REGULAR EXPRESSIONS DEEP DIVE

More pattern matching than you ever really cared to ask about

Can you identify each of these?

- 4246 3151 7734 2234
- 12:34 EDT
- (800) 867-5309
- 457-55-5462
- dwight.k.shrute@dundermifflin.com
- 192.168.0.1
- http://www.TotsAndNugs.com
- 11/16/2012
- 16-11-2012

JavaScript can recognize them, too

- It understands a RegExp type.

```
var re = new RegExp(pattern);
```

- or more concisely

```
var re = /pattern/;
```

RegExs are usually tested from the string

- Find all of the matches

```
String.match(RegExp);
```

- Find out where it matches

```
String.search(RegExp);
```

- Replace all occurrences of RegExp with some string

```
String.replace(RegExp, newString);
```

- Split a string using a regex as the delimiter

```
String.split(RegExp);
```

match() returns an array of all matches

```
var addr = document
  .getElementById('ipaddress').value;
var numbers = addr.match(/\d+/g);
for (var x in numbers) {
  console.log(numbers[x]);
}
```

search() tells us where the match happens

```
var addr = document
  .getElementById('email').value;
if (addr.search(/^\w+@[a-zA-Z_]+?\.[a-zA-Z]
{2,3}$/) === -1)
  throw new Error("Not an email address");
```

- Zero-based answer!!
- -1 means no match

split() allows you to break a string into an array

```
var addr = document
  .getElementById('address').value;
var words = addr.split(/\s+/);
for (var x in words) {
  console.log(words[x]);
}
```

replace() replaces regex with something

- It doesn't destroy the original string but returns a copy

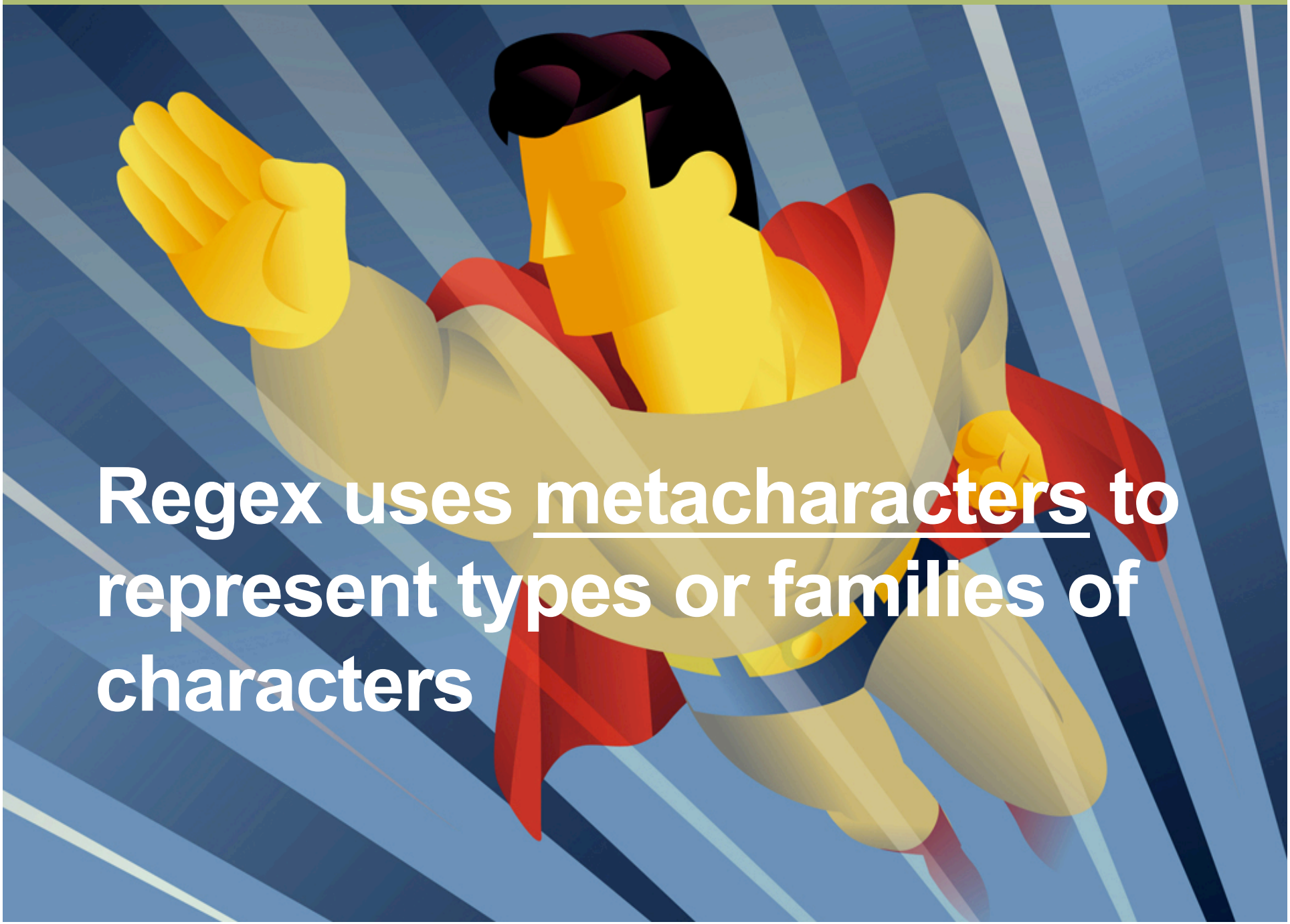
```
var email = document.querySelector('#em').value;
var cleanEmail = email.replace(/@/," at ")
                      .replace(/\./g," dot ");
out.innerText = cleanEmail;
```

Modifiers can be placed at the end

- /regex/modifier
- or
- RegExp(regex, modifier)

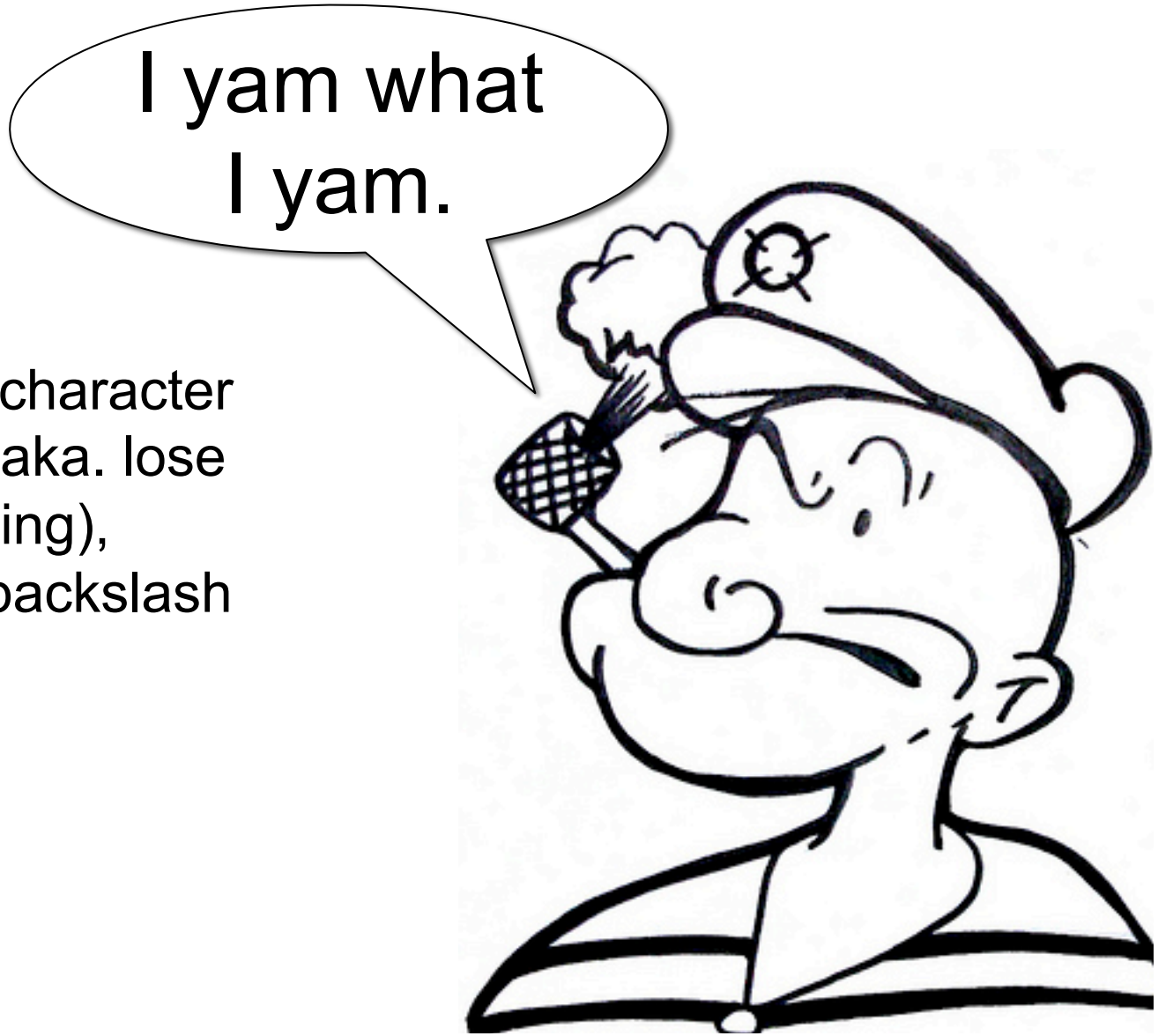
Modifiers

- g means match them all if there are >1 match
- i means ignore case
- m means ignore line breaks


Regex uses metacharacters to represent types or families of characters

If it's not a metacharacter, it just is what it is

- Example:
  - a
  - 1
  - T
- To make a metacharacter represent itself (aka. lose its special meaning), precede it by a backslash
- Example:
  - \.
  - \^

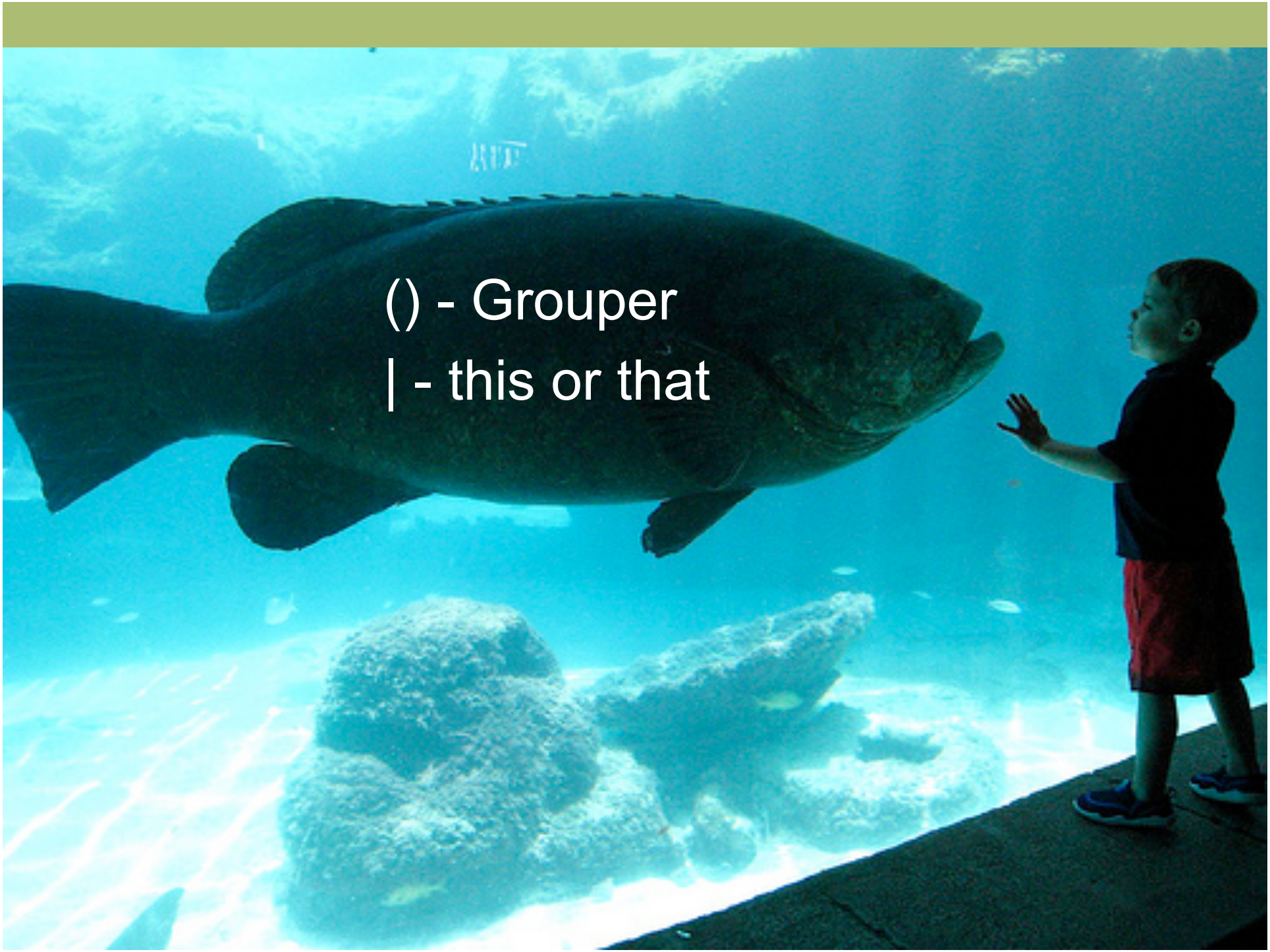


Single character wildcards represent exactly one other character

	What it represents
.	Any character
\d	Any single digit
\D	Any character that is NOT a digit
\w	Any word character (letter, number, underscore)
\W	One character that is NOT a word character
\s	Any single whitespace (space, tab, newline)
\S	One character that is NOT a whitespace
[ ] • ^ • -	Any one character listed in the brackets • Changes it all to NOT one of these • Ranges of characters

Multipliers turn one character into multiples of one character

- Generic multipliers use curly braces
  - {x}
  - {x,y}
  - {x,}
- Multiplier shortcuts which will save you keystrokes
  - +
  - ?
  - *


() - Grouper
| - this or that

Boundaries allow you to match next to something significant

- ^
- $
- \b
- \B

tl;dr

- Regular Expressions are extremely complex, but extremely powerful
- Fortunately, if you can break them down they're very learnable