CONGRUENȚE / cursul 11

• B alg Boole $\sim \in \mathcal{E}(B)$ $\overset{def}{\iff}$ $\sim \in Echiv(B)$ a.î. $\forall x, y, x', y' \in B):$

$$\boxed{\begin{array}{c} 0 \sim 0 \\ 1 \sim 1 \end{array}}$$

$\begin{cases} (1) \ dc \ x \sim x', \ \& \ y \sim y' \Rightarrow x \lor y \sim x' \lor y' \\ (2) \ dc \ x \sim x', \ \& \ y \sim y' \Rightarrow x \land y \sim x' \land y' \\ (3) \ de \ /\!/ x \sim x' \Rightarrow \bar{x} \sim \bar{x'} \end{cases}$

$(2),(3) \Rightarrow (1)$ $\quad \overline{x} \sim \overline{x'}$ $\xrightarrow{(3)}$ $\overline{y} \sim \overline{y'}$

$\overline{x} \land \overline{y} \sim \overline{x'} \land \overline{y'} \Rightarrow$

$\overset{(3)}{\Rightarrow} \overline{\overline{x} \land \overline{y}} \sim \overline{\overline{x'} \land \overline{y'}} \iff \overline{\overline{x}} \lor \overline{\overline{y}} \sim \overline{\overline{x'}} \lor \overline{\overline{y'}} \Rightarrow x \lor y \sim x' \lor y'$

• **Analog** pt $(1),(3) \Rightarrow (2)$

$\xrightarrow{(3)} \overline{x} \sim \overline{x'} \xrightarrow{(1)} \overline{x} \lor y \sim \overline{x'} \lor y' \iff x \to y \sim x' \to y'$

Analog $y \to x \sim y' \to x'$

$\Longrightarrow (x \to y) \land (y \to x) \sim (x' \to y') \land (y' \to x') \iff x \leftrightarrow y \sim x' \leftrightarrow y'$

mult congruentelor lui B

• $\mathcal{E}(B) \simeq \mathcal{F}(B)$
   $\hookrightarrow$ mult. filtrelor lui B

se construiește o aplicatie $\begin{cases} \mathcal{F}(B) \to \mathcal{E}(B) \\ \mathcal{F} \to \sim_{\mathcal{F}} \subseteq B^2, \ (\forall x, y \in B) \\ x \sim_{\mathcal{F}} y \overset{def}{\iff} x \leftrightarrow y \in \mathcal{F} \end{cases}$

apl. $\begin{cases} \mathcal{E}(B) \to \mathcal{F}(B) \\ \sim \to \hat{\mathcal{F}}_\sim \overset{def}{=} \{x \in B \mid x \sim 1\} \\ \qquad\qquad\quad \text{clasa de echiv a lui 1} \end{cases}$

$\mathcal{E}(B) \simeq \mathcal{F}(B)$
$(\sim) \qquad (\forall \mathcal{F})$
$\sim_{\mathcal{F}_\sim} = \sim \ \Big| \ \mathcal{F}^{\sim_{\mathcal{F}}} = \mathcal{F}$

• B alg Boole $\quad a, b, x \in B; \ \mathcal{F} \in \mathcal{F}(B)$. At.:

(1) $a \sim_{(x)} b \iff a \land x = b \land x$

(2) $a \sim_{\mathcal{F}} b \iff (\exists f \in \mathcal{F}) \ a \land f = b \land f$