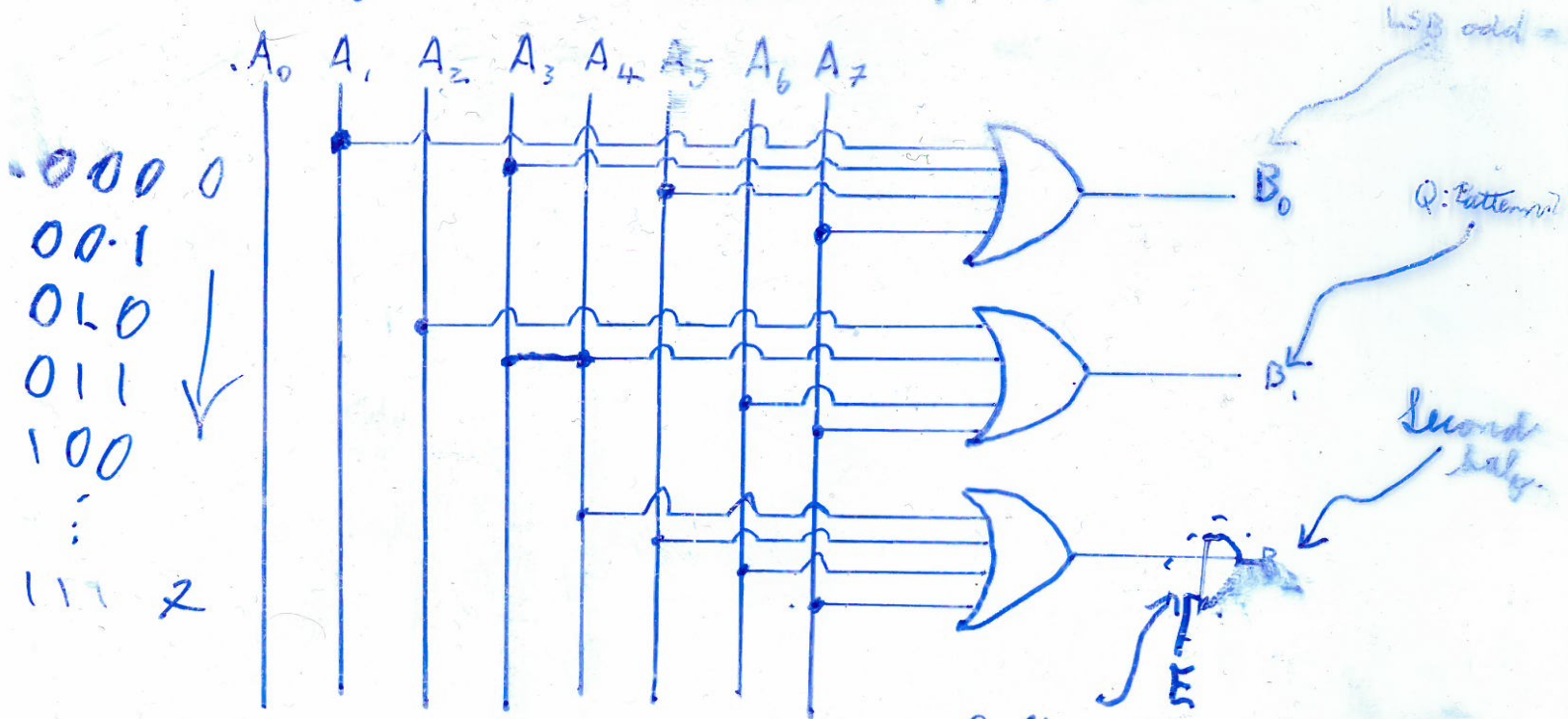


A More Robust Encoder...

But first an alternate impl. for 8 → 3



Q: How do we extend this to incl. E?

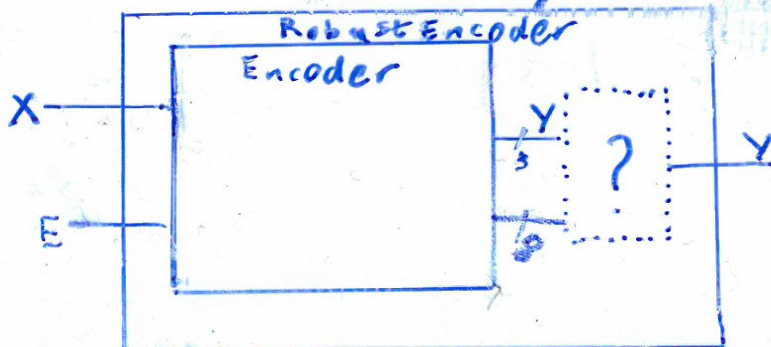
Challenge: Robust Impl.

Problem: Exhaustive truth table has $2^8 = 256$ entries!

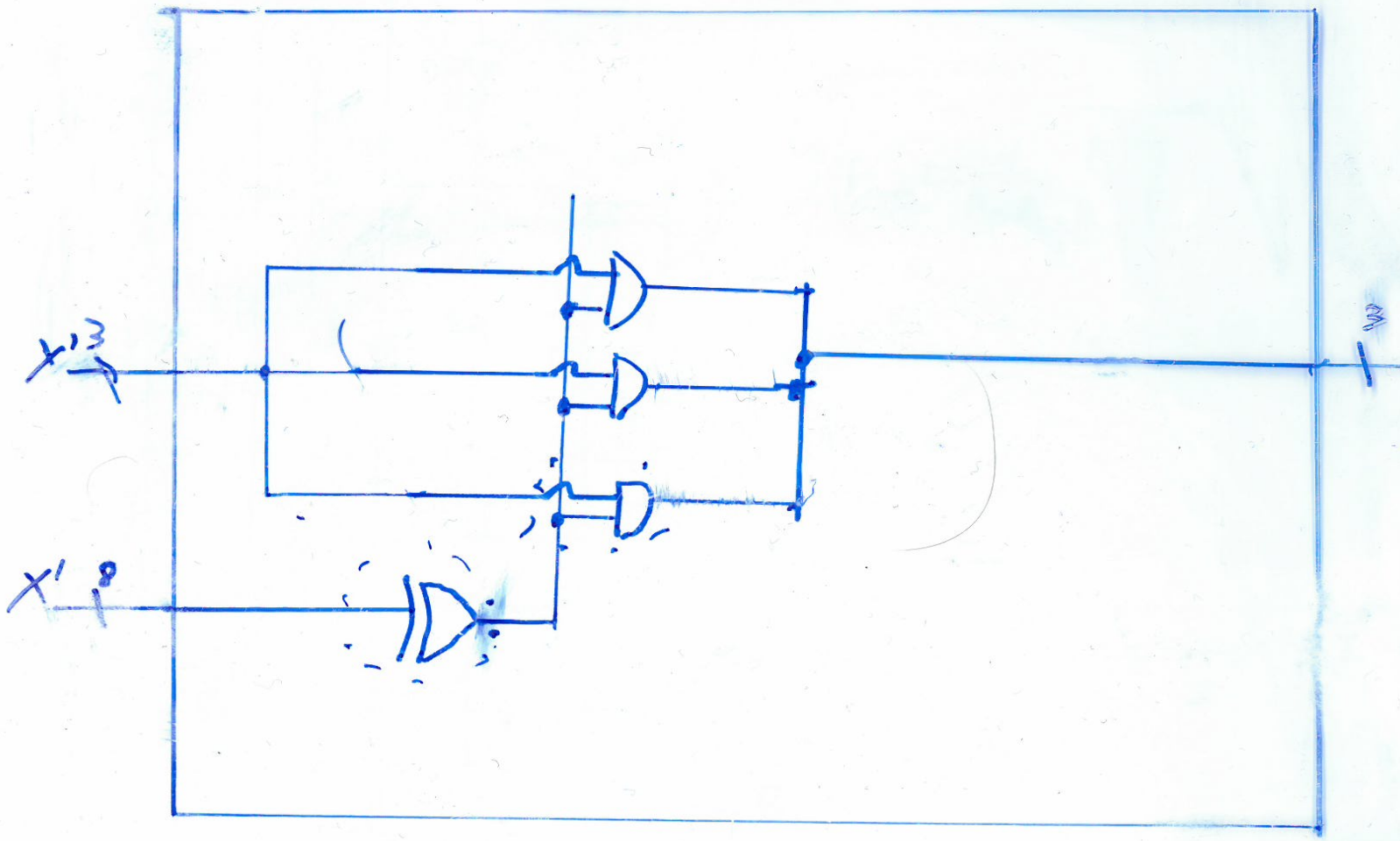
We need a better approach. Unless your time to solve the problem = ∞ .

Problem: What do we do if the one hot input isn't one hot?

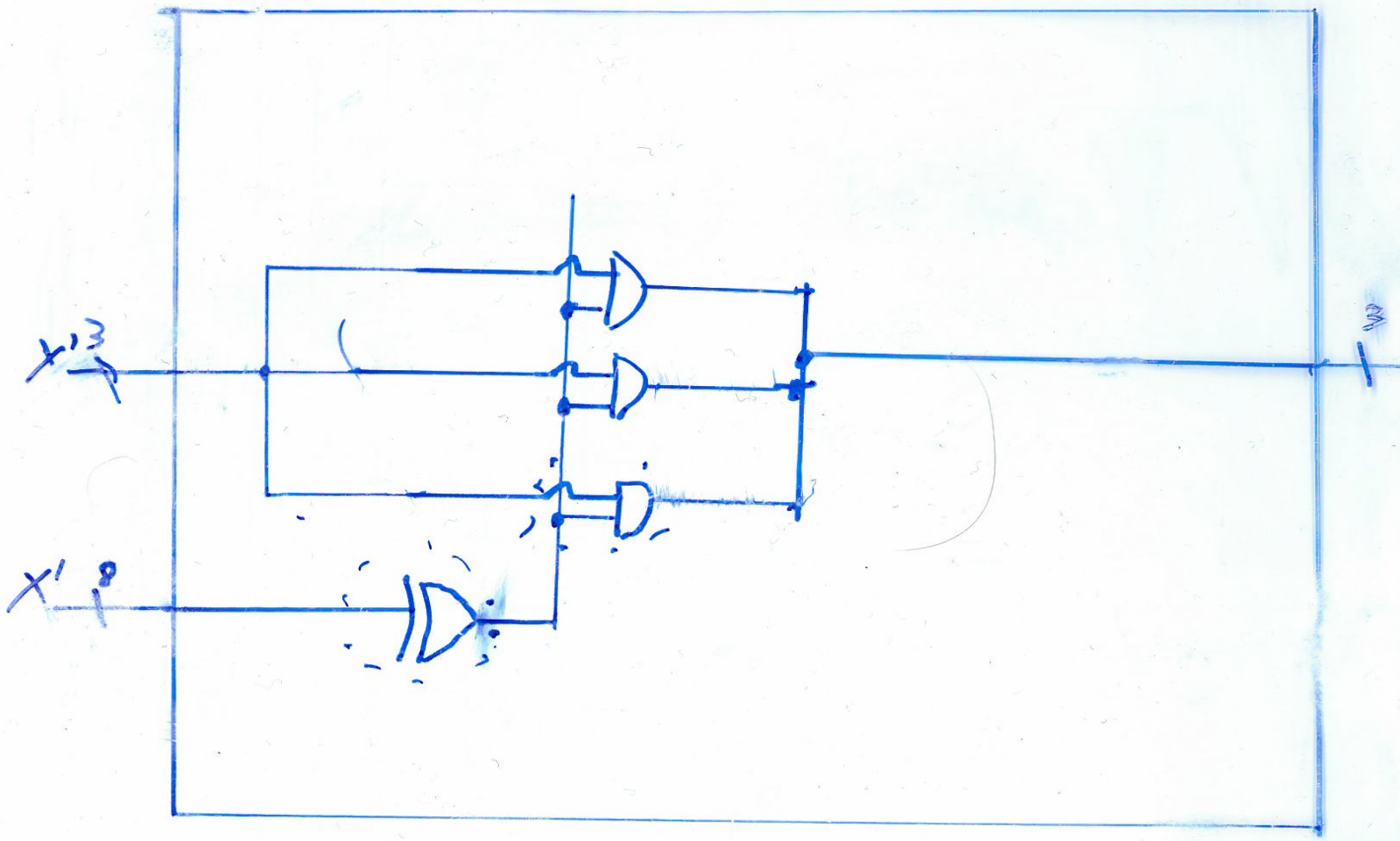
New Design Method!



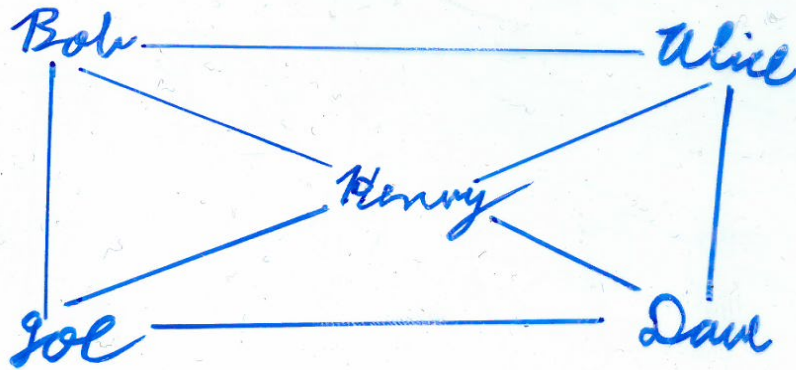
What's In the Box?



What's In the Box?



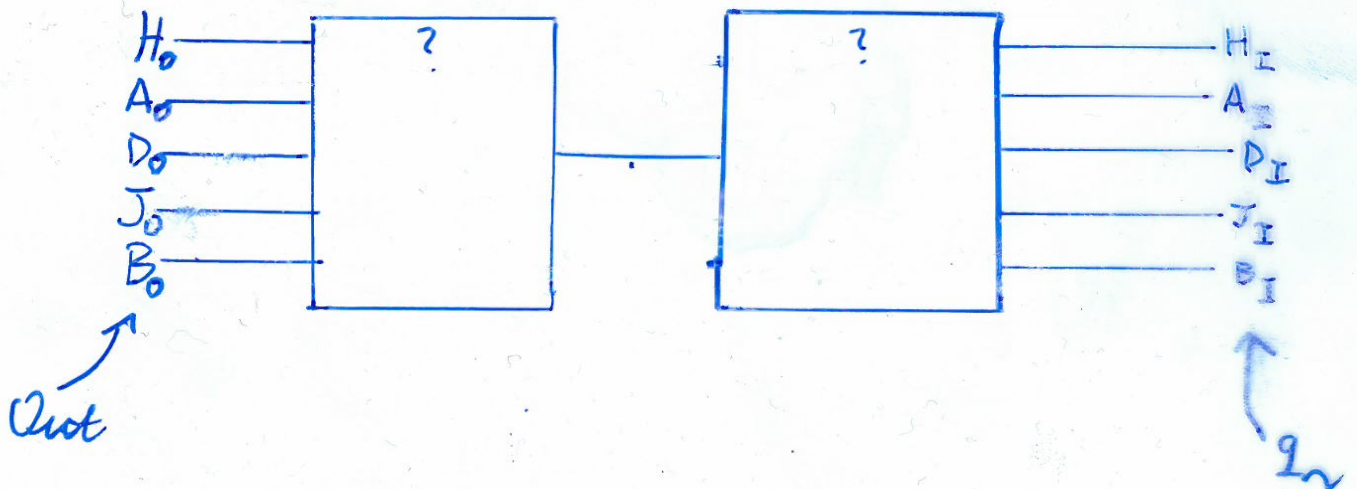
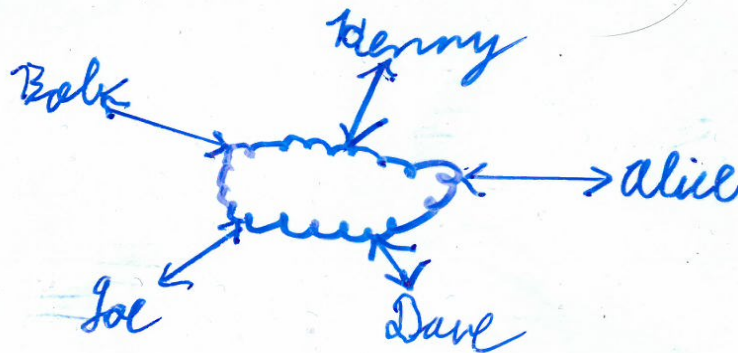
Multiplexers



Suppose we have n people who want to comm. How?

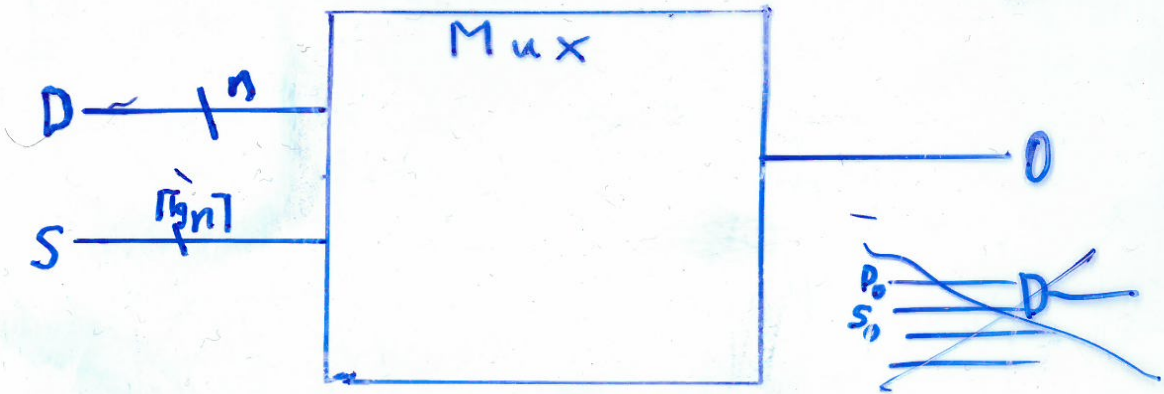
All to all requires $\sim n^2$ wires.
 OK if small but 10 ppl ~ 100 wires!

Solution:



Clearly we need a device which selects from inputs.

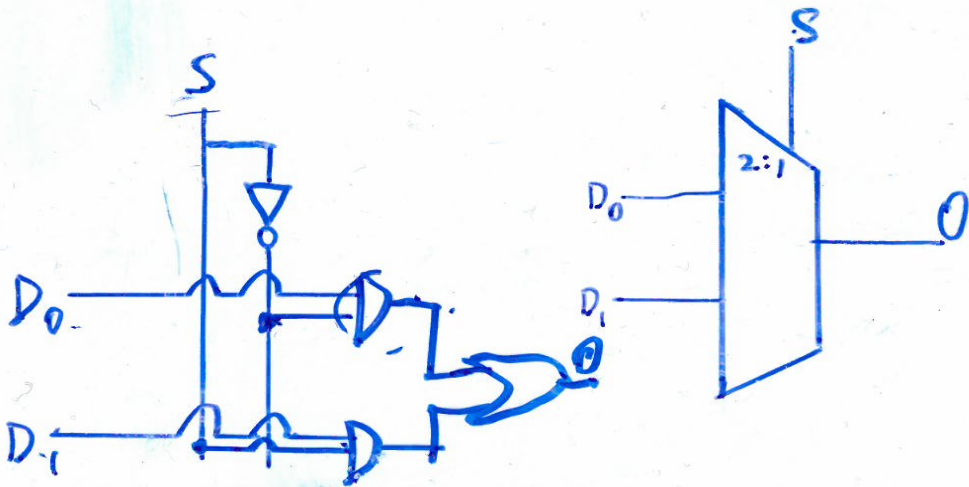
model



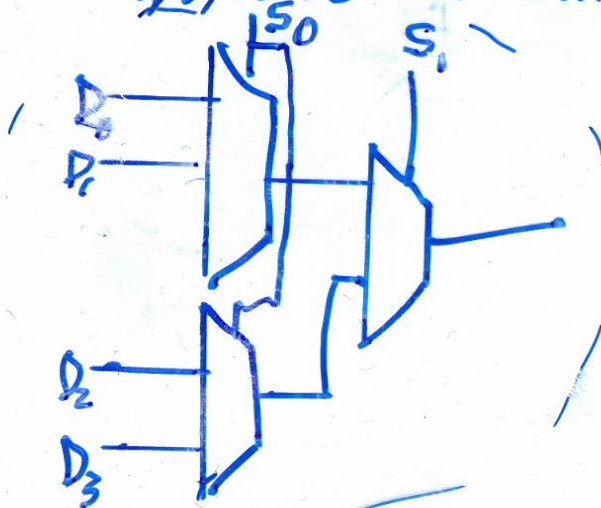
2 → 1 Mux.

S	0	D ₀
1	D ₁	
0	D ₀	

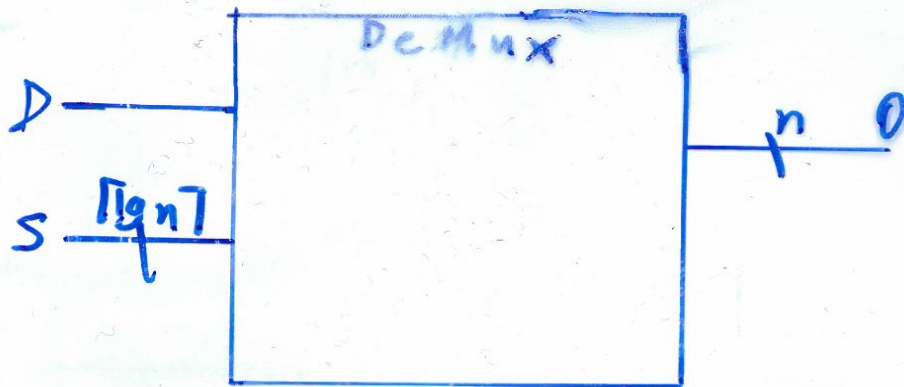
variable sub.



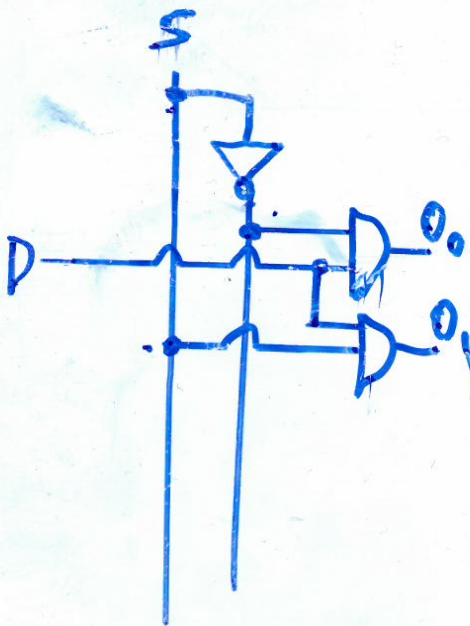
Suppose we want a 4 → 1 Mux...



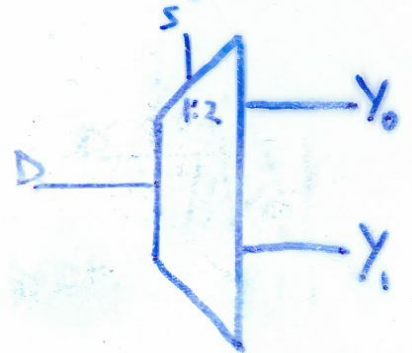
Demux



1 → 2. Draw the truth table:



Symbol:



Build a 2:4 Demux

