April 16, 2025 Outline

Reading: *text*,§5.1–5.2.2, A **Due:** Homework #2, due April 28; Project selection, due April 16

Module 16 (Reading: *text*, §Appendix A)

1. Lattices

Module 17 (Reading: *text*, §5.1–5.2.2)

2. Bell-LaPadula Model: intuitive, security classifications only
   (a) Level, categories, define clearance and classification
   (b) Simple security condition (no reads up), *-property (no writes down), discretionary security property
   (c) Basic Security Theorem: if it is secure and transformations follow these rules, it will remain secure
3. Bell-LaPadula Model: intuitive, now add category sets
   (a) Apply lattice
      i. Set of classes *SC* is a partially ordered set under relation *dom* with *glb* (greatest lower bound), *lub* (least upper bound) operators
      ii. Note: *dom* is reflexive, transitive, antisymmetric
      iii. Example: (A,C) *dom* (A',C') iff $A \leq A'$ and $C \subseteq C'$;
      $lub((A,C),(A',C')) = (max(A,A'),C \cup C')$; and
      $glb((A,C),(A',C')) = (min(A,A'),C \cap C')$
   (b) Simple security condition (no reads up), *-property (no writes down), discretionary security property
   (c) Basic Security Theorem: if it is secure and transformations follow these rules, it will remain secure
4. Maximum, current security level
5. Example: Trusted Solaris