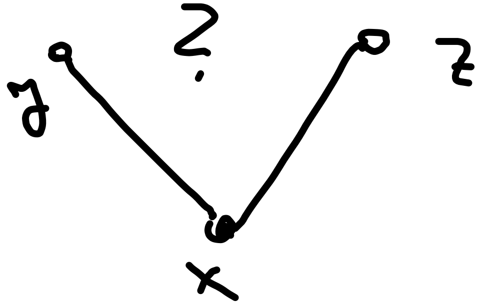
$$\text{AS:}\quad \left.\begin{array}{l}(x,y)\in R\\ (y,x)\in R\end{array}\right\} \Rightarrow x=y$$

$$\left.\begin{array}{l}x\leq y\\ y\leq x\end{array}\right. \Rightarrow x=y$$

$$R \setminus \{(x,x);\ x\in M\}$$

Ostré uspořádání

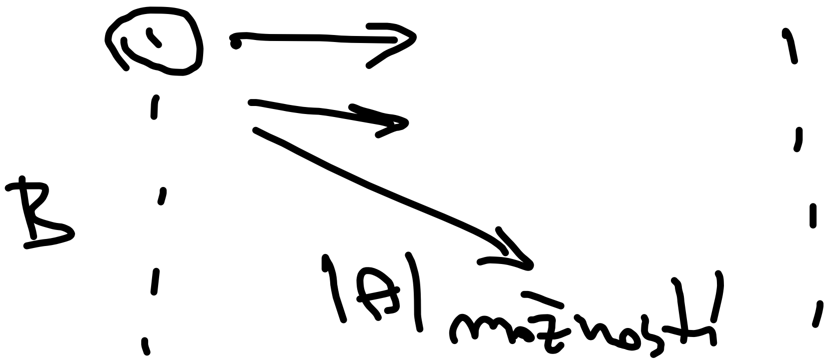


$x<y$ $\quad x<z$

$\mathcal{P}(K) = 2^K$

A^B ... všechna zobrazení z B do A

A, B konečné, ? je zobrazení z B do A $\to$ $|A|^{|B|}$



$2^K \ni M$ $\quad K \longrightarrow 2 = \{0,1\}$ $\quad \bullet : 1 \quad \bullet : 0$

char. fce: $a \in M \quad a \mapsto 1 \qquad a \notin M \quad a \mapsto 0$

dobré usp. na $\mathbb{N}$

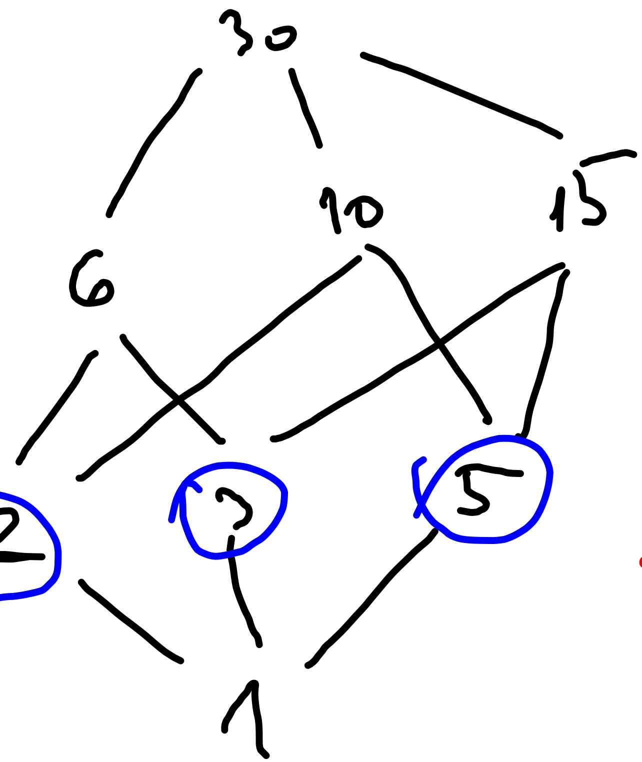
není na $\mathbb{Q}$ dobré

např. $\{x \in \mathbb{Q} ; x > 1\}$

ani na $\mathbb{R}$ (ani na $\mathbb{R}^+$) není $\leq$ dobré

$n=30$:

$(D_{30}, |)$



atomy

$6 \vee 10 = 30$

$6 \wedge 10 = 2$

2, 3 nejsou srovnatelné!

$D'_{30} = \{x \in \mathbb{Z} : x \mid 30\}$

$(D'_{30}, |)$ není usp. množina (není AS)

$2 \mid -2,\ -2 \mid 2 \not\Rightarrow -2 = 2$

$m \in M$ největší: $\forall x \in M: x \leq m$

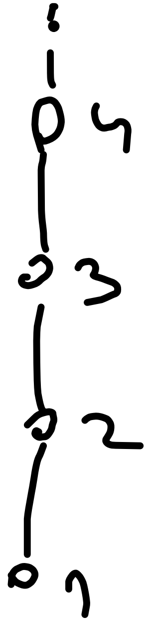
$m \in M$ maximální: $\nexists x \in M: m < x$

(neplatí: . . .)

V úplně usp. množině splývají

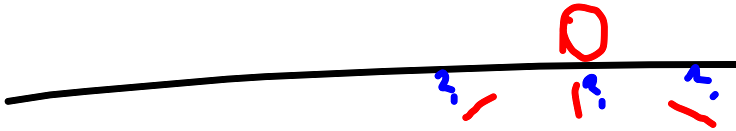
a horní závora M: $\forall m \in M: m \leq a$

a supremum M: nejmenší horní závora



$$1 \vee 2 = 2$$

$$1 \wedge 2 = 1$$



– nic není pokryto mnou

$(G, \cdot)$ grupa

$\forall$ podgrupy $H \leq G$ tvoří svaz vzhledem k uspořádání inkluzí

Př.: $G = (\mathbb{Z}_6, +)$

$A \wedge B = A \cap B$

$A \vee B \neq A \cup B$

$A = \langle [2]_6 \rangle = \{[2], [4], [0]\}$

$B = \langle [3]_6 \rangle = \{[3], [0]\}$

$A \wedge B = \{[0]\}$ $\quad A \vee B = \{[0], [2], [3], [4]\} \notin G$

Supremem je

$$A \vee B = \langle A \cup B \rangle$$

v našem př. $A \vee B = \mathbb{Z}_6$

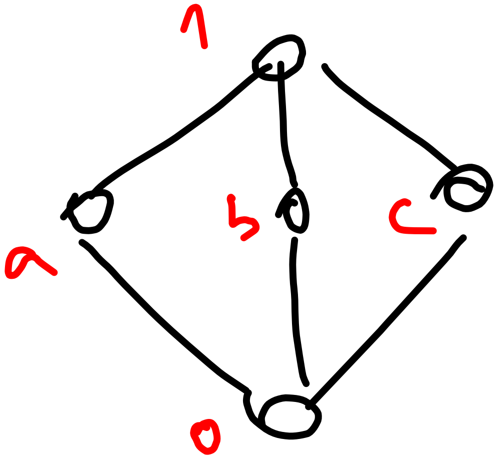
---

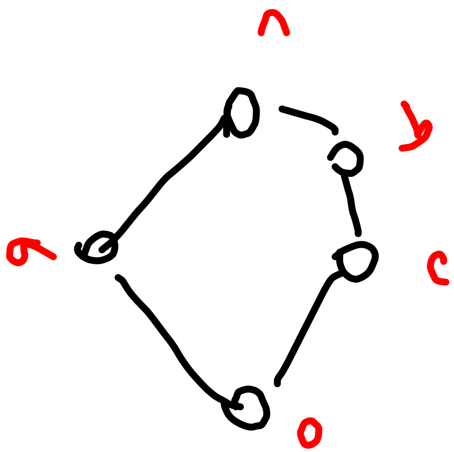
distr. v okruhu:

$$a \cdot (b + c) = a \cdot b + a \cdot c$$

$$a \vee (b \wedge c) = (a \vee b) \wedge (a \vee c)$$

$$a \wedge (b \vee c) = (a \wedge b) \vee (a \wedge c)$$





$a \vee (b \wedge c) = a$ $\quad a \neq 1$

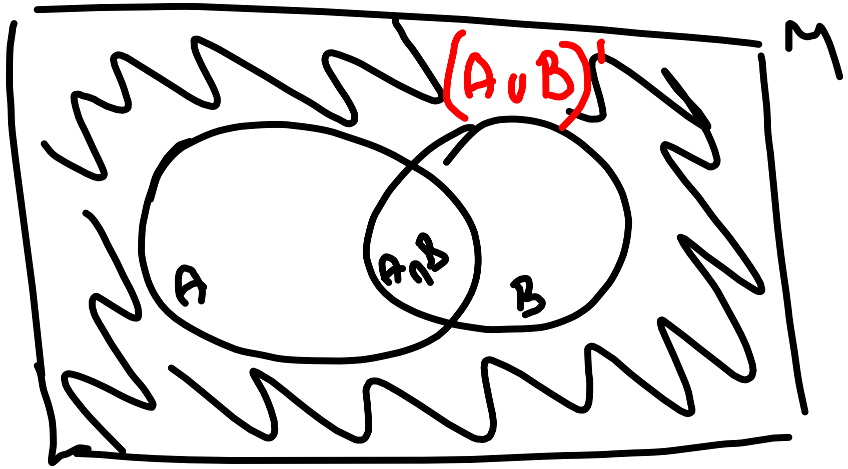
$(a \vee b) \wedge (a \vee c) = 1$

$b \vee (a \wedge c) = b \vee 0 = b$

$(b \vee a) \wedge (b \vee c) = 1 \wedge b = b$

<u>DÚ</u>: promyslet (viz 3b) d))

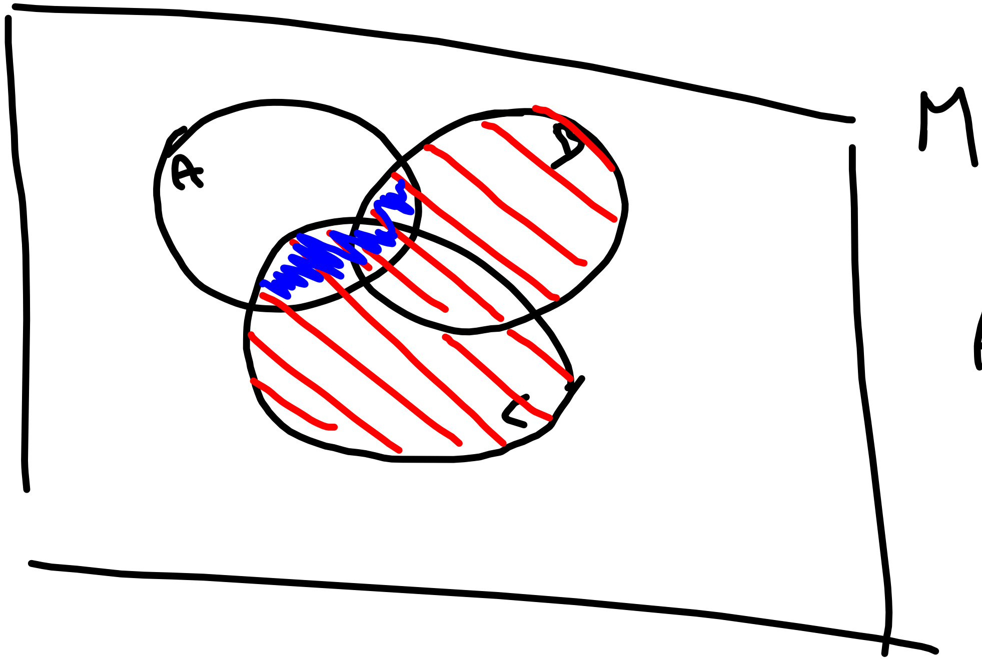
Vennovy diagramy



$M \cap A = M$

$\emptyset \cup A = A$

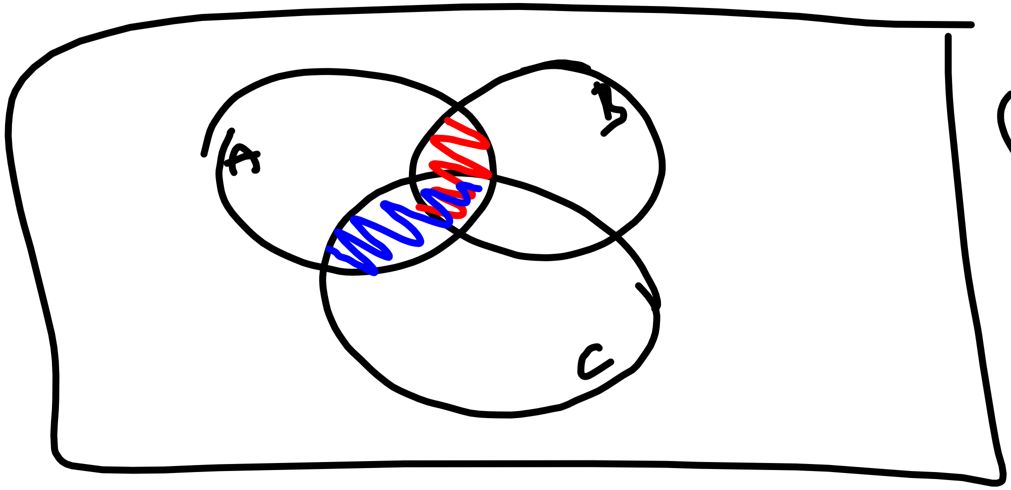
$A' = M \setminus A$

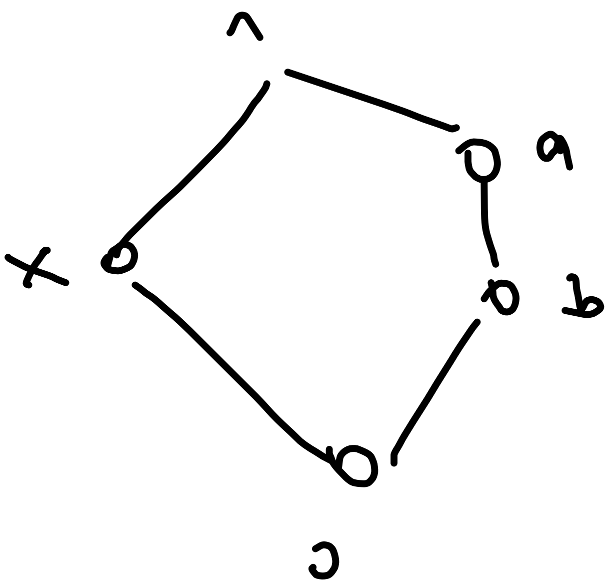


$$A \cap (B \cup C)$$

$$\|$$

$$(A \cap B) \cup (A \cap C)$$





$x' = a$

$x' = b$

$a \neq b$

$x \vee a = 1$

$x \wedge a = 0$

$x \vee b = 1$

$x \wedge b = 0$

$b = b \vee 0 = \quad = b$

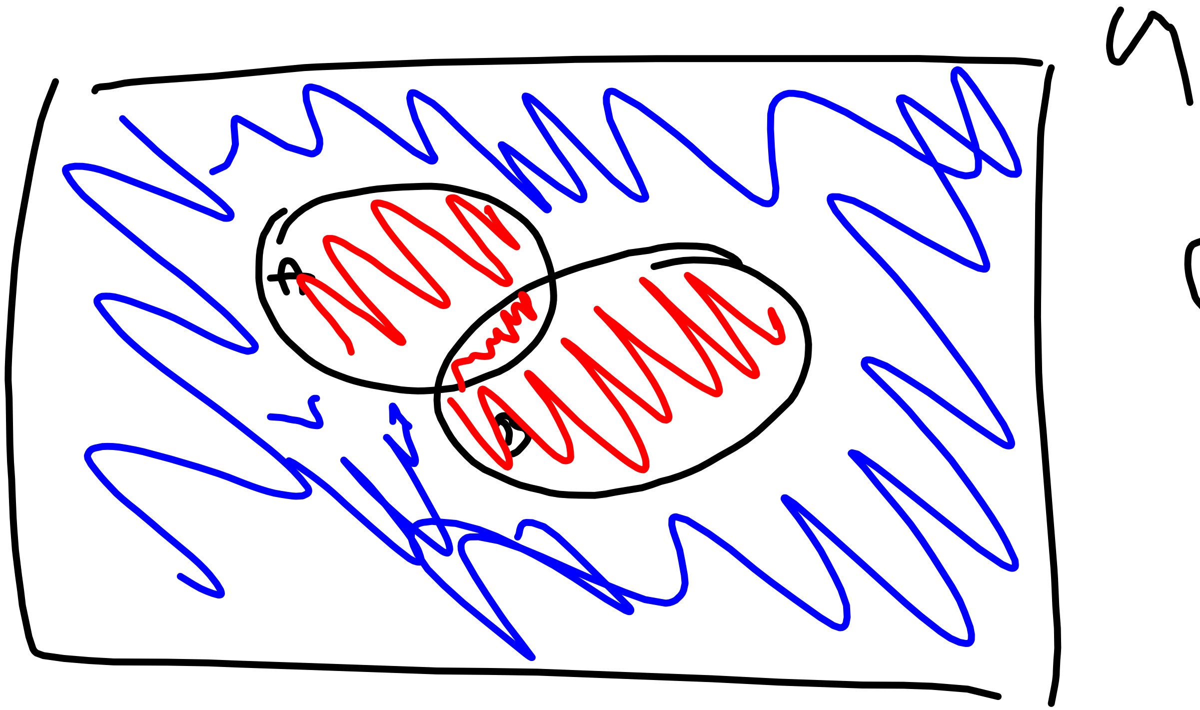
$= b \vee (x \wedge a) =$

$= (b \vee x) \wedge (b \vee a)$

$\quad 1 \quad \wedge \quad a \quad = a$

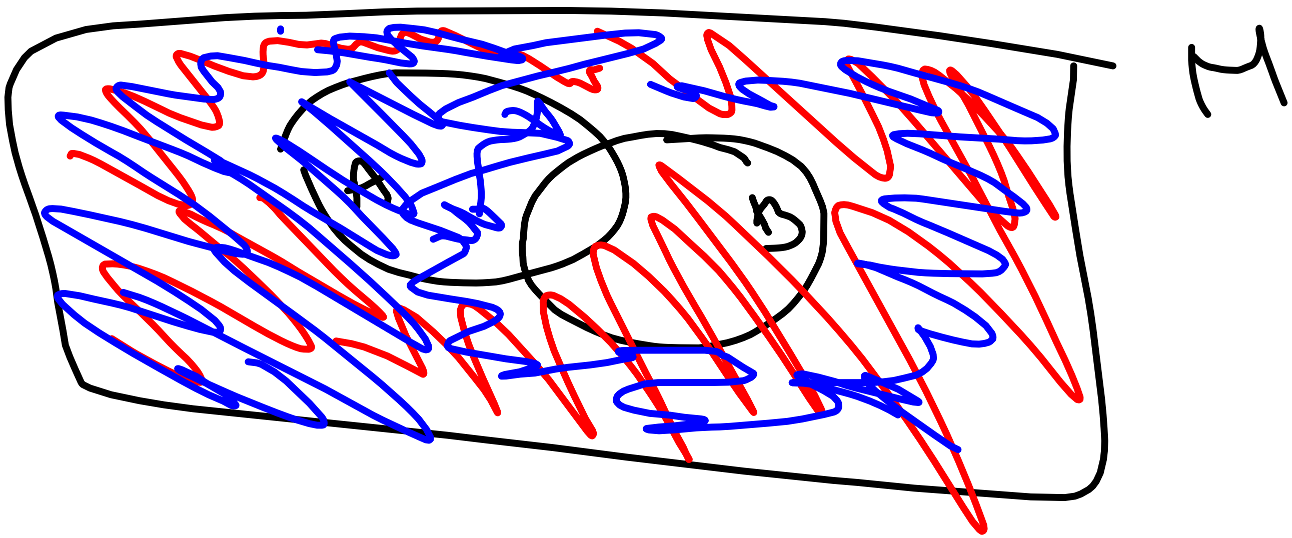
$\Downarrow$

není distrib.



$(A \cup B)'$

$=$



$A' \cap B'$

$$
\begin{tikzcd}
 & \mathbb{Z}_2 \times \mathbb{Z}_2 \times \mathbb{Z}_2 \arrow[dl, no head] \arrow[d, no head] \arrow[dr, no head] & \\
\mathbb{Z}_2 \times \{1\} \times \{1\} \arrow[dr, no head] & \{1\} \times \mathbb{Z}_2 \times \{1\} \arrow[d, no head] & \{1\} \times \{1\} \times \mathbb{Z}_2 \arrow[dl, no head] \\
 & \mathrm{id} &
\end{tikzcd}
$$

není distributivní

není Bool. alg.

$A, B \subseteq M$:

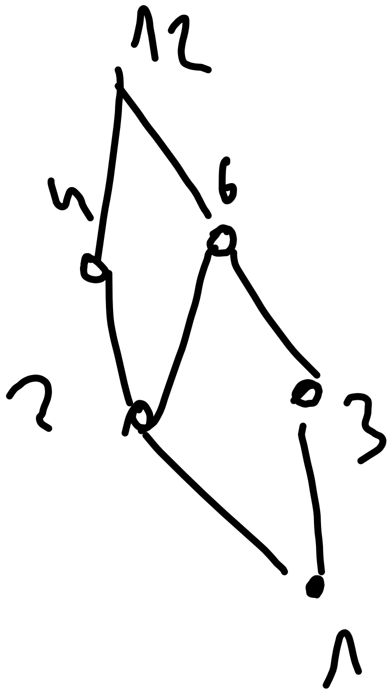
$$A \div B = (A \setminus B) \cup (B \setminus A)$$
$$= (A \cap B') \cup (B \cap A')$$

$$A \cap (B \cup C) \overset{?}{\div} (A \cap B) \cup (A \cap C)$$

$$\boxed{\left(2, \frac{n}{2}\right) = 1 \qquad \left[2, \frac{n}{2}\right] = n}$$

D_{30} je booleovská algebra

D_{12} není



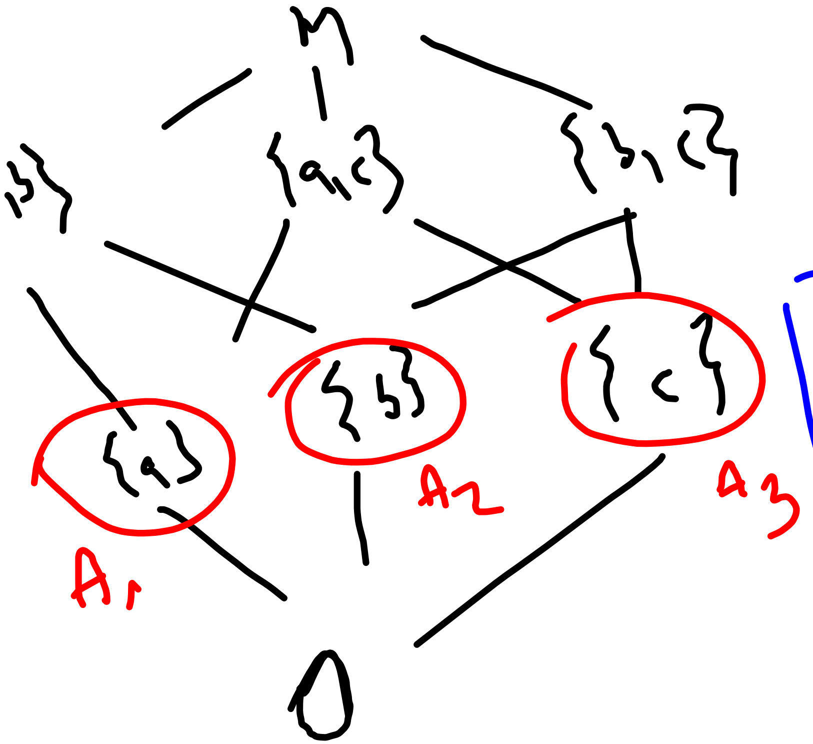
$2' = ?$

neexistuje

$\sim D_{30}$ je

$2' = 15$

$M = \{a, b, c\}$



atomy

$\{a,b\} = A_1 \vee A_2 \vee A_3$!

$= A_1 \vee A_2$

Věta

$\Downarrow$

$2^M \cong D_{30}$