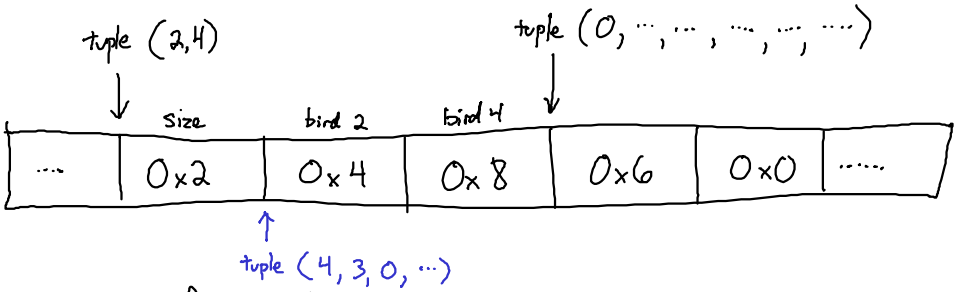
Memory Management

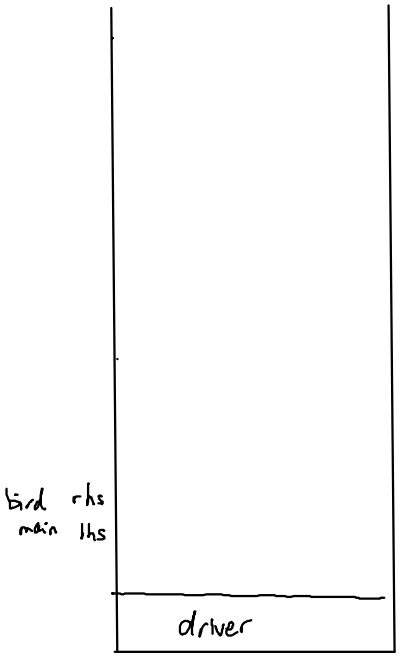


Contents of heap: sequence of 64-bit words

Well-formed heap: invariants
- heap_cursor points to first free memory
- all allocated memory is contiguous
- everything in heap is a bird heap object

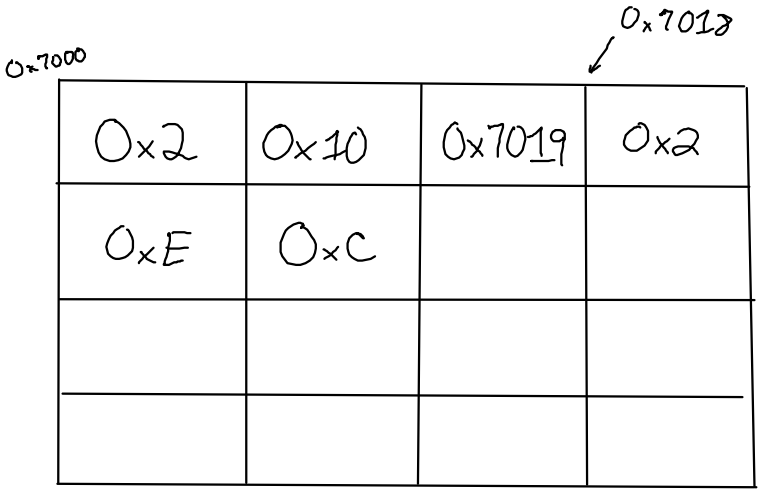
```
def f n =
  if n > 6 then
    (n, f (n-1))
  else
    n
end
f 8
```

(8,(7,6))



heap_cursor 0x7030

rax 0x7001



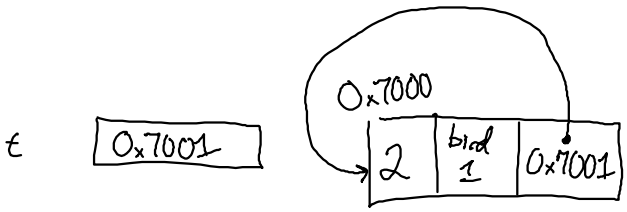
Gull

<expr> ::= .....

| <expr> [<expr>] := <expr>

```
let t = (2,3) in
let n = (t[1] := 4) in
t[0] + t[1] + n
```

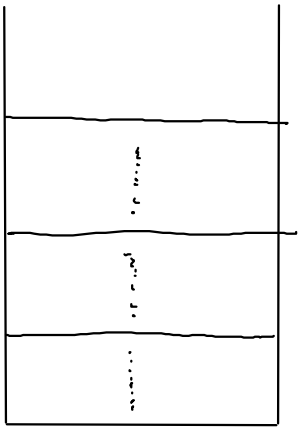
n = 4; t[0] = 2; t[1] = 4; n = 4 ⇒ 10




```
let t = (1,2) in
let _ = t[1] := t in
t[1][1][1][1][0]
```

t

```
def f n =
  let t = print((6, n)) in
  if n > 6 then
    f (n-1)
  else
    n
end
f 8
```



heap_cursor | 0x7048

rax | 0x7031

0x7000

0x2	0x10	0x10	0x2
0xE	0xE	0x2	0xC
0xC			