STATE AND PROPS

TRAJECTORY

- Reusing components with props
- Unidirectional data flow via props
- Class components vs. stateless functional components

TWO WAYS TO WRITE A COMPONENT

CLASS

```
class Pizza extends React.Component {
  render () {
    return <div>Pizza Pie!</div>
  }
}
```

FUNCTION

```
const Pizza = () => {
  return <div>Pizza Pie!</div>
}
```

CLASS

```
class Pizza extends React.Component {
  render () {
    return <div>Pizza Pie!</div>
  }
}
```

FUNCTION

```
const Pizza = () => {
  return <div>Pizza Pie!</div>
}
```

Your favorite pizza topping is: Cheese

Cheese

Broccoli

Anchovies

Your favorite pizza topping is: Broccoli

Cheese

Broccoli

Anchovies

```html
<div>
  <h1>Your favorite pizza topping is: ???</h1>
  <ul>
    <li>Cheese</li>
    <li>Broccoli</li>
    <li>Anchovies</li>
  </ul>
</div>
```

```
<ToppingList>
   {/* ingredients go here… */}
</ToppingList>
```

```
<ToppingList>
  <Cheese />
  <Broccoli />
  <Anchovies />
</ToppingList>
```

```
const Cheese = () => {
```

```
  return <li>Anchovies</li>
}
```

```
const Topping = (props) => {
  return <li>{props.type}</li>
}
```

```
<ToppingList>
  <Topping type="cheese" />
  <Topping type="broccoli" />
  <Topping type="anchovies" />
</ToppingList>
```

PROPS

- **Conceptually and syntactically very similar to an HTML *attribute***
- **All props that are passed into a component become key-value pairs on that component's "props" object**

“UNIDIRECTIONAL DATA FLOW”

UNIDIRECTIONAL DATA FLOW

- **We view our UI as a hierarchy of components**
  - Which is intuitive - we already think of HTML this way
- **The big difference: our state is also communicated via that hierarchy**
- **Means of communication: passing down props to components**

Your favorite pizza topping is: Cheese

Cheese

Broccoli

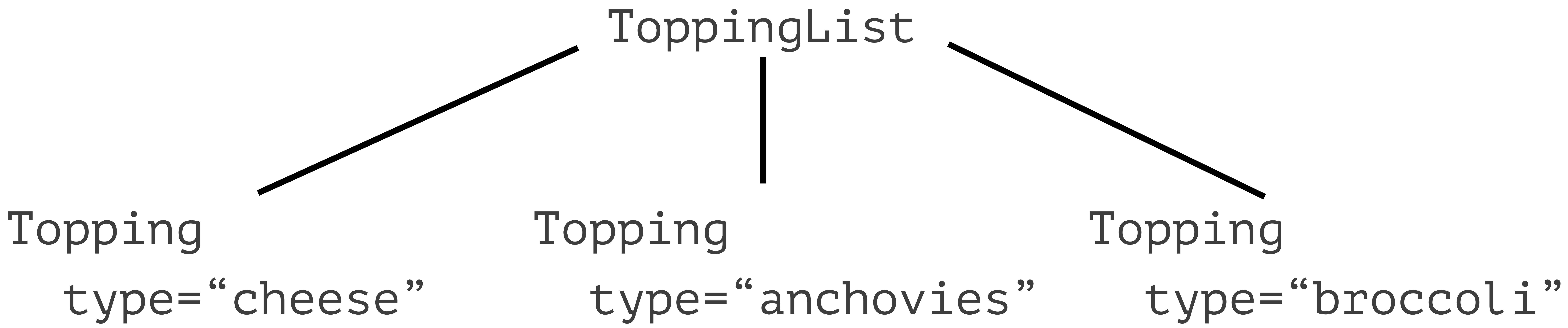
Anchovies

Your favorite pizza topping is: Broccoli

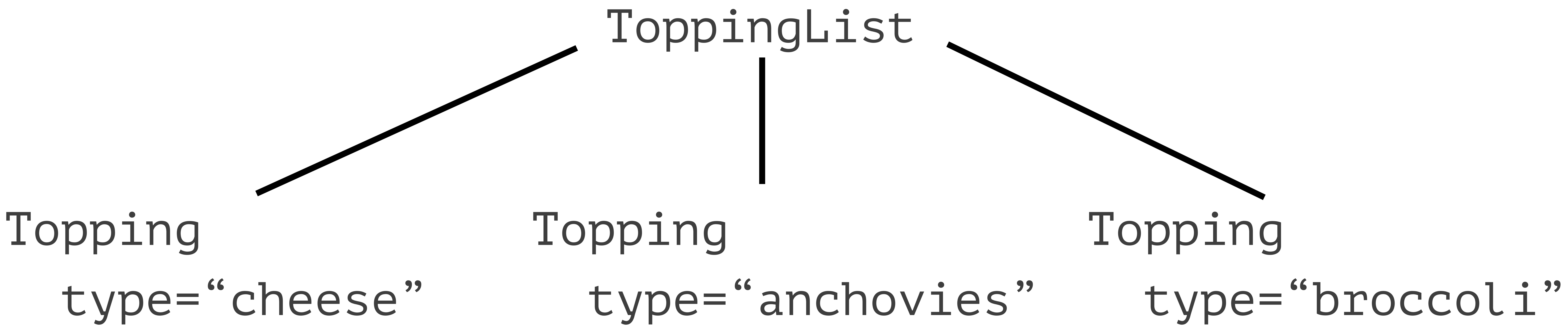
Cheese

Broccoli

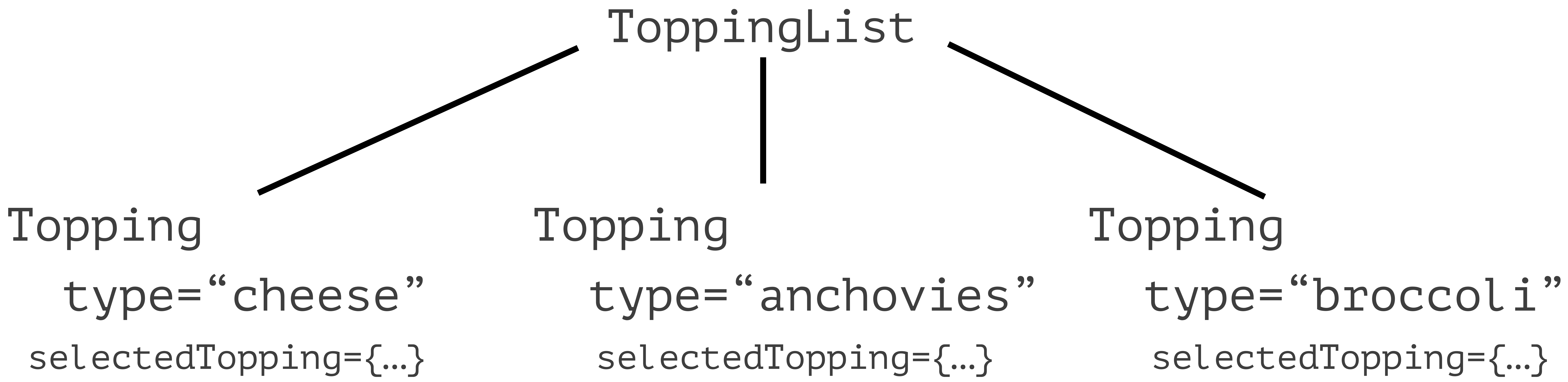
Anchovies


ToppingList
Topping
type="cheese"
Topping
type="anchovies"
Topping
type="broccoli"

```
state: {
  selectedTopping: 'cheese'
}
```



```
state: {
  selectedTopping: ‘cheese’
}
```

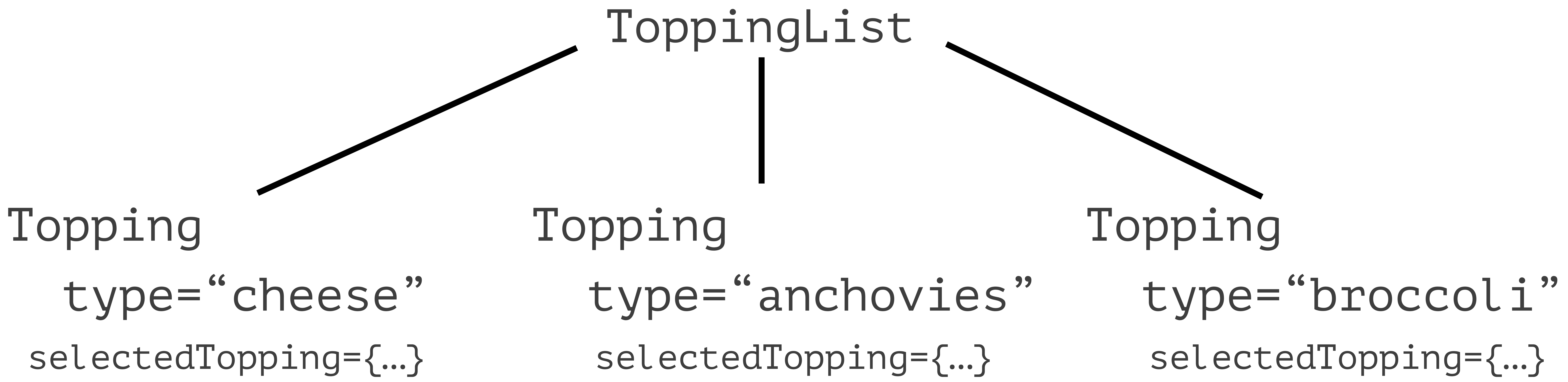


```
class ToppingList extends React.Component {
  constructor () {
    super()
    this.state = {
      selectedTopping: 'cheese'
    }
  }

  render () {
    return (
      <div>
        <h1>Your favorite topping is: {this.state.selectedTopping}</h1>
        <ul>
          <Topping selectedTopping={this.state.selectedTopping} type='cheese' />
          <Topping selectedTopping={this.state.selectedTopping} type='broccoli' />
          <Topping selectedTopping={this.state.selectedTopping} type='anchovies' />
        </ul>
      </div>
    )
  }
}
```

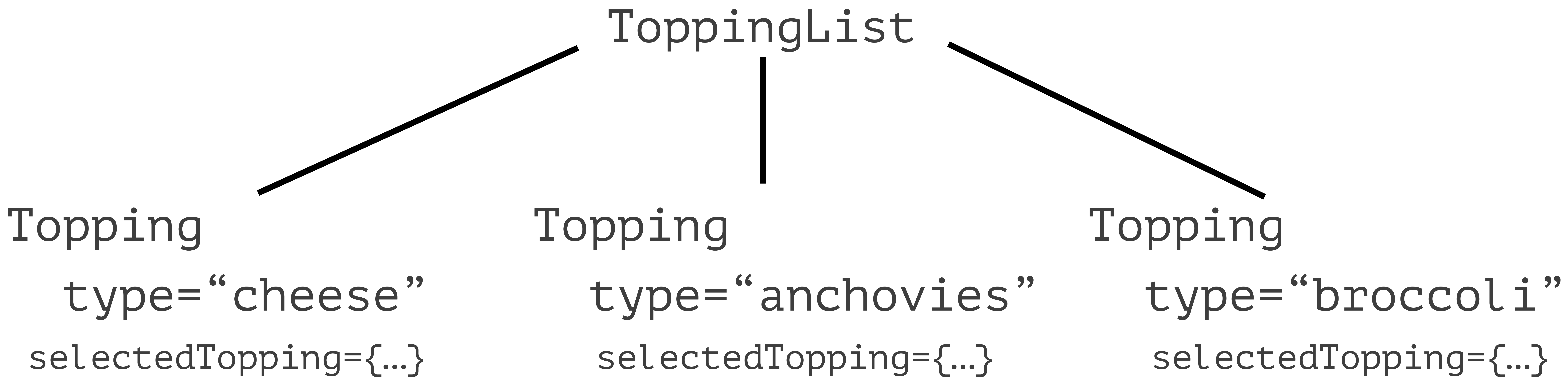
```
const Topping = (props) => {
  const isSelected = props.selectedTopping === props.type
  return (
    <div className={isSelected && 'selected'}>{props.type}</div>
  )
}
```

```
state: {
  selectedTopping: ‘cheese’
}
```



```
state: {
  selectedTopping: ‘cheese’
}
```

```
chooseTopping (selectedTopping) {
  this.setState({selectedTopping})
}
```



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state: {
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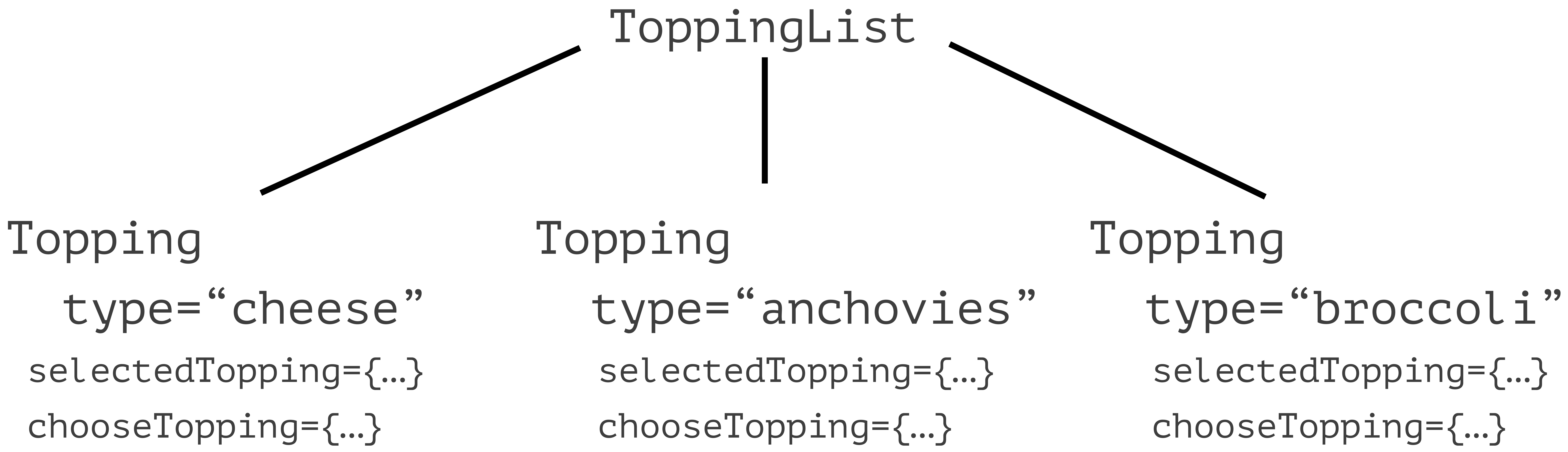
```
chooseTopping (selectedTopping) {
  this.setState({selectedTopping})
}
```

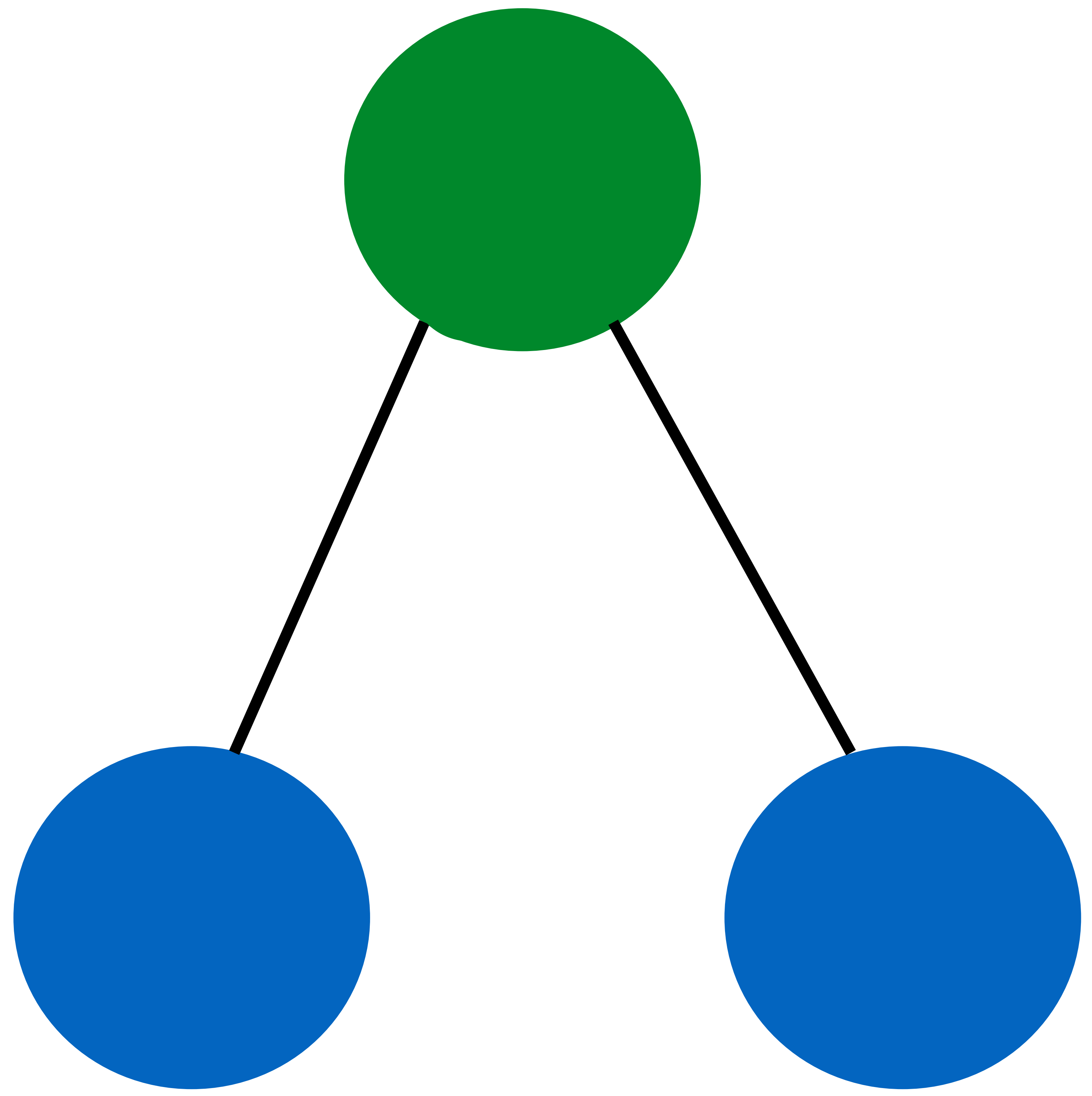


```
ToppingList

Topping
  type=“cheese”
 selectedTopping={…}
 chooseTopping={…}

Topping
  type=“anchovies”
 selectedTopping={…}
 chooseTopping={…}

Topping
  type=“broccoli”
 selectedTopping={…}
 chooseTopping={…}
```



```
state = {
  selectedTopping: ‘pepper’
}
```

```
handleClick () {}
```

```
props.selectedTopping: ‘pepper’
props.handleClick: fn
```

CLASS COMPONENTS VS FUNCTIONAL COMPONENTS

CLASSES

- Defined using the `class` keyword
- May be stateful (i.e. have a constructor with `this.state`)
- Must have a render method
- May have additional methods
- Accesses props passed to it via `this` context (i.e. `this.props`)

FUNCTIONS

- **Just a function**
- **No state, no additional methods or functionality***
- **The function's return value *is* the "render"**
- **Accesses props passed to it via the first argument to that function (i.e. `const Topping = (props) => {…}`)**

* except for React hooks, but we won't learn about those until senior phase

WHICH WOULD YOU PREFER?

FUNCTIONS!

- **Functional components are simple. Classes can get complex.**
- **Functional components are easy to re-use and easy to test**
- ***“Simplicity is a prerequisite for reliability”***
- **Rule of thumb: write lots of functional components, and not as many classes**