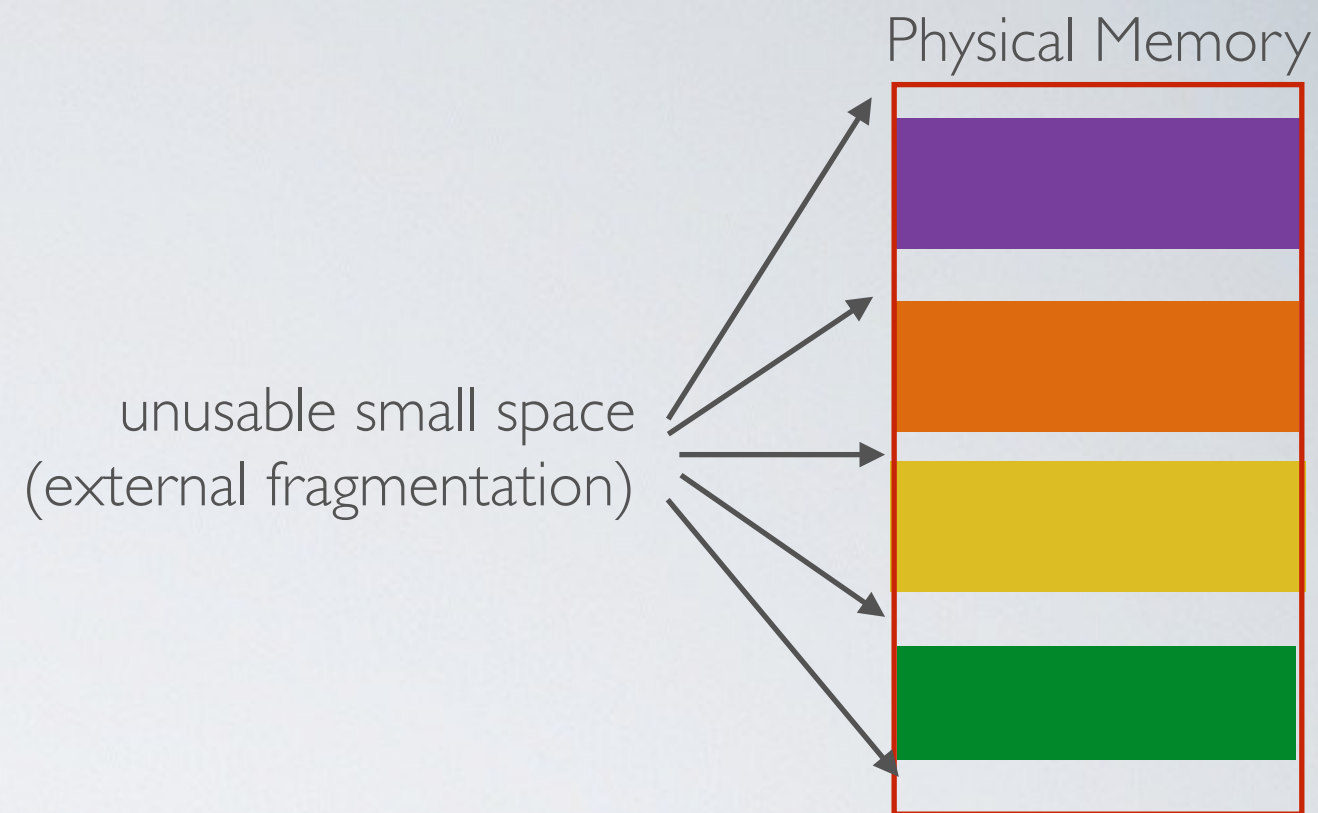


# Segmentation Trade-offs



## 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)