CS-341 Lecture 14

March 23, 2001

Homework 7

- Due March 30
- Chapter 3, exercises 7, 8, 9, 10, 11.

Simplifying Networks
Minimization

- Algebraic
  - Pair terms that differ in exactly one literal, which must be the same variable in its asserted (such as *x)* and complemented (such as *x'*) form.
  - *x•1 = x*
  - *x+x'= 1*
  - *So, x •(y+y') = x*
- Karnaugh Map
  - Same idea as algebraic, except works from truth table.
  - Arrange truth table so rows that differ in one literal are adjacent to each other.
  - Adjacent minterms that number a power of two can be combined into one simpler term.
  - All minterms must be included, but it's okay to include one more than once if helps.

Programmable Logic Devices

- Programmable Logic Array (PLA)
  - Fuses between inputs and AND gates
  - Fuses between AND Gates and OR gates
- Programmable Array Logic (PAL)
  - Fuses between inputs and AND gates
- Programmable Read Only Memory (PROM)
  - Fuses between AND gates and OR gates