

Lecture 22

Memory management in good languages

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Deferred reclamation

Using a dual-core processor

An even better idea

Comparison of copy/compaction

Implicit reclamation

Sometimes called *garbage collection*.

- ▶ Traditionally:

- ▶ Contemporarily:

Copy collector

- ▶ Idea: when running a high-level program, lots of small objects/structures/. . . are used only for a short amount of time and can be recycled
- ▶ Determine those objects which are no longer reachable and thus can be recycled
- ▶ Split memory into two halves:

Determining reachability

Generational garbage collection

- ▶ Objects in memory tend to have *temporal persistence*
 - ▶ objects that have been in memory for a long time will likely continue to stay around
 - ▶ objects that have recently been created will likely be discarded very soon
- ▶ Instead of just two regions, make n regions.
- ▶ Use region $G1$ until it gets full: copy live objects to $G2$ and free $G1$
- ▶ When $G2$ gets full, copy live objects from $G2$ to $G3$.