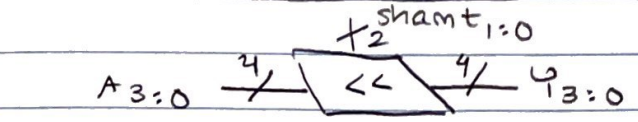
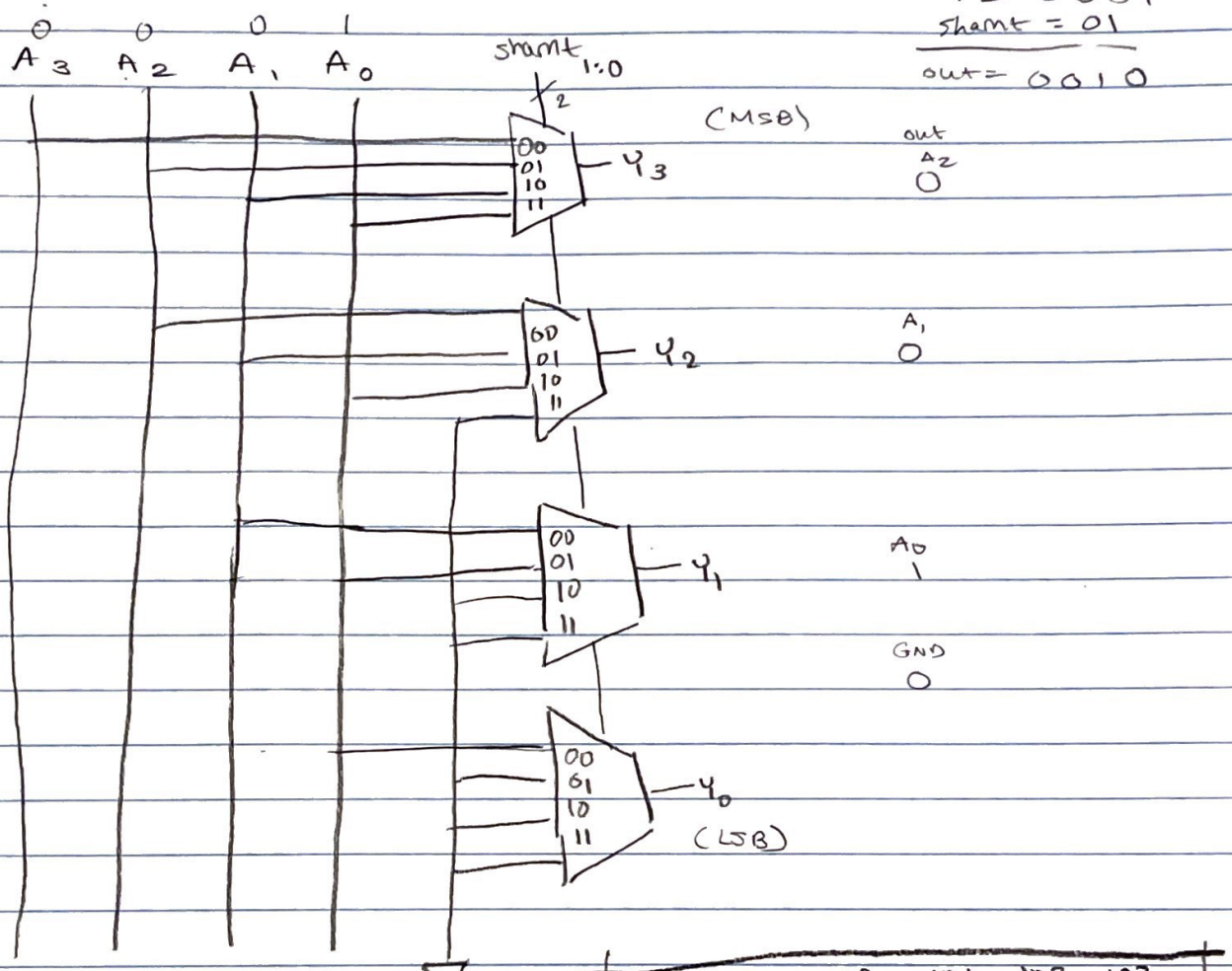
Gates Aher Compare HW 6 Nov 1, 2021

shift-left logical
— takes input, then shifts it to the left by shamt (shift-amount)

from H&H 252 — 4 bit shifter





	in0	in1	in2	in3
mux 0	A_3	A_2	A_1	A_0
mux 1	A_2	A_1	A_0	GND
mux 2	A_1	A_0	GND	GND
mux 3	A_0	GND	GND	GND

0 0 0 0 | 0 0 0 0

1

7

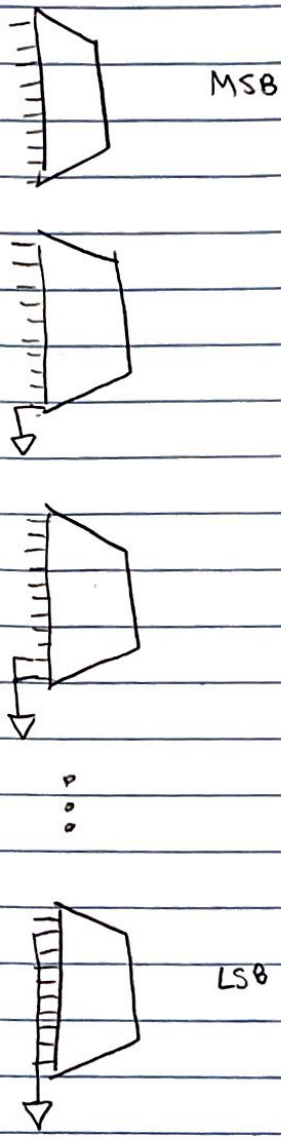
1 0 0 0 | 0 0 0 0

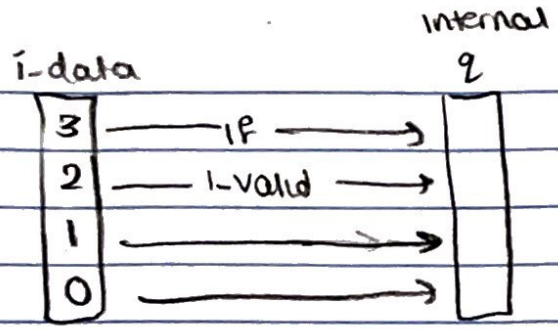
2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0

shamt is 5 bits $[\$clog_2(32)-1:0]$

$[4:0]$

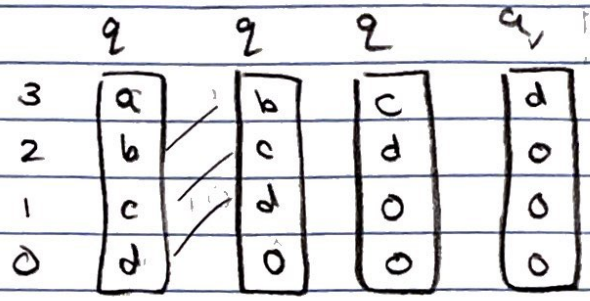
If we use 32 **32:1 mux** then we can build the 32-bit SLL





if MSB_FIRST

else



if LSB_FIRST