
CS 61A Reverse Environment Diagram Practice

Spring 2021

February 13, 2021 **Solutions**

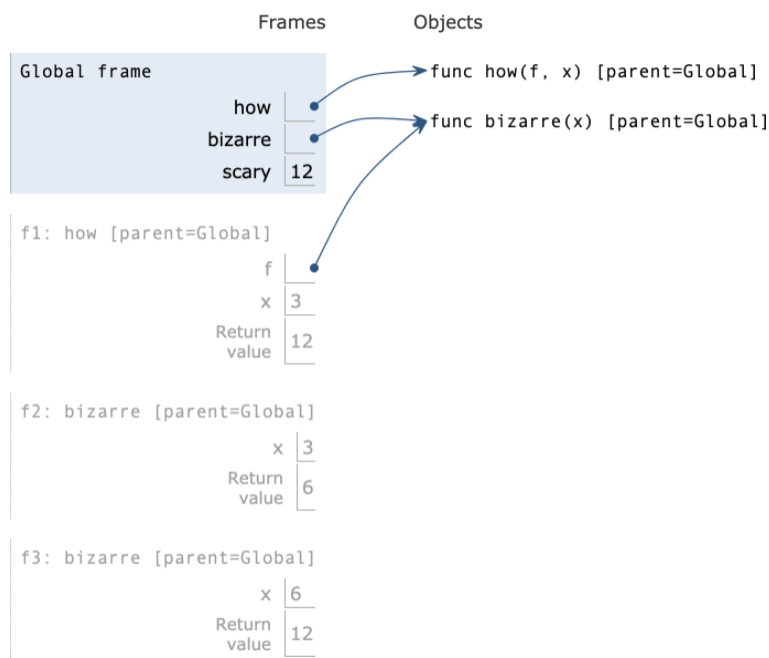
Questions

- 0.1 Fill in the lines below so that the execution of the program would lead to the environment diagram below. You may not use any numbers in any blanks.

```
def how(f, x):  
    return _____
```

```
def bizarre(___):  
    return 2 * _____
```

```
scary = _____(_____, 3)
```



```
def how(f, x):  
    return f(f(x))
```

```
def bizarre(x):  
    return 2 * x
```

```
scary = how(bizarre, 3)
```

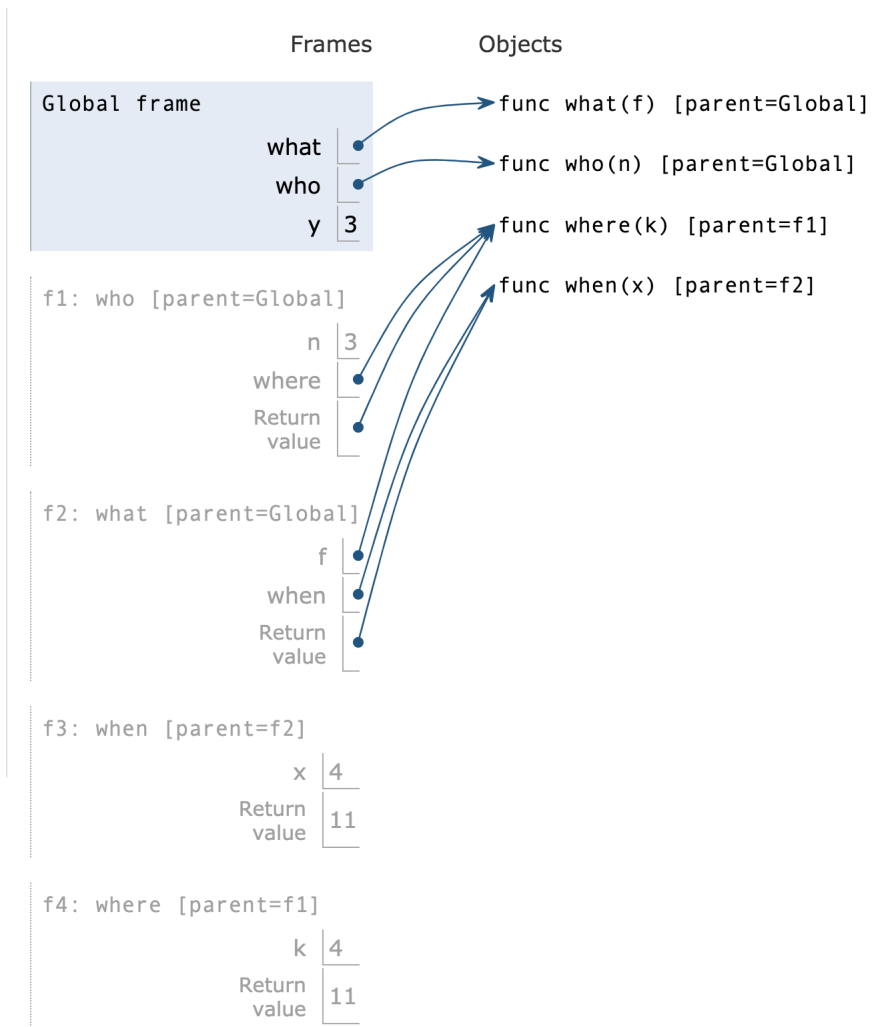
2 Reverse Environment Diagram Practice

0.2 Fill in the lines below so that the execution of the program would lead to the environment diagram below. You may not use any numbers in any blanks.

```
def what(_____):
    def _____(x):
        return _____
    return _____
```

```
def who(n):
    def _____(k):
        return 2 * k + n
    return _____
```

```
y = 3
_____(_____(_____))(4)
```



```
def what(f):
    def when(x):
        return f(x)
```

```
return when
```

```
def who(n):  
    def where(k):  
        return 2 * k + n  
    return where
```

```
y = 3  
what(who(y))(4)
```

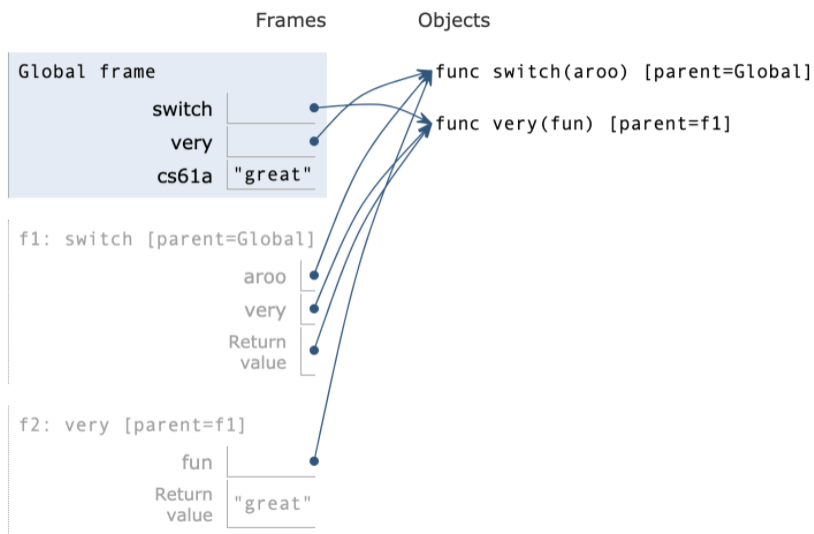
4 Reverse Environment Diagram Practice

0.3 Fill in the lines below so that the execution of the program would lead to the environment diagram below. You may not use any numbers in any blanks.

```
def switch(afoo):
    def _____(fun):
        if afoo _____ fun:
            return "great"
            return "terrible"
    return _____

very = switch(_____)

_____
cs61a = switch(_____)
```



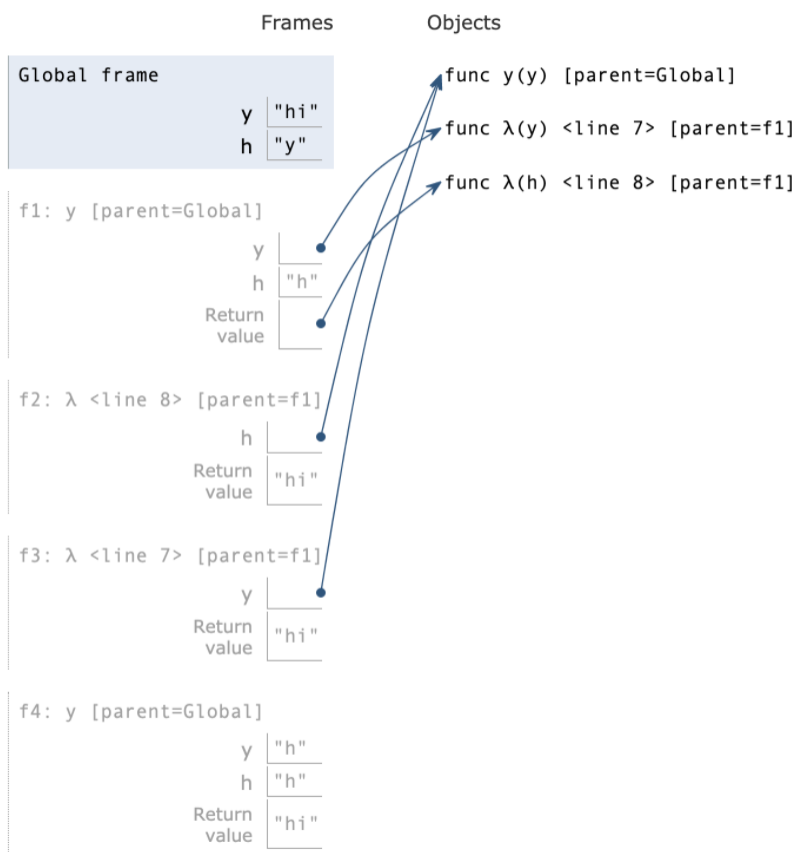
```
def switch(afoo):
    def very(fun):
        if afoo ==fun:
            return "great"
            return "terrible"
    return very

very = switch(switch)
switch, very = very, switch
cs61a = switch(very)
```

- 0.4 Fill in the lines below so that the execution of the program would lead to the environment diagram below. You may only use `y`, `(`, `)`, and `h` in the blanks.

```

y = "y"
h = _____
def y(_____):
    h = "h"
    if y == h:
        return y + "i"
    y = lambda _____: _____
    return lambda _____: _____
y = y(_____)(_____)
```



```

y = "y"
h = y
def y(y):
    h = "h"
    if y == h:
        return y + "i"
    y = lambda y: y(h)
    return lambda h: y(h)
```

6 *Reverse Environment Diagram Practice*

$$y = y(y)(y)$$