0

☑ Autofocus ☑ Hide methods □ Hide empty keys
☑ Hide location data ☑ Hide type keys

```
/**
 * Paste or drop some JavaScript here and explore
 * the syntax tree created by chosen parser.
 * You can use all the cool new features from ES6
 * and even more. Enjoy!
 */

let tips = [
  "Click on any AST node with a '+' to expand it",

  "Hovering over a node highlights the \
   corresponding part in the source code",

  "Shift click on an AST node expands the whole substr
];

function printTips() {
  tips.forEach((tip, i) => console.log(`Tip ${i}:` + t
}

```

```
          - expression: CallExpression {
             + callee: MemberExpression {comput
             - arguments: [
                - ArrowFunctionExpression {
                     id: null
                   - params: [
                      - Identifier {
                           name: "tip"
                        }
                      + Identifier {name}
                     ]
                   - body: CallExpression {
                      - callee: MemberExpressi
                           computed: false
                         + object: Identifier
                         - property: Identifie
                              name: "log"
                           }
                        }
                     + arguments: [1 element]
```

```
const validateClassDeclaration = (context: WalkContext, node: ClassDeclaration): void => {
    const declaredLifecycleInterfaces = getDeclaredAngularLifecycleInterfaces(node);
    const declaredMethods = getDeclaredMethods(node);

    for (const method of declaredMethods) {
      const { name: methodProperty } = method;
      const methodName = methodProperty.getText();

      if (!isAngularLifecycleMethod(methodName)) continue;

      const interfaceName = getLifecycleInterfaceByMethodName(methodName);
      const isMethodImplemented = declaredLifecycleInterfaces.includes(AngularLifecycleInterfaces[interfaceName])

      if (isMethodImplemented) continue;

      const failure = getFailureMessage({ interfaceName, methodName });

      context.addFailureAtNode(methodProperty, failure);
    }
  };

  const walk = (context: WalkContext): void => {
    const { sourceFile } = context;

    const callback = (node: Node): void => {
      if (isClassDeclaration(node)) validateClassDeclaration(context, node);

      forEachChild(node, callback);
    };

    forEachChild(sourceFile, callback);
  };
```

```
const validateClassDeclaration = (context: WalkContext, node: ClassDeclaration): void => {
    const declaredLifecycleInterfaces = getDeclaredAngularLifecycleInterfaces(node);
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      const failure = getFailureMessage({ in          , methodName });

      context.addFailureAtNode(methodProp
    }
  };

  const walk = (context: WalkContext)        > {
    const { sourceFile } = context;

    const callback = (node: Node): void  > {
      if (isClassDeclaration(node)) validateClassDeclaration(context, node);

      forEachChild(node, callback);
    };

    forEachChild(sourceFile, callback);
  };
```

Можем ли мы сделать все проще?

Async Directory Tree

```
const tree = await dirTree(path, options, (item) => {
  if (item.extension === '.ts') {
    item.content = fs.readFileSync(item.path, 'utf-8');
    item.ast = parseTypescript(item.content, item.path);
  }
  if (item.extension === '.js') {
    item.content = fs.readFileSync(item.path, 'utf-8');
    item.ast = parseJavascript(item.content, item.path);
  }
  if (item.extension === '.json') {
    item.content = fs.readFileSync(item.path, 'utf-8');
    item.ast = parseJSON(item.content, item.path);
  }
});
```

Regain DSL

```
files().ast.classes().name()
files().ast.classes().methods().name()
```

```
const validateClassDeclaration = (context: WalkContext, node: ClassDeclaration): void => {
  const declaredLifecycleInterfaces = getDeclaredAngularLifecycleInterfaces(node);
  const declaredMethods = getDeclaredMethods(node);

  for (const method of declaredMethods) {
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   const isMethodImplemented = declaredLifecycleInterfaces.includes(AngularLifecycleInterfaces[interfaceName])

   if (isMethodImplemented) continue;

   const failure = getFailureMessage({ interfaceName, methodName });

   context.addFailureAtNode(methodProperty, failure);
  }
 };

 const walk = (context: WalkContext): void => {
  const { sourceFile } = context;

  const callback = (node: Node): void => {
   if (isClassDeclaration(node)) validateClassDeclaration(context, node);

   forEachChild(node, callback);
  };

  forEachChild(sourceFile, callback);
 };
```
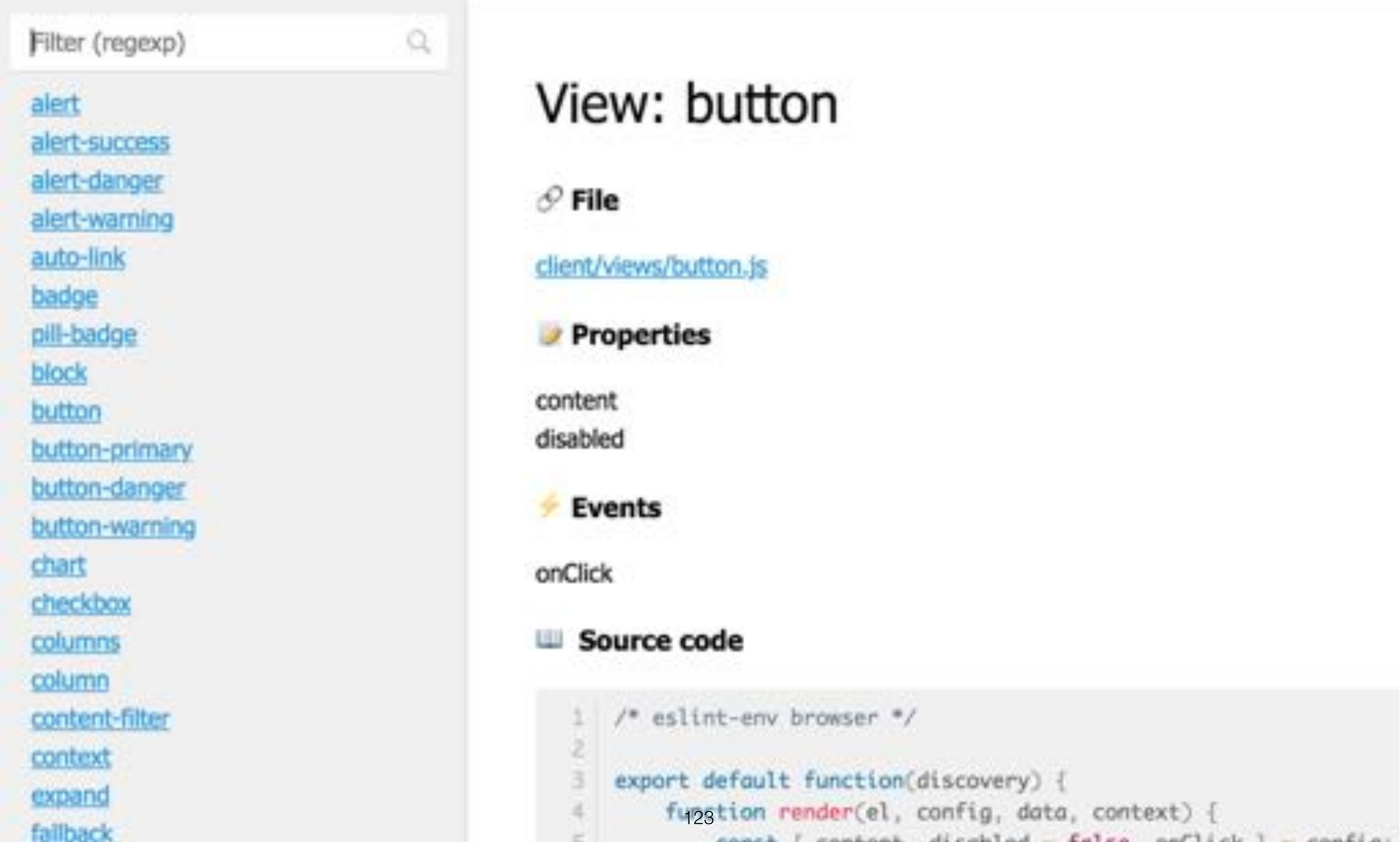

```
files().ast.classes()
    .[not "OnInit" in implements().name()]
    .["ngOnInit" in methods().name()]
```

Regain CLI

```
➜  eslint-plugin-test
```



Filter (regexp)

- alert
- alert-success
- alert-danger
- alert-warning
- auto-link
- badge
- pill-badge
- block
- button
- button-primary
- button-danger
- button-warning
- chart
- checkbox
- columns
- column
- content-filter
- context
- expand
- fallback

View: button

File

client/views/button.js

Properties

content
disabled

Events

onClick

Source code

```
/* eslint-env browser */

export default function(discovery) {
    function render(el, config, data, context) {
        const { content, disabled = false, onClick } = config;
```

Выбор Хобсона

Алексей Охрименко

@obenjiro

bit.ly/2We8PMG