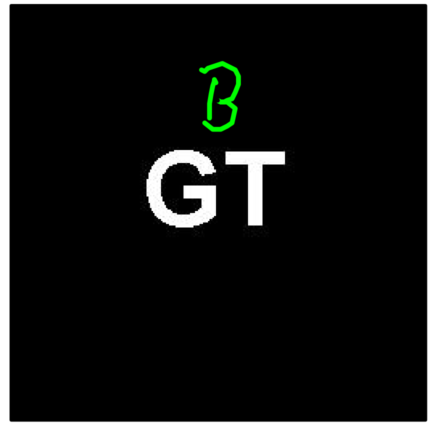
Morphologische Operatoren

$\mathbb{Z}$



1	1	0
1	0	1
1	1	0
0	0	0

$$(x,y) \in \mathbb{Z}^2$$

$$A \subset \mathbb{Z}^2$$

$$A = \{\underset{x\ y}{(1,1)}, (2,1), \cancel{(2,1}(1,2), (1,3)\}$$

$$A^c = \{w \mid w \notin A\}$$

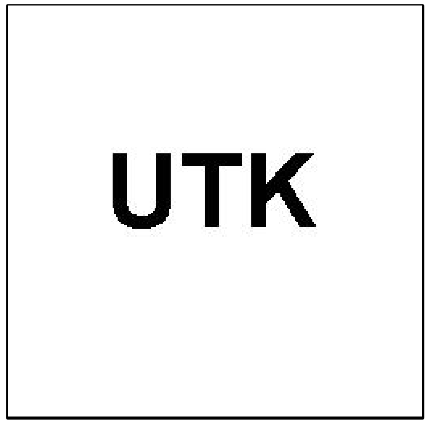
$$A - B = \{w \mid w \in A, w \notin B\}$$

$$\hat{B} = \{w \mid w = -b, b \in B\}$$

$$(A)_z = \{c \mid c = a + z, a \in A\}$$

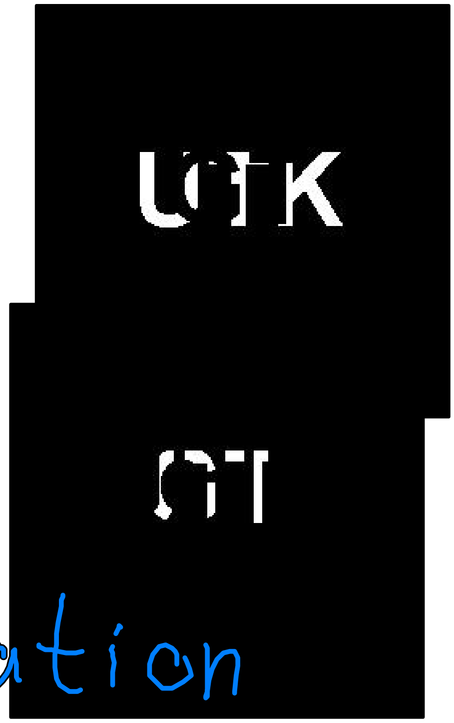
Bsp.

A^c



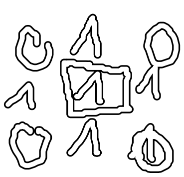
$A - B$

$A \cap B$



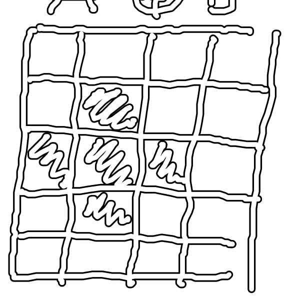
Dilatation

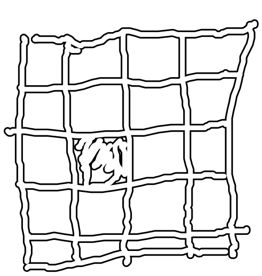
$$A \oplus B = \{ z \mid (\hat{B})_z \cap A \neq \emptyset \}$$



$B = \{ (0,0), (-1,0), (1,0), (0,1), (0,-1$

$A \oplus B$





A

Historically, certain computer programs were written using only two digits rather than four to define the applicable year. Accordingly, the company's software may recognize a date using "00" as 1900 rather than the year 2000.

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Eigenschaften

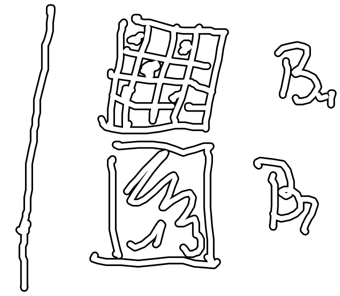
$(A \oplus B) \oplus C = A \oplus (B \oplus C)$ ass.

$A \oplus B = B \oplus A$ komm.

$B = \quad 1 \; 1 \; 1 \; 1 \; 1$

$\qquad\;\; 1 \; 1 \; 1 \; 1 \; 1$

$$\begin{matrix} 1 & 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 & 1 \end{matrix}$$



$$B = B_1 \oplus B_2$$

$$\begin{bmatrix} \cdot & \cdot & 1 & 1 & 1 \end{bmatrix} \oplus \begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \\ 1 \end{bmatrix} =$$

$$\begin{matrix} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \end{matrix}$$

$$\begin{bmatrix} 1 & 1 & 1 & 1 & 1 \end{bmatrix} \oplus \begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \\ 1 \end{bmatrix}$$

$$A \oplus B = A \oplus (B_1 \oplus B_2) =$$
$$= (A \oplus B_1) \oplus B_2$$