**Bell-LaPadula Model**

![Diagram](image)

**Lattice Models**

- **Lattice Model**
  - subjects
  - objects
  - security classes (SC)

  (object x is in security class \( x \))

- **Flow Policy:**
  - (SC, \( \rightarrow \))
  - \( \rightarrow \) is a reflexive, antisymmetric, transitive relation over SC
  - information is allowed to flow from object x to object y iff \( \overline{x} \rightarrow y \).

**Lattice Flow Policy:**
A flow policy is a lattice if there exists least upper bound and greatest lower bounds on SC
An Example Lattice

(110) = (010) ⊕ (100)
(000) = (010) ⊗ (100)

Certification of Information Flow

For:
\[ b := f(a_1, \ldots, a_n) \]
verify that:
\[ a_1 + \ldots + a_n \rightarrow b \]

For:
\[ \text{if } e \text{ then } S_1 \text{ else } S_2 \]
verify that:
\[ e \rightarrow S_1 \times S_2 \]

where:
\[ S_1 = \{ b | b \text{ is a target of an assignment in } S_1 \} \]
\[ S_2 = \{ b | b \text{ is a target of an assignment in } S_2 \} \]