Problem Set 8

Due: In class on Wednesday, April 14. Starred problems are optional.

Problem 7-1.

(a) Draw an electrical schematic (transistor-level circuit) for a 2-input NOR gate.

(b) Draw a CMOS layout of a 2-input NOR gate.

(c) Draw an electrical schematic for a gate that computes $F = \overline{(A + B + C) \cdot D}$.

Problem 7-2. * Consider a bounded-degree routing network with n inputs and n outputs, where each input contains 1 packet. Show that if each of the n packets chooses an output destination randomly and independently, then the congestion is $\Omega(\lg n / \lg\lg n)$.