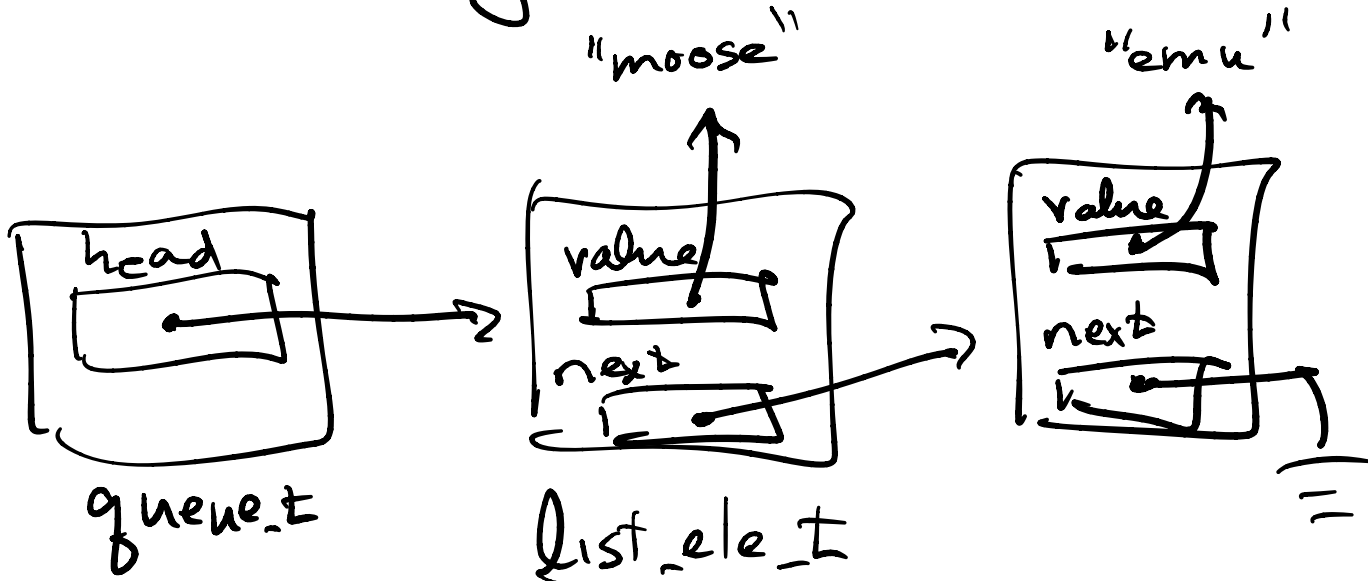


CS 208

M, 15 Jan 2024

Queue assignment



```
typedef old_type new_type;
```

```
typedef int number;
```

```
⋮
```

```
number x = 17;
```

```
⋮
```

fixed-size integers

4 bits

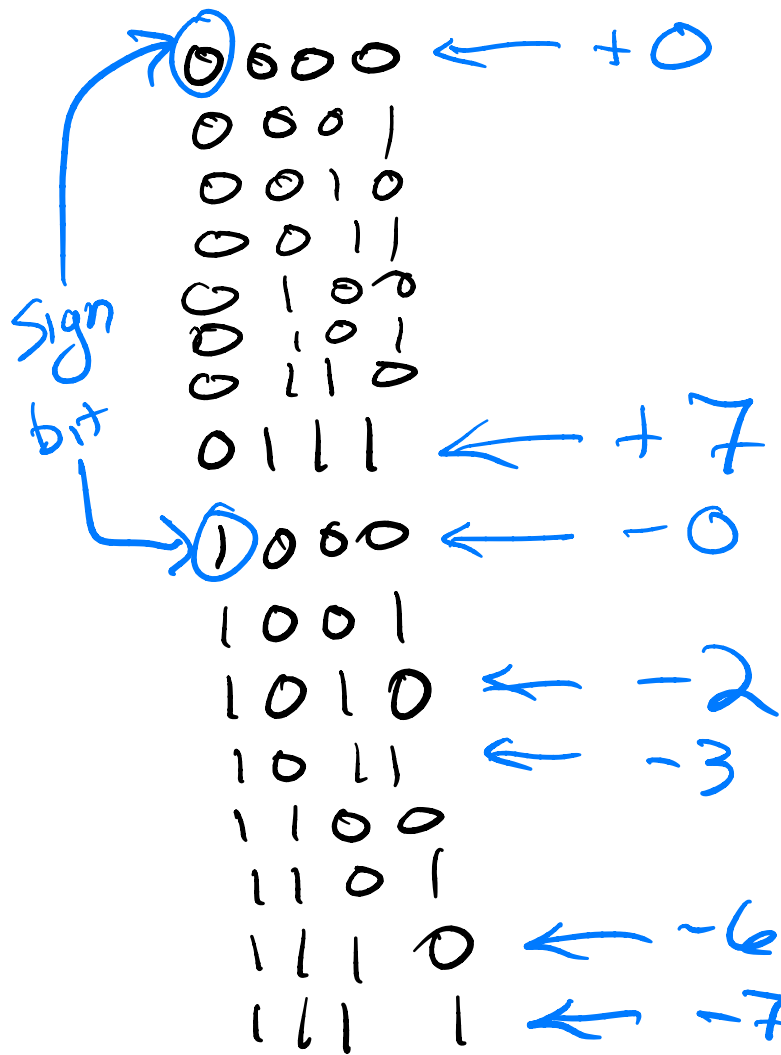


2^4 possible bit patterns

"unsigned" integer

"signed" integer

0000	0	?
0001	1	.
0010	2	
0011	3	
0100	4	
0101	5	
0110	6	
0111	7	
1000	8	
1001	9	
1010	10	!
1011	11	
1100	12	
1101	13	
1110	14	
1111	15	



$\text{Sign} = 0 = +$
 $\text{Sign} = 1 = -$

"Signed magnitude"

0	0	0	0	0
0	0	0	0	1
0	0	0	1	0
0	0	0	0	1
0	0	0	1	0
0	0	1	0	1
0	0	1	1	0
0	1	1	1	1
1	0	0	0	0
1	0	0	0	1
1	0	1	0	0
1	0	1	1	1
1	1	0	0	0
1	1	0	1	1
1	1	1	0	0
1	1	1	1	1

0
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F

0	0	0	0	0
0	0	0	0	1
0	0	0	1	0
0	0	0	0	1
0	0	0	1	0
0	0	0	1	0
0	0	0	0	1
0	0	0	0	0
0	0	0	0	0
1	1	1	1	1
1	1	1	0	1
1	1	1	0	1
1	1	1	0	0
1	1	1	1	1
1	1	1	1	1
1	1	1	0	0
1	1	0	0	1
1	0	0	0	1
1	0	0	0	0

0
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F

"two's Complement"