



### Quiz 4: Recursive Data

```
def range(i, j):
    if (j <= i): false else: (i, range(i+1, j))

def sum(l):
    if l == false: 0 else: l[0] + sum(l[1])

let t1 =
  let l1 = range(0, 3)
  in sum(l1)
, l = range(t1, t1 + 3)
in (1000, l)
```

call range(3,6)

Stack (r15):

2	false	1	0x01	0	0x11	5	false	4	0x31	3	0x41	
0x00	0x08	0x10	0x18	0x20	0x28	0x30	0x38	0x40	0x48	0x50	0x58	0x60

What is the value of l at the point indicated by the red arrow?

- a) 0x30
- b) 0x31
- c) 0x50
- d) 0x51
- e) 0x60

### Quiz 5: Live Cells

QUIZ: Which cells are "live" on the heap?

(A) 0x00  
(B) 0x10  
(C) 0x20  
(D) 0x30  
(E) 0x40  
(F) 0x50

Stack (r15):

2	false	1	0x01	0	0x11	5	false	4	0x31	3	0x41	
0x00	0x08	0x10	0x18	0x20	0x28	0x30	0x38	0x40	0x48	0x50	0x58	0x60

QUIZ: Which cells are "live" on the heap?

(A) 0x00  
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Stack (r15):

2	0x51	1	0x01	0	0x11	5	false	4	0x31	3	0x41	
0x00	0x08	0x10	0x18	0x20	0x28	0x30	0x38	0x40	0x48	0x50	0x58	0x60

### Quiz 6: What should be printed?

QUIZ: What should print(0x21) show?

(A) (0, (1, (2, false)))  
(B) (3, (4, (5, false)))  
(C) (0, (1, (2, (3, (4, (5, false))))))  
(D) (3, (4, (5, (0, (1, (2, false))))))  
(E) (2, (1, (0, (3, (4, (5, false))))))

Stack (r15):

2	0x51	1	0x01	0	0x11	5	false	4	0x31	3	0x41	
0x00	0x08	0x10	0x18	0x20	0x28	0x30	0x38	0x40	0x48	0x50	0x58	0x60

### Quiz 7: Your turn!

What is something you found confusing in today's lecture (or earlier)?