

| | | objects (entities) | | | | | | subjects |
|-------|--|--------------------|-----|-------|-------|-----|-------|----------|
| | | o_1 | ... | o_m | s_1 | ... | s_n | |
| s_1 | | | | | | | | |
| s_2 | | | | | | | | |
| ... | | | | | | | | |
| s_n | | | | | | | | |

- Subjects $S = \{s_1, \dots, s_n\}$
- Objects $O = \{o_1, \dots, o_m\}$
- Rights $R = \{r_1, \dots, r_k\}$
- Entries $A[s_i, o_j] \subseteq R$
- $A[s_i, o_j] = \{r_x, \dots, r_y\}$
means subject s_i has rights r_x, \dots, r_y over object o_j

- Processes p, q
- Files f, g
- Rights r, w, x, a, o

| | | f | g | p | q |
|-----|--|-------|------|--------|--------|
| p | | rwo | r | $rwxo$ | w |
| q | | a | ro | r | $rwxo$ |
| | | | | | |

Types of Access Control (AC)

Two types of access control; Left to discretion of user and OS controls access

- **Discretionary Access Control (DAC, IBAC)** (Identity Based)
 - ▣ individual user sets access control mechanism to allow or deny access to an object Rely on identity of S and O
- **Mandatory Access Control (MAC)** (Rule Based AC)
 - ▣ system mechanism controls access to object, and individual cannot alter that access
- **Originator Controlled Access Control (ORCON)**
 - ▣ originator (creator) of information controls who can access information