

$$M = \langle W, R, V \rangle$$

$$W = \{w_1, w_2, \dots\}$$

$$R = \{ \langle w_i, w_j \rangle \mid w_i, w_j \in W \}$$

$$V: \text{VarL} \rightarrow P(W)$$

$$M, w_1 \models p \Leftrightarrow w_1 \in V(p)$$

$$M, w_1 \models \Box \varphi \Leftrightarrow \forall w' (w_1 R w' \rightarrow M, w' \models \varphi)$$

$$M, w_1 \models \Diamond \varphi \Leftrightarrow \exists w' (w_1 R w' \wedge M, w' \models \varphi)$$

G

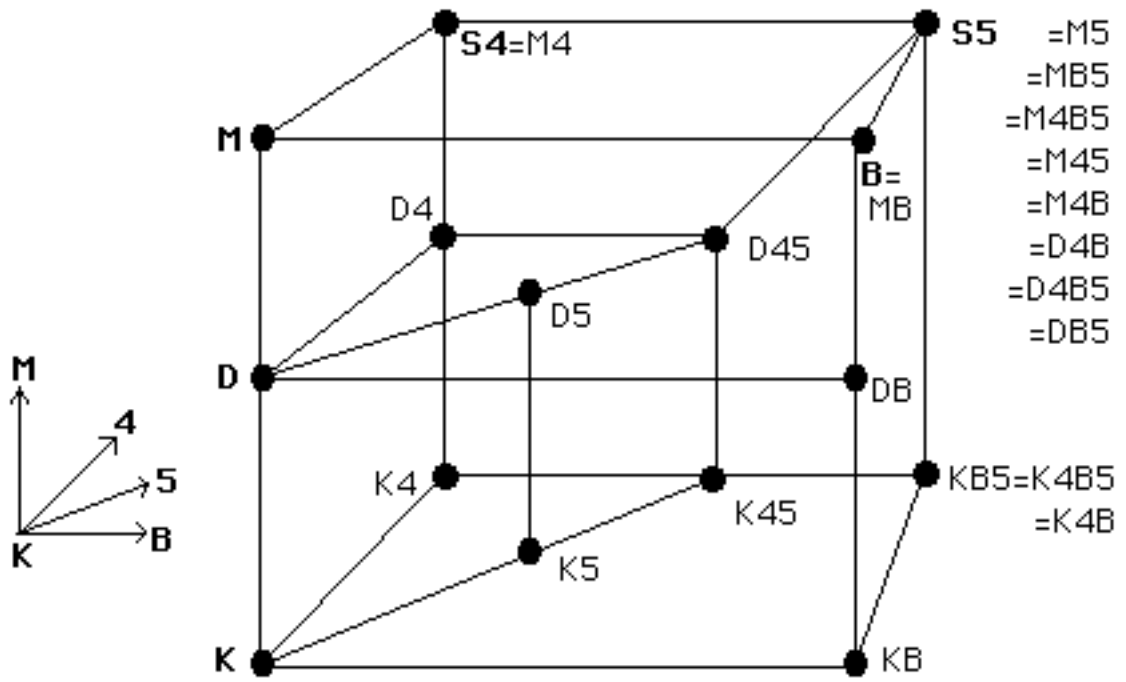
$\vdash \varphi$

$\vdash \Box \varphi$

K

$$\Box(\varphi \rightarrow \psi) \rightarrow (\Box \varphi \rightarrow \Box \psi)$$

<i>T</i> (<i>M</i>) $\Box \varphi \rightarrow \varphi$	$\forall x x R x$
<i>D</i> $\Box \varphi \rightarrow \Diamond \varphi$	$\forall x \exists y x R y$
<i>B</i> $\varphi \rightarrow \Box \Diamond \varphi$	$\forall x \forall y (x R y \rightarrow y R x)$
<i>4</i> $\Box \varphi \rightarrow \Box \Box \varphi$	$\forall x \forall y \forall z ((x R y \wedge y R z) \rightarrow x R z)$
<i>5</i> $\Diamond \varphi \rightarrow \Box \Diamond \varphi$	$\forall x \forall y \forall z ((x R y \wedge x R z) \rightarrow y R z)$



Д/З

Доказать:
 $T5 \vdash 4$