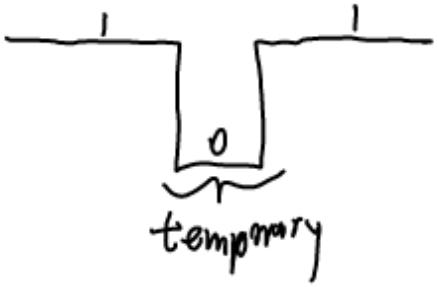
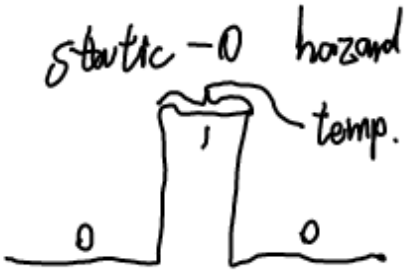
Hazards

* A temporary (unwanted) glitch at a circuit output due to different propagation delays in a circuit.
⇒ Two types: static & dynamic.

Static - 1 hazard

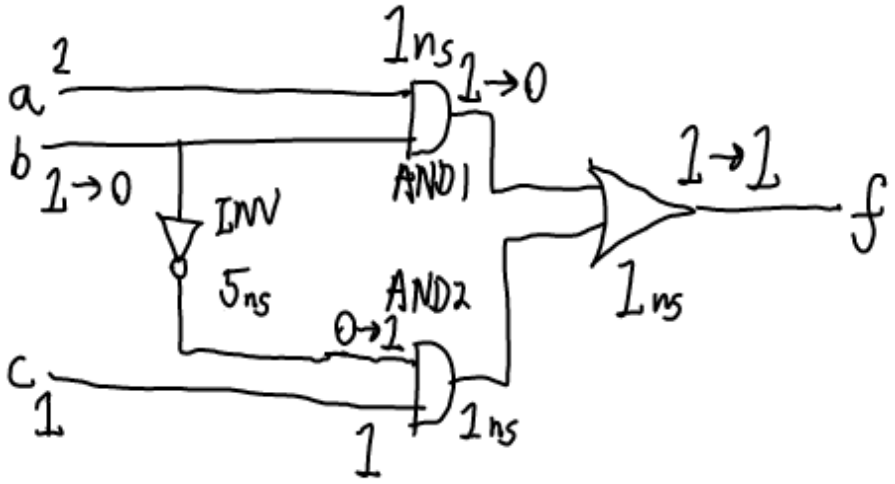


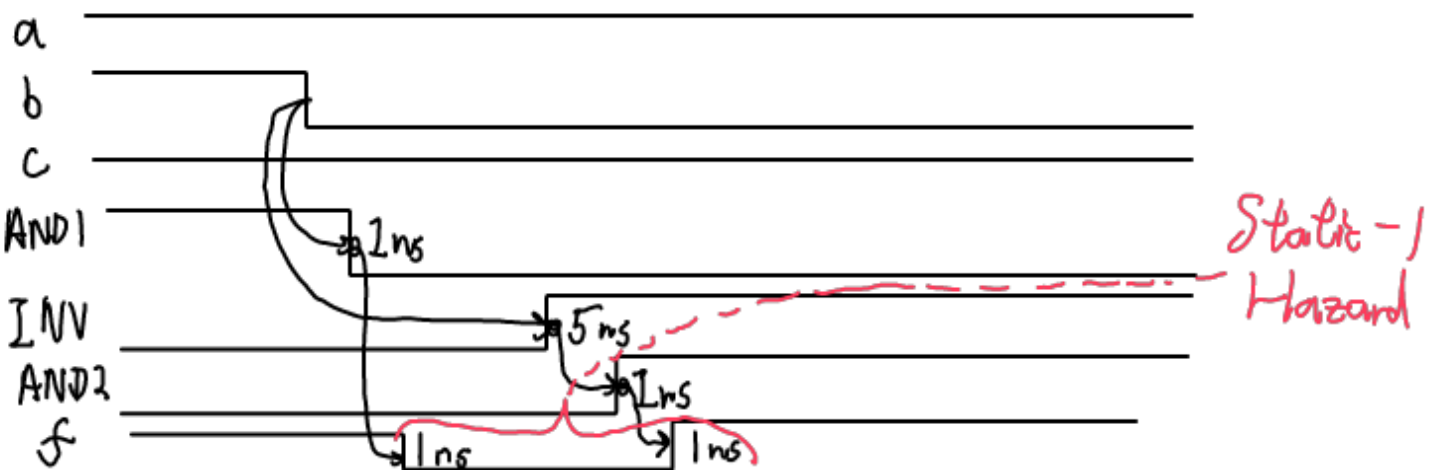
static - 0 hazard



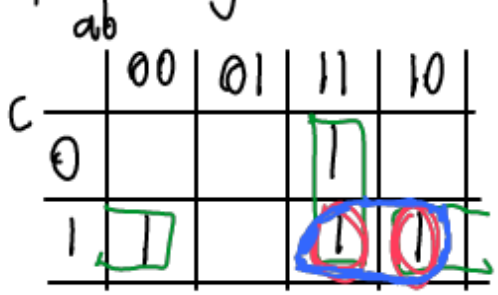
dynamic hazards

Eg:





Static-1 hazards can be fixed in 2-level circuit by adding redundant product terms.

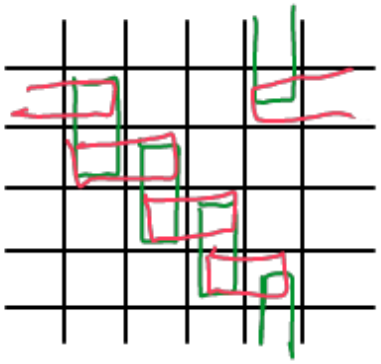


$f = ab + \bar{b}c + ca$

* hazard since you are switching from 1 product term to another.

Sln: Add product term which is independent of changing input.

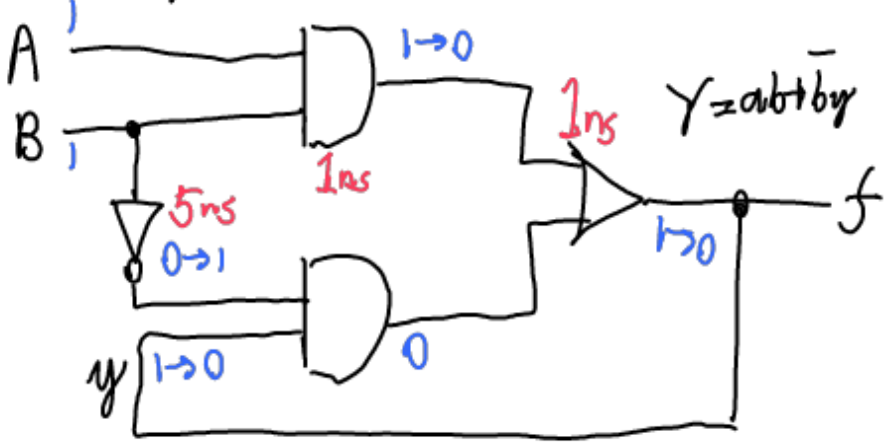
Static-1 hazards appear between adjacent minterms which are not overlapped.



What would you do to fix static-0 hazards in a 2-level circuit?

=> Draw K-map, determine min POS + overlap max terms.

* In SOP-only static-1 problems
  In POS-only static-0 problems.
* No dynamic hazards in 2-level circuits.



Y output

y \ AB	00	01	11	10
0	0,0	0,0	1,0	0,0
1	1,1	0,1	1,1	0,1

because of hazard

finalize means get transition table

Q: Is there potential for something to go wrong due to the hazard? ⟹ Yes