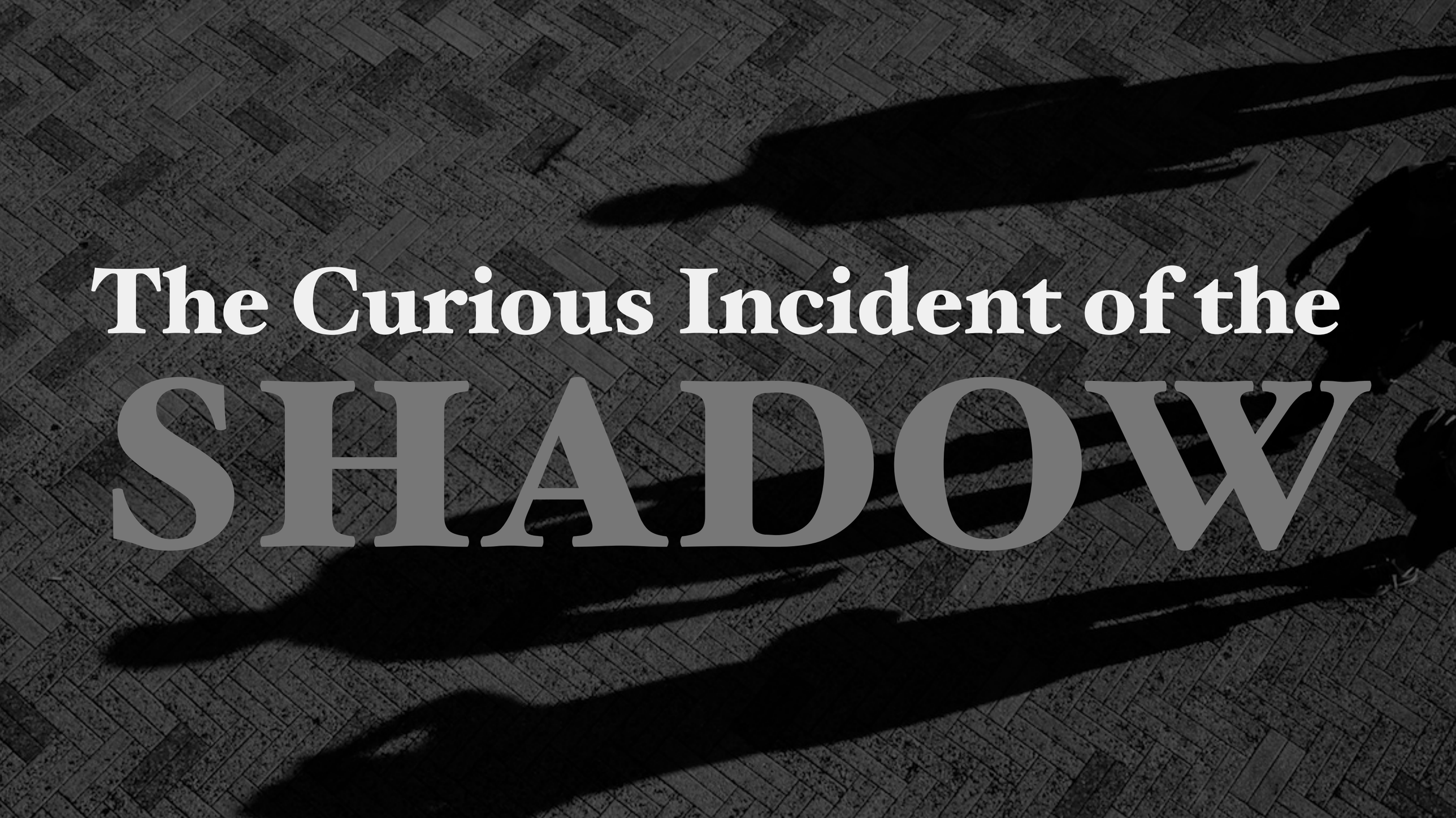

The

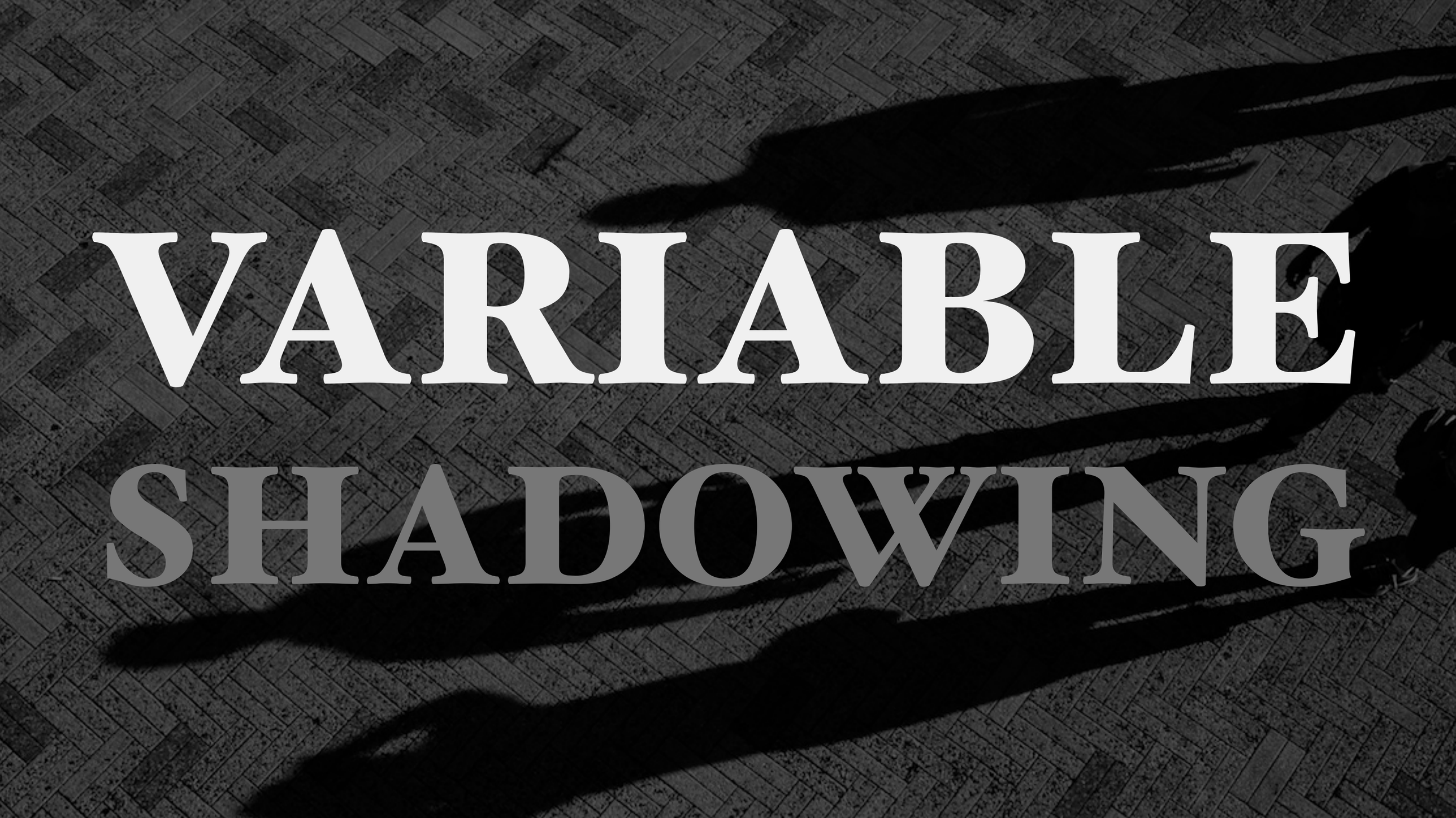

The Curious


The Curious Incident


The Curious Incident of the
SHADOW


The Curious Incident of the
SHADOW
in the Run-Time


SHADOW


VARIABLE
SHADOWING

shadow.rb

shadow.rb

```
x = 42
```

shadow.rb

```
x = 42
3.times { |x| puts "x is #{x}" }
```

shadow.rb

```
x = 42
3.times { |x| puts "x is #{x}" }
```

```
$ ruby shadow.rb
x is 0
x is 1
x is 2
```

shadow.rb

```
x = 42
3.times { |x| puts "x is #{x}" }
```

```
$ ruby shadow.rb
x is 42
x is 42
x is 42
```

shadow.rb

```
x = 42
3.times { |x| puts "x is #{x}" }
```

```
$ ruby shadow.rb
x is 0
x is 1
x is 2
```

DOES RUBY CARE ABOUT SHADOWING?

shadow.rb

```
x = 42
3.times { |x| puts "x is #{x}" }
```

shadow.rb

```
x = 42
3.times { |x| puts "x is #{x}" }
```

```
$ ruby -w shadow.rb
```

shadow.rb

```
x = 42
3.times { |x| puts "x is #{x}" }
```

```
$ ruby -w shadow.rb
shadow.rb:2: warning: shadowing outer local variable - x
shadow.rb:1: warning: assigned but unused variable - x
x is 0
x is 1
x is 2
```

BUT WHY THOUGH?

shadow.rb

```
x = 42
3.times { |x| puts "x is #{x}" }
```

shadow.rb

```
x = 42
3.times do |x|
  puts(
    "Local x is #{x} and "\
    "outer x is #{'What goes here??'}"
  )
end
```

shadow.rb

```
y = 42
3.times { |x| puts "x is #{x} and y is #{y}" }
```

shadow.rb

```
y = 42
3.times { |x| puts "x is #{x} and y is #{y}" }
```

```
$ ruby -w shadow.rb
x is 0 and y is 42
x is 1 and y is 42
x is 2 and y is 42
```

"[Matz] thinks that shadowing by itself is a bad habit and should be discouraged."

— Shouhei Urabe, quoting Matz

RuboCop

ShadowingOuterLocalVariable


INSTANCE METHOD
SHADOWING

"In Ruby, *local variable* **names** and *method* **names** are nearly identical."

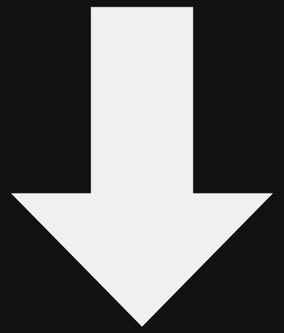
"If you have not assigned to one of these ambiguous **names**, Ruby will *assume you wish to call a method*."

"Once you have assigned to the **name**, Ruby will *assume* you wish to reference a *local variable*."

"The local variable is created *when the parser encounters the assignment*, not when the assignment occurs."

— *Local Variables and Methods Assignment section of Ruby's syntax documentation*

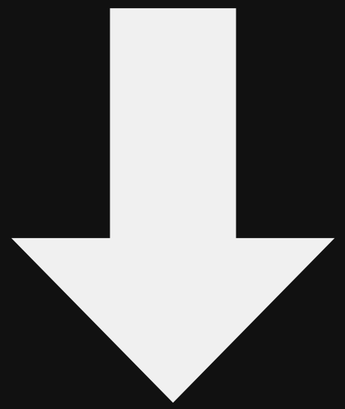
TOP



BOTTOM

NAMES CAN CHANGE

METHOD



VARIABLE

person.rb

```ruby
class Person



end
```

```ruby
class Person


  def initialize(name = nil)
    @name = name
  end




end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end



end
```

```ruby
class Person
  def name
    @name
  end

  def name=(new_name)
    @name = new_name
  end

  def initialize(name = nil)
    @name = name
  end

end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end



end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```
$ irb
irb(main):001:0> require "./person.rb"
true
irb(main):002:0>
```

```
$ irb
irb(main):001:0> require "./person.rb"
true
irb(main):002:0> Person.new("Matz").say_name
```

```
$ irb
irb(main):001:0> require "./person.rb"
true
irb(main):002:0> Person.new("Matz").say_name
My name is nil
nil
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```
$ irb
irb(main):001:0> require "./person.rb"
true
irb(main):002:0> Person.new("Matz").say_name
My name is nil
nil
irb(main):003:0>
```

```
$ irb
irb(main):001:0> require "./person.rb"
true
irb(main):002:0> Person.new("Matz").say_name
My name is nil
nil
irb(main):003:0> Person.new.say_name
```

```
$ irb
irb(main):001:0> require "./person.rb"
true
irb(main):002:0> Person.new("Matz").say_name
My name is nil
nil
irb(main):003:0> Person.new.say_name
My name is "Unknown"
nil
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

```ruby
class Person
  attr_accessor :name

  def initialize(name = nil)
    @name = name
  end

  def say_name
    if name.nil?
      name = "Unknown"
    end
    puts "My name is #{name.inspect}"
  end
end
```

GET TO THE CODE

```
irb(main):002:0> Person.new("Matz").say_name
```

```
irb(main):002:0> Person.new("Matz").say_name

From: /person.rb @ line 13 Person#say_name:

    10: def say_name
    11:   binding.pry
    12:
 => 13:   if name.nil?
    14:     name = "Unknown"
    15:   end
    16:
    17:   puts "My name is #{name.inspect}"
    18: end

[1] pry(#<Person>)>
```

```
irb(main):002:0> Person.new("Matz").say_name

From: /person.rb @ line 13 Person#say_name:

    10: def say_name
    11:   binding.pry
    12:
 => 13:   if name.nil?
    14:     name = "Unknown"
    15:   end
    16:
    17:   puts "My name is #{name.inspect}"
    18: end

[1] pry(#<Person>)> name
nil
[2] pry(#<Person>)>
```

ERR... WHAT?

```
irb(main):002:0> Person.new("Matz").say_name

From: /person.rb @ line 13 Person#say_name:

    10: def say_name
    11:   binding.pry
    12:
 => 13:   if name.nil?
    14:     name = "Unknown"
    15:   end
    16:
    17:   puts "My name is #{name.inspect}"
    18: end

[1] pry(#<Person>)> name
nil
[2] pry(#<Person>)>
```

```
[1] pry(#<Person>)> name
nil
[2] pry(#<Person>)> next
```

```
[1] pry(#<Person>)> name
nil
[2] pry(#<Person>)> next

From: /person.rb @ line 17 Person#say_name:

    10: def say_name
    11:   binding.pry
    12:
    13:   if name.nil?
    14:     name = "Unknown"
    15:   end
    16:
 => 17:   puts "My name is #{name.inspect}"
    18: end

[2] pry(#<Person>)>
```

```
[2] pry(#<Person>)> next

From: /person.rb @ line 17 Person#say_name:

    10: def say_name
    11:   binding.pry
    12:
    13:   if name.nil?
    14:     name = "Unknown"
    15:   end
    16:
 => 17:   puts "My name is #{name.inspect}"
    18: end

[2] pry(#<Person>)> name
nil
[3] pry(#<Person>)> exit
My name is nil
```

SPOOKY

SPOOKY QUANTUM

SPOOKY
QUANTUM
RUBY

SPOOKY
QUANTUM
RUBY?

```
irb(main):002:0> Person.new("Matz").say_name

From: /person.rb @ line 13 Person#say_name:

    10: def say_name
    11:   binding.pry
    12:
 => 13:   puts name.inspect
    14:   if name.nil?
    15:     name = "Unknown"
    16:   end
    17:
    18:   puts "My name is #{name.inspect}"
    19: end

[1] pry(#<Person>)>
```

```
irb(main):002:0> Person.new("Matz").say_name

From: /person.rb @ line 13 Person#say_name:

    10: def say_name
    11:   binding.pry
    12:
 => 13:   puts name.inspect
    14:   if name.nil?
    15:     name = "Unknown"
    16:   end
    17:
    18:   puts "My name is #{name.inspect}"
    19: end

[1] pry(#<Person>)> name
nil
```

```
[1] pry(#<Person>)> name
nil
[2] pry(#<Person>)> next
"Matz"

From: /person.rb @ line 14 Person#say_name:

    10: def say_name
    11:   binding.pry
    12:
    13:   puts name.inspect
 => 14:   if name.nil?
    15:     name = "Unknown"
    16:   end
    17:
    18:   puts "My name is #{name.inspect}"
    19: end
```

defined?

```
irb(main):002:0> Person.new("Matz").say_name

From: /person.rb @ line 13 Person#say_name:

    10: def say_name
    11:   binding.pry
    12:
 => 13:   puts defined?(name).inspect
    14:   if name.nil?
    15:     name = "Unknown"
    16:   end
    17:
    18:   puts "My name is #{name.inspect}"
    19: end

[1] pry(#<Person>)>
```

```
irb(main):002:0> Person.new("Matz").say_name

From: /person.rb @ line 13 Person#say_name:

    10: def say_name
    11:   binding.pry
    12:
 => 13:   puts defined?(name).inspect
    14:   if name.nil?
    15:     name = "Unknown"
    16:   end
    17:
    18:   puts "My name is #{name.inspect}"
    19: end

[1] pry(#<Person>)> next
"method"
```

```
irb(main):002:0> Person.new("Matz").say_name

From: /person.rb @ line 13 Person#say_name:

    10: def say_name
    11:   binding.pry
    12:
 => 13:   puts defined?(name).inspect
    14:   if name.nil?
    15:     name = "Unknown"
    16:   end
    17:
    18:   puts "My name is #{name.inspect}"
    19: end

[1] pry(#<Person>)> defined?(name)
"local-variable"
```

```
irb(main):002:0> Person.new("Matz").say_name

From: /person.rb @ line 13 Person#say_name:

    10: def say_name
    11:   binding.pry
    12:
 => 13:   puts defined?(name).inspect
    14:   if name.nil?
    15:     name = "Unknown"
    16:   end
    17:
    18:   puts "My name is #{name.inspect}"
    19: end
```

```
irb(main):002:0> Person.new("Matz").say_name

From: /person.rb @ line 13 Person#say_name:

    10: def say_name
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    12:
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    15:     name = "Unknown"
    16:   end
    17:
    18:   puts "My name is #{name.inspect}"
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```

```
irb(main):002:0> Person.new("Matz").say_name

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    15:     name = "Unknown"
    16:   end
    17:
    18:   puts "My name is #{name.inspect}"
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irb(main):002:0> Person.new("Matz").say_name

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    15:     name = "Unknown"
    16:   end
    17:
    18:   puts "My name is #{name.inspect}"
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irb(main):002:0> Person.new("Matz").say_name

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    11:   binding.pry
    12:
 => 13:   puts defined?(name).inspect
    14:   if name.nil?
    15:     name = "Unknown"
    16:   end
    17:
    18:   puts "My name is #{name.inspect}"
    19: end
```

```
irb(main):002:0> Person.new("Matz").say_name

From: /person.rb @ line 13 Person#say_name:

    10: def say_name
    11:   binding.pry
    12:
 => 13:   puts defined?(name).inspect
    14:   if name.nil?
    15:     name = "Unknown"
    16:   end
    17:
    18:   puts "My name is #{name.inspect}"
    19: end
```

DON'T

DON'T

SHADOW


DON'T
SHADOW

```ruby
def say_name
  if name.nil?
    self.name = "Unknown"
  end
  puts "My name is #{name.inspect}"
end
```

```ruby
def say_name
  name = self.name || "Unknown"
  puts "My name is #{name.inspect}"
end
```

```ruby
def say_name
  name = self.name || "Unknown"
  puts "My name is #{name.inspect}"
end

def say_name
  name = name() || "Unknown"
  puts "My name is #{name.inspect}"
end
```

THANKS!

@paulfioravanti