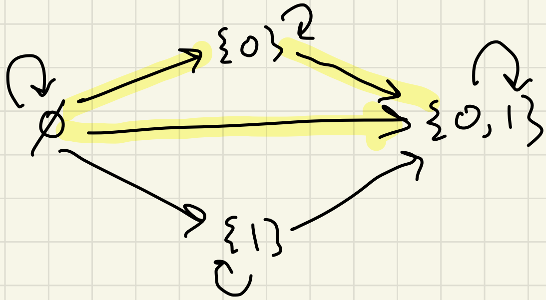
	$<$	M5	$\subseteq$ on $P(S)$	prereqs
reflexive	N	Y	Y	N
irreflexive	Y	N	N	Y
symmetric $a \rightleftarrows b$	N	Y	N	N
anti-symmetric	Y	N	Y	Y
transitive $a \to b \to c$	Y	Y	Y	Y
equivalence	N	Y	N	N
partial order	N	N	Y	N
strict partial order	Y	N	N	Y
total order	N	N	N	N
strict total order	Y	N	N	N

<u>ex</u> $\subseteq$ on $P(S)$ $S = \{0, 1\}$

$P(S) = \{\emptyset, \{0\}, \{1\}, \{0,1\}\} = A$

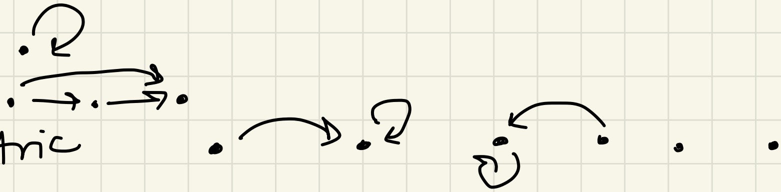
$\emptyset \subseteq \{0\}$
$\emptyset \subseteq \{1\}$
$\emptyset \subseteq \{0,1\}$
$\emptyset \subseteq \emptyset$



<u>ex</u> prereqs

Def A binary relation R on set A is a <u>partial order</u> if R is:

- reflexive
- transitive
- anti-symmetric



Def A binary relation R on a set A is a <u>strict partial order</u> if:

- irreflexive
- transitive
- anti-symmetric

Def A partial order is a <u>total order</u> if all pairs of elts from A are comparable.

non-ex prereqs, $\subseteq$ on $\mathcal{P}(S)$

$$\{0\} \not\subseteq \{1\}$$

$$\{1\} \not\subseteq \{0\}$$

ex $\leq$ on $\mathbb{Z}$. Let $a, b \in \mathbb{Z}$ either $a \leq b$ or $b \leq a$.

Def A strict partial order is a <u>strict total order</u> if all pairs of elts are comparable
diff.

ex $<$. $a, b \in \mathbb{Z}$ either $a < b$ or $b < a$.

$1 \not< 1$ and $1 \not< 1$