Dominators and Loops
(Blackboard Lecture)

CS 4447 / CS 9545

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Dominators and Loops

- **The "dom" relationship** on flow graph nodes:
  d dom n if every path from the entry to n goes through d.
  Transitive, anti-symmetric.

- **The dominator tree.**

- Dept-first spanning trees.
  Advancing edges, retreating edges, cross edges.
  Back edges.

- **Loop headers.**
  Code motion and pre-headers.
  Instruction pipelining for inner loops.
  Duff's device. Cloning loop body to have unique entry point.