

# Presentation Slides

## Chapter 8

### Arbiters

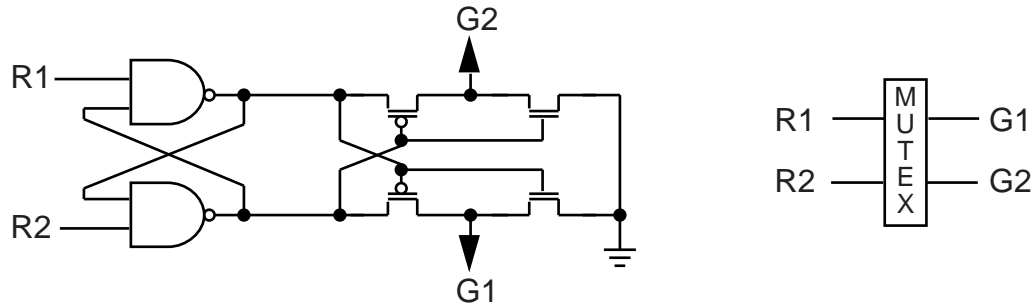
# Logically Determined Design: Clockless System Design With NULL Convention Logic

by Karl Fant

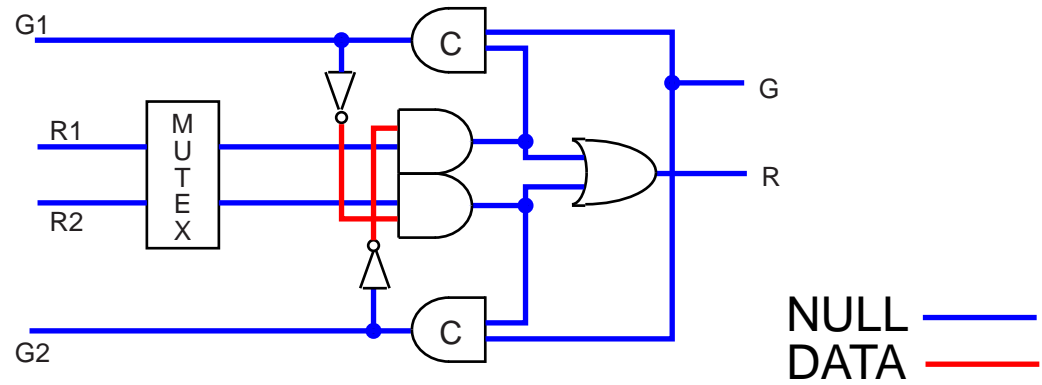
John Wiley & Sons, Inc.

# The MUTEX and the Arbiter

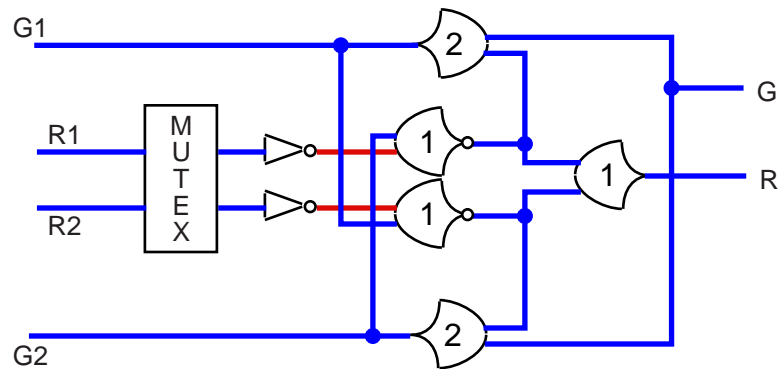
CMOS MUTEX



Standard version of arbiter

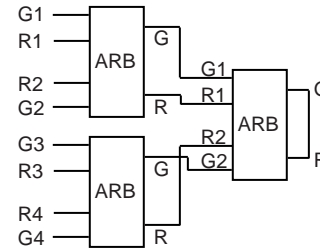


NCL version of arbiter

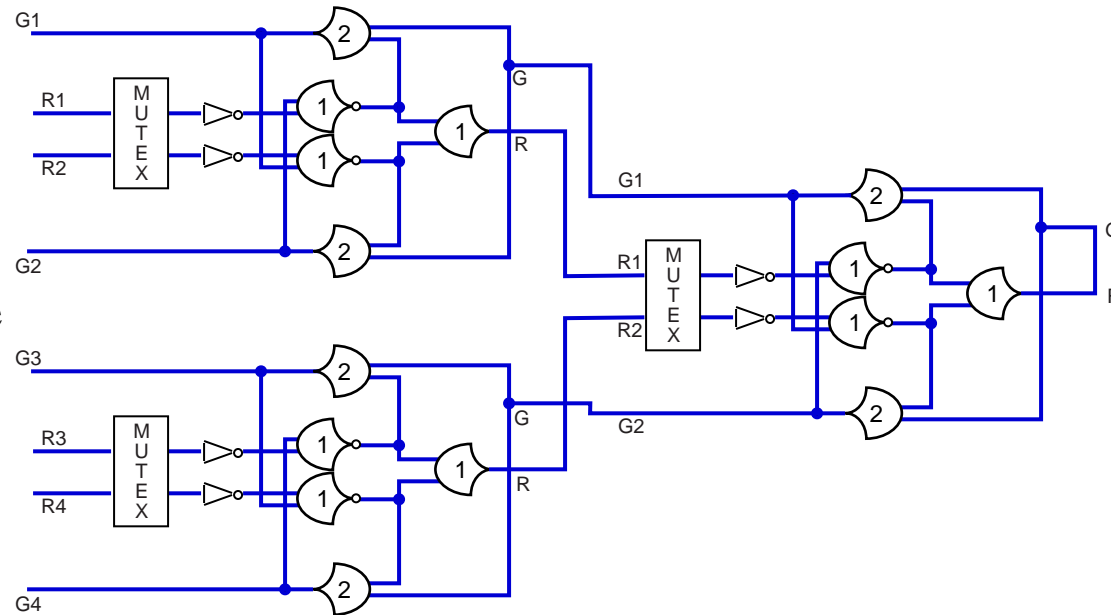


# The Arbiter Funnel

Arbiter funnel/tree

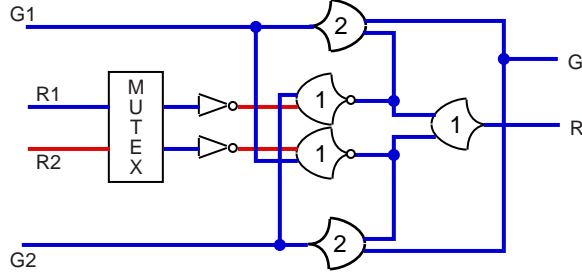


NCL  
Arbiter funnel/tree

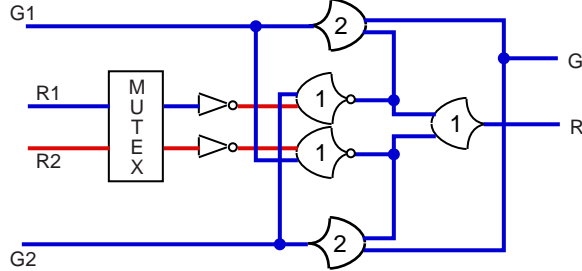


# Arbiter Behavior 1

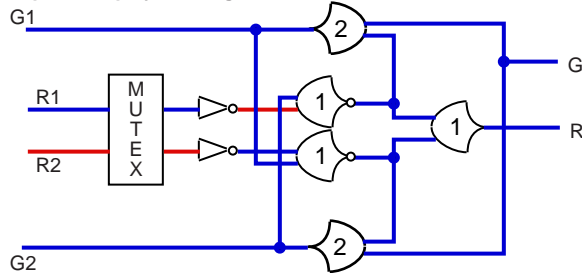
**1** Request R2 arrives



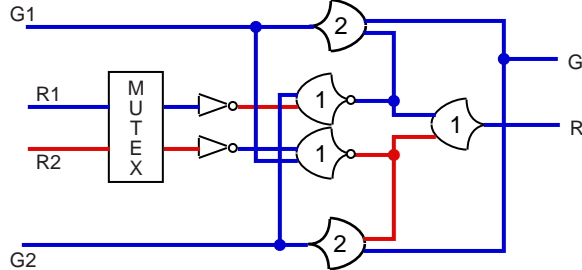
**2** Request R2 is allowed by the MUX



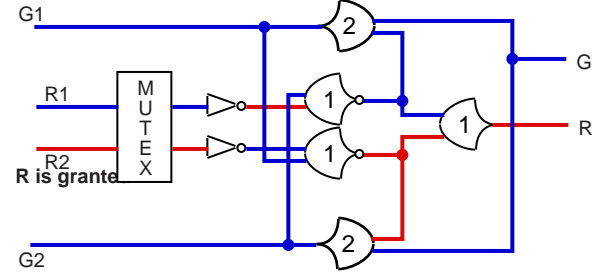
**3** Request R2 plays through the inverter



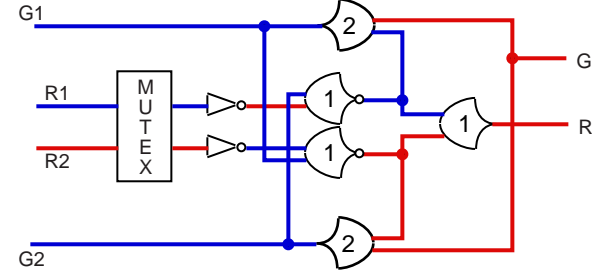
**4** Request R2 plays through the threshold 1 operator



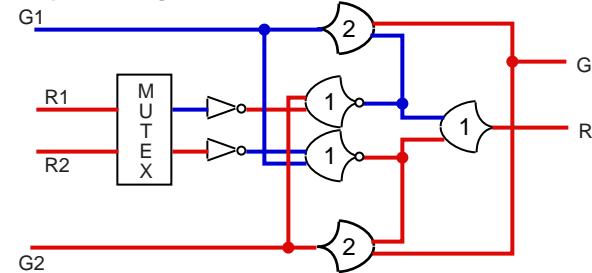
**5** The allowance plays through to the R output



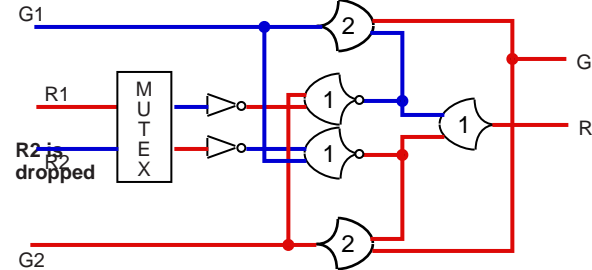
**6** R plays back through G



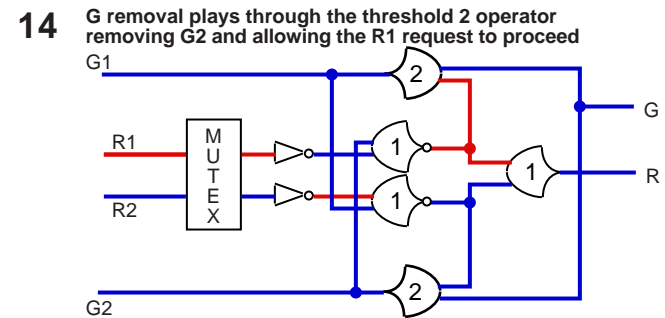
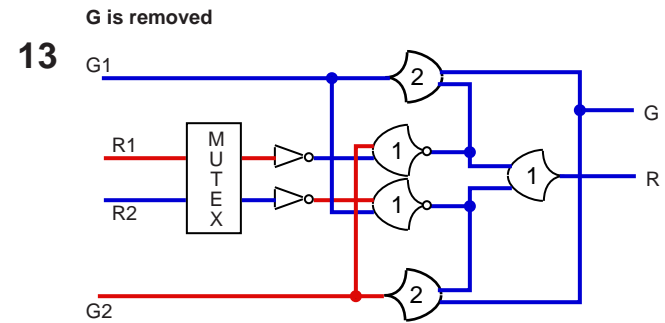
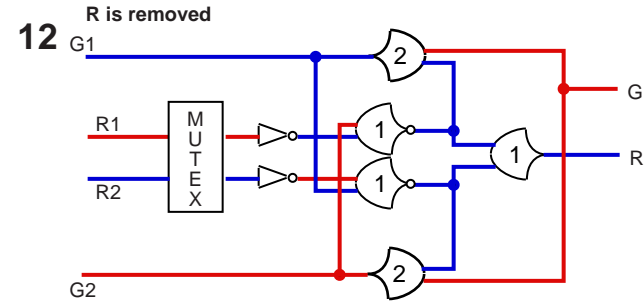
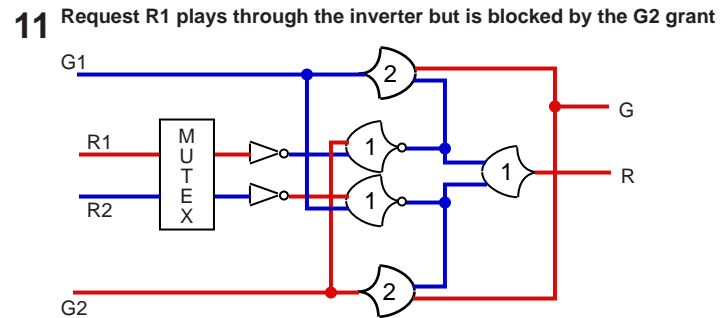
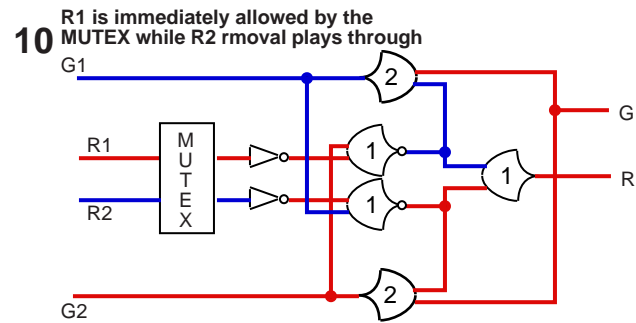
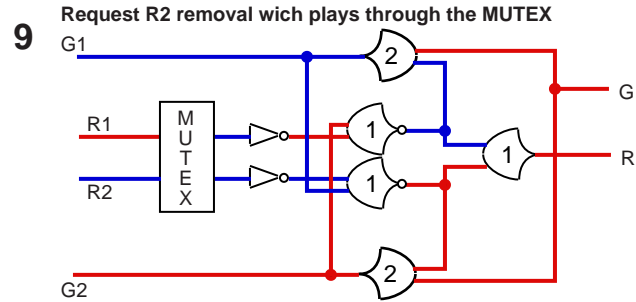
**7** R1 arrives  
Request R2 is granted with G2



**8** Request R2 is removed with plays through the MUX



# Arbiter Behavior 2



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