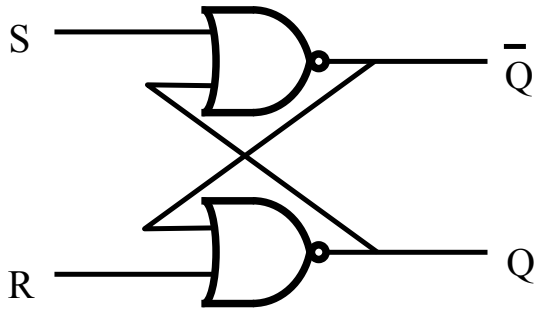
A Simple Latch - Why it works

Consider an R-S Latch, made of NOR gates in the initial state: S = 0, R = 0, Q = 0. t_g is the gate delay of the latch.



At t = 0 : SET S = 1

Initially	t=0	t= t_g	t=2*t_g
S=0			
R=0			
Q = 0			
Q = 1			

At t = t_1 > 2*t_g : make S = 0

Initially	t=0	t= t_g	t=2*t_g
S=1			
R=0			
Q = 1			
Q = 0			

At t=0 : RESET R = 1

Init. (t = 2t_g)	t=0	t= t_g	t=2*t_g
S=0			
R=0			
Q = 1			
Q = 0			