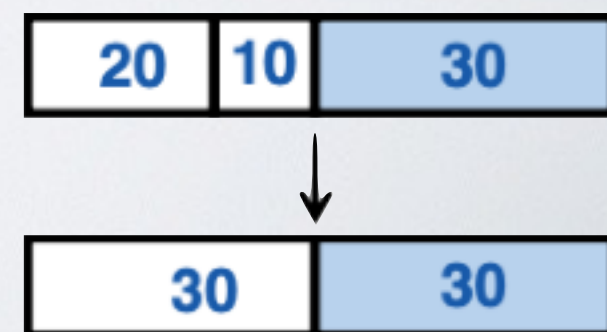# Important decisions

Placement choice : where in free memory to put a requested block?

- Freedom : can select any memory in the heap
- Ideal : put block where it won't cause fragmentation later (impossible in general, requires future knowledge)

Split free blocks to satisfy smaller requests?

- Freedom : can choose any larger block to split
- Ideal : choose block to minimize fragmentation

Coalescing free blocks to yield larger blocks

20	10	30

↓

30	30

Fragmentation is impossible to solve

Theoretical result

For any allocation algorithm, there exist streams of allocation and deallocation requests that defeat the allocator and force it into severe fragmentation

➡ Avoiding fragmentation is impossible