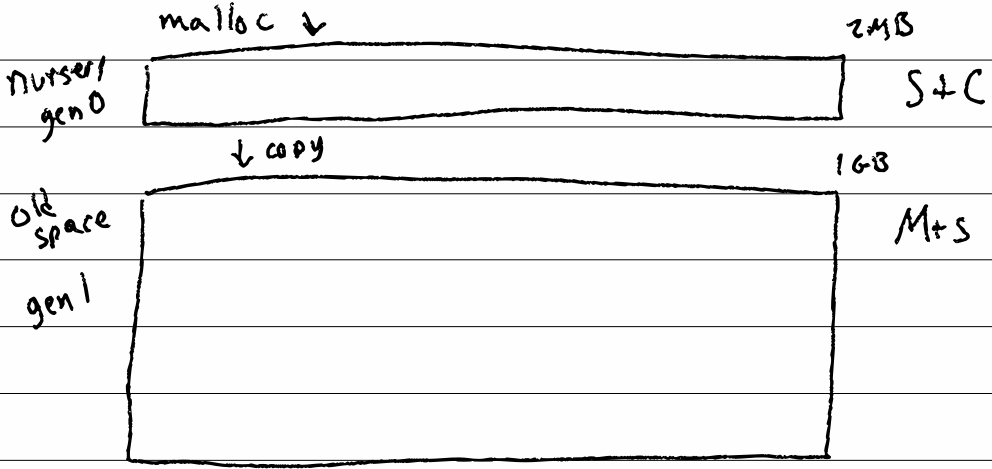21-1/ M&S - best for space $O(\lg n)$ malloc $O(\text{mem})$
                             $O(\lg n)$ overhead

   S&C - best for time $O(1)$ malloc $O(\text{live})$
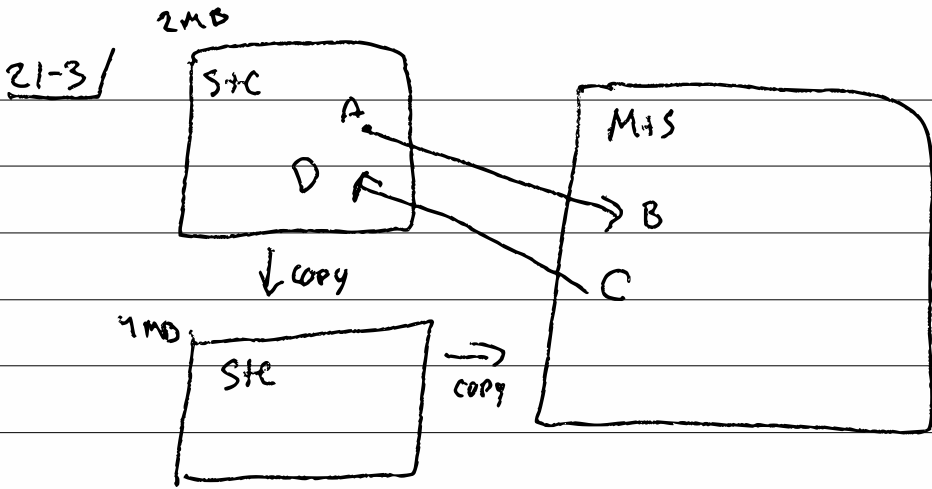   x2 overhead

   want both:
      - malloc: $O(1)$ - overhead $O(\lg n)$
      - gc : $O(\text{live})$

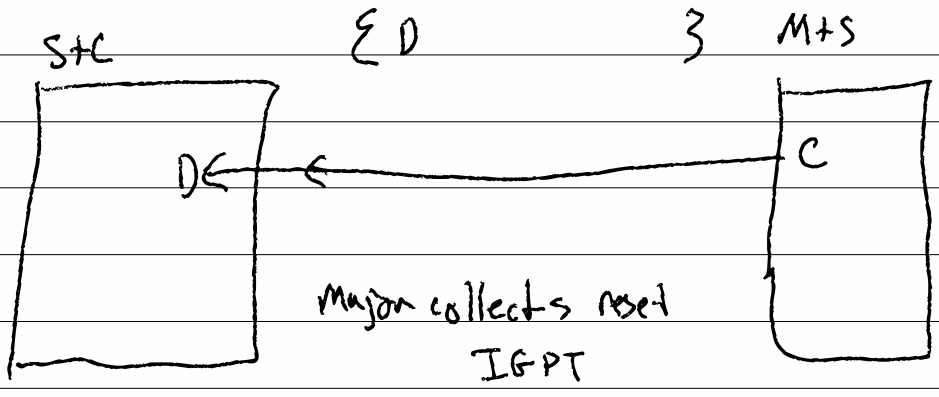# generational collection

malloc ↓   2MB

nursery
gen0   S+C

↓ copy   1GB

old
space   M+S

gen1

2MB

S+C

A

D

M+S

B

C

↓ copy

4MD

S+C

→ copy

minor collection — S+C   m m m m m m m m m M m m m m m

Major collection — M+S   m m n M n n n n n n a M

intergenerational   IGPT
pointer table

S+C   ₹ D   3   M+S

D ← ←   C

Major collects reset
IGPT

write barrier
   whenever a pointer is created, check it goes
     from old to new, if so, add dest to IGPT

21-5/

OLD	NEW
o.f = n;	if (o ∈ old
	∧ n ∈ new) {
write barrier	IGPT.add (n); }
	o.f = n;

---

large object exception

---

is this good? Yes ... but why?

generational hypothesis — "Most objects die young"

decay hypothesis — "Garbage (ie Objects) have

a half-life."