Segmentation Trade-offs
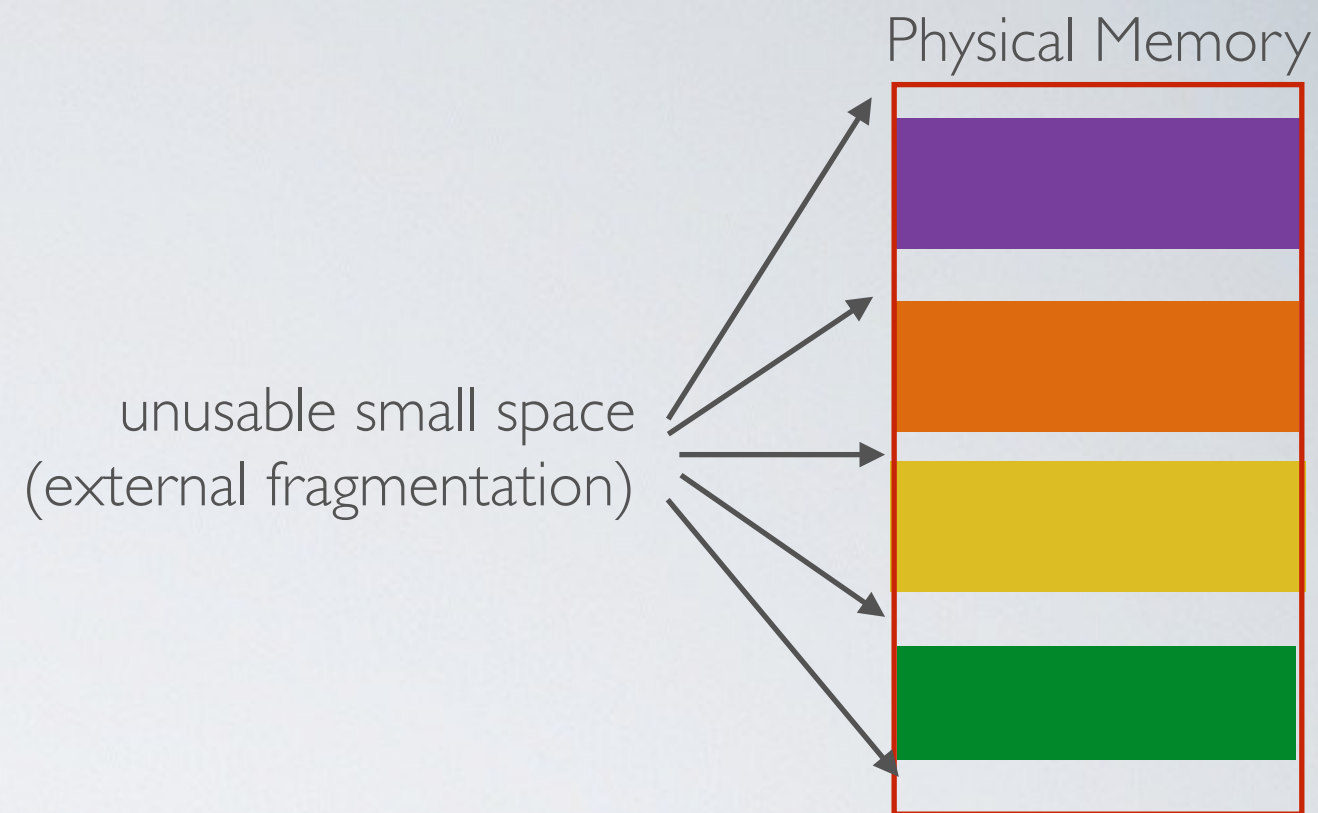
Physical Memory

unusable small space
(external fragmentation)

Advantages

✓ Multiple segments per process (sparse memory)

✓ Can easily share memory

✓ Do not need entire process in memory (swap)

Disadvantages

◉ Requires translation, which could limit performance

◉ Makes external **fragmentation** a real problem

Fragmentation

Fragmentation is the inability to use free memory

➡ Over time

- **External fragmentation**
  because of variables sized pieces (i.e many small holes)

- **Internal fragmentation**
  because of fixed size pieces (i.e no external hole but internal waste of space)