WE3.1

Bookmark this page

Video explanation of solution is provided below the problem.

CMOS Functions

1/1 point (ungraded)

A single CMOS gate, consisting of an output node connected to a single pullup circuit containing zero or more PFETs and a single pulldown circuit containing zero or more NFETs, computes F(A, B, C, D). It is observed that F(1,0,1,1) = 1. What can you say about the value of F(1,0,0,0)?

F(1, 0, 0, 0) = 1 ✔ Answer: 1

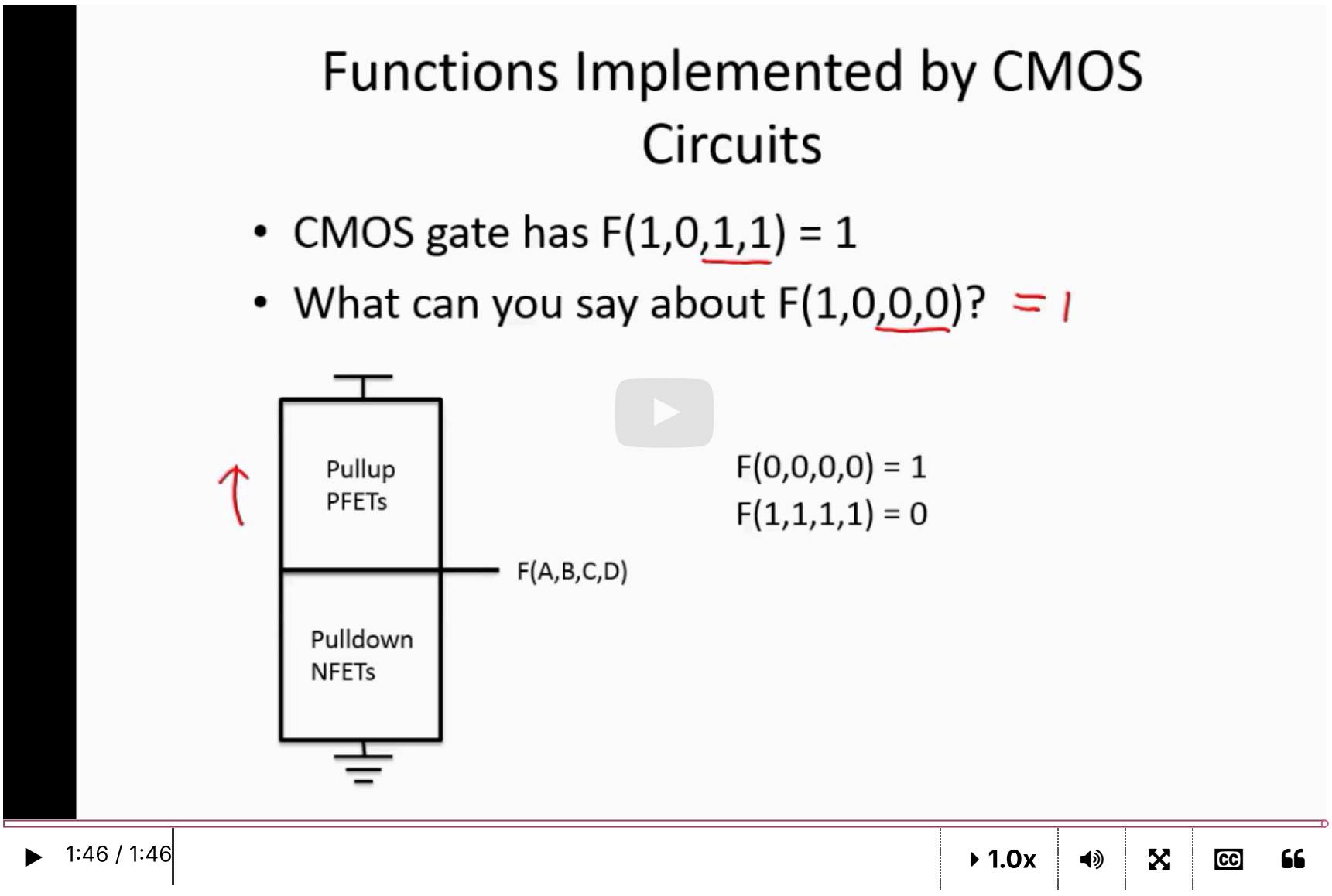
Explanation

We know that this CMOS gate outputs 1 when the second input is connected to a 0 and all other inputs are connected to 1s. 0 inputs dictate which PFETs are on and make the output 1, and 1 inputs dictate which NFETs are on and make the output 0. If we change some inputs from 1 to 0, we know that we are turning some NFETs off and some PFETs on. Since we already get 1 as an output with just the second input connected to 0, changing even more inputs to 0 can only mean that our output will remain a 1.

Submit

Answers are displayed within the problem

CMOS Functions



Video

Download video file

Transcripts

Download SubRip (.srt) file

Download Text (.txt) file

Discussion

Topic: 3. CMOS / WE3.1

Hide Discussion

Add

Calculator

Show all posts by recent activity

Observation on CMOS circuits 3

If I did something "stupid" like build a circuit so the output F(A,B,C,D) is equal to D, then F(1,0,1,1) =1 and F(1,0,0,0)=0. It seems there...

Previous Next

Calculator