

1 Mathematical Preliminaries

- Union (\cup) is **or**, Difference (\cap) is **and**.
- $\{1, 2, 3, 4, 5\} - \{2, 4, 6\} = \{1, 3, 5\}$
- $S_1 = \{a, b\} \times \{1, 2, 3\} = \{(a, 1), (a, 2), (a, 3), (b, 1), (b, 2), (b, 3)\}$
- $\{1, 2, 3\} \not\subset \{1, 2, 3\}$, while $\{1, 2, 3\} \subset \{1, 2, 3, 4\}$ (it reads subset of)
 - No cycle = acyclic
 - directed = digraph
 - directed, acyclic = dag