Examples of relations
16 Janaury 2018

Jim –Mary   Alice — John

Bob   Joe   Sue—Jerry

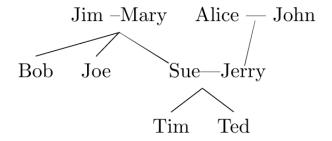Tim   Ted

Let

$$A = \{\text{Jim}, \text{Mary}, \text{Bob}, \text{Joe}, \text{Sue}, \text{Jerry}, \text{Alice}, \text{John}, \text{Bill}, \text{Tim}, \text{Ted}\}.$$

Some relations on $A \times A = A^2$

1. "Spouse" relation R_{spo}

$$R_{\text{spo}} = \Big\{(\text{Jim, Mary}),\ (\text{Mary, Jim}),\ (\text{Alice, John}),\ (\text{John, Alice}),\ (\text{Sue,}$$
$$\text{Jerry}),\ (\text{Jerry, Sue})\Big\}$$

We write $(\text{Jim}, \text{Mary}) \in R_{\text{spo}}$ to mean "Jim is the spouse of Mary". It is also common to write $\text{Jim} R_{\text{spo}} \text{Mary}$ to mean the same thing.

2. "Sibling of" relation R_{sib}

$$R_{\text{sib}} = \Big\{(\text{Bob, Joe}),\ (\text{Joe, Bob}),\ (\text{Bob, Sue}),\ (\text{Sue, Bob}),\ (\text{Joe, Sue}),$$
$$(\text{Sue, Joe}),\ (\text{Tim, Ted}),\ (\text{Ted, Tim})\Big\}$$

3. "Sister of" relation R_{sis}

$$R_{\text{sis}} = \Big\{(\text{Sue, Bob}),\ (\text{Sue, Joe})\Big\}$$

4. "Grandfather of" relation R_{grf}

$$R_{\text{grf}} = \Big\{(\text{Jim,Tim}),\ (\text{Jim, Ted}),\ (\text{John, Tim}),\ (\text{John, Ted})\Big\}$$