

# From CSP To SAT

CSP:

$Z: \{x, y\}$

$D_x = D_y = \{1,2,3\}$

$C: \{x \leq y\}$

Equivalent SAT:

$Z: \{x_1, x_2, x_3, y_1, y_2, y_3\}$

$\forall z \in Z: D_z = \{\text{True}, \text{False}\}$

Constraints:

$/* x \in \{1,2,3\} */$

$x_1 \vee x_2 \vee x_3$

$\neg x_1 \vee \neg x_2$

$\neg x_1 \vee \neg x_3$

$\neg x_2 \vee \neg x_3$

$/* y \in \{1,2,3\} */$

$y_1 \vee y_2 \vee y_3$

$\neg y_1 \vee \neg y_2$

$\neg y_1 \vee \neg y_3$

$\neg y_2 \vee \neg y_3$

$/* x < y */$

$/* x_3 \rightarrow y_3 */$

$\neg x_3 \vee y_3$

$/* x_2 \rightarrow y_2 \vee y_3 */$

$\neg x_2 \vee y_2 \vee y_3$