Shifts and type casting

$\overline{int64\_t\ x}$;
   int shamt;

Uint64_t y

$$x >> shamt$$
$$\downarrow$$
$$sra$$

$$y >> shamt$$
unsigned
$$srl$$

Emulated Stack

STACK REAL

Main()

rv state

regs

pc

stack(8199)

rv_emukt

↓

↓

↓

CODE
rv_emulate()

quadratics

sd

Memory

STACK REAL

rv_state
isi

Stach(8191)

Stach[8192]

Stach(0)

Cache Memory

Memory
DRAM

address

processor
CPU

value

CPU Speed

gap

memory speed

time

Processor → address → cache → no → Memory

? YES

(address, data)

(address, data)
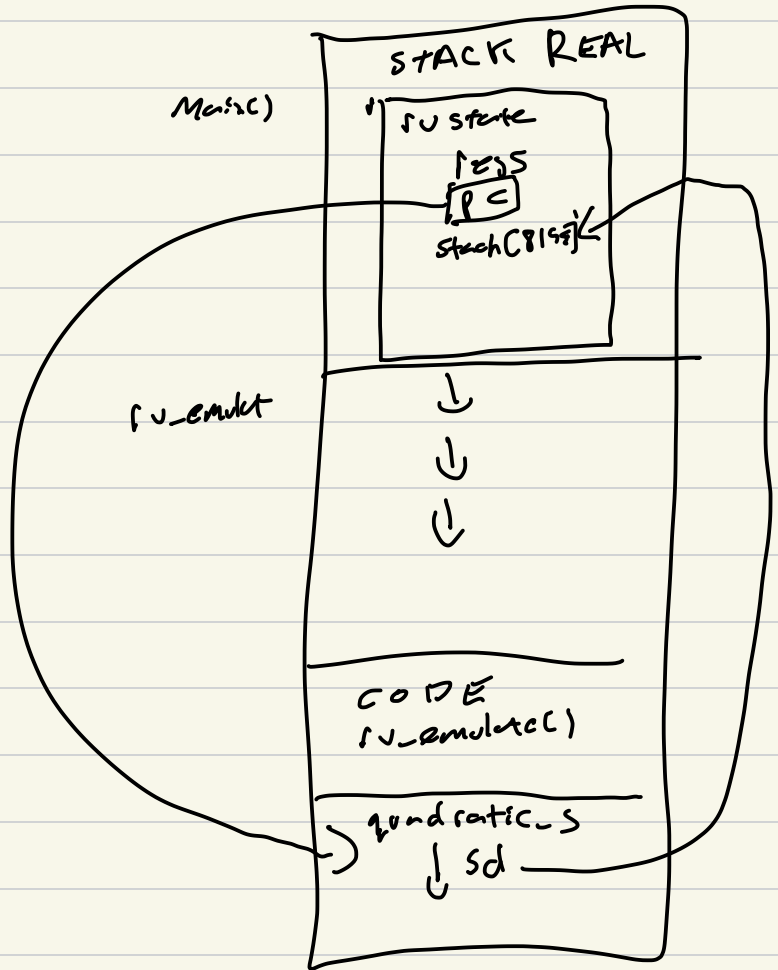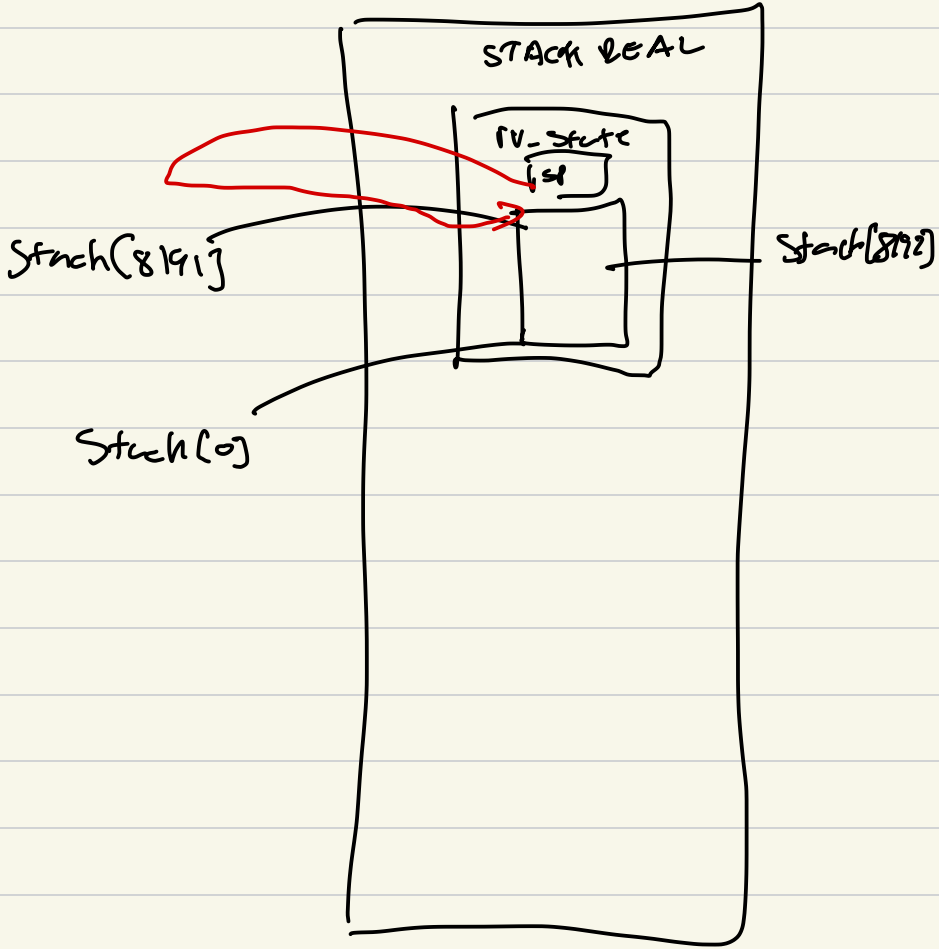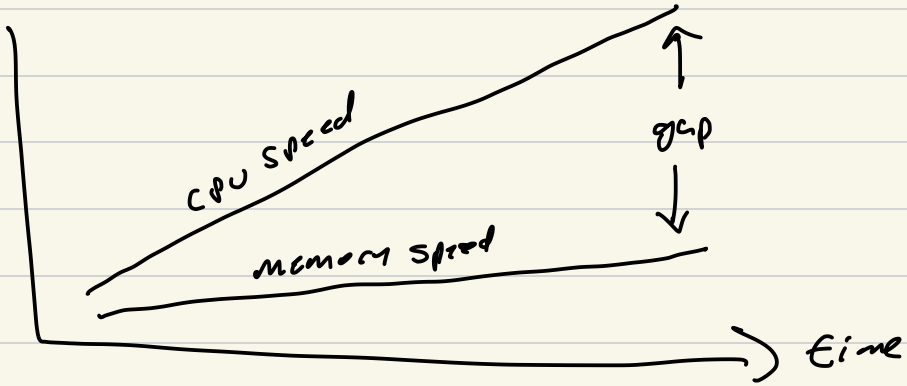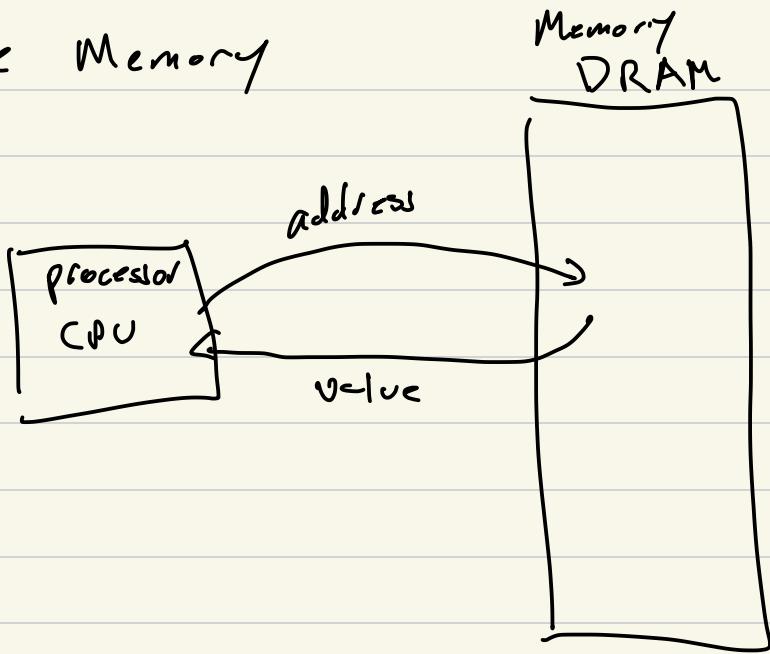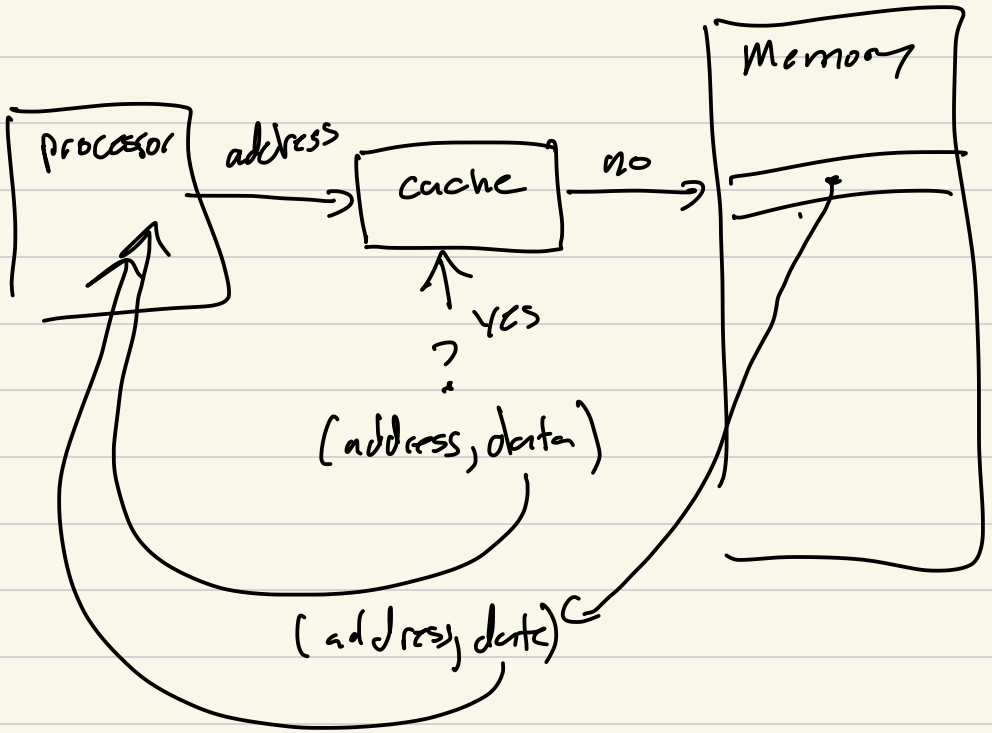
Spatial locality

temporal locality

Questions

Where to look for aa address?

How determine a match?

Which item to remove on
conflict

✓ Direct Mapped

[Fully Associative]

✓ Set Associative
              ↑