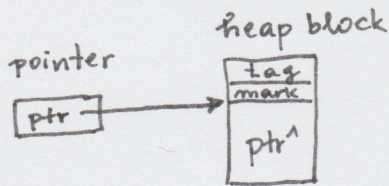


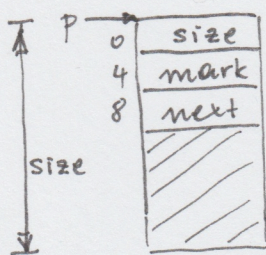
HEAP BLOCKS IN THE EXTENDED OBERON SYSTEM (RECORD BLOCKS AND ARRAY BLOCKS)



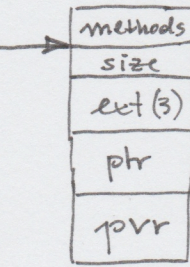
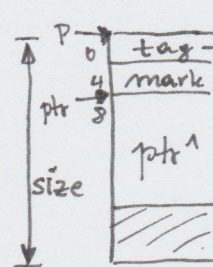
$$\text{blktyp} := \text{tag} \text{ MOD } 4$$

tag field		blktyp	heap blk type		
<table><tr><td>>0</td><td>00</td></tr></table>	>0	00	any	0	Record
>0	00				
<table><tr><td>>0</td><td>01</td></tr></table>	>0	01	any	1	Array of record
>0	01				
<table><tr><td>0</td><td>10</td></tr></table>	0	10	2	2	Array of pointer
0	10				
<table><tr><td>0</td><td>11</td></tr></table>	0	11	3	3	Array of basic type
0	11				
<table><tr><td>0</td><td>1h1</td></tr></table>	0	1h1	7	3	Array of procedure
0	1h1				

Free heap block (mark < 0) Text Record (blktyp=0, tag = any)



- mark = -1
- next points to next free heap block of this size (32, 64, 128, n * 256)
- free blocks are typed (i.e. have fields)

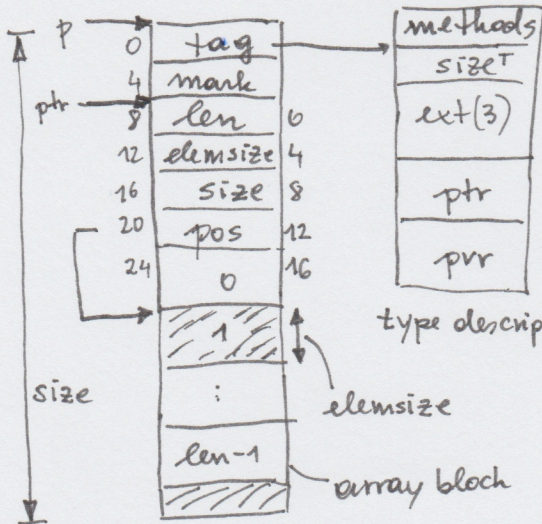


type descriptor

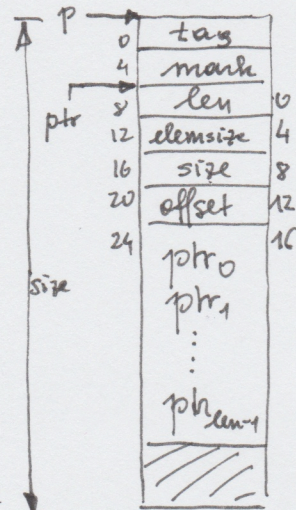
- mark ≥ 0
- tag = any
- blktyp = 0
- size stored in type descriptor

Array of record (blktyp=1, tag = any)

Array of pointer (blktyp=2, tag=2)



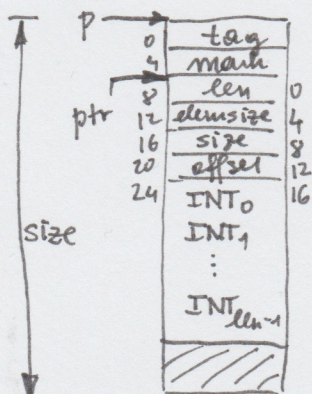
- mark ≥ 0
- tag = any
- blktyp = 1
- len = # of array elems
- size stored in array block (size in type desc ignored)
- pos = current element during mark phase



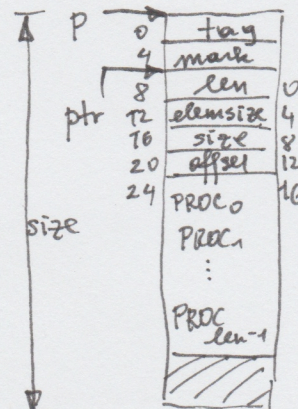
- mark ≥ 0
- tag = 2
- blktyp = 2
- len = # of pointers
- offset = current pointer during mark phase
- no type descriptor

Array of basic type (blktyp=3, tag=3)

Array of procedure (blktyp=3, tag=7)



- mark ≥ 0
- tag = 3
- blktyp = 3
- len = # of array elems
- elemsize = 1, 2 or 4
- offset = -1
- no type descriptor
- = "sysblk" in Ceres-Oberon



- mark ≥ 0
- tag = 7
- blktyp = 3
- len = # of procedures
- elemsize = 4
- offset = -1
- Traversed during reference checking
- No type descriptor