61A Lecture 9

Friday, September 19

Announcements

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- Optional Hog strategy contest ends Wednesday 10/1 @ 11:59pm

Abstraction

Functional Abstractions

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If the name "square" were bound to a built-in function, sum_squares would still work identically.

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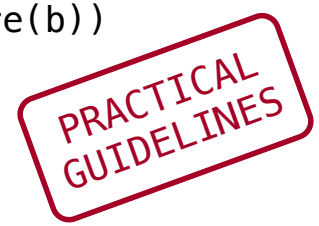

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Testing

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(Demo)

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@trace1
def triple(x):
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Function Decorators

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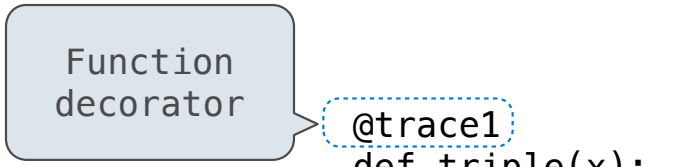


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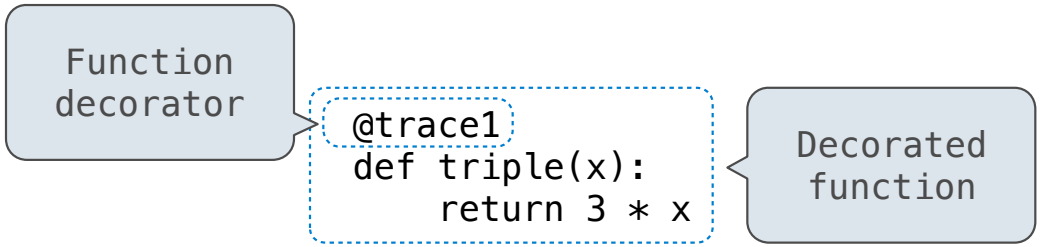

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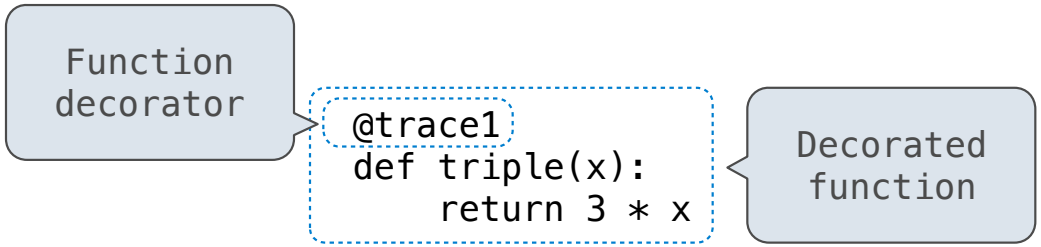

is identical to

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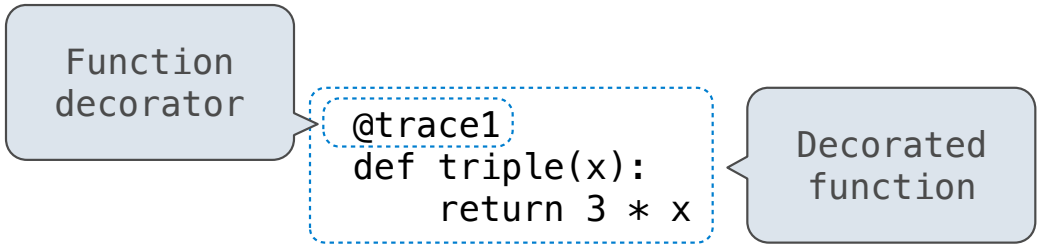

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def triple(x):
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triple = trace1(triple)
```

Function Decorators

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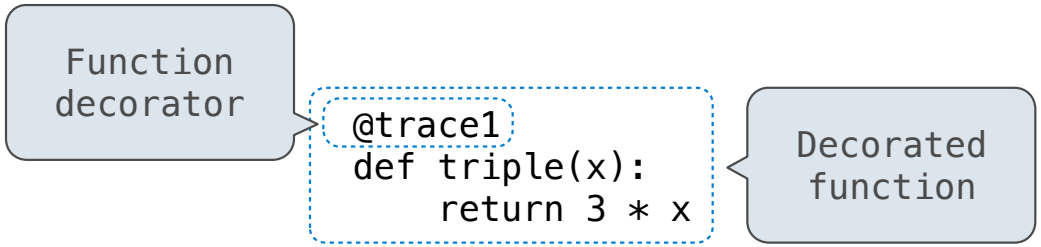

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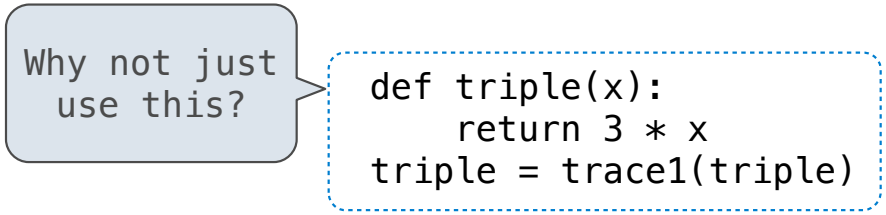

Review

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`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5`

None

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`

`None`

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`

`None`

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

`delay(delay)()(6)()`

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`

`print(print(5))` → `None`

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

`delay(delay)()(6)()`

Names in nested def statements can refer to their enclosing scope

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`
`delay(delay)()(6)()`		

`print(5)` → None

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`
`delay(delay)()(6)()`		

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`
`delay(delay)()(6)()`		

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`
`delay(delay)()(6)()`		

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`
`delay(delay)()(6)()`		

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`
`delay(delay)()(6)()`		`delayed`

None

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`
`delay(delay)()(6)()`		`delayed` `delayed`

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`

`delay(delay)()(6)()`		`delayed`
		`delayed`
		`6`

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`

`delay(delay)()(6)()`	`6`	`delayed`
		`delayed`
		`6`

None

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`

`delay(delay)()(6)()`	`6`	`delayed`
		`delayed`
		`6`

`print(delay(print)()(4))`		

None

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`

`delay(delay)()(6)()`	`6`	`delayed`
		`delayed`
		`6`

`print(delay(print)()(4))`		`delayed`

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`

`delay(delay)()(6)()`	`6`	`delayed`
		`delayed`
		`6`

`print(delay(print)()(4))`		`delayed` `4`

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`

`delay(delay)()(6)()`	`6`	`delayed`
		`delayed`
		`6`

`print(delay(print)()(4))`		`delayed`
		`4`
		`None`

None

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that takes any argument and returns a function that returns that arg

```
def delay(arg):
    print('delayed')
    def g():
        return arg
    return g
```

Names in nested def statements can refer to their enclosing scope

This expression	Evaluates to	Interactive Output
`5`	`5`	`5`
`print(5)`	`None`	`5`
`print(print(5))`	`None`	`5` `None`

`delay(delay)()(6)()`	`6`	`delayed`
		`delayed`
		`6`

`print(delay(print)()(4))`	`None`	`delayed`
		`4`
		`None`

None

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

This expression	Evaluates to	Interactive Output

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

This expression	Evaluates to	Interactive Output

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)`		

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)`		

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that always returns the identity function

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)`		

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that always returns the identity function

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)`		

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)

def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

A function that always returns the identity function

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)`		Matey 17

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)

def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

A function that always returns the identity function

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)`		Matey 17

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)

def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

A function that always returns the identity function

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)`		Matey 17

func square(x)

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that always returns the identity function

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)`		Matey 17
`pirate(3)`	*func square(x)*	

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that always returns the identity function

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)`		Matey 17
`pirate(3)(square)`	*func square(x)*	
`pirate(3)(square)(4)`	*16*	

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that always returns the identity function

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)`	17	Matey 17

func square(x)

16

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that always returns the identity function

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)`	17	Matey 17
`pirate(pirate(pirate))(5)(7)`		

func square(x)

16

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that always returns the identity function

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)`	17	Matey 17
`pirate(pirate(pirate))(5)(7)`		

func square(x)

16

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that always returns the identity function

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)`	17	Matey 17
`pirate(pirate(pirate))(5)(7)`		

func square(x)

16

Identity function

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that always returns the identity function

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)` *func square(x)* *16*	17	Matey 17
`pirate(pirate(pirate))(5)(7)` *Identity function*		Matey Matey Error

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that always returns the identity function

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)` *func square(x)* *16*	17	Matey 17
`pirate(pirate(pirate))(5)(7)` *Identity function*		Matey Matey Error

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that always returns the identity function

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)` *func square(x)* *16*	17	Matey 17
`pirate(pirate(pirate))(5)(7)` *Identity function* *5*		Matey Matey Error

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

What Would Python Print?

The print function returns None. It also displays its arguments (separated by spaces) when it is called.

```
from operator import add, mul
def square(x):
    return mul(x, x)
```

A function that always returns the identity function

```
def pirate(arggg):
    print('matey')
    def plunder(arggg):
        return arggg
    return plunder
```

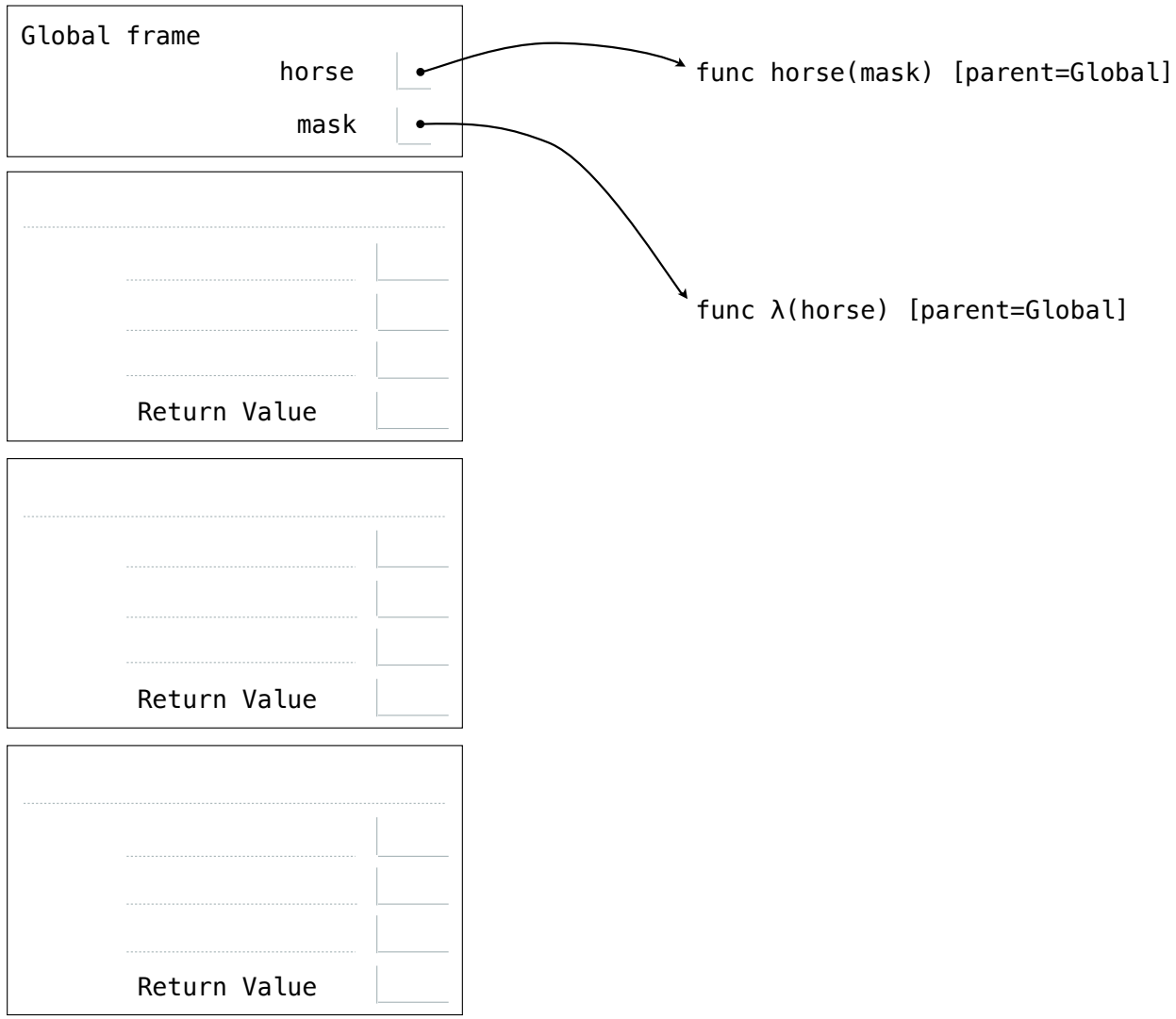
This expression	Evaluates to	Interactive Output
`add(pirate(3)(square)(4), 1)` *func square(x)* *16*	17	Matey 17
`pirate(pirate(pirate))(5)(7)` *Identity function* *5*	Error	Matey Matey Error

A name evaluates to the value bound to that name in the earliest frame of the current environment in which that name is found.

```
def horse(mask):
    horse = mask
    def mask(horse):
        return horse
    return horse(mask)

mask = lambda horse: horse(2)

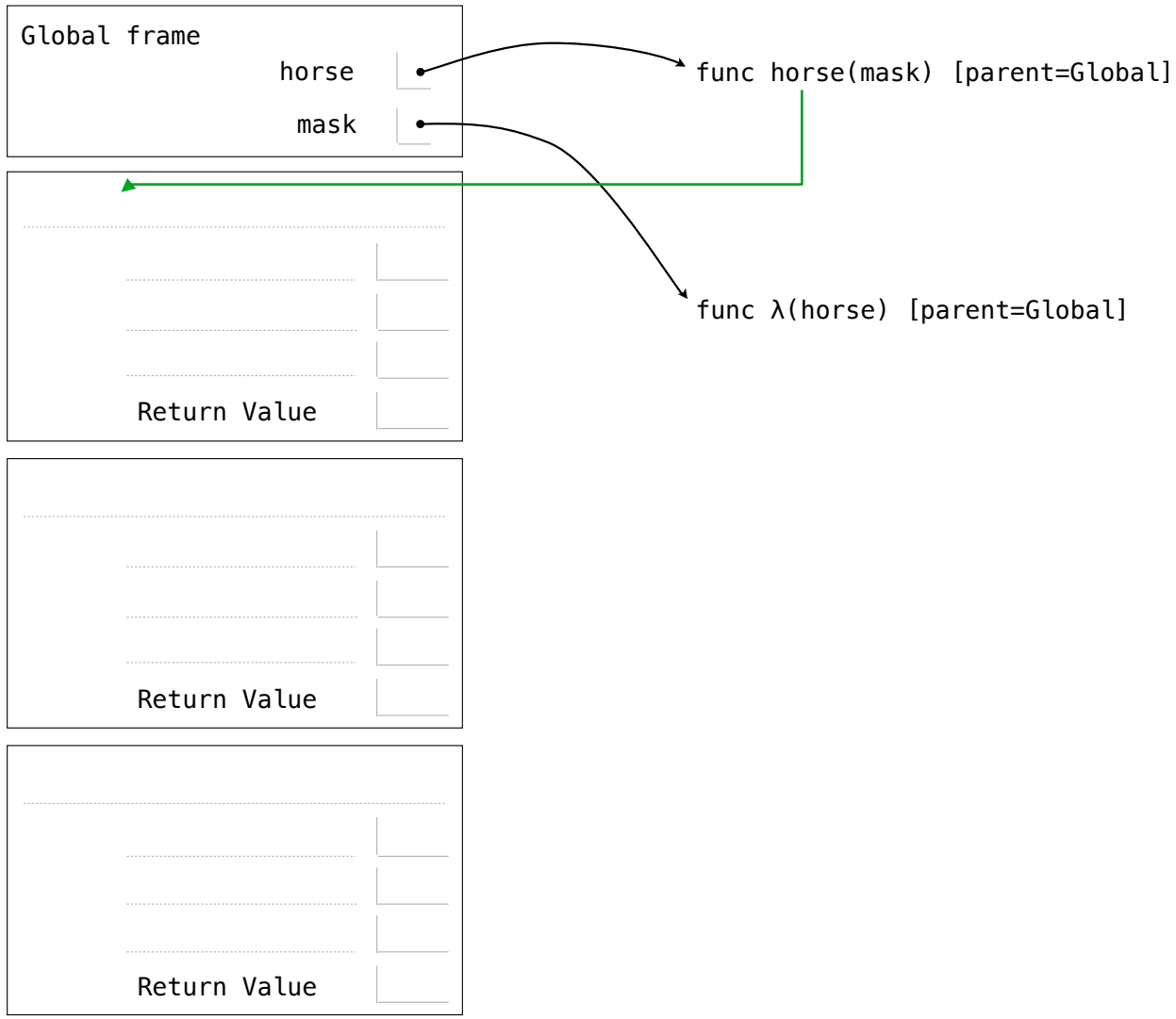
horse(mask)
```



```
def horse(mask):
    horse = mask
    def mask(horse):
        return horse
    return horse(mask)

mask = lambda horse: horse(2)

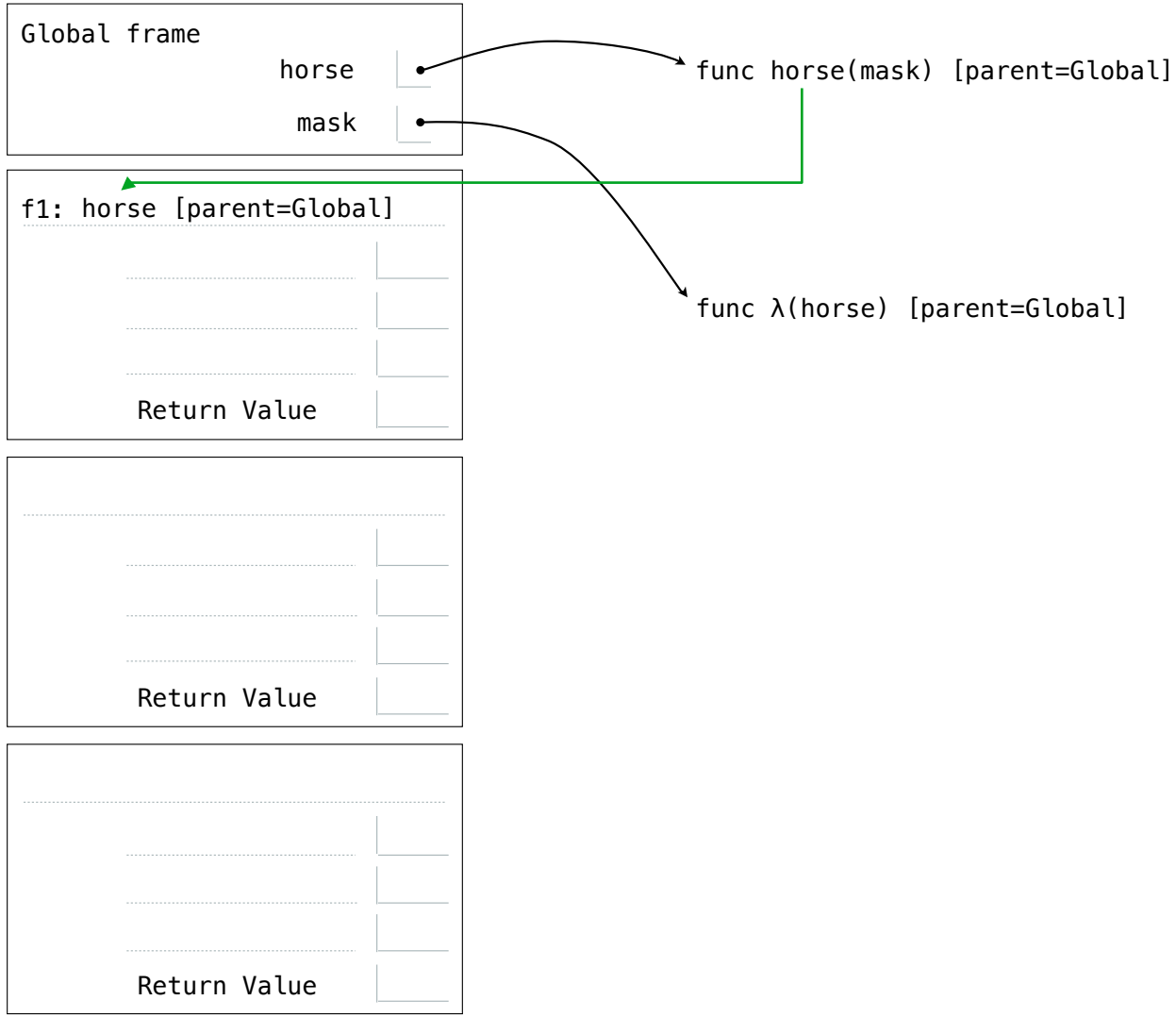
horse(mask)
```



```
def horse(mask):
    horse = mask
    def mask(horse):
        return horse
    return horse(mask)

mask = lambda horse: horse(2)

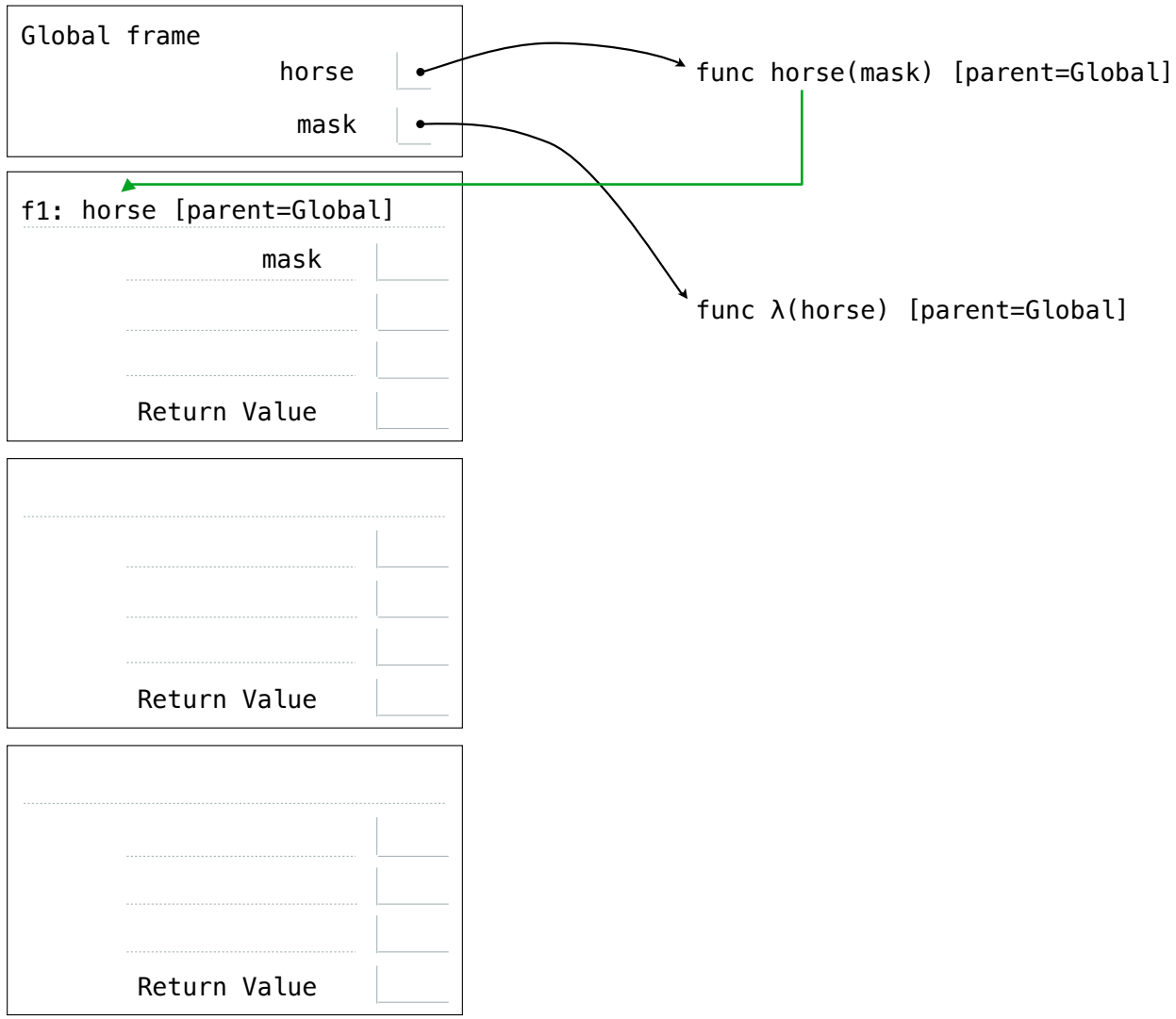
horse(mask)
```



```
def horse(mask):
    horse = mask
    def mask(horse):
        return horse
    return horse(mask)

mask = lambda horse: horse(2)

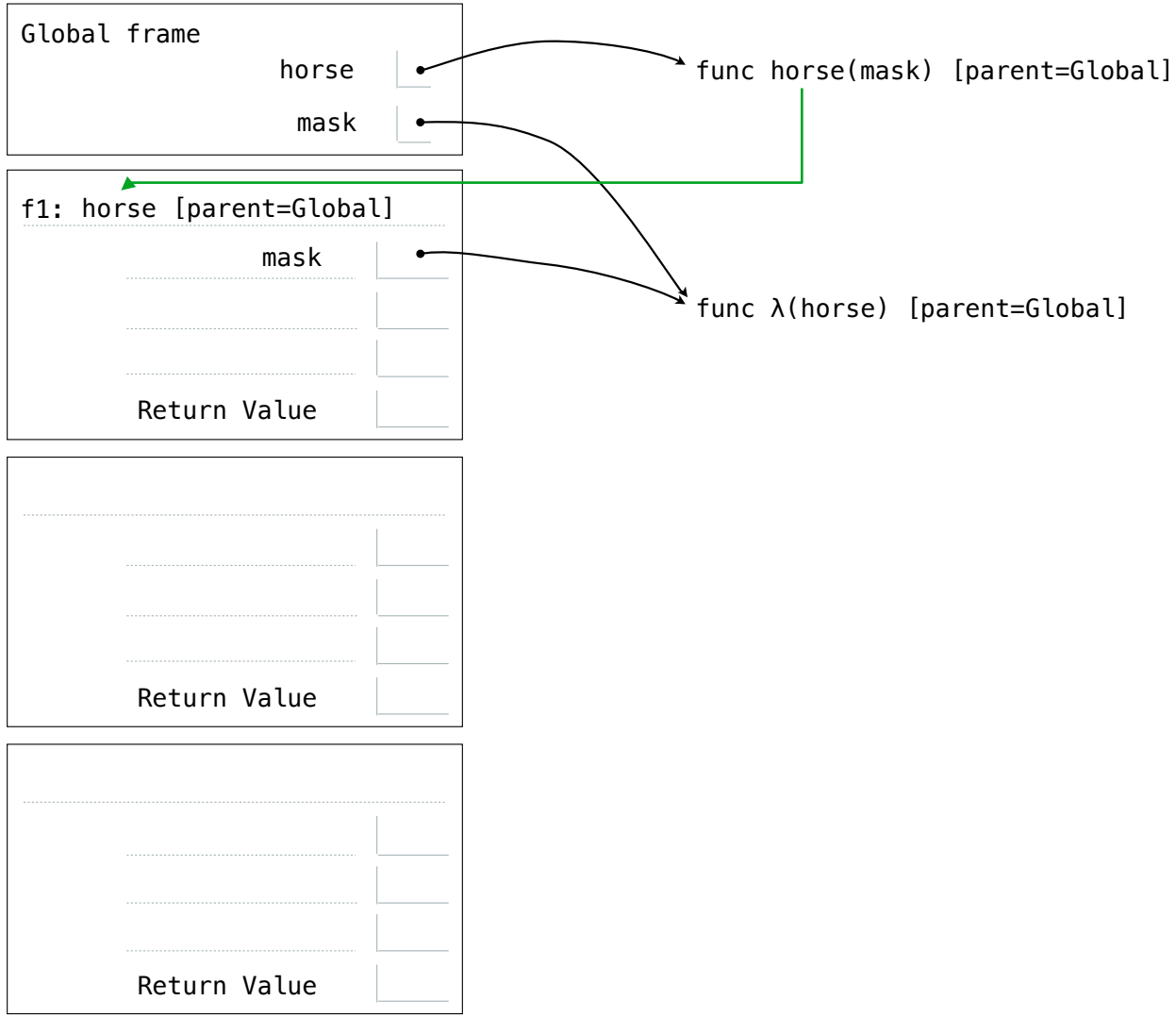
horse(mask)
```



```
def horse(mask):
    horse = mask
    def mask(horse):
        return horse
    return horse(mask)

mask = lambda horse: horse(2)

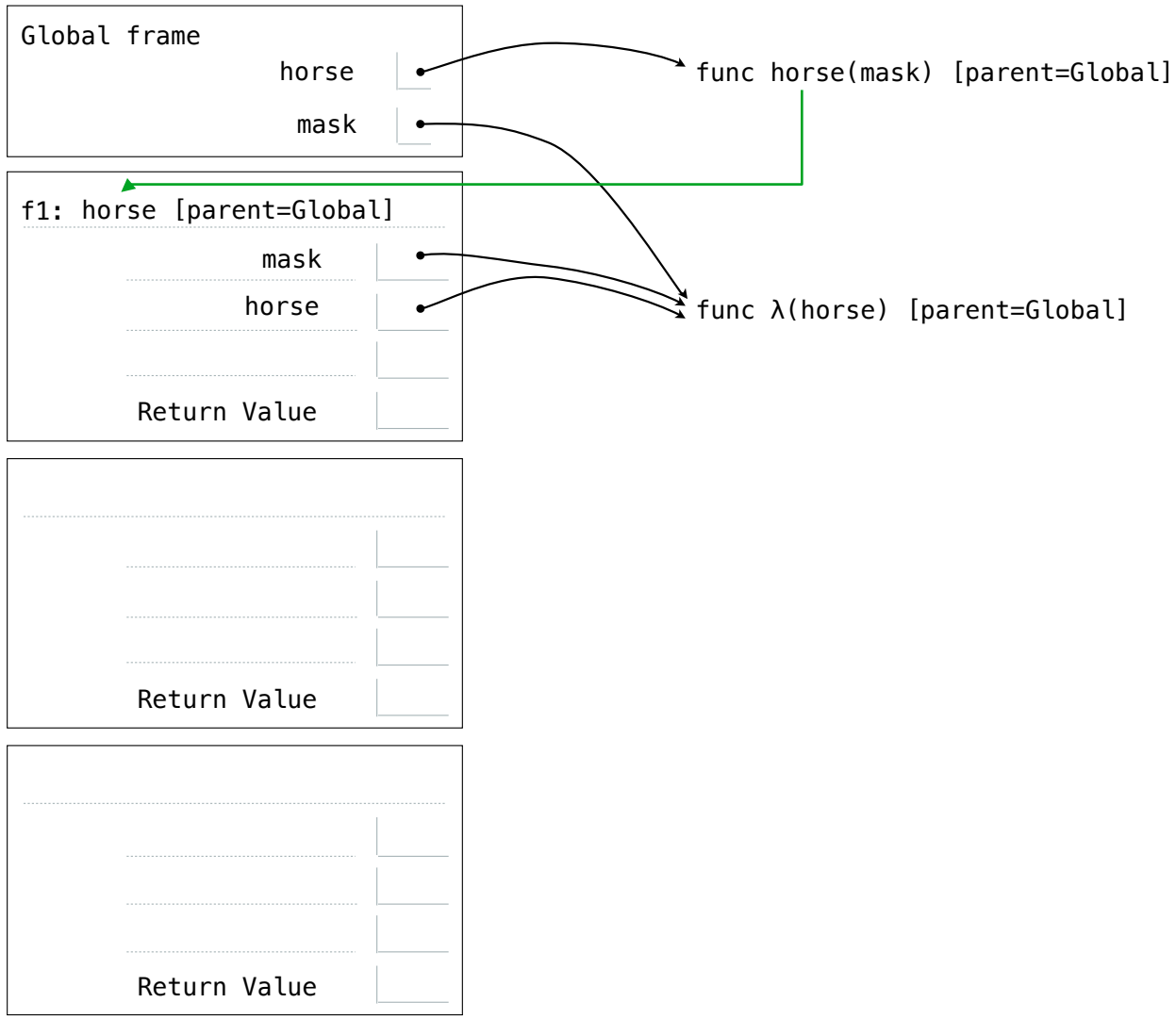
horse(mask)
```



```
def horse(mask):
    horse = mask
    def mask(horse):
        return horse
    return horse(mask)

mask = lambda horse: horse(2)

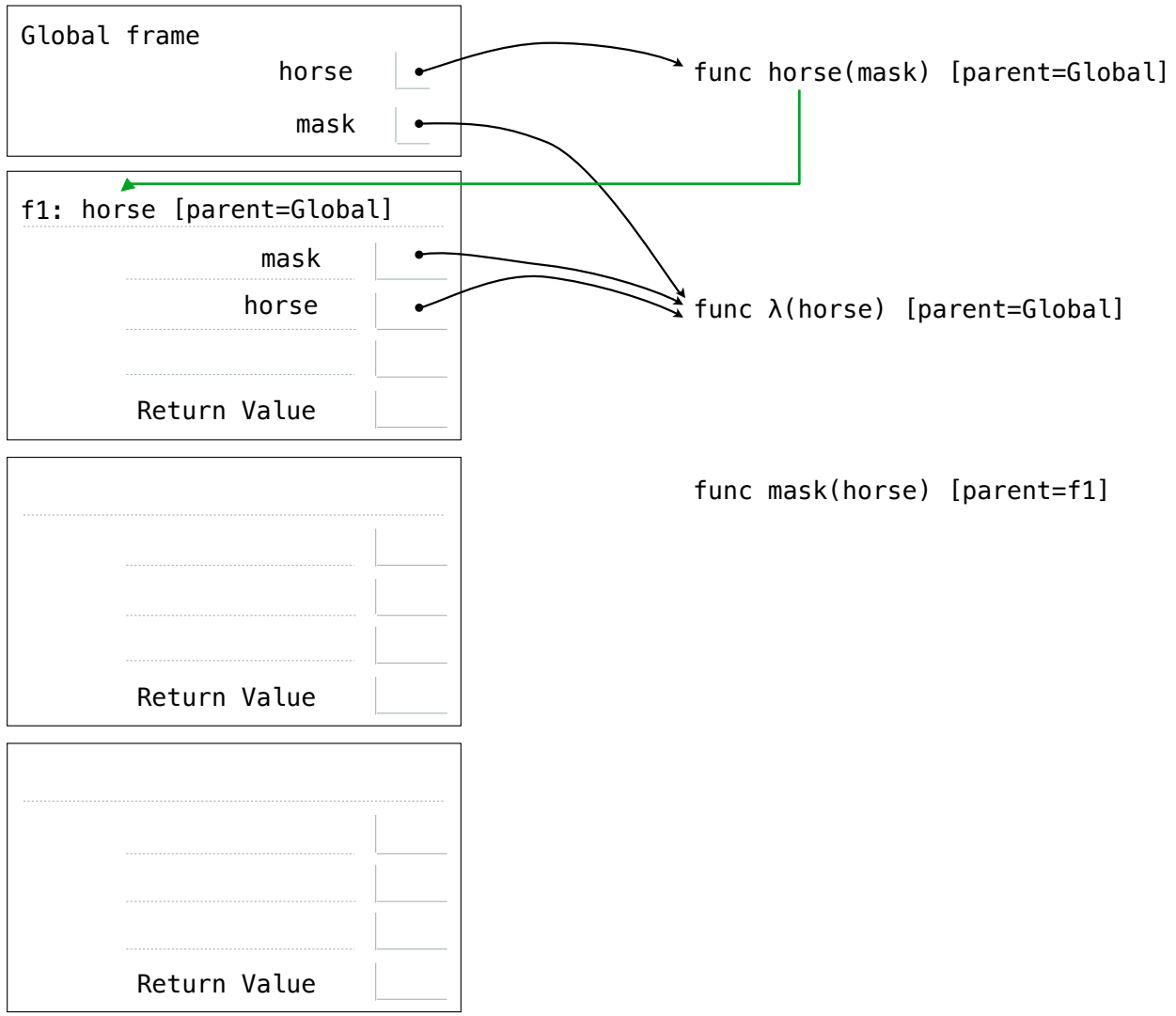
horse(mask)
```



```
def horse(mask):
    horse = mask
    def mask(horse):
        return horse
    return horse(mask)

mask = lambda horse: horse(2)

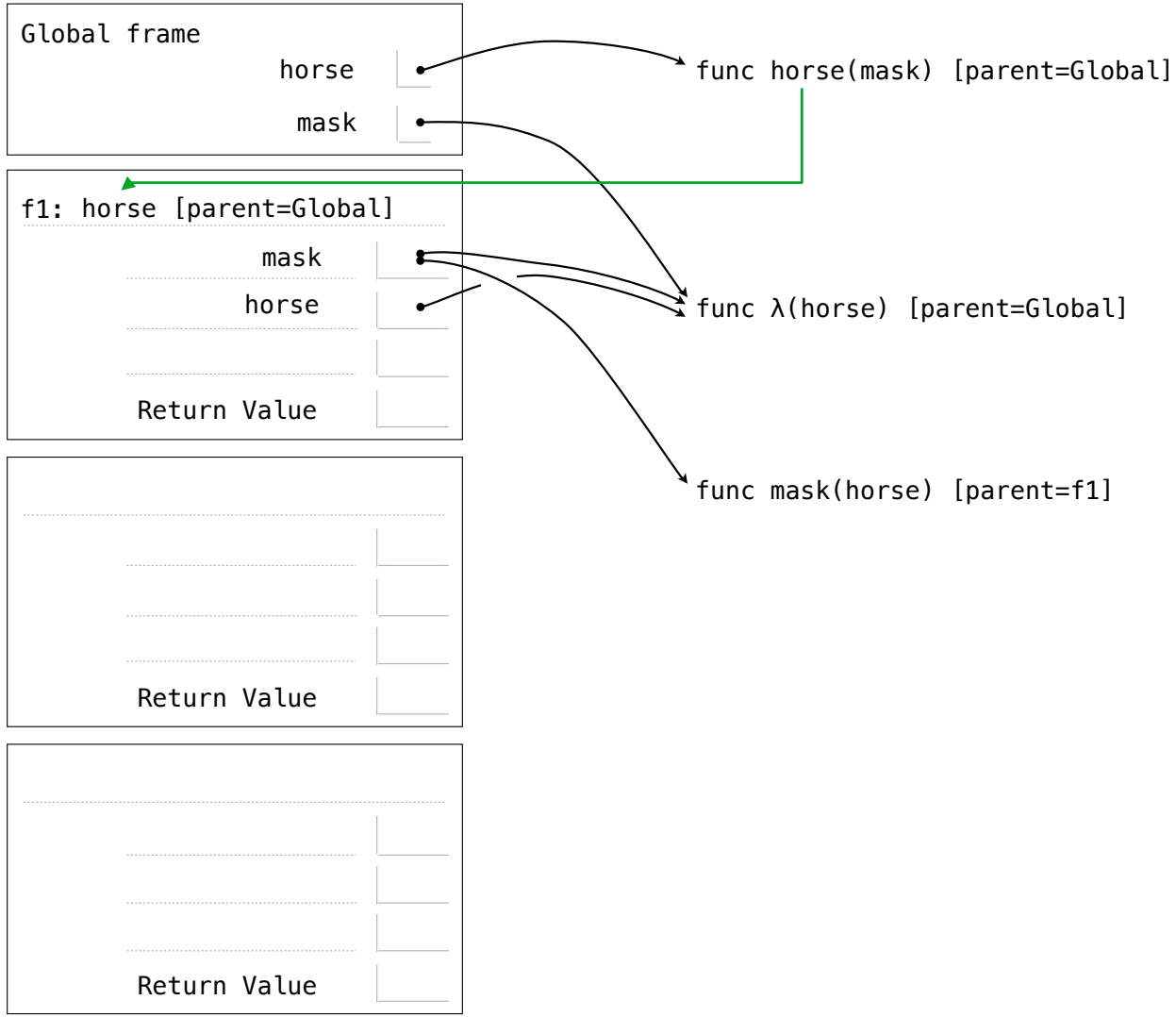
horse(mask)
```



```
def horse(mask):
    horse = mask
    def mask(horse):
        return horse
    return horse(mask)

mask = lambda horse: horse(2)

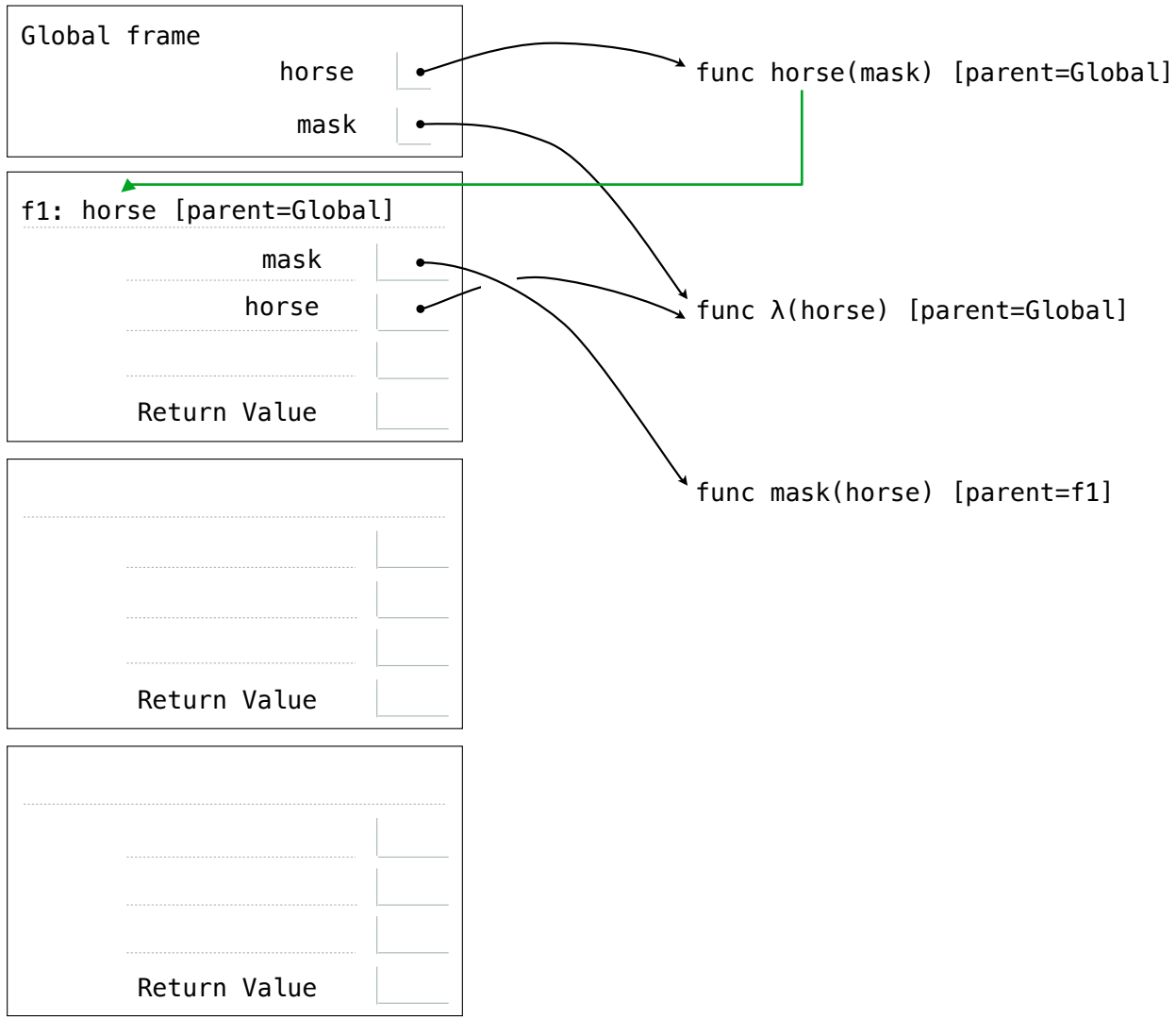
horse(mask)
```



```
def horse(mask):
    horse = mask
    def mask(horse):
        return horse
    return horse(mask)

mask = lambda horse: horse(2)

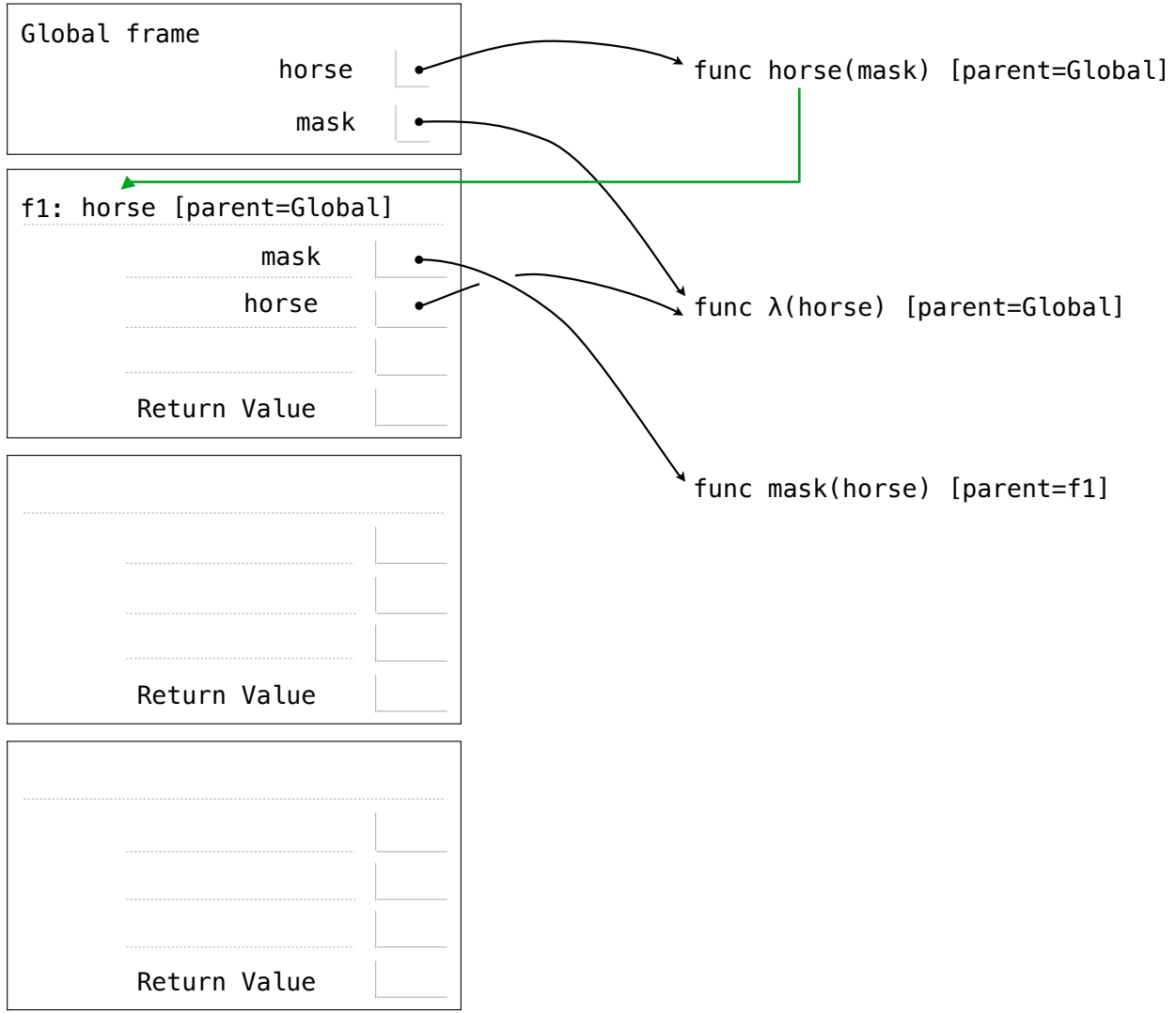
horse(mask)
```



```
def horse(mask):
    horse = mask
    def mask(horse):
        return horse
    return horse(mask)

mask = lambda horse: horse(2)

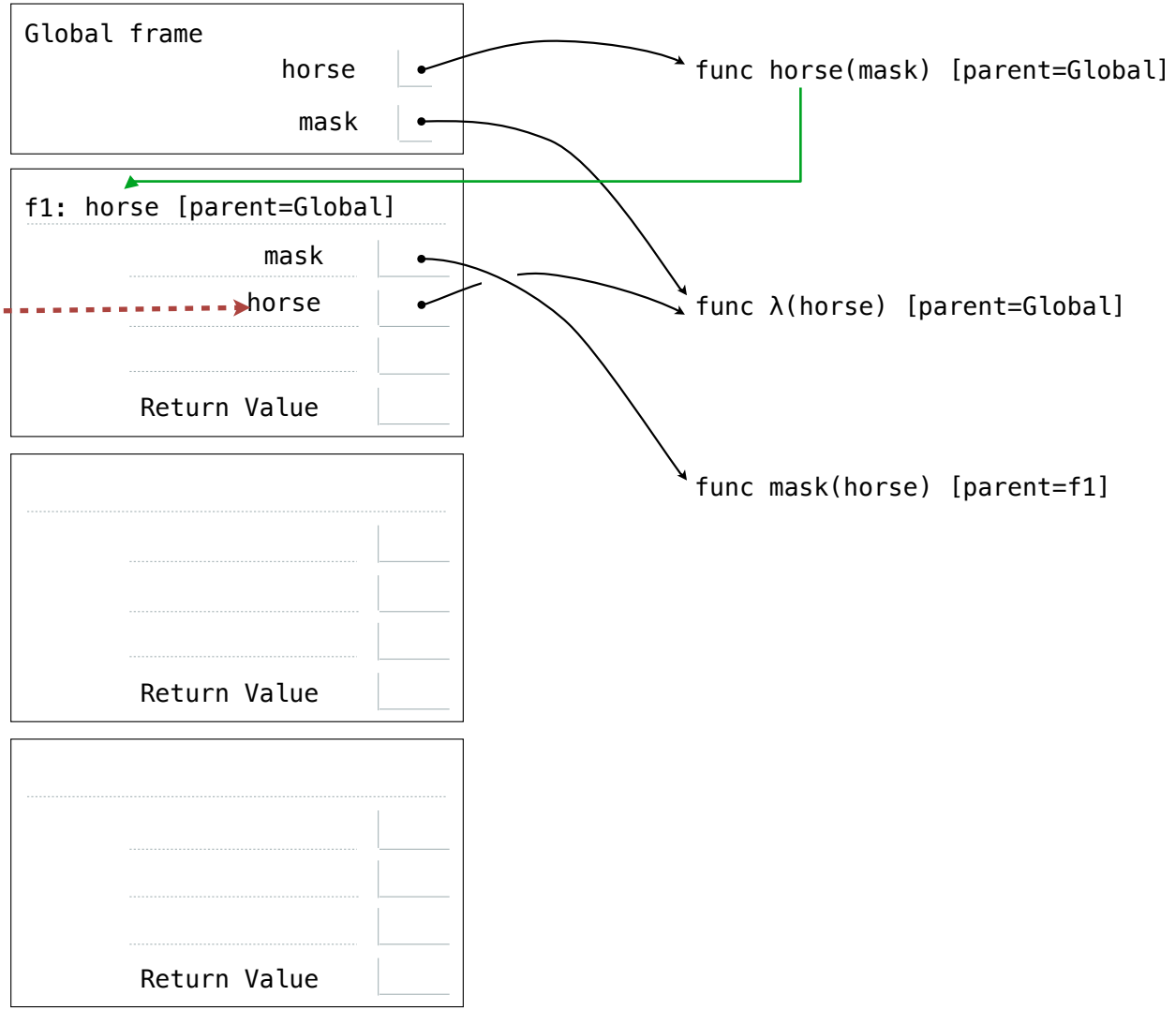
horse(mask)
```

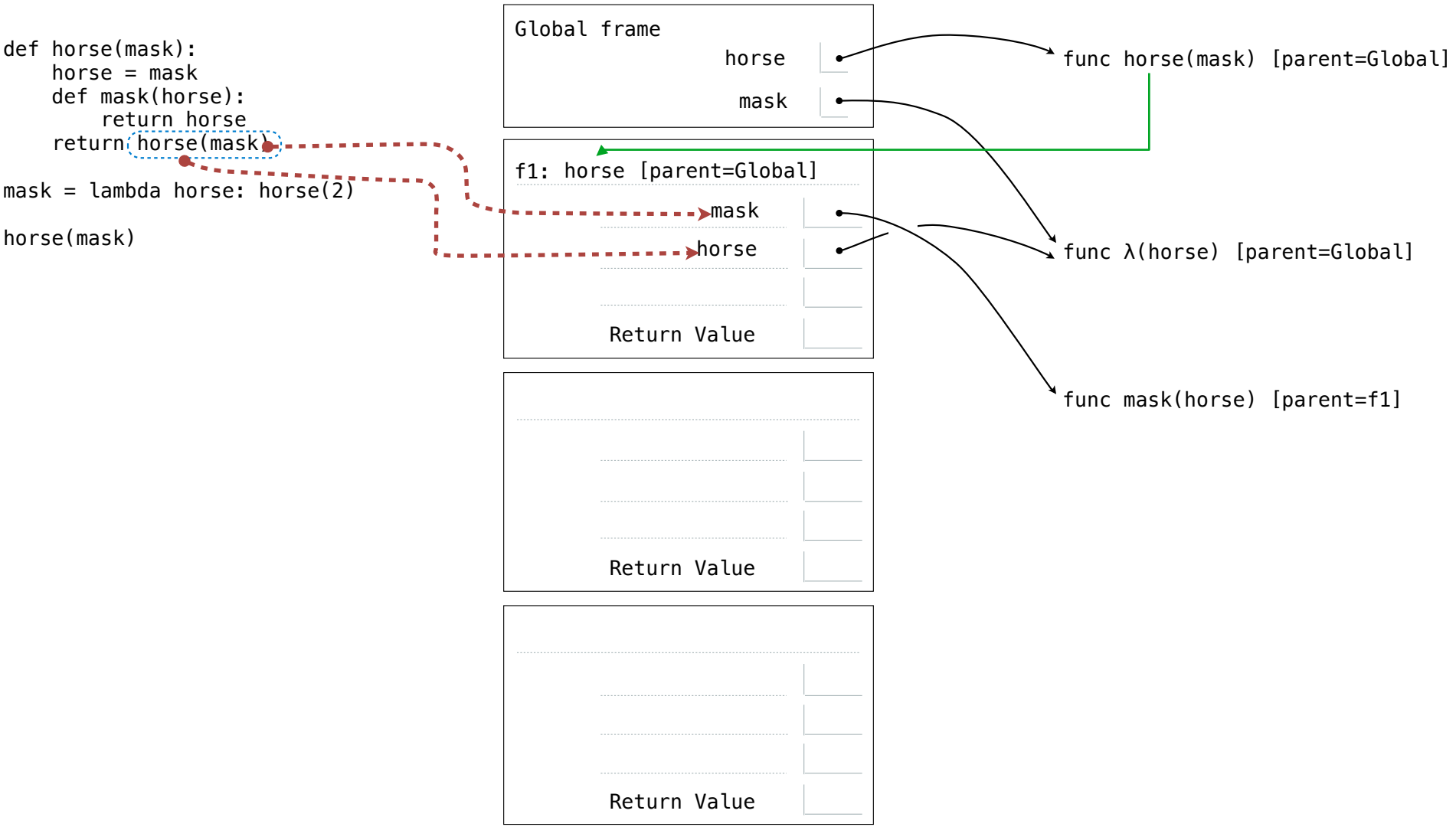


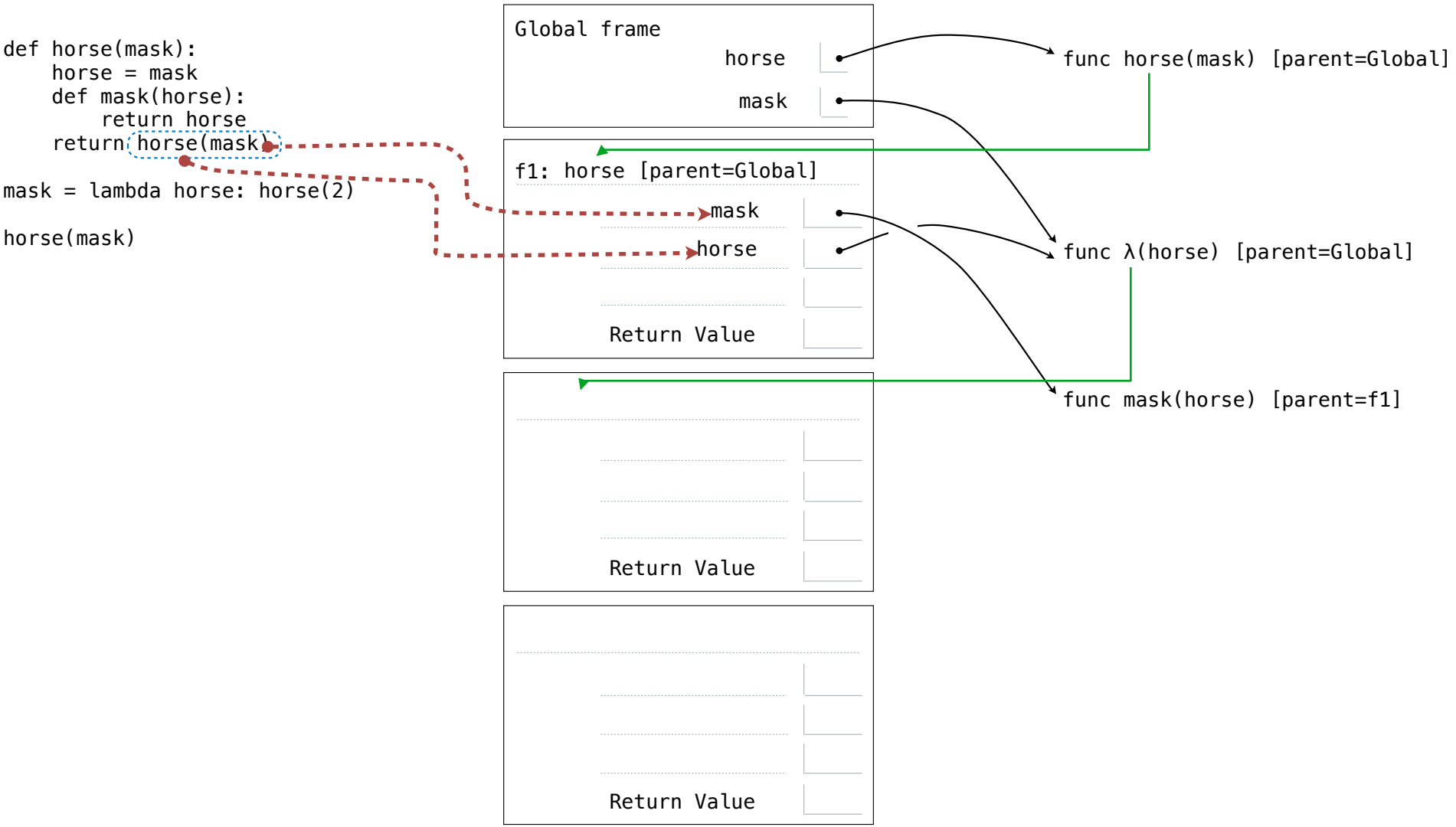
```
def horse(mask):
    horse = mask
    def mask(horse):
        return horse
    return horse(mask)

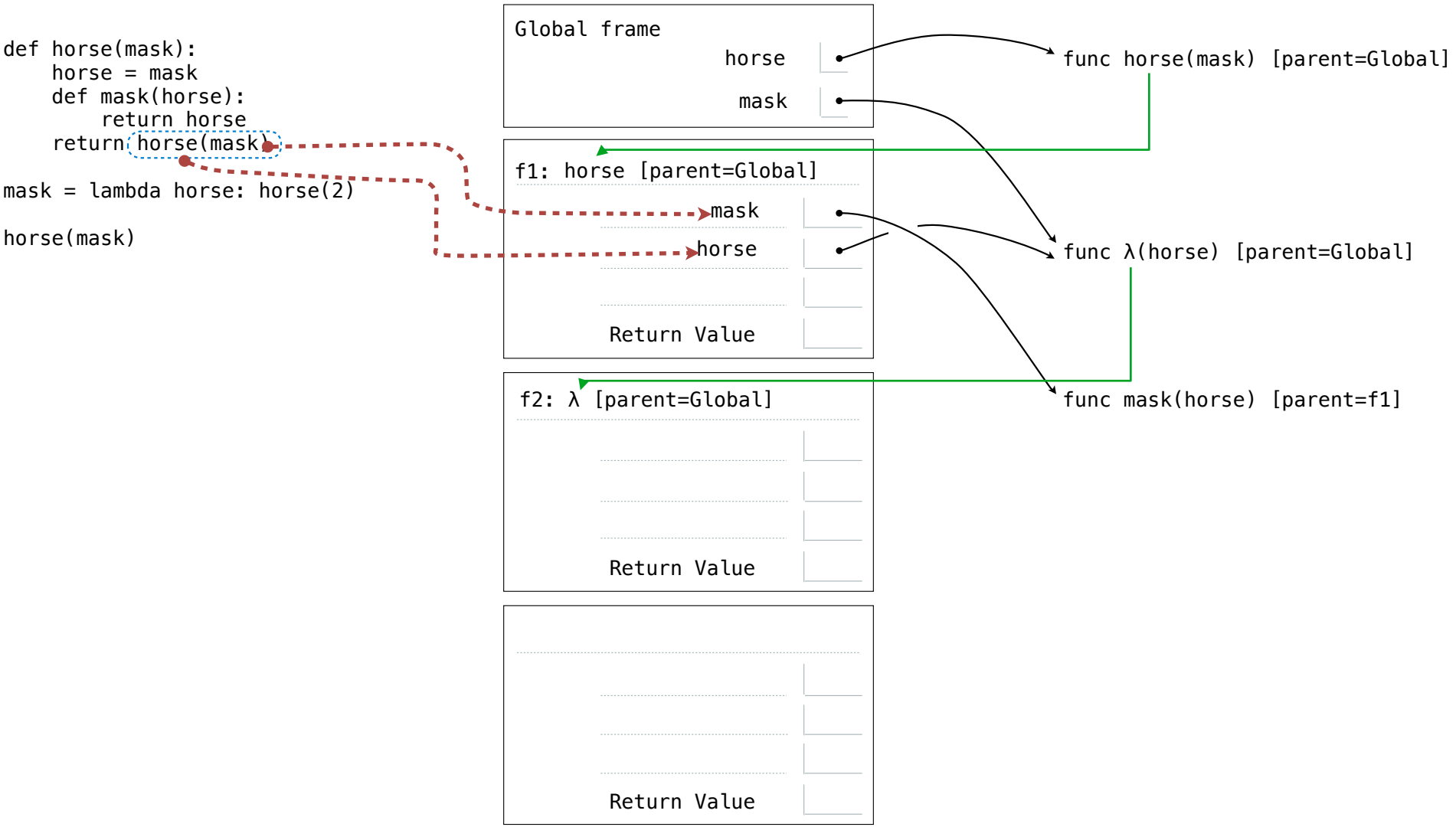
mask = lambda horse: horse(2)

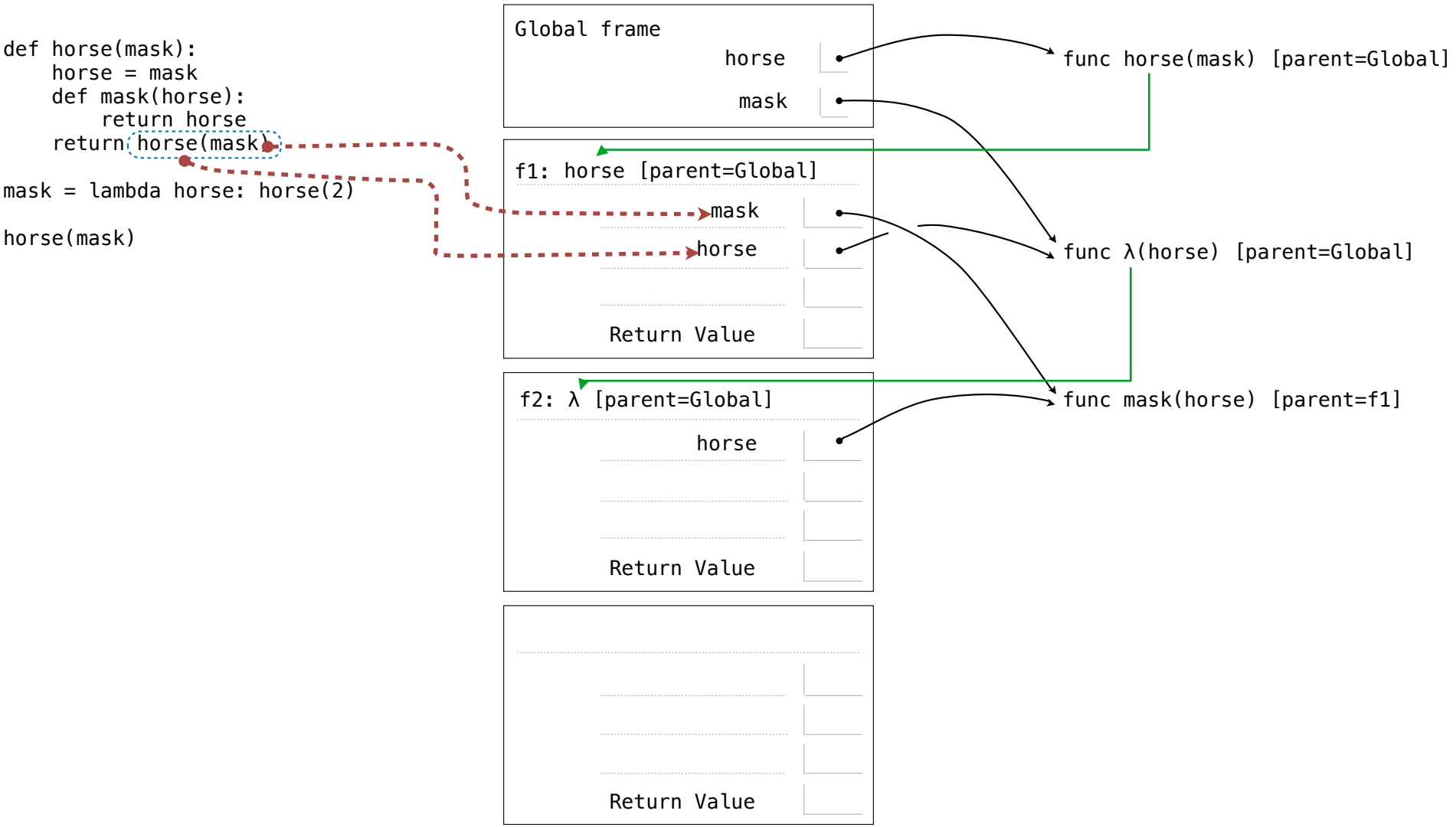
horse(mask)
```

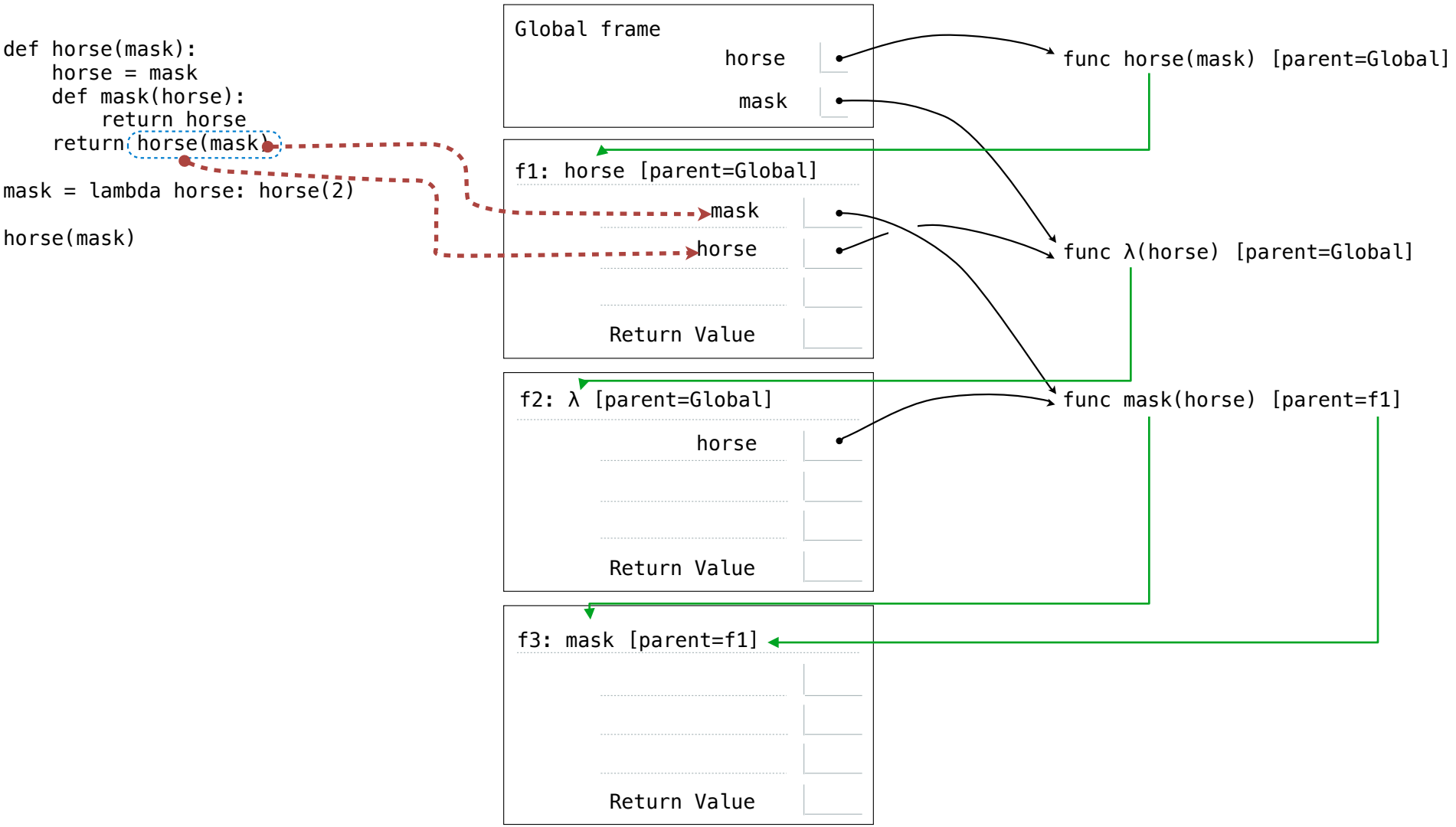


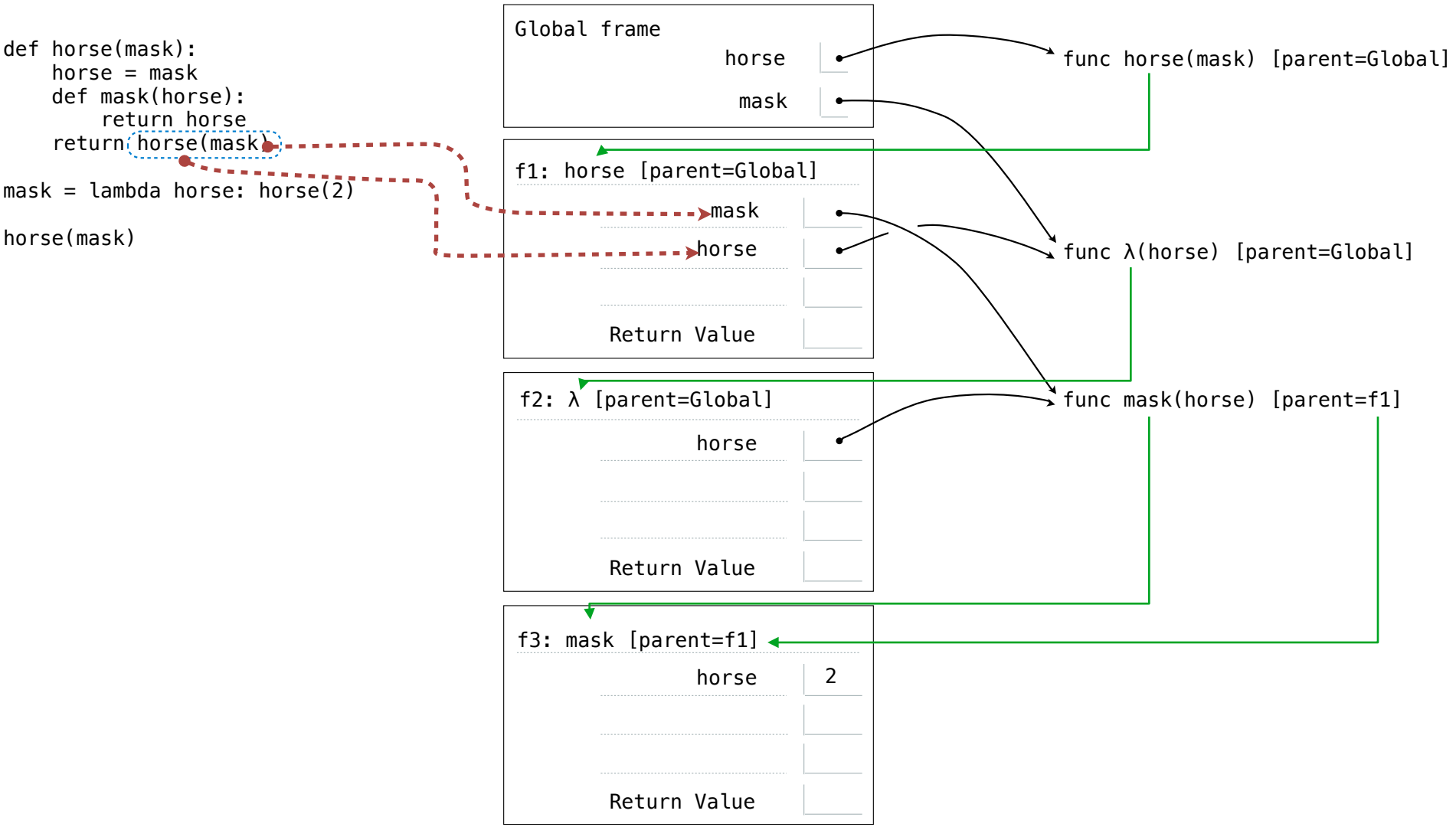

def horse(mask):
horse = mask
def mask(horse):
return horse
return horse(mask)
mask = lambda horse: horse(2)
horse(mask)
Global frame
horse
mask
func horse(mask) [parent=Global]
f1: horse [parent=Global]
mask
horse
Return Value
func λ(horse) [parent=Global]
func mask(horse) [parent=f1]
Return Value
Return Value

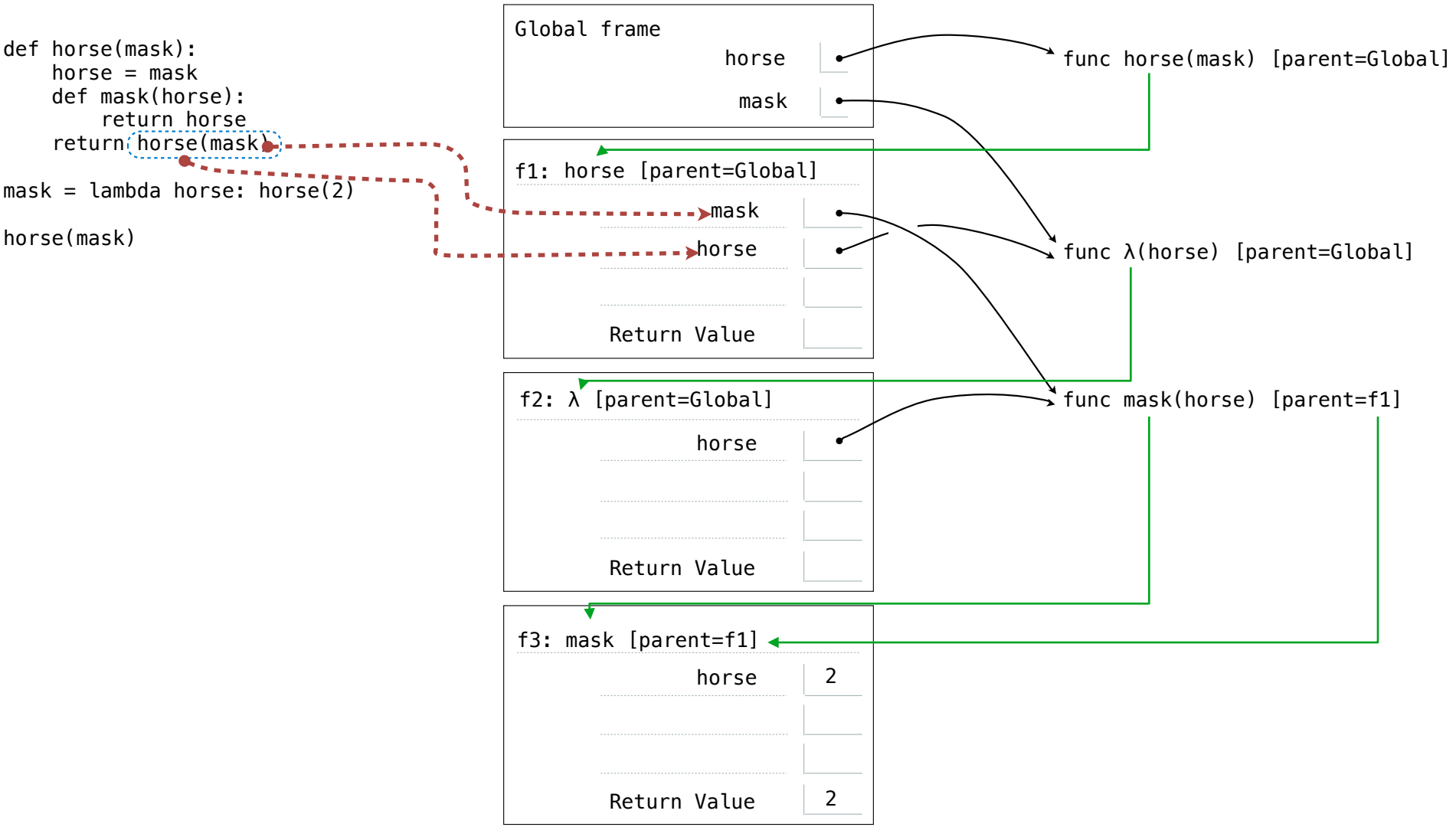

def horse(mask):
horse = mask
def mask(horse):
return horse
return horse(mask)
mask = lambda horse: horse(2)
horse(mask)
Global frame
horse
mask
func horse(mask) [parent=Global]
f1: horse [parent=Global]
mask
horse
Return Value
func λ(horse) [parent=Global]
func mask(horse) [parent=f1]
Return Value
Return Value

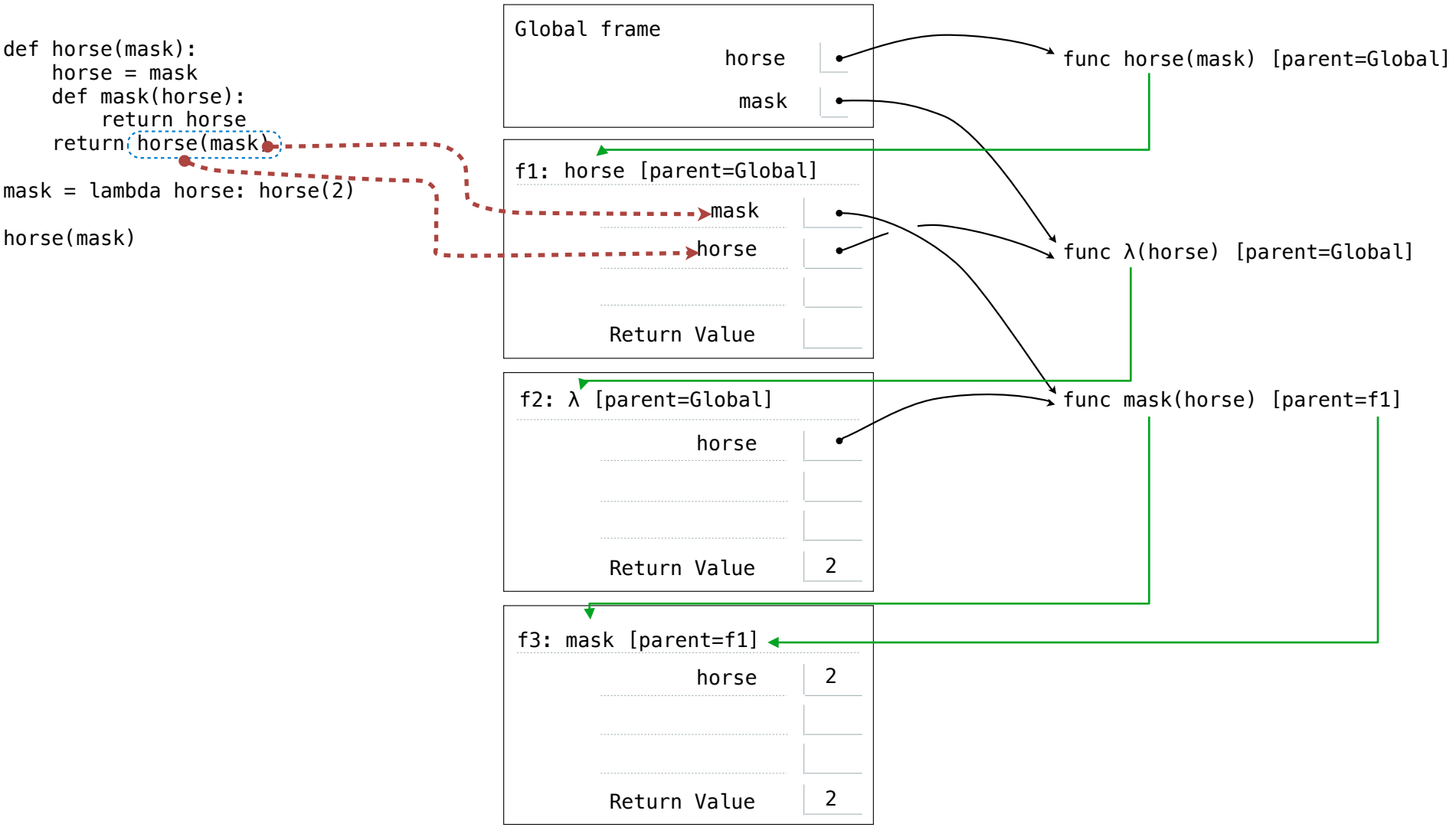

def horse(mask):
horse = mask
def mask(horse):
return horse
return horse(mask)
mask = lambda horse: horse(2)
horse(mask)
Global frame
horse
mask
func horse(mask) [parent=Global]
f1: horse [parent=Global]
mask
horse
Return Value
func λ(horse) [parent=Global]
f2: λ [parent=Global]
Return Value
func mask(horse) [parent=f1]
Return Value

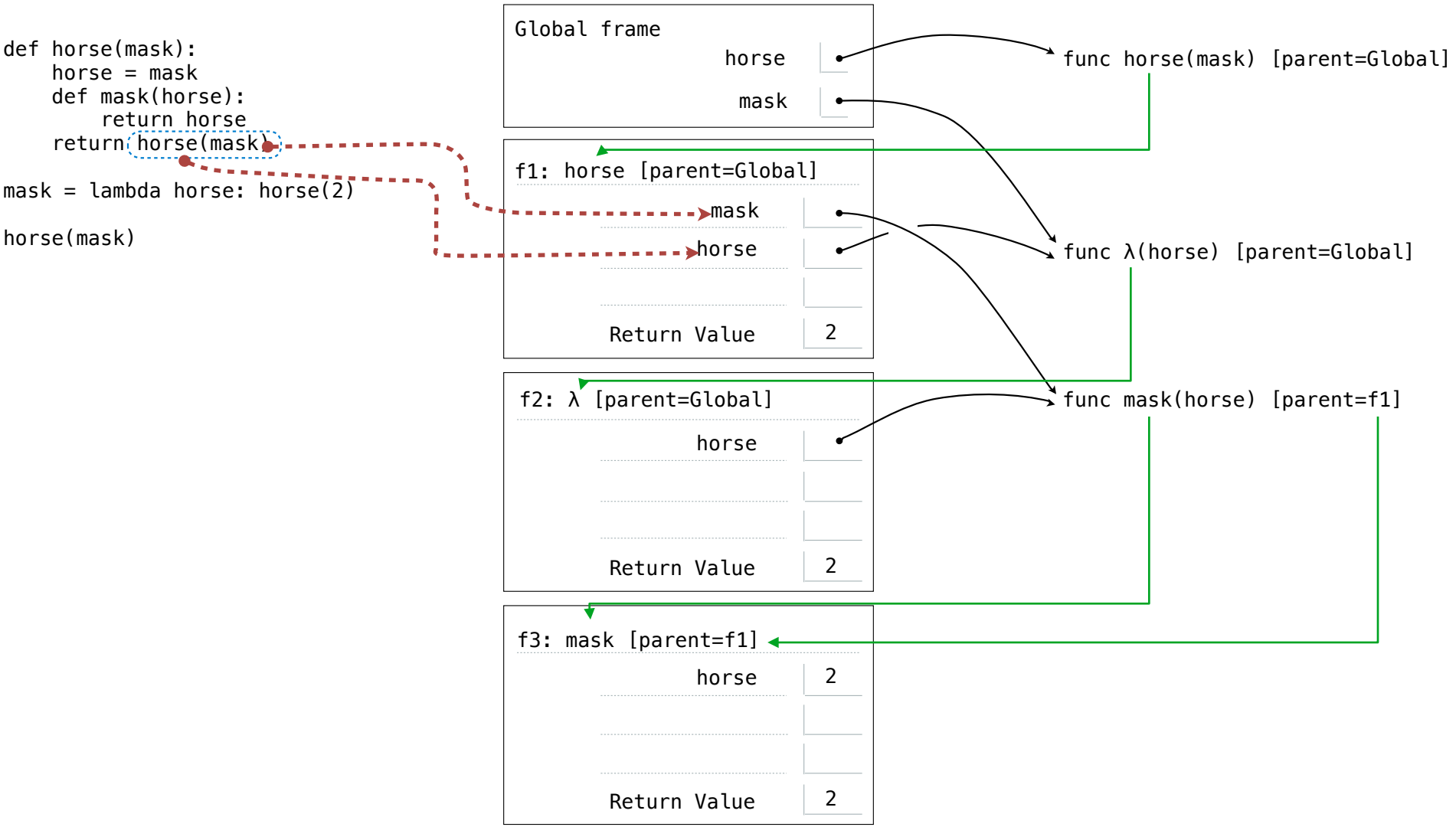

def horse(mask):
horse = mask
def mask(horse):
return horse
return horse(mask)
mask = lambda horse: horse(2)
horse(mask)
Global frame
horse
mask
func horse(mask) [parent=Global]
f1: horse [parent=Global]
mask
horse
Return Value
func λ(horse) [parent=Global]
f2: λ [parent=Global]
horse
Return Value
func mask(horse) [parent=f1]
Return Value


def horse(mask):
horse = mask
def mask(horse):
return horse
return horse(mask)
mask = lambda horse: horse(2)
horse(mask)
Global frame
horse
mask
func horse(mask) [parent=Global]
f1: horse [parent=Global]
mask
horse
Return Value
func λ(horse) [parent=Global]
f2: λ [parent=Global]
horse
Return Value
func mask(horse) [parent=f1]
f3: mask [parent=f1]
Return Value


def horse(mask):
horse = mask
def mask(horse):
return horse
return horse(mask)
mask = lambda horse: horse(2)
horse(mask)
Global frame
horse
mask
func horse(mask) [parent=Global]
f1: horse [parent=Global]
mask
horse
Return Value
func λ(horse) [parent=Global]
f2: λ [parent=Global]
horse
Return Value
func mask(horse) [parent=f1]
f3: mask [parent=f1]
horse
2
Return Value


def horse(mask):
horse = mask
def mask(horse):
return horse
return horse(mask)
mask = lambda horse: horse(2)
horse(mask)
Global frame
horse
mask
func horse(mask) [parent=Global]
f1: horse [parent=Global]
mask
horse
Return Value
func λ(horse) [parent=Global]
f2: λ [parent=Global]
horse
Return Value
func mask(horse) [parent=f1]
f3: mask [parent=f1]
horse
2
Return Value
2


def horse(mask):
horse = mask
def mask(horse):
return horse
return horse(mask)
mask = lambda horse: horse(2)
horse(mask)
Global frame
horse
mask
func horse(mask) [parent=Global]
f1: horse [parent=Global]
mask
horse
Return Value
func λ(horse) [parent=Global]
f2: λ [parent=Global]
horse
Return Value
2
func mask(horse) [parent=f1]
f3: mask [parent=f1]
horse
2
Return Value
2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def mask(horse):
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return horse(mask)
mask = lambda horse: horse(2)
horse(mask)
Global frame
horse
mask
func horse(mask) [parent=Global]
f1: horse [parent=Global]
mask
horse
Return Value
2
func λ(horse) [parent=Global]
f2: λ [parent=Global]
horse
Return Value
2
func mask(horse) [parent=f1]
f3: mask [parent=f1]
horse
2
Return Value
2