FP's Secret Sauce

An in-depth look at currying and its advantages. (5 min. read)

Currying

I hope the last section gave you a taste of currying, as we're dipping a bit more into it here.

Its main benefit is code reuse. Curried functions have a better chance of being useful in different scenarios, thus making them DRYer.

Let's say you have an `add` function

```
const add = (x, y) => {
  console.log(`Adding ${x} and ${y}`);

  return x + y;
};

const result = add(2, 3);

console.log({ result });
```

What happens if you don't give `add` its required parameters? What if you give too little?

```
const add = (x, y) => {
  console.log(`Adding ${x} and ${y}`);

  return x + y;
};

const result = add(2);

console.log({ result });
```

Not fun. You know this leads to weird bugs, especially in JavaScript where we do anything and everything. The problem sort of goes away when you curry `add`.

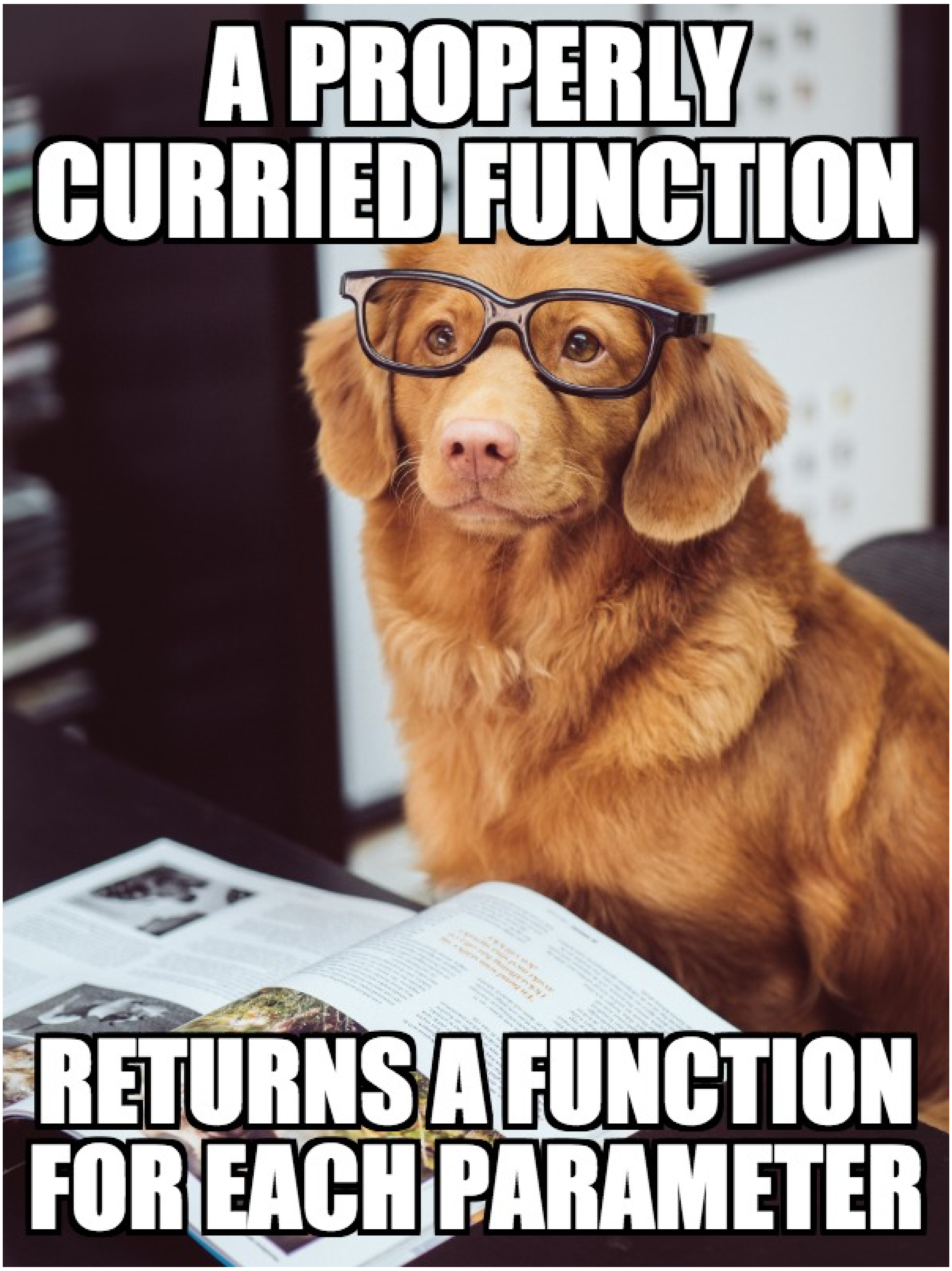
```
import { curry } from 'ramda';

const add = (x, y) => {
  console.log(`Adding ${x} and ${y}`);

  return x + y;
};

const curriedAdd = curry(add);

// returns a function
const result = curriedAdd(2);

console.log({ result });
```

Your eyes don't deceive you, `curriedAdd(2)` returns a function. It will keep returning a function until you supply the last parameter, `y`.

```
import { curry } from 'ramda';

const add = (x, y) => {
  console.log(`Adding ${x} and ${y}`);

  return x + y;
};

const curriedAdd = curry(add);
const result = curriedAdd(2);

console.log(
  result(),
  result(),
  result()
);

console.log("I won't stop returning functions until you give me Y! \n")
console.log("Okay dude, here's y = 3...\n");

console.log(result(3));

console.log('\n-_-"')
```

Not Entirely Textbook

According to the FP books, currying means you return one new function per expected parameter.


A PROPERLY CURRIED FUNCTION
RETURNS A FUNCTION FOR EACH PARAMETER

So if you have an `add3` or `greet` function

```
const add3 = (x, y, z) => x + y + z;
const greet = (greeting, first, last) => `${greeting}, ${first} ${last}`;
const greet = (greeting, first, last) => `${greeting}, ${first} ${last}`;
```

“Properly” currying them looks like this

```
const curriedAdd3 = (x) => (y) => (z) => x + y + z;
const curriedGreet = (greeting) => (first) => (last) => `${greeting}, ${first} ${last}`;
```

But let’s be honest, this sucks in JavaScript. I don’t want to call my functions like this

```
curriedAdd3(1)(2)(3); // 6
curriedGreet('Hello')('John')('Doe'); // Hello, John Doe
```

Thankfully Ramda’s `curry` supports either style. You can use them like above or give all the arguments at once.

```
import { curry } from 'ramda';

const greet = (greeting, first, last) => `${greeting}, ${first} ${last}`;
const curriedGreet = curry(greet);

// Supply all arguments at once
const result1 = curriedGreet('Hello', 'John', 'Doe');

// Or break it up
const result2 = curriedGreet('Hello')('John')('Doe');

// Get weird if you want
const result3 = curriedGreet('Hello')()()()('John', 'Doe');

// Store curried function as variable
const greetJohn = curriedGreet('Hello', 'John')
const result4 = greetJohn('Smith');

console.log({
  result1,
  result2,
  result3,
  result4
});
```

Summary

- Curried functions keep returning functions until all required parameters are given.

- This lets you partially apply a function and create more specialized versions.
- “Properly” curried functions return one function per argument. `(a) => (b) => (c)` instead of `(a, b, c)`.
- But they’re a bit impractical so Ramda lets you supply them normally, or one at a time.