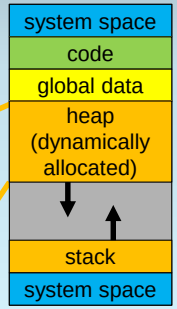
The Heap is Mapped After the Program's Data

The heap is mapped just after the global data area.

The starting location depends on the size of the program (and data). The heap grows downward into unused memory.



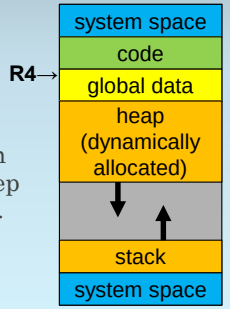
Where are the Storage Classes in Memory?

Static storage class is **in global data**.

R4 points to the top of this region with LC-3.

Dynamic storage class is in the heap (program must keep track of variable addresses).

Automatic storage class is in the stack.

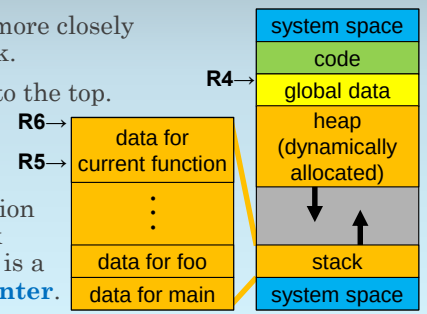


The Stack Holds One Stack Frame per Function

Let's look more closely at the stack.

R6 points to the top.

Each function has a stack frame. **R5** is a **frame pointer**.



Stack Frame for `main` is Pushed First

When a **C** program starts, the function **`main`** is executed (**`main`'s frame pushed on stack**).