

DEFAULT PARAMS

The Old Way

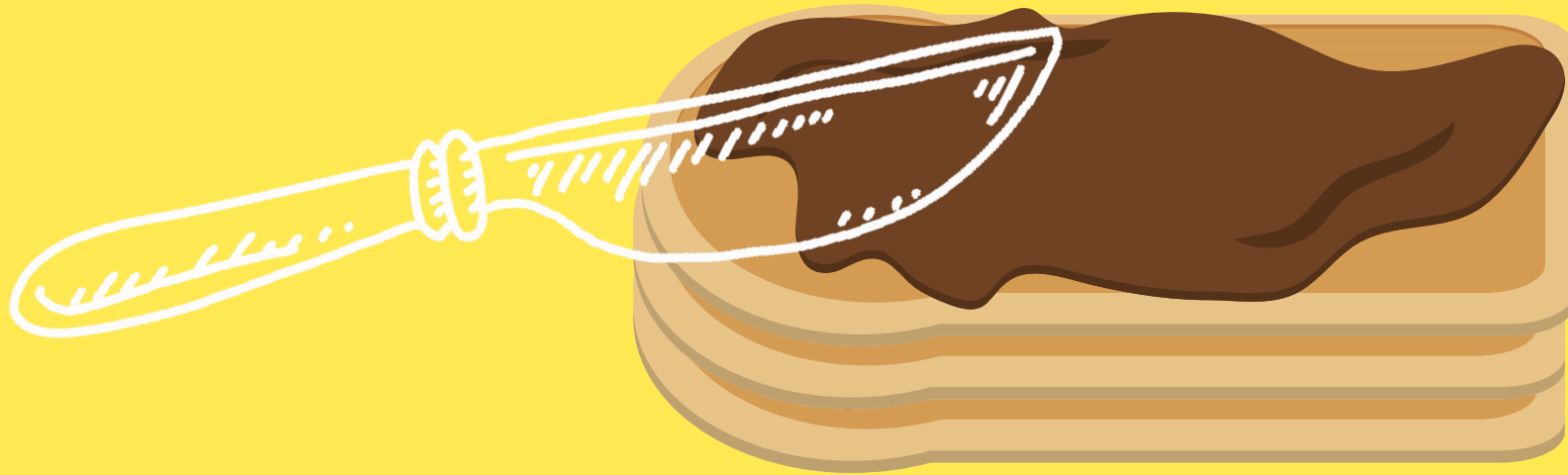
```
function multiply(a, b) {  
  b = typeof b !== 'undefined' ? b : 1;  
  return a * b;  
}  
  
multiply(7); //7  
multiply(7, 3); //21
```

DEFAULT PARAMS

The New Way

```
function multiply(a, b = 1) {  
    return a * b;  
}  
  
multiply(4); //4  
multiply(4, 5); //20
```

SPREAD



SPREAD

Spread syntax allows an iterable such as an array to be **expanded** in places where zero or more arguments (for function calls) or elements (for array literals) are expected, or an object expression to be expanded in places where zero or more key-value pairs (for object literals) are expected.

WHAT!!?

SPREAD

For Function Calls

```
const nums = [ 9, 3, 2, 8 ];  
Math.max(nums); //NaN  
// Use spread!  
Math.max(...nums); //67  
// Same as calling:  
// Math.max(9,3,2,8)
```

Expands an iterable
(array, string, etc.)
into a list of arguments



```
const nums1 = [ 1, 2, 3 ];  
const nums2 = [ 4, 5, 6 ];  
  
[ ...nums1, ...nums2 ];  
//[1, 2, 3, 4, 5, 6]  
  
[ 'a', 'b', ...nums2 ];  
//["a", "b", 4, 5, 6]  
  
[ ...nums1, ...nums2, 7, 8, 9 ];  
//[1, 2, 3, 4, 5, 6, 7, 8, 9]
```

SPREAD

In Array Literals

Create a new array using an existing array. Spreads the elements from one array into a new array.

SPREAD

In Object Literals

```
const feline = { legs: 4, family: 'Felidae' };
const canine = { family: 'Caninae', furry: true };

const dog = { ...canine, isPet: true };
//{family: "Caninae", furry: true, isPet: true}

const lion = { ...feline, genus: 'Panthera' };
//{legs: 4, family: "Felidae", genus: "Panthera"}

const catDog = { ...feline, ...canine };
//{legs: 4, family: "Caninae", furry: true}
```

Copies properties from one object into another object literal.

REST

It looks like spread,
but it's not!



THE ARGUMENTS OBJECT

```
function sumAll() {
  let total = 0;
  for (let i = 0; i < arguments.length; i++)
  {
    total += arguments[i];
  }
  return total;
}
sumAll(8, 4, 3, 2); // 17
sumAll(2, 3); //5
```

- Available inside every function.
- It's an **array-like** object
 - Has a length property
 - Does not have array methods like push/pop
- Contains all the arguments passed to the function
- Not available inside of arrow functions!

REST PARAMS

Collects all remaining arguments into an actual array

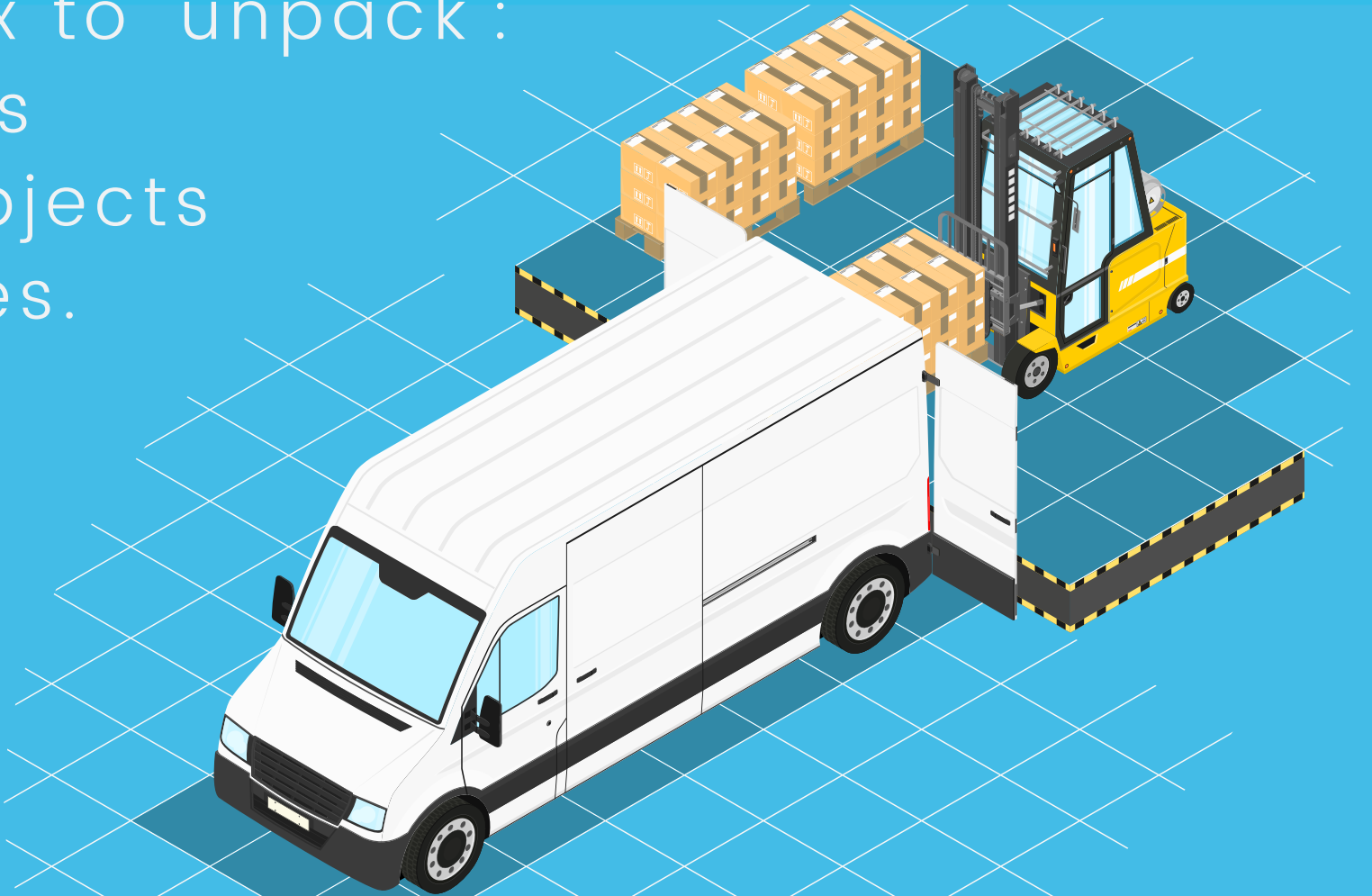
```
function sumAll(...nums) {  
  let total = 0;  
  for (let n of nums) total += n;  
  return total;  
}  
  
sumAll(1, 2); //3  
sumAll(1, 2, 3, 4, 5); //15
```

DESTRUCTURING

A short, clean syntax to 'unpack':

- Values from arrays
- Properties from objects

Into distinct variables.



ARRAY

Destructuring

```
const raceResults = [ 'Eliud Kipchoge', 'Feyisa Lelisa', 'Galen Rupp' ];

const [ gold, silver, bronze ] = raceResults;
gold; //"Eliud Kipchoge"
silver; //"Feyisa Lelisa"
bronze; //"Galen Rupp"

const [ fastest, ...everyoneElse ] = raceResults;
fastest; //"Eliud Kipchoge"
everyoneElse; //["Feyisa Lelisa", "Galen Rupp"]
```

OBJECT

Destructuring

```
const runner = {
  first: "Eliud",
  last: "Kipchoge",
  country: "Kenya",
  title: "Elder of the Order of the Golden Heart of Kenya"
}
const {first,last,country} = runner;

first; //"Eliud"
last; //"Kipchoge"
country; //"Kenya"
```

PARAM

Destructuring

```
const fullName = ({first, last}) => {  
  return `${first} ${last}`  
}  
  
const runner = {  
  first: "Eliud",  
  last: "Kipchoge",  
  country: "Kenya",  
}  
  
fullName(runner); // "Eliud Kipchoge"
```