Yandex

React组件开发精髓

Vladimir Grinenko

1st React Dev conf, Guangzhou, 2018

Yandex

React непонятные буквы

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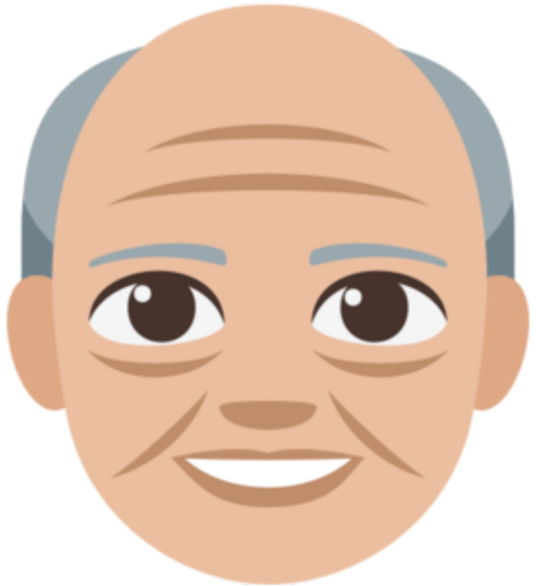

Experience

- 7 years at Yandex
- Common components team leader
- Core BEM team member

7000+ employees

4000+ developers

100+ services

Google Amazon Uber Spotify

of Russia


Bai
du
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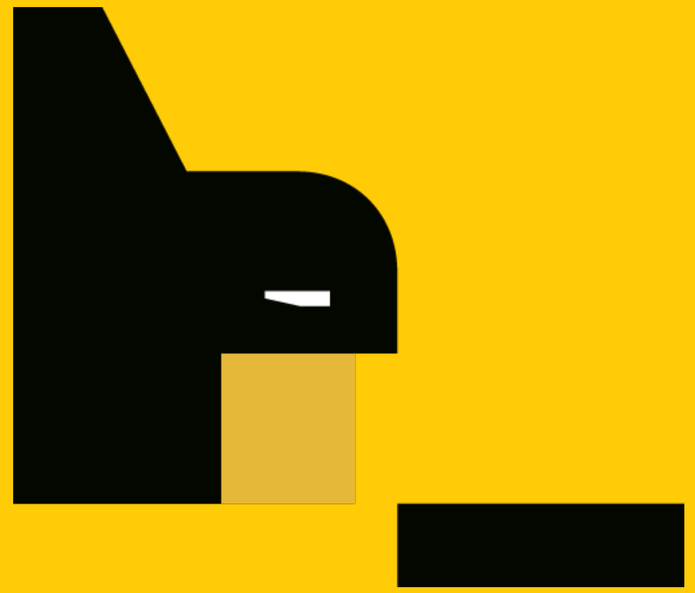
Challenges

- A lot of services
- New services appear every day
- Large codebase
- A lot of experiments
- Large dev teams
- New people join us every day

BEM



BEM we know

BEM: the unknown

- Multilingualism
- Same domain for everything and everyone
- Layers for components
- Declarative everything
- BEM for different runtimes
- DOM abstraction
- Tools

BEM is **not** just for CSS

BEM we know

BEM we all know

- Any interface may be divided into blocks
- Blocks may contain elements
- Blocks and elements may have modifiers

Block

Elements

Modifiers

cat_theme_red

cat_state_wet

cat_wet

BEM we all know

- Blocks, elements and modifiers may map into CSS classnames
- Naming scheme is up to you

Classic naming scheme

- `block`
- `block-with-long-name`
- `block_boolean-modifier`
- `block_modifier-name_modifier-value`

- `block__element`
- `block__element-name_boolean-modifier`
- `block__element-name_modifier-name_modifier-value`

One of popular naming schemes

- `block`
- `block--modifier`

- `block__element`
- `block__element--modifier`

Naming scheme does not matter

en.bem.info/methodology/naming-convention

BEM we all know

- Adds scopes to CSS
- Provides rules and structure
- Removes nesting
- Gives possibility to reuse some pieces of markup
- Makes HTML and CSS self-descriptive


BEM we all know

BEM: The Unknown

BEM: The Unknown

Real BEM

- Methodology: best practices, rules and conventions
- standard
- no need to think
- possible to instrument
- consistent for all the techs
- in code
- on file structure
- declarative

Multilingualism

Multilingualism

- CSS
- JS
- HTML
- Tests
- Documentation
- etc.

Multilingualism

```
blocks/
    header/
        header.specs/
        header.css
        header.js
        header.tmpl
        header.svg
        header.md
```

Declarative file structure

Declarative file structure

- No unused code in production
- Possibility to extend code you do not own

Declarative file structure

```
button/
        _disabled/
            button_disabled.css
            button_disabled.js
        _size/
            button_size_s.css
            button_size_m.css
            button_size_xl.css
        button.css
        button.js
```

Levels for components

Levels contain BEM entities declarations

Levels

```
project/
    node_modules/some-lib/library.blocks/
        button/
            button.css
            button.js
    common.blocks/
        header/
        logo/
        button/
            button.css
```

Levels

```
project/
    node_modules/some-lib/library.blocks/
        button/
            button.css
            button.js
    common.blocks/
        header/
        logo/
        button/
            button.css
```

Levels can help to

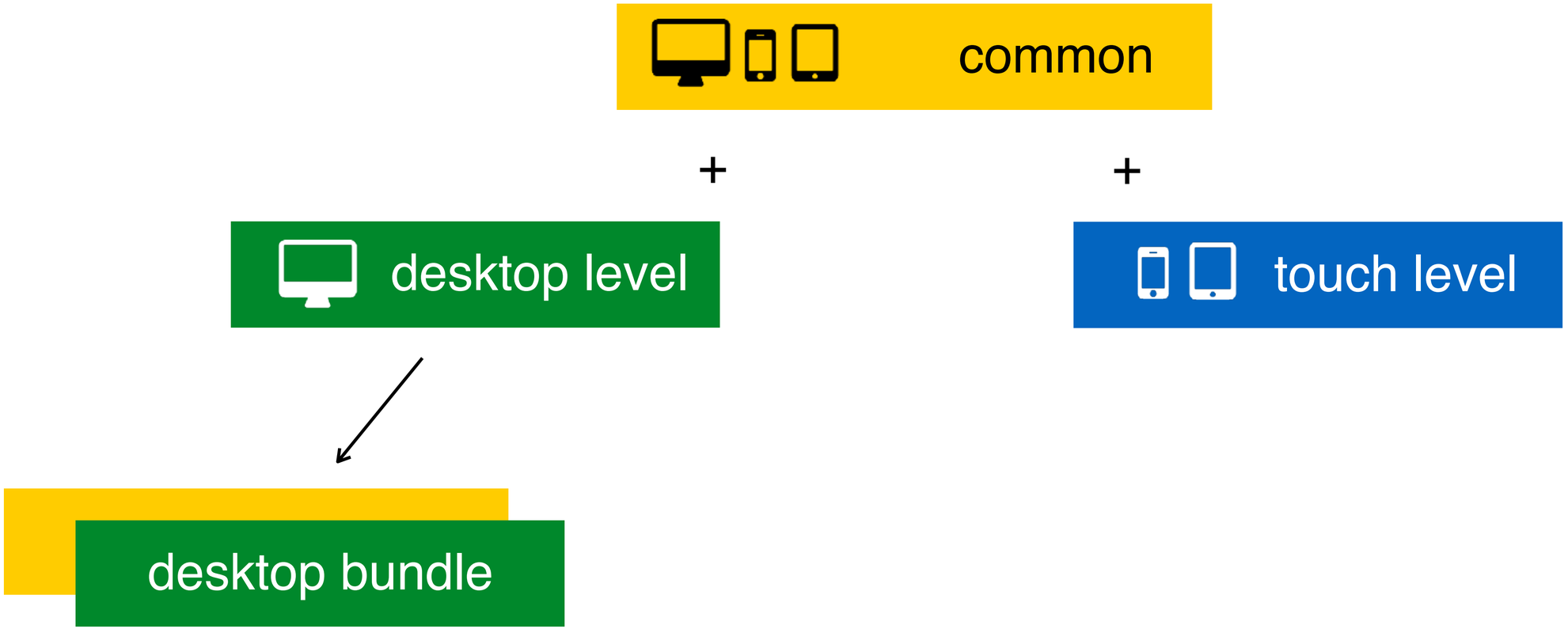
- Split project into different platforms

Levels for different platforms

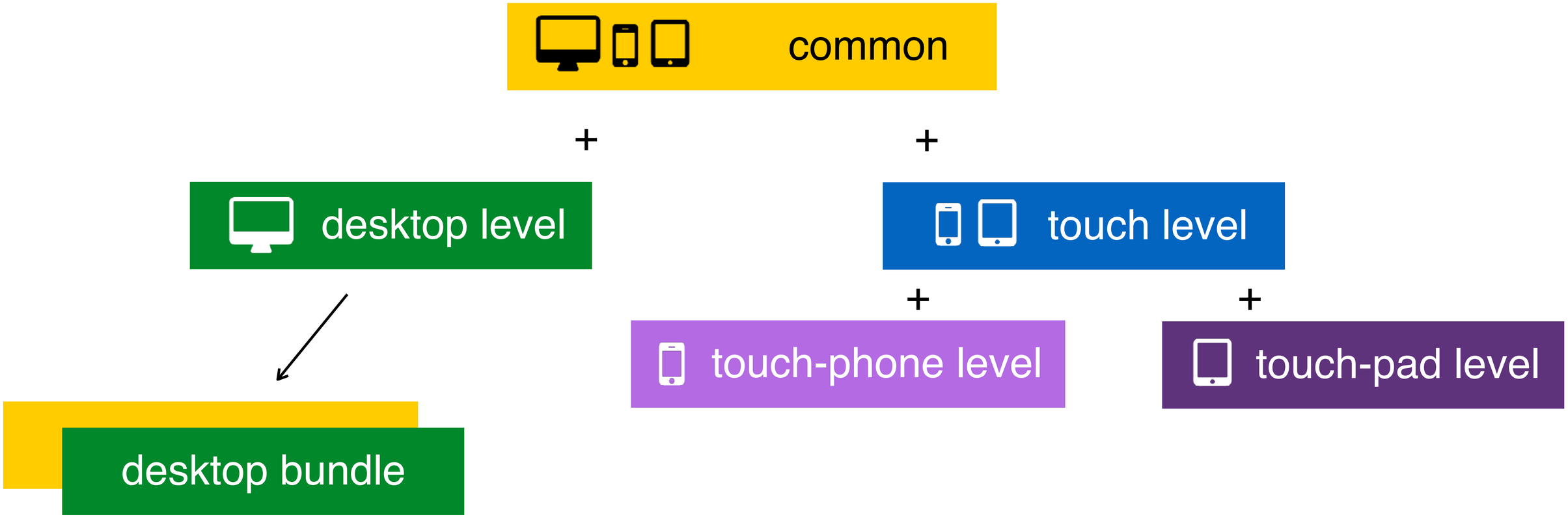
common

Levels for different platforms

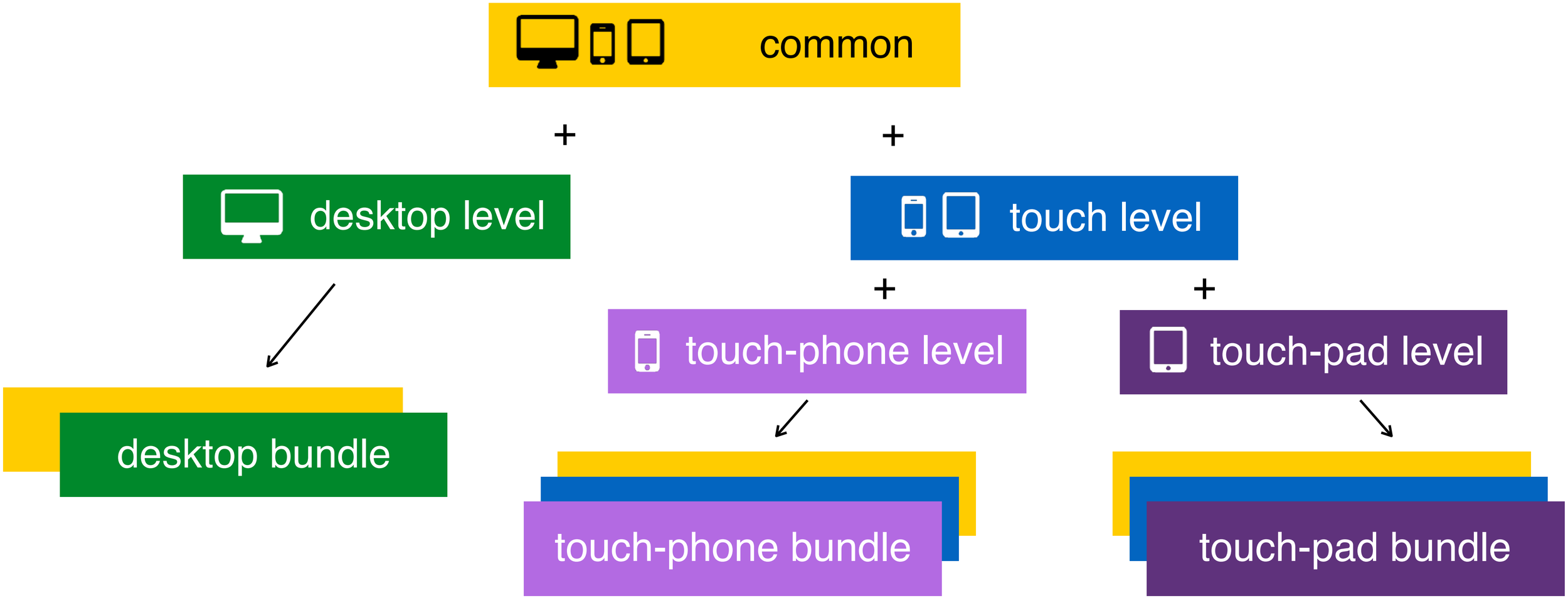
Levels for different platforms



Levels for different platforms



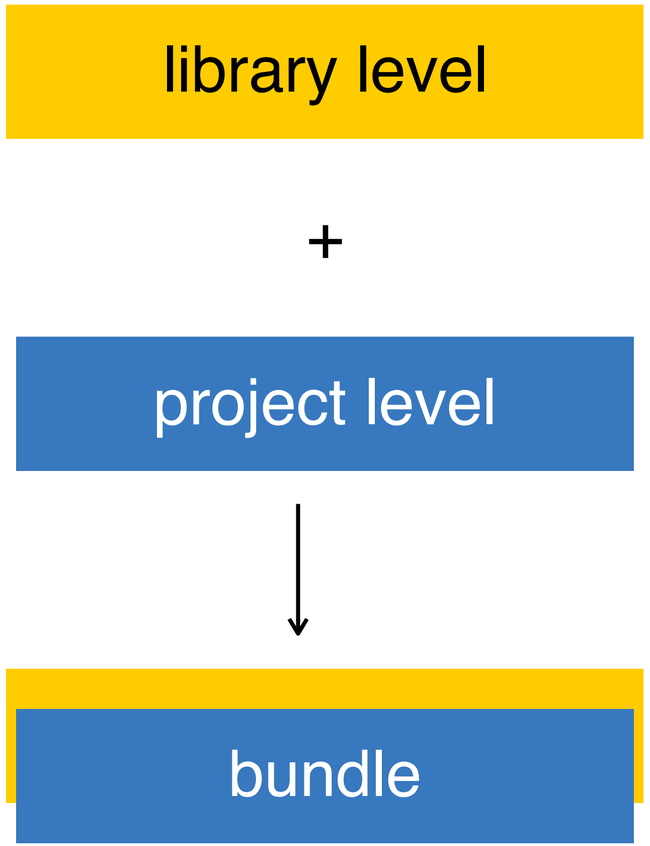
Levels for different platforms



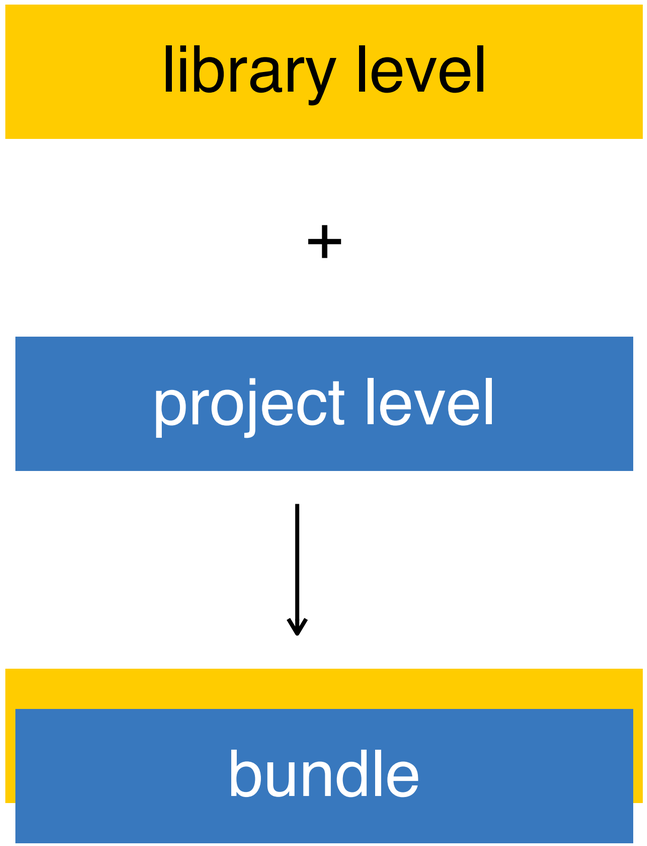
Levels can help to

- Split project into different platforms
- Update libraries without pain

Levels to update libraries without pain



Levels to update libraries without pain



`my-prj/node_modules/mylib/blocks`

`my-prj/blocks`

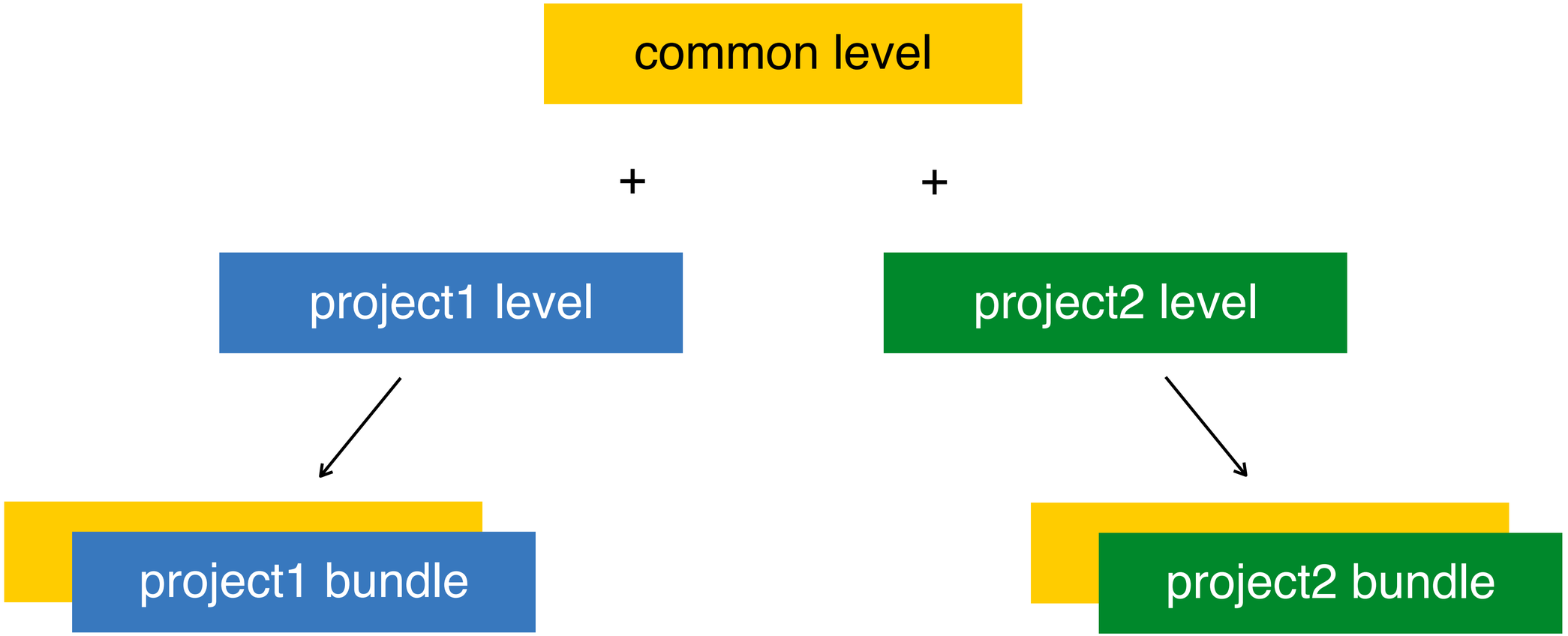
CSS

```
@import "node_modules/mylib/blocks/button.css";
@import "blocks/button.css";
```

Levels can help to

- Split project into different platforms
- Update libraries without pain
- Reuse same blocks on different projects

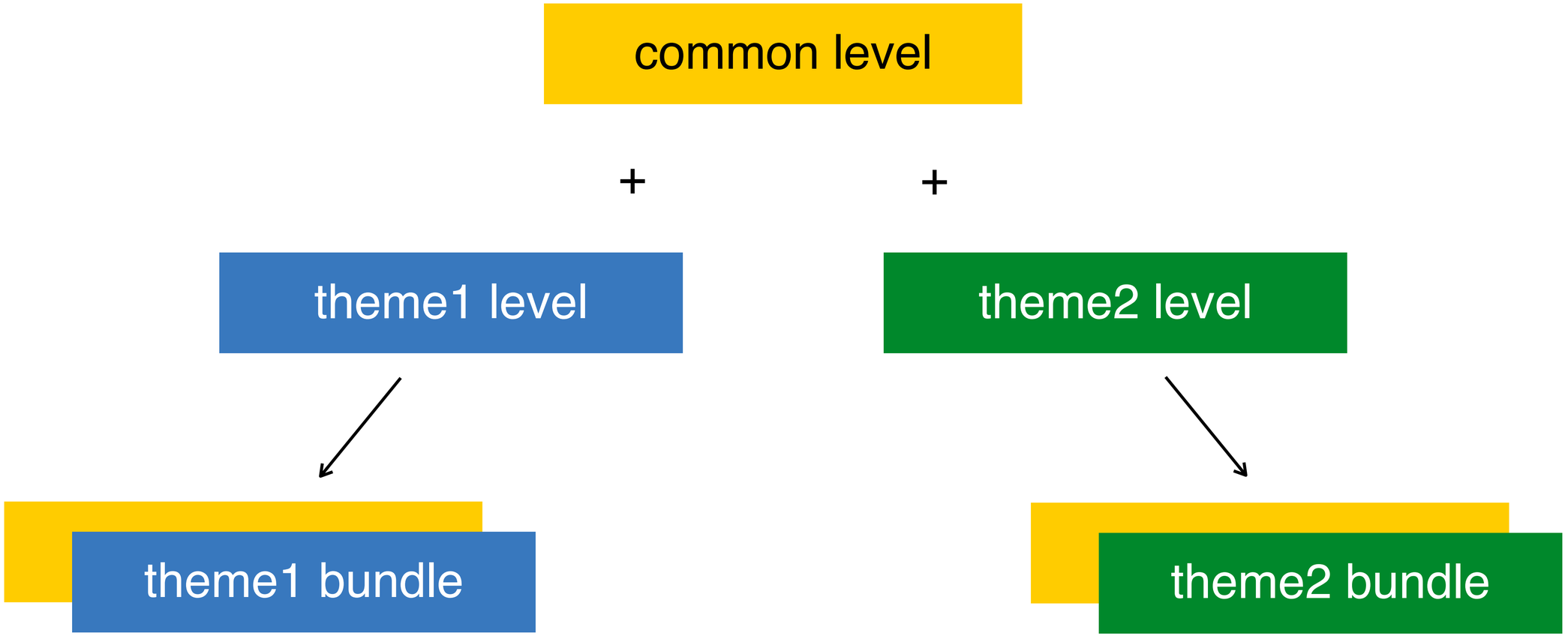
Levels to reuse blocks on different projects



Levels can help to

- Split project into different platforms
- Update libraries without pain
- Reuse same blocks on different projects
- Change themes without touching other code

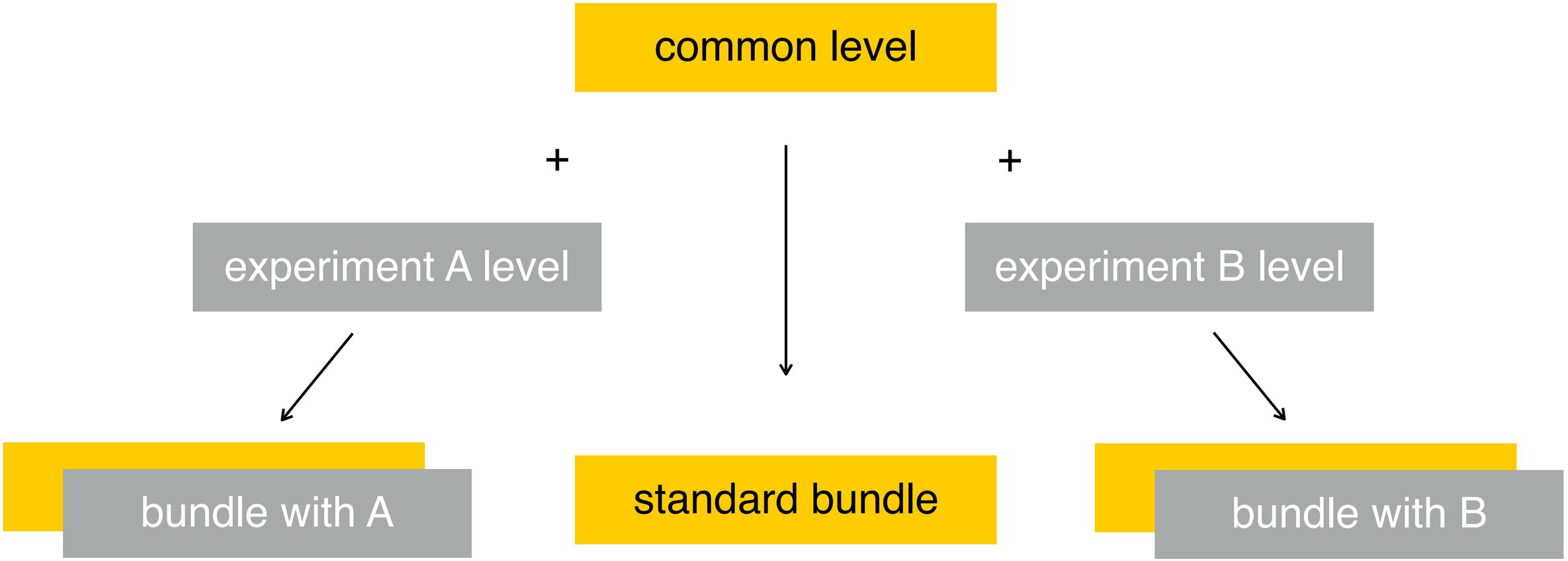
Levels to change themes



Levels can help to

- Split project into different platforms
- Update libraries without pain
- Reuse same blocks on different projects
- Change themes without touching other code
- Make cheap experiments

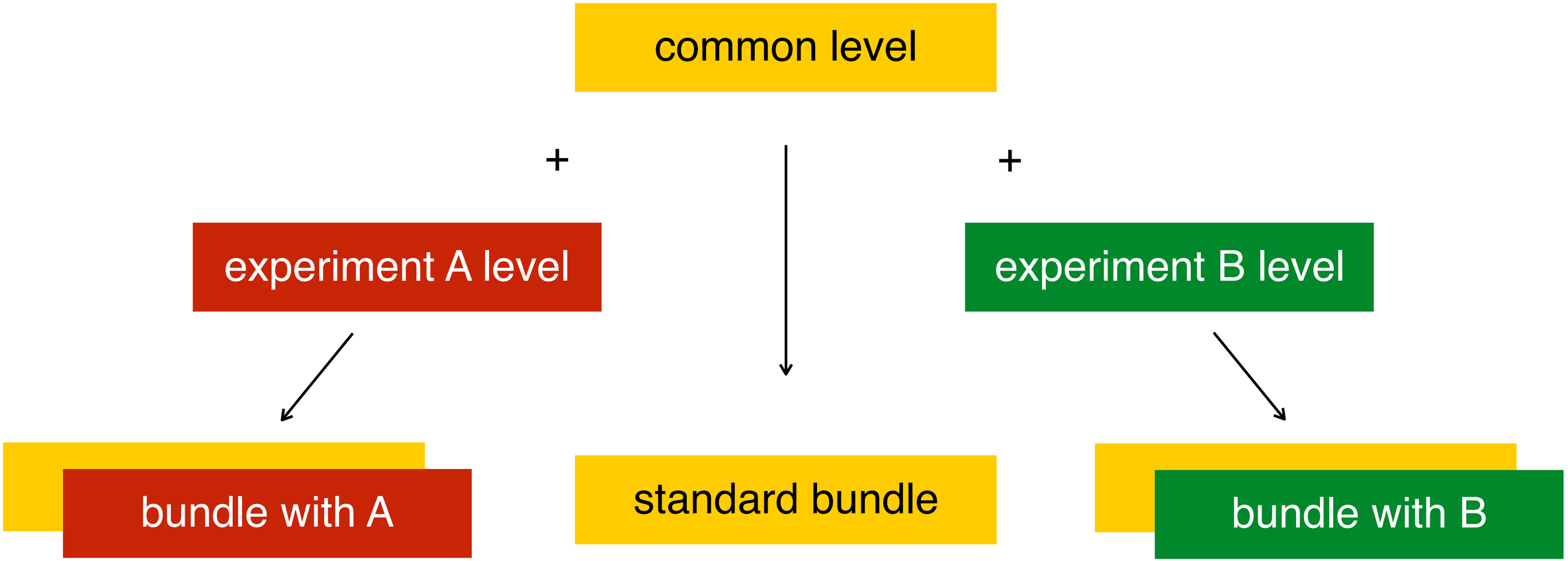
Levels to make experiments



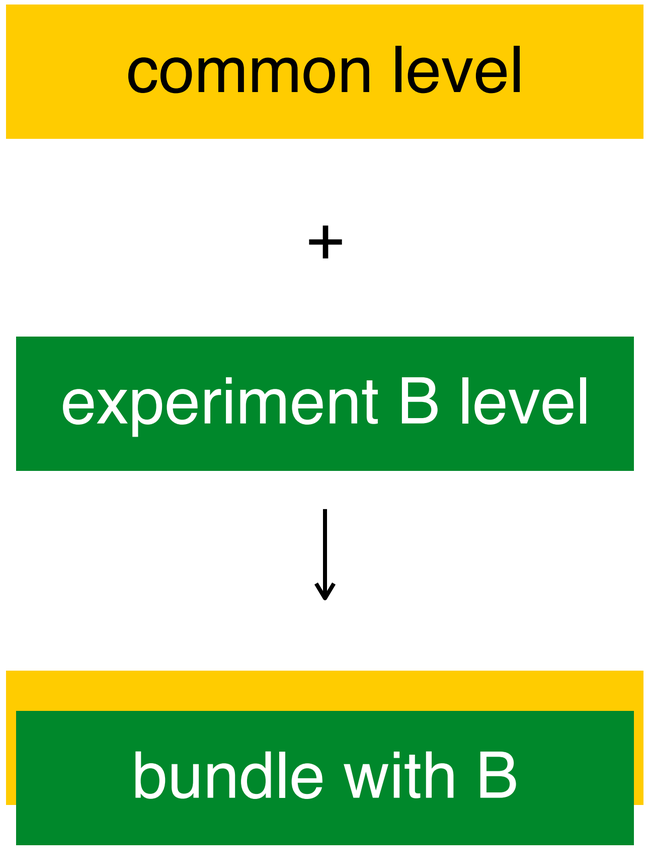
Levels to make experiments

```
prj/
    common.blocks/
    experiments/
        A.blocks/
        B.blocks/
```

Levels to make experiments



Levels to make experiments

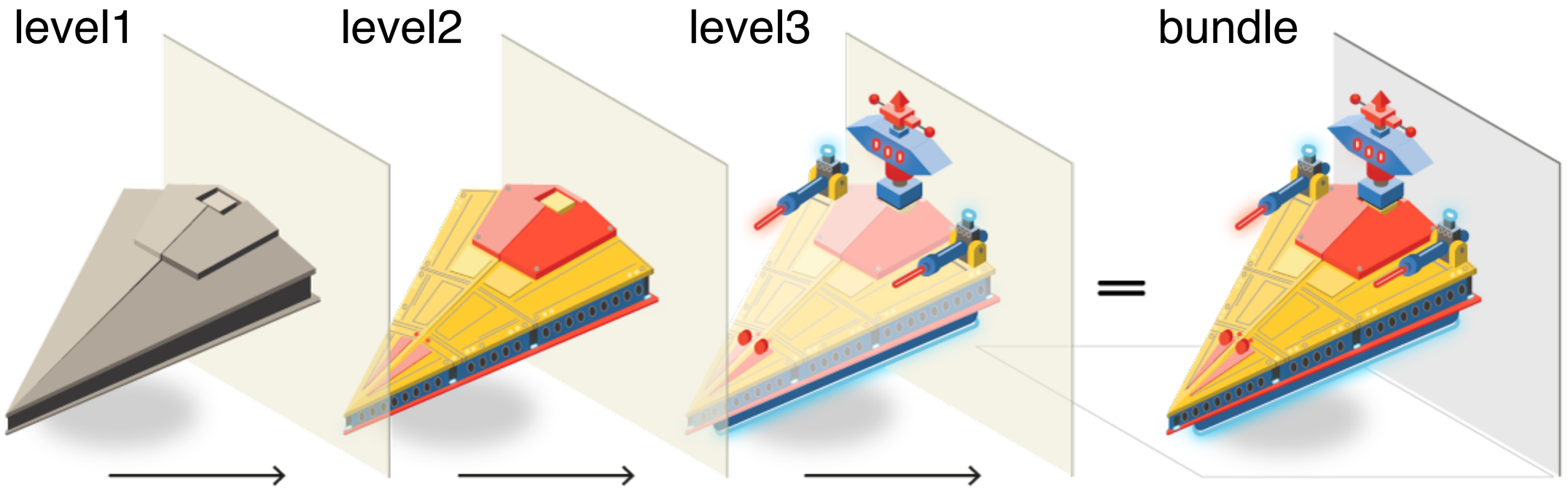


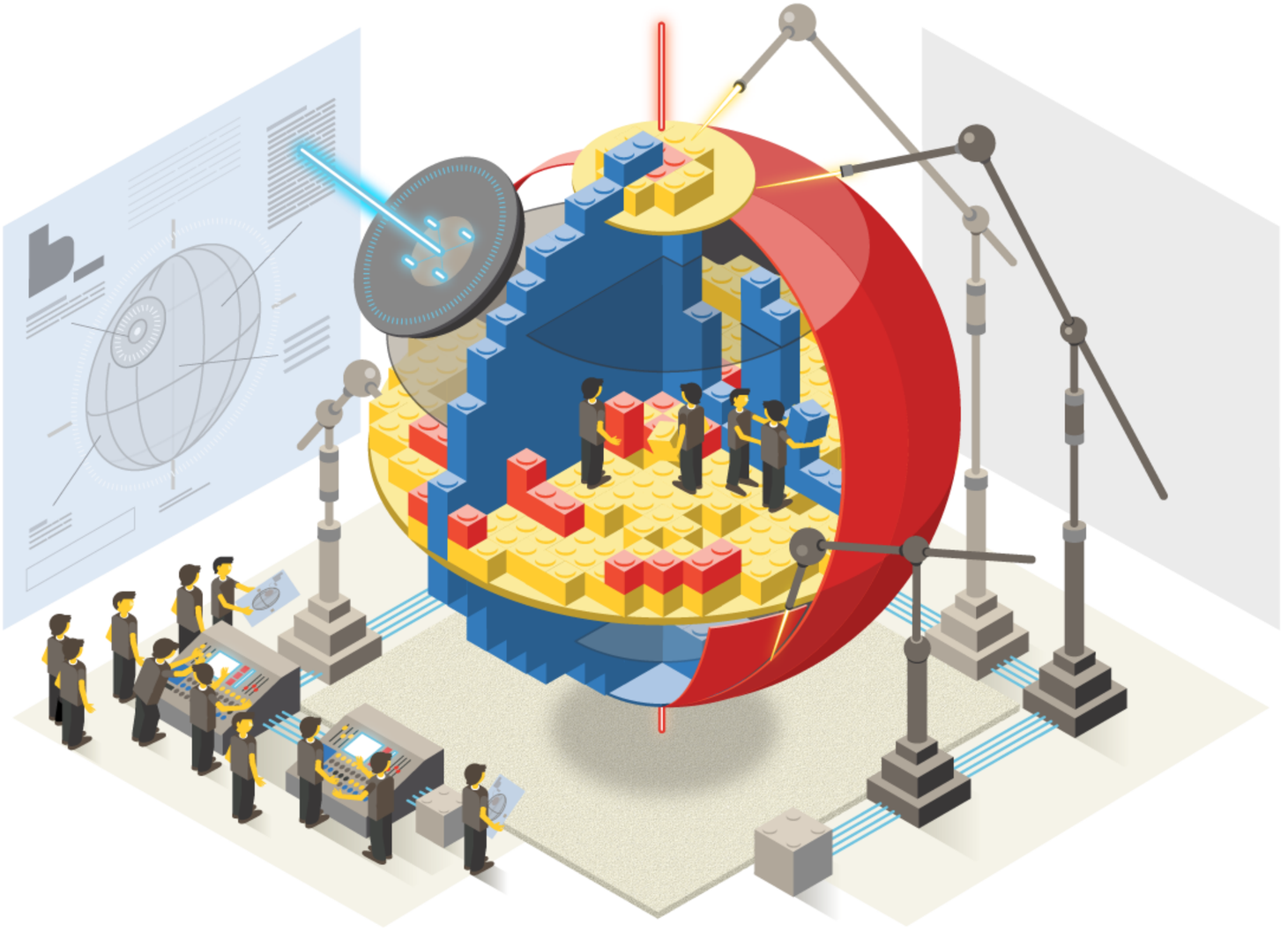
Levels to make experiments

```
prj/
    common.blocks/
    experiments/
        A.blocks/
        B.blocks/
```

Levels: all together now

- Split project into different platforms
- Update libraries without pain
- Reuse same blocks on different projects
- Change themes without touching other code
- Make cheap experiments


level1
level2
level3
bundle



BEM ❤️ React

BEM ❤️ React

- All the BEM ideas are applicable to React
- Blocks are Components
- Elements are Components of Components
- Declarative markup definitions
- Modifiers
- Redefinitions

bem-react-core

bem-react-core: install

```
npm init
npm install --save bem-react-core react react-dom
```

bem-react-core: Hello, world!

```
import * as React from 'react';
import * as ReactDOM from 'react-dom';
import { Block } from 'bem-react-core';
```

bem-react-core: Hello, world!

```
import * as React from 'react';
import * as ReactDOM from 'react-dom';
import { Block } from 'bem-react-core';

class Button extends Block {
    block = 'Button';

    tag() { return 'button'; }
    attrs() { return { onClick: this.handleClick }; }

    handleClick = () => { alert('Hello, World!'); }
}
```

bem-react-core: Hello, world!

```
import * as React from 'react';
import * as ReactDOM from 'react-dom';
import { Block } from 'bem-react-core';

class Button extends Block {
    block = 'Button';

    tag() { return 'button'; }
    attrs() { return { onClick: this.handleClick }; }

    handleClick = () => { alert('Hello, World!'); }
}

ReactDOM.render(
    <Button>Click me</Button>,
    document.getElementById('root')
);
```

bem-react-core: element declaration

```
class Text extends Elem {
    block = 'Button';
    Elem = 'Text';

    tag() { return 'span'; }
}
```

Declarative markup definitions

- tag()
- attrs()
- mods()
- style()
- content()
- render()

Declarative modifiers

Imagine a button

github.com/OfficeDev/office-ui-fabric-react

```
export * from './BaseButton';
export * from './Button.types';
export * from './Button';
export * from './ActionButton/ActionButton';
export * from './CommandBarButton/CommandBarButton';
export * from './CommandButton/CommandButton';
export * from './CompoundButton/CompoundButton';
export * from './DefaultButton/DefaultButton';
export * from './MessageBarButton/MessageBarButton';
export * from './PrimaryButton/PrimaryButton';
export * from './IconButton/IconButton';
```

Imagine a button

```
render() {
  const props = this.props;
  switch (props.buttonType) {
    case ButtonType.command:
      return <CommandButton { ...props } />;
   case ButtonType.compound:
      return <CompoundButton { ...props } />;
    case ButtonType.icon:
      return <IconButton { ...props } />;
    case ButtonType.primary:
      return <PrimaryButton { ...props } />;
    default:
      return <DefaultButton { ...props } />;
  }
}
```

Declarative modifiers

Give the power of multiple inheritance

```
<Button compound primary icon="check"></Button>
```

bem-react-core: modifiers

```
class ButtonLink extends Button {
    static mod = ({ type }) => type === 'link';

    tag() { return 'a'; }
    mods({ type }) { return { type }; }
    attrs({ url }) { return { href: url }; }
}

// Combining the Button and ButtonLink classes
const ButtonView = withMods(Button, ButtonLink);
```

bem-react-core: additional HTML markup

```
import * as React from 'react';
import { Bem } from 'bem-react-core';

ReactDOM.render(
    <Bem block="MyBlock">
        <Bem elem="Inner" tag="span" />
    </Bem>,
    document.getElementById('root')
);
```

bem-react-core: class names

```
content() {
  return (
    <MyBlock>
      <MyElem className={
        this.bemClassName(
          'ElemName',
          { modName: 'modValue' }
        )
      }/>
    </MyBlock>
  );
}
```

Where to get it

- github.com/bem/bem-react-core
- github.com/bem/bem-react-boilerplate

Where to ask questions

- bem.info/forum

Summary

BEM is **not** just about CSS

BEM ❤️ React


KEEP
CALM
AND
BEM

Time for questions!

Спасибо!

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