
Thomas Watson
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github.com/watson

github.com/watson/talks

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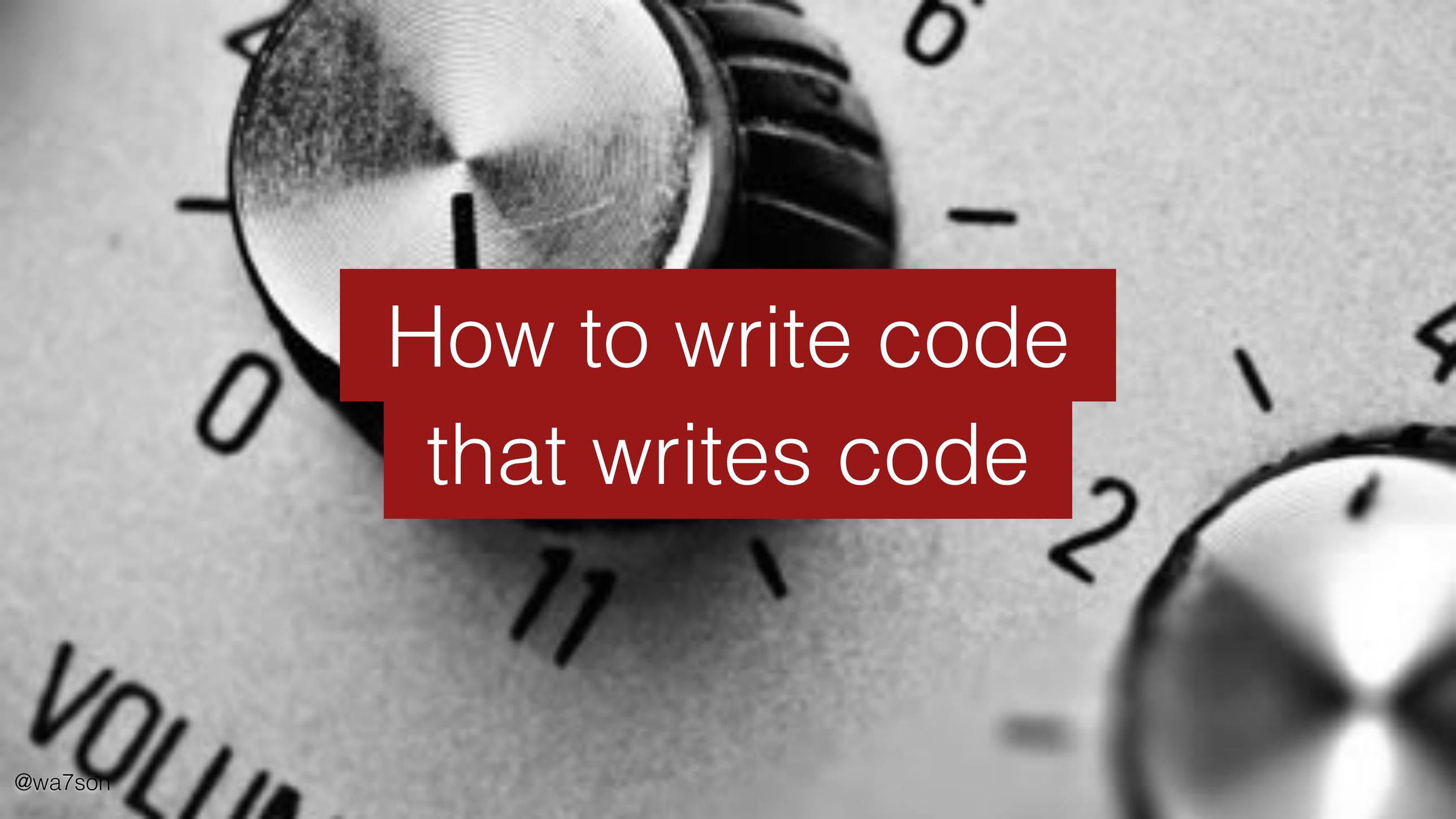
These go to eleven!


How to write code
that writes code
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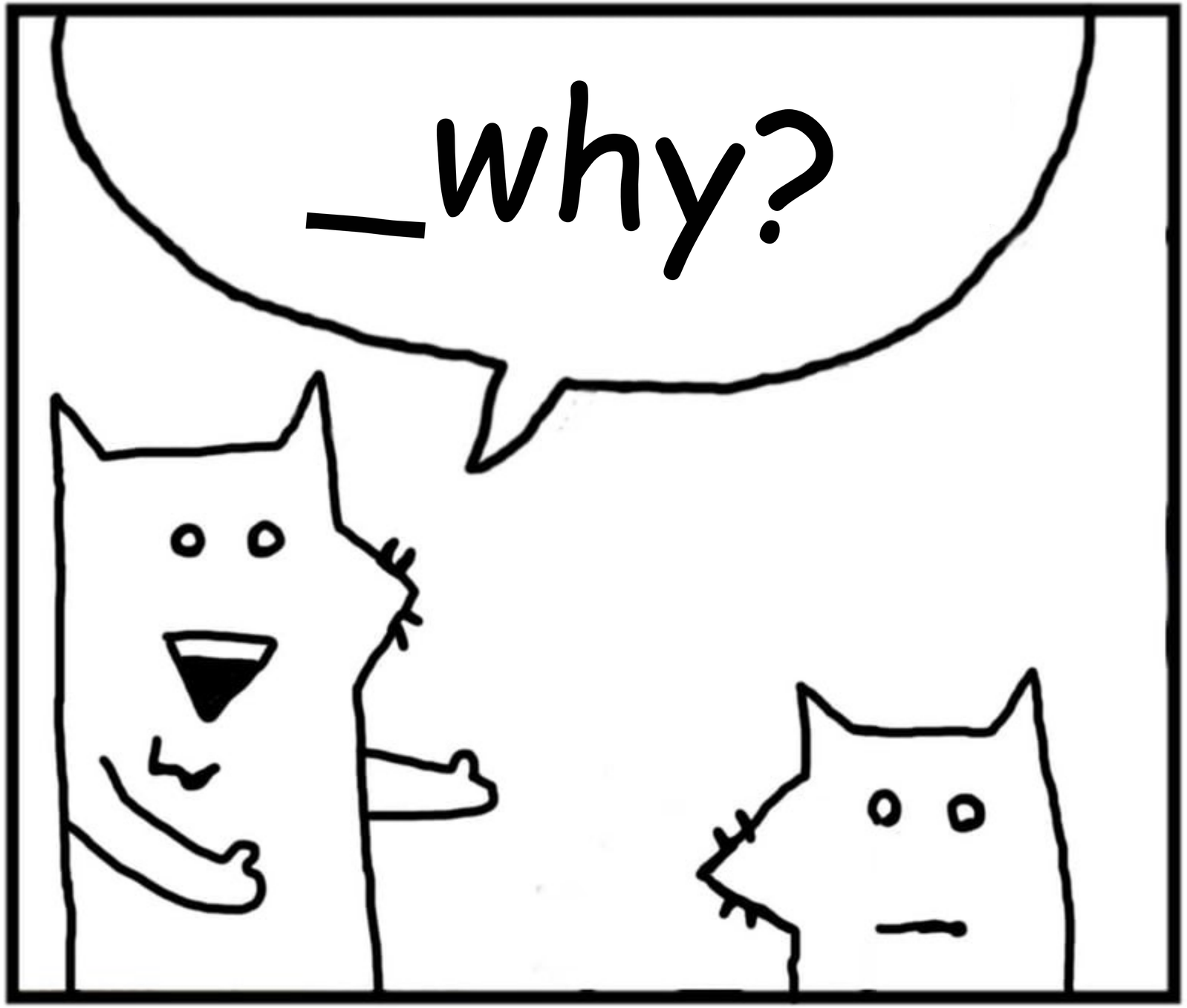

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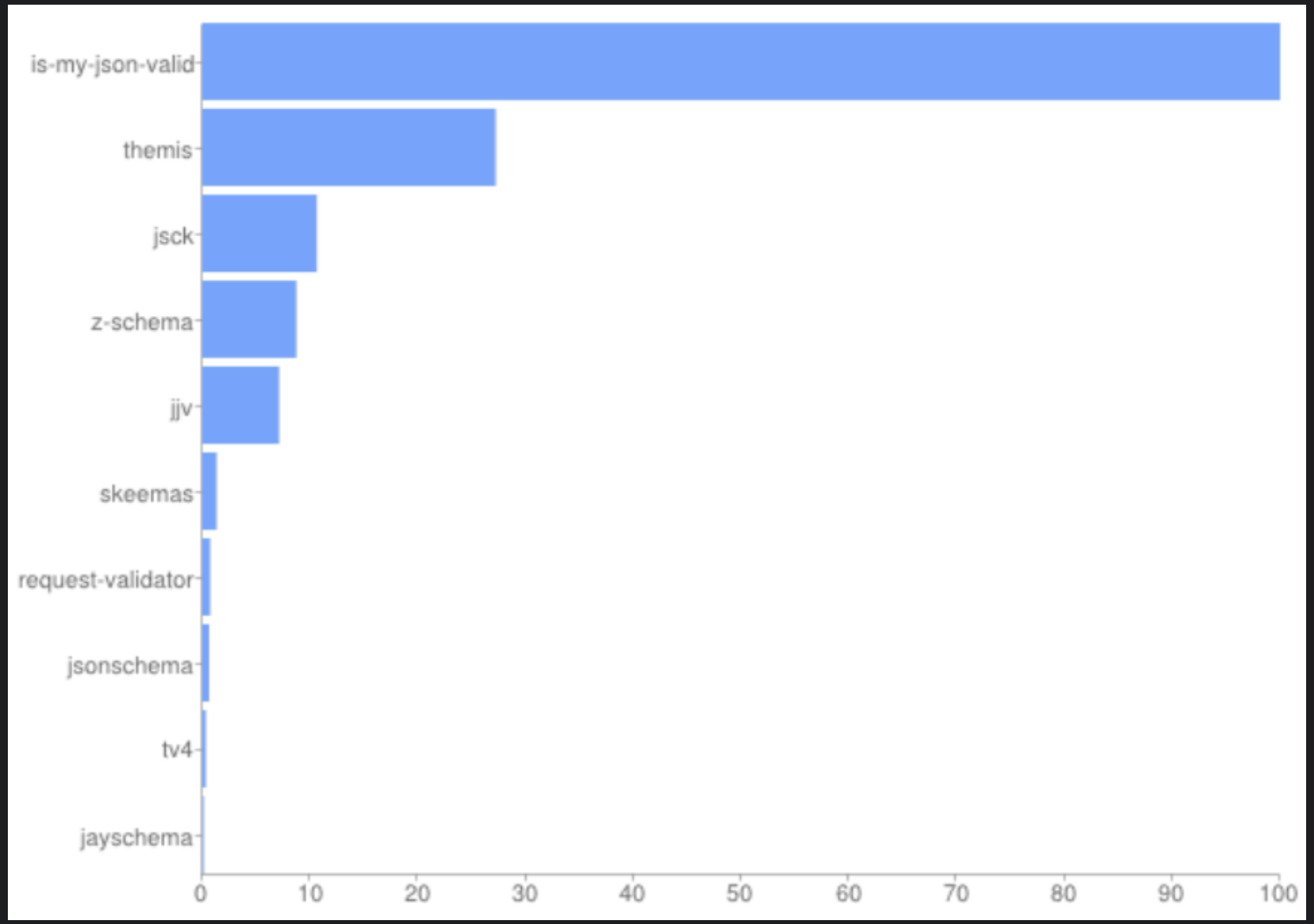
github.com / mafintosh / is-my-json-valid

```
var validator = require('is-my-json-valid')

var validate = validator({
  required: true,
  type: 'object',
  properties: {
    hello: {
      required: true,
      type: 'string'
    }
  }
})

console.log('should be valid', validate({hello: 'world'}))
console.log('should not be valid', validate({}))
```


is-my-json-valid
themis
jsck
z-schema
jjv
skeemas
request-validator
jsonschema
tv4
jayschema
0
10
20
30
40
50
60
70
80
90
100

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f(seed, data)

$$f_2 = f_1(seed)$$

$$f_2(data)$$

An oversimplified example

```
function doMath (a, b) {
  // ...do stuff with a...
  return a + b
}
```

An oversimplified example

```
function doMath (a, b) {
  // ...do stuff with a...
  return a + b
}

function prepareMath (a) {
  // ...do stuff with a...
  return function doMath (b) {
    return a + b
  }
}
```

An oversimplified example

```
function doMath (a, b) {
  // ...do stuff with a...
  return a + b
}

function prepareMath (a) {
  // ...do stuff with a...
  return function doMath (b) {
    return a + b
  }
}

function prepareMath (a) {
  // ...do stuff with a...
  var src = 'return ' + a + ' + b'
  return new Function ('b', src)
}
```

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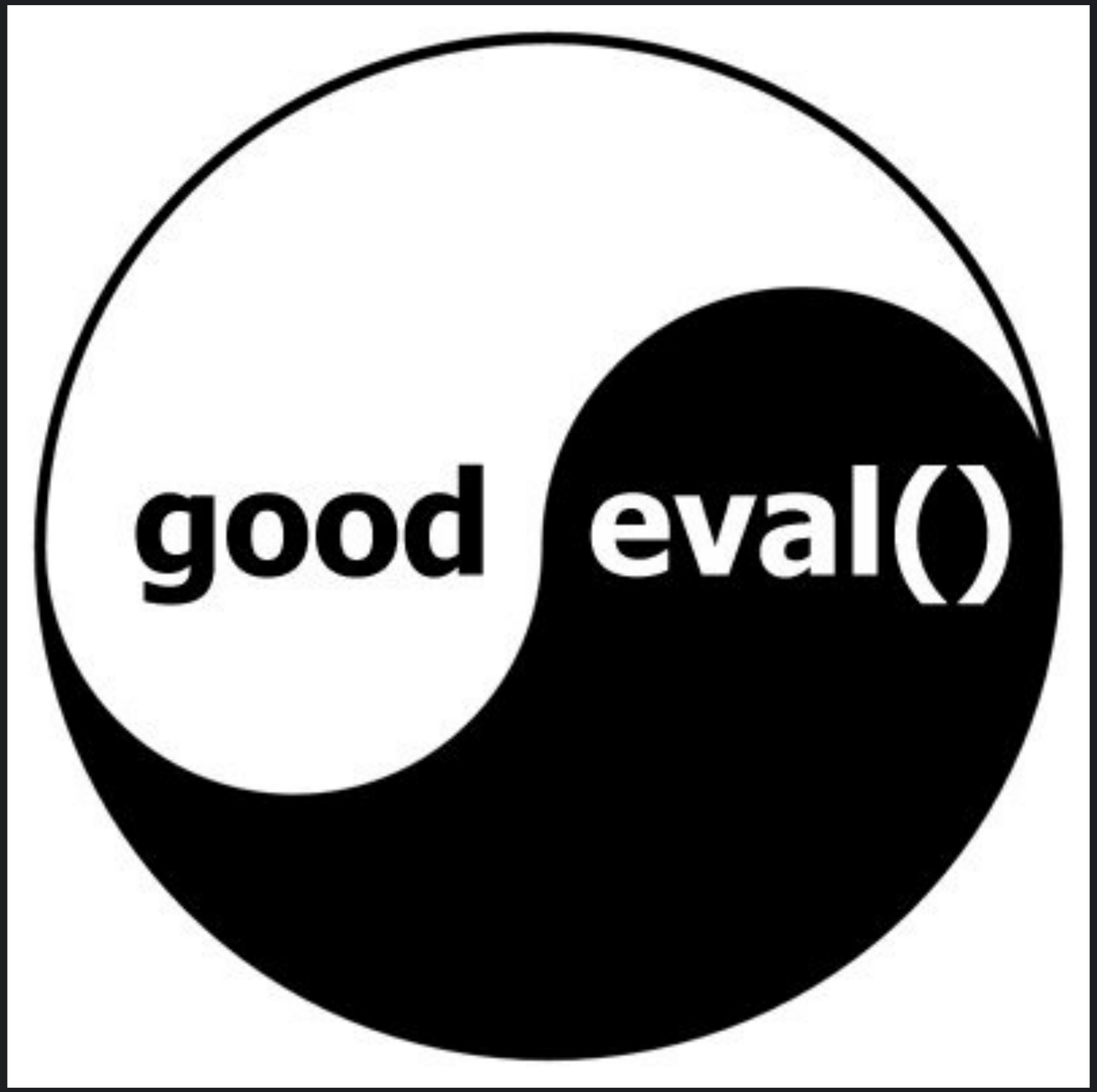

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```
var admin = false

eval('var admin = true')


if (admin) console.log('user is admin')
else console.log('user is NOT admin')
```

```
var admin = false

eval('var admin = true')


if (admin) console.log('user is admin')
else console.log('user is NOT admin')
```

```
$ node example.js
user is admin
```

```
var admin = false

var fn = new Function('var admin = true')
fn()

if (admin) console.log('user is admin')
else console.log('user is NOT admin')
```

```
var admin = false

var fn = new Function('var admin = true')
fn()

if (admin) console.log('user is admin')
else console.log('user is NOT admin')
```

```
$ node example.js
user is NOT admin
```

```
var fn = new Function('var admin = true')

console.log(fn.toString())
```

```
var fn = new Function('var admin = true')

console.log(fn.toString())
```

```
$ node example.js
function anonymous() {
var admin = true
}
```

```
var admin = false

var fn = new Function('admin = true')
fn()

if (admin) console.log('user is admin')
else console.log('user is NOT admin')
```

```
var admin = false

var fn = new Function('admin = true')
fn()

if (admin) console.log('user is admin')
else console.log('user is NOT admin')
```

```
$ node example.js
user is NOT admin
```

```
global.admin = false

var fn = new Function('admin = true')
fn()

if (global.admin) console.log('user is admin')
else console.log('user is NOT admin')
```

```
global.admin = false

var fn = new Function('admin = true')
fn()

if (global.admin) console.log('user is admin')
else console.log('user is NOT admin')
```

```
$ node example.js
user is admin
```

Thomas, at least *mention* prototype pollution, so people do not think you have lost your marbles

```
global.admin = f

var fn = new Function('admin = true')
fn()

if (global.admin) console.log('user is admin')
else console.log('user is NOT admin')
```

```
$ node example.js
user is admin
```

```
var src = '\n"Hello World"\n'

var fn = new Function('return (' + src + ')')

console.log(fn())
```

```
var src = '\n"Hello World"\n'

var fn = new Function('return (' + src + ')')

console.log(fn())
```

```
$ node example.js
Hello World
```

```
var src = 'n + 1'

var fn = new Function('n', 'return (' + src + ')')

console.log(fn(1))
```

```
var src = 'n + 1'

var fn = new Function('n', 'return (' + src + ')')

console.log(fn(1))
```

```
$ node example.js
2
```

```
var n = 2
var src = '2 * ' + n

var fn = new Function('return (' + src + ')')

console.log(fn())
```

```
var n = 2
var src = '2 * ' + n

var fn = new Function('return (' + src + ')')

console.log(fn())
```

```
$ node example.js
4
```

```
var n = 'console.log("owned")'
var src = '2 * ' + n

var fn = new Function('return (' + src + ')')

console.log(fn())
```

```
var n = 'console.log("owned")'
var src = '2 * ' + n

var fn = new Function('return (' + src + ')')

console.log(fn())
```

```
$ node example.js
owned
NaN
```

```
var n = 'console.log("owned")'
var src = util.format('2 * %j', n)

var fn = new Function('return (' + src + ')')

console.log(fn())
```

```
var n = 'console.log("owned")'
var src = util.format('2 * %j', n)

var fn = new Function('return (' + src + ')')

console.log(fn())
```

```
$ node example.js
NaN
```

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Regular Expressions

```
var r = new RegExp('foo(bar)?')

r.test('foo')
```

Templates

```
<div class="entry">
  <h1>{{title}}</h1>
  <div class="body">
    {{body}}
  </div>
</div>
```

JSON Schema

```
{
  type: 'object',
  properties: {
    aProperty: {
      type: 'string'
    }
  }
}
```

MongoDB query language

```
{
  foo: {
    $gt: 42,
    $lt: 100
  }
}
```

Let’s write a query language interpreter

Our language

```
{
  $eq: value,
  $gt: value,
  $lt: value,
  $not: {...} // negate this expression
}
```

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github.com /
mafintosh /
generate-object-property

```
var gen = require('generate-object-property')
console.log(gen('a','b')) // => a.b
console.log(gen('a', 'foo-bar')) // => a["foo-bar"]
```

github.com /
mafintosh /
generate-function

```
var genfun = require('generate-function')

var addNumber = function(val) {
  var fn = genfun()
    ('function add(n) {')
      ('return n + %d', val) // supports format strings
    ('}')

  return fn.toFunction() // will compile the function
}

var add2 = addNumber(2)
console.log('1+2=', add2(1))
console.log(add2.toString()) // logs generated function
```


Thank you
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