FUN WITH BLOCKS

FUN WITH BLOCKS

Before we begin.

Blocks

```
say_hello("Hi") do
  "Welcome to Rorosyd"
end
```

```
say_hello("Hi") do
  "Welcome to Rorosyd"
end
```

```
say_hello("Hi") do
  place = "Rorosyd"
  "Welcome to #{place}"
end
```

```
say_hello("Hi") do
  place = "Rorosyd"
  "Welcome to #{place}"
end
```

```
say_hello("Hi") {
   place = "Rorosyd"
   "Welcome to #{place}"
}
```

```
def say_hello(greeting)
  message = greeting
  message << ", " + yield if block_given?
  message
end
```

```
say_hello("Hi") do
  place = "Rorosyd"
  "Welcome to #{place}"
end
# => "Hi, Welcome to Rorosyd"
```

```ruby
def say_hello(greeting)
  message = greeting
  message << ", " + yield if block_given?
  message
end

say_hello("Hi") do
  place = "Rorosyd"
  "Welcome to #{place}"
end
# => "Hi, Welcome to Rorosyd"
```

```ruby
def say_hello(greeting, &block)
  message = greeting
  message << ", " + block.call if block
  message
end

say_hello("Hi") do
  place = "Rorosyd"
  "Welcome to #{place}"
end
# => "Hi, Welcome to Rorosyd"
```

```ruby
def say_hello(greeting, &block)
  message = greeting
  message << ", " + block.call if block
  message
end

say_hello("Hi") do
  place = "Rorosyd"
  "Welcome to #{place}"
end
# => "Hi, Welcome to Rorosyd"
```

```ruby
def say_hello(greeting)
  message = greeting
  message << ". "
  message
end
```

```ruby
say_hello("Hi") do
  place = "Rorosyd"
  "Welcome to #{place}"
end
# => "Hi."
```

```ruby
place = "Rorosyd"

say_hello("Hi") do
  "Welcome to #{place}"
end
# => "Hi, Welcome to Rorosyd"
```

```ruby
def say_hello(greeting, visitors, &block)
  greetings = []
  visitors.each do |name|
    msg = greeting
    msg << ", #{block.call(name)}" if block
    messages << msg
  end
  messages
end
```

```ruby
def say_hello(greeting, visitors, &block)
  ...
    msg << ", #{block.call(name)}" if block
  ...
end

place = "Rorosyd"
say_hello("Hi", ["Kate", "Sam"]) do |visitor|
  "Welcome to #{place}, #{visitor}."
end
# => [ "Welcome to Rorosyd, Kate.",
       "Welcome to Rorosyd, Sam." ]
```

Waitaminute

```ruby
y = 1
[1,2,3].each do |x|
  puts (x + y)
end
```

```
# 2
# 3
# 4
```

Lambdas and Procs

Lambdas

```
adder = lambda do |x,y|
  x + y
end
```

```ruby
adder = lambda do |x,y|
  x + y
end

puts adder.call(1, 2)
# => 3
```

```
adder = -> (x,y) {
  x + y
}
```

```
puts adder.call(1, 2)
# => 3
```

```ruby
adder = lambda do |x,y|
  x + y
end

puts adder.call(1, 2)
# => 3
```

```ruby
z = 0
adder = lambda do |x,y|
  x + y + z
end
```

```ruby
puts adder.call(1, 2)
# => 3
```

```ruby
adder = lambda do |x,y|
  if x == 0 && y == 0
    return 0
  end
  x + y
end

puts adder.call(1, 2)
# => 3
```

```
adder = -> (x,y) {
  x + y
}


puts adder.call(1,2)
# => 3
```

```
class Adder
  def call(x,y)
    x + y
  end
end

adder = Adder.new
puts adder.call(1,2)
# => 3
```

```
works  = -> (data) do
  puts "Fetched #{data}"
end

failed = -> (err) do
  puts "Boom: #{err}"
end
```

```
works  = -> (data) do
  puts "Fetched #{data}"
end

failed = -> (err) do
  puts "Boom: #{err}"
end

fetch(url, works, failed)
# Boom: 404
```

```
make  = "Astra"
year  = "2015"

car = -> (owner, plate) {
  Car.new(
    owner: owner,
    plate: plate,
    brand: brand,
    year:  year,
  )
}
```

```
car = -> (owner, plate) {
  Car.new(...)
}

batch = [
 car.call('Steve', 'NJ99AZ'),
 car.call('Kate', 'LUCKY1'),
 car.call('Sam', 'HTTP404),
]
```

```
car = -> (owner, plate) {
  Car.new(...)
}

owner = "Rob"
my_car = -> (plate) {
  car.call(me, plate)
}

batch = [
  my_car.call('BUG'),
  my_car.call('BANPROCS'),
]
```

```
creator = -> (attrs) {
  Post.with_db(db)
      .create(attrs)
}
```

```
post = creator.call(
  title: "Title",
)
```

```
class PostCreator
 def new(db)
   @db = db
 end
 def call(attrs)
   Post.with_db(@db)
       .create(attrs)
 end
end
```

```
creator = PostCreator.new(db)

post = creator.call(
  title: "Title",
)
```

```
creator = -> (attrs) {
  Post.with_db(db)
      .create(attrs)
}
```

```
post = creator.call(
  title: "Title",
)
```

```
class PostCreator
 def self.call(db, attrs)
  Post.with_db(db)
      .create(attrs)
 end
end

creator = -> (attrs) {
 PostCreator.call(db, attrs)
}
```

```
post = creator.call(
  title: "Title",
)
```

Procs

Procs

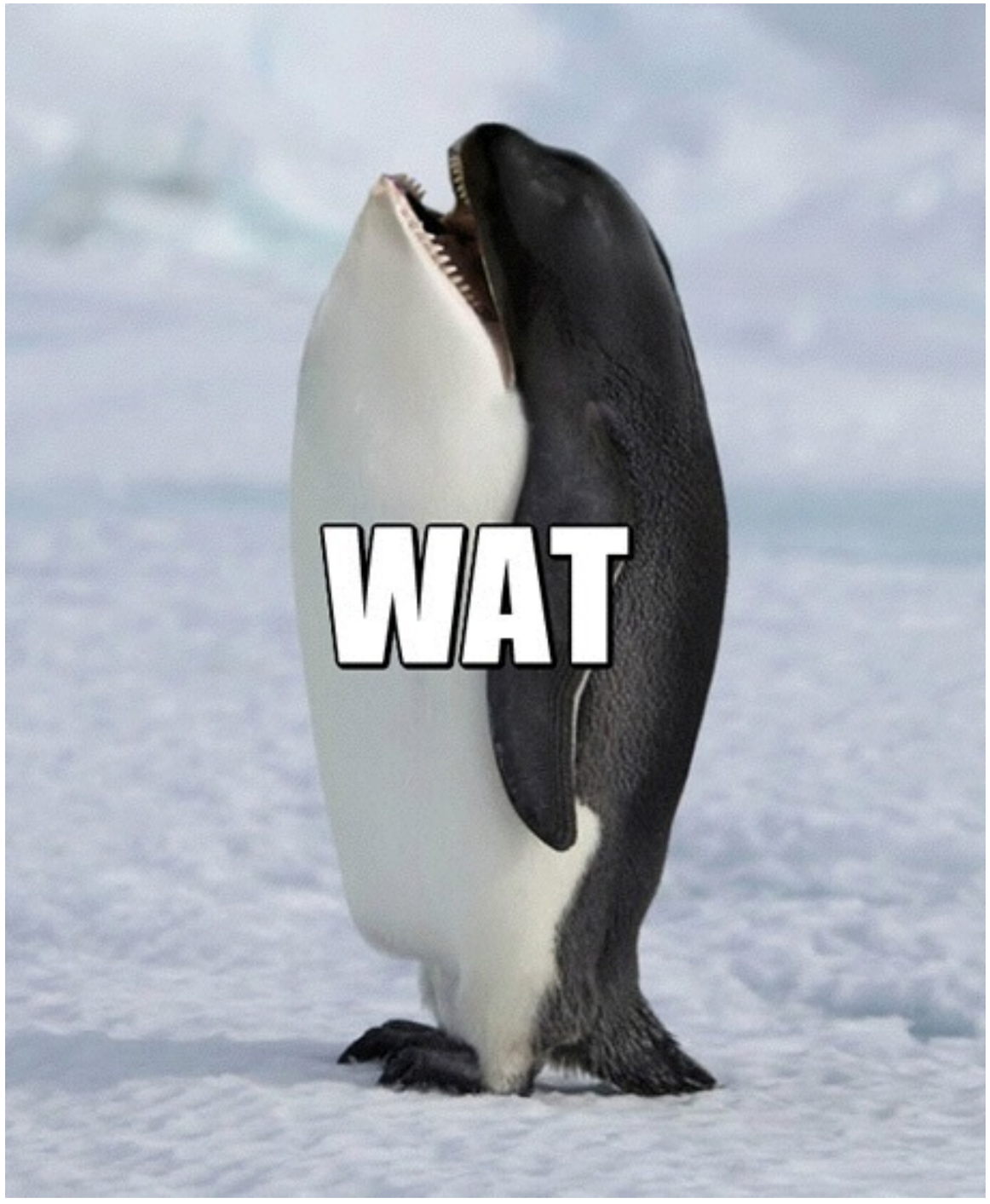
:-(

```ruby
adder = Proc.new do |x,y|
  x + y
end

puts adder.call(1, 2)
# => 3
```

```ruby
adder = proc do |x,y|
  x + y
end

puts adder.call(1, 2)
# => 3
```


WAT

```ruby
adder = proc do |x,y|
  x + y
end

puts adder.call(1, 2, 7)
# => 3
# ...
# What? What about 7?
```

```ruby
adder = proc do |x,y|
  x + y
end

puts adder.call(1)
# Kaboom!
# TypeError: nil can't
# be coerced into Fixnum
```

```
def write_file(file, operation)
  f = File.open(file, 'w')
  result = operation.call(f)
  puts "Done."
  f.close
  result
end
```

```ruby
def write_file(file, operation)
  f = File.open(file, 'w')
  result = operation.call(f)
  puts "Done."
  f.close
  result
end

def save_to_file(file, contents)
  writer = proc do |f|
    return if contents.nil?
    f.write(contents)
  end
  write_file(file, writer)
end
```

```ruby
def write_file(file, operation)
  f = File.open(file, 'w')
  result = operation.call(f)
  puts "Done."
  f.close
  result
end

def save_to_file(file, contents)
  writer = proc do |f|
    return if contents.nil?
    f.write(contents)
  end
  write_file(file, writer)
end

save_to_file('/tmp/foo', 'HI')
# Done.
# => 2
```

```ruby
def write_file(file, operation)
  f = File.open(file, 'w')
  result = operation.call(f)
  puts "Done."
  f.close
  result
end

def save_to_file(file, contents)
  writer = proc do |f|
    return if contents.nil?
    f.write(contents)
  end
  write_file(file, writer)
end

save_to_file('/tmp/foo', nil)
# => nil
```

```ruby
def write_file(file, operation)
  f = File.open(file, 'w')
  result = operation.call(f)
  puts "Done."
  f.close
  result
end

def save_to_file(file, contents)
  writer = proc do |f|
    return if contents.nil?
    f.write(contents)
  end
  write_file(file, writer)
end

save_to_file('/tmp/foo', nil)
# => nil
```

```ruby
def write_file(file, &operation)
  f = File.open(file, 'w')
  result = operation.call(f)
  puts "Done."
  f.close
  result
end

def save_to_file(file, contents)
  write_file(file) do |f|
    return if contents.nil?
    f.write(contents)
  end
end


save_to_file('/tmp/foo', nil)
# => nil
```

```
def write_file(file, &operation)
  f = File.open(file, 'w')
  result = operation.call(f)
  puts "Done."
  f.close
  result
end

def save_to_file(file, contents)
  write_file(file) do |f|
    return if contents.nil?
    f.write(contents)
  end
end

save_to_file('/tmp/foo', nil)
# => nil
```

Blocks given to methods act like Procs.

&

```ruby
[1,2,3].each do |x|
  puts "Item: #{x}"
end
```

```
# Item: 1
# Item: 2
# Item: 3
```

```ruby
output = proc do |x|
  puts "Item: #{x}"
end

[1,2,3].each(&output)
```

```
# Item: 1
# Item: 2
# Item: 3
```

Backflip

```ruby
posts = Post.all
posts.map do |post|
  post.title
end

# => [
#   "Procs are Fun",
#   "Procs ain't Fun",
# ]
```

```ruby
posts = Post.all
posts.map(&:title)

# => [
#   "Procs are Fun",
#   "Procs ain't Fun",
# ]
```

```ruby
posts = Post.all
posts.map(&:title)

# => [
#   "Procs are Fun",
#   "Procs ain't Fun"
# ]
```

&:title

```
    &:title
=> :title.to_proc
```

```
    &:title
=> :title.to_proc
=> proc {|x| x.send(:title) }
```

```
    &:title
=> :title.to_proc
=> proc {|x| x.send(:title) }
```

Which makes our original call:

```
posts.map(&(
 proc{|x| x.send(:title)}
))
```

```ruby
posts = Post.all
posts.map(&:title)

# => [
#   "Procs are Fun",
#   "Procs ain't Fun",
# ]
```

Summing up.

Summing up.

- Blocks are bits of syntax.
- Lambdas and Procs are captured blocks.
- Lambdas can be good "shortcuts" or callbacks; "anonymous functions" in any other language.
- &s let you give blocks back to methods.
- Procs are nuts.
- &:method also nuts.

Fin.

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