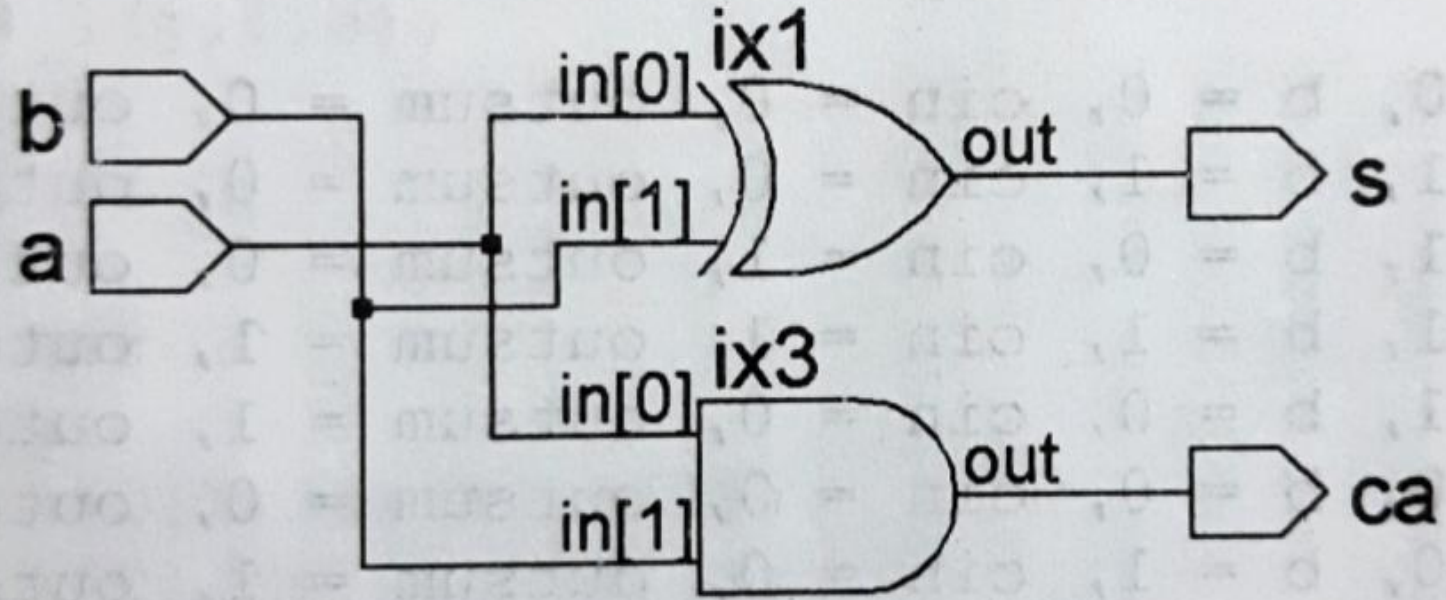
b
a
in[0]
in[1]
ix1
out
s
in[0]
in[1]
ix3
out
ca

Ex: Half Adder.

Gate level Modeling

```
module halfadder(Sum, Carry, a, b);
input  a, b;
output Sum, Carry;
xor  sum1 (Sum, a, b);
and  carry1 (Carry, a, b);
endmodule
```

Behavioral Modeling.

```
module half-adder(Sum, Carry, a, b);
input a, b;
output Sum, Carry;
always @(a or b)
begin
    if (a==0 && b==0)
    begin
     Sum=0; Carry=0;
    end
    else if (a==1 && b==1)
    begin
        Sum=0; Carry=1;
    end
    else
    begin
        Sum=1; Carry=0;
    end
end
endmodule
```