

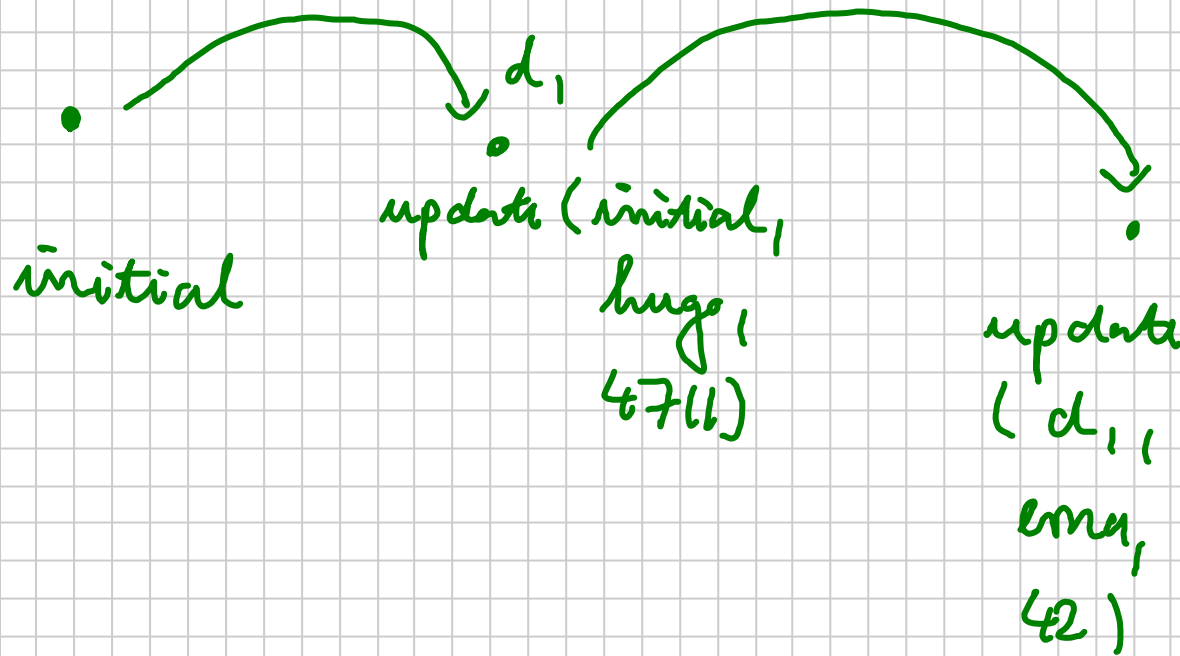
Alg Spec van SW & HW I

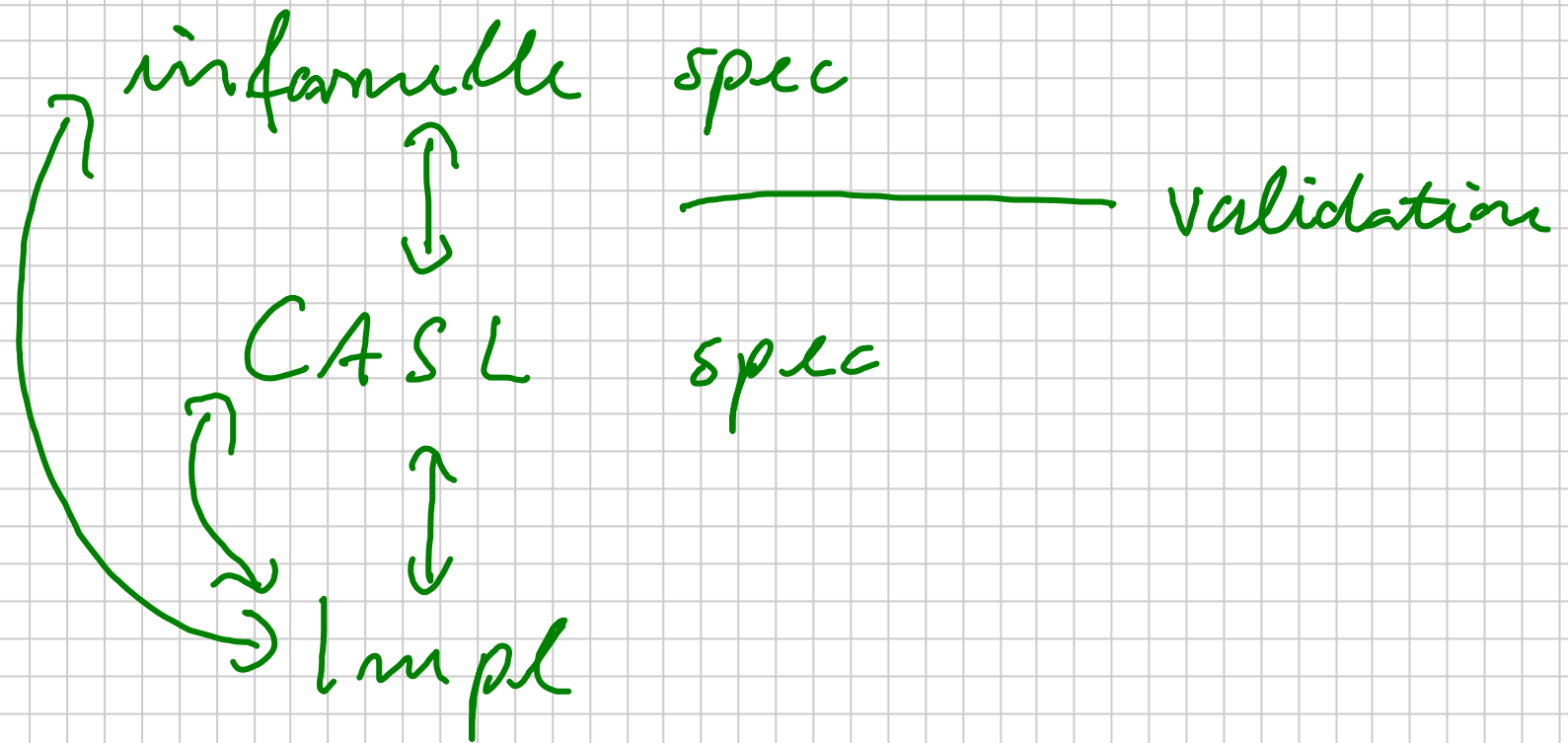
Notiztitel

54'02'S008

lookup(-, erma)

24,5.08





I_1 I_2 ... I_h

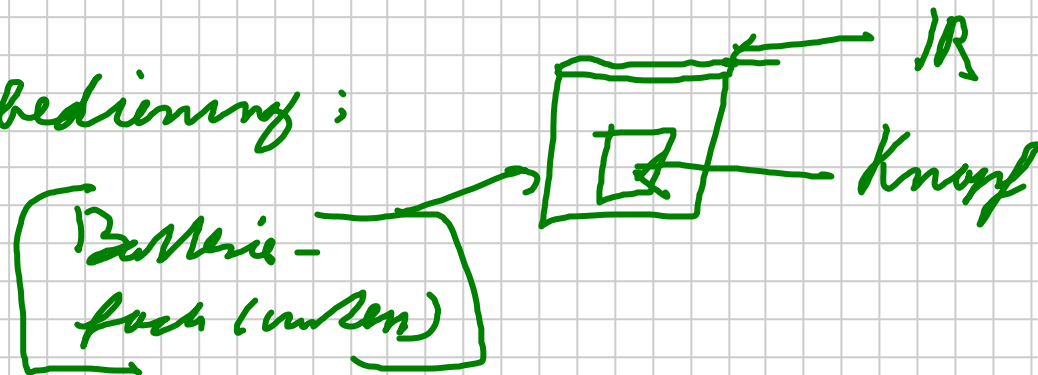
op Hugo : Name

a) nicht dabei :
→ def ^{lookup} V (initial, v)

lookup (initial, Hugo) = ?

b) ist dabei :

Garagentürbedienung:



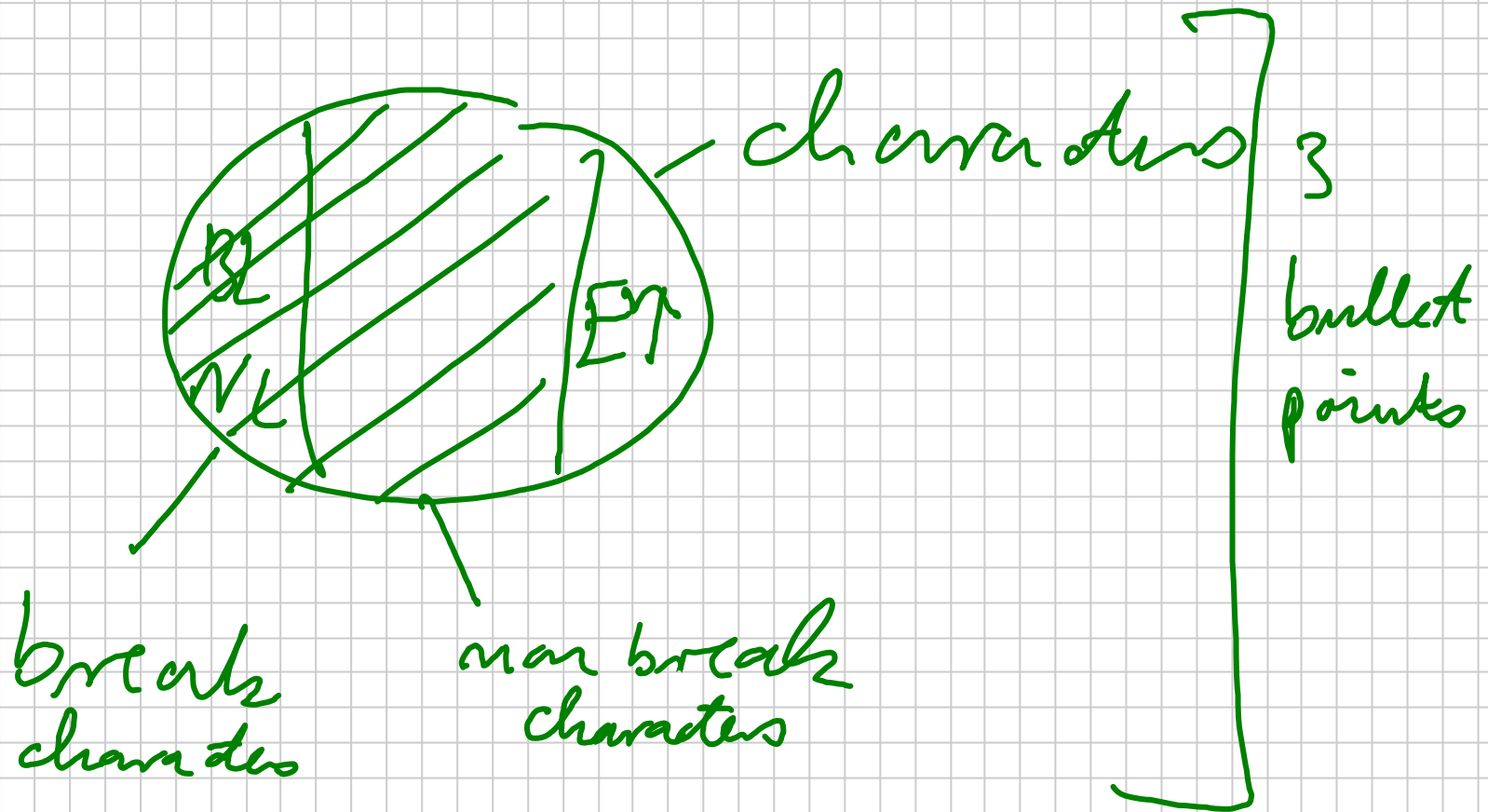
Garagentür: offen, geschlossen, öffnet oder schließt

Tür offen und Knopfdruck: Tür schließt

Tür geschlossen und Knopfdruck: Tür öffnet

Tür öffnet / schließt und Knopfdruck: Tür öffnet

break characters :



a) ONE, TWO [NL]

THREE [E]

W = MAX POS

↑ ?

b) ONE [NL]

TWO, THREE

$S N^+ A^+ \underline{E}$

$S (N A)^* \underline{E}$

logisches und

$$S = \{ \text{Bool} \}$$

$$\text{PF} = \{ \sim \text{ and } _ : \text{Bool} \times \text{Bool} \rightarrow \text{Bool},$$

$$\text{PF} = \{ \text{tt}, \text{ff} : \text{Bool} \}$$

$$P = \emptyset$$

And - Gatter

$$\mathcal{S} = \{ \text{Bool}, \text{Time}, \text{BoolStream} \}$$

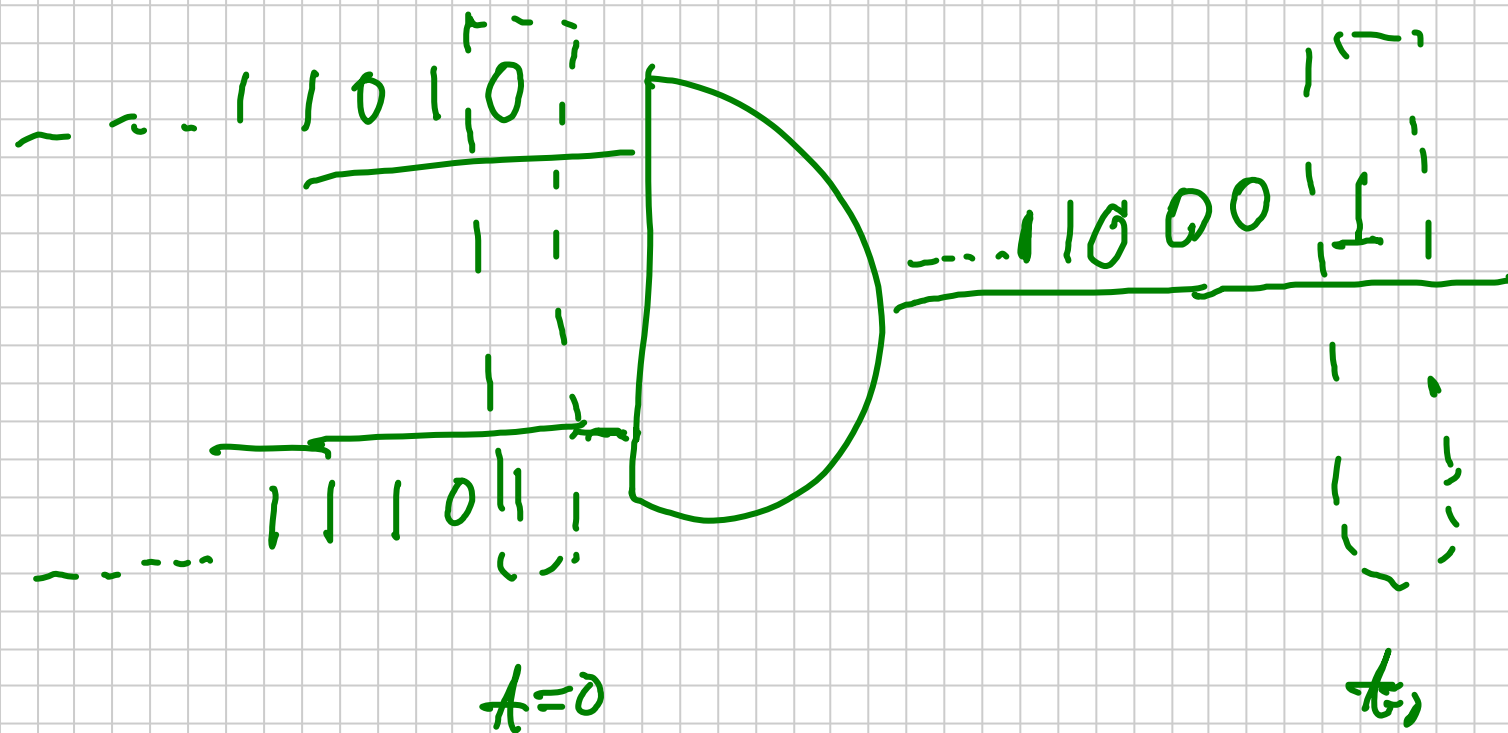
$$\mathcal{PF} = \{ \text{and} : \text{Bool} \times \text{Bool} \rightarrow \text{Bool},$$

$$\text{-- and gate --} : \text{BoolStream} \times$$

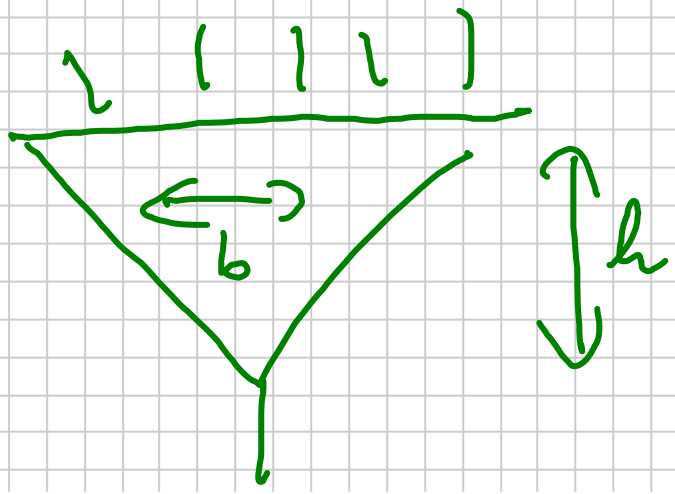
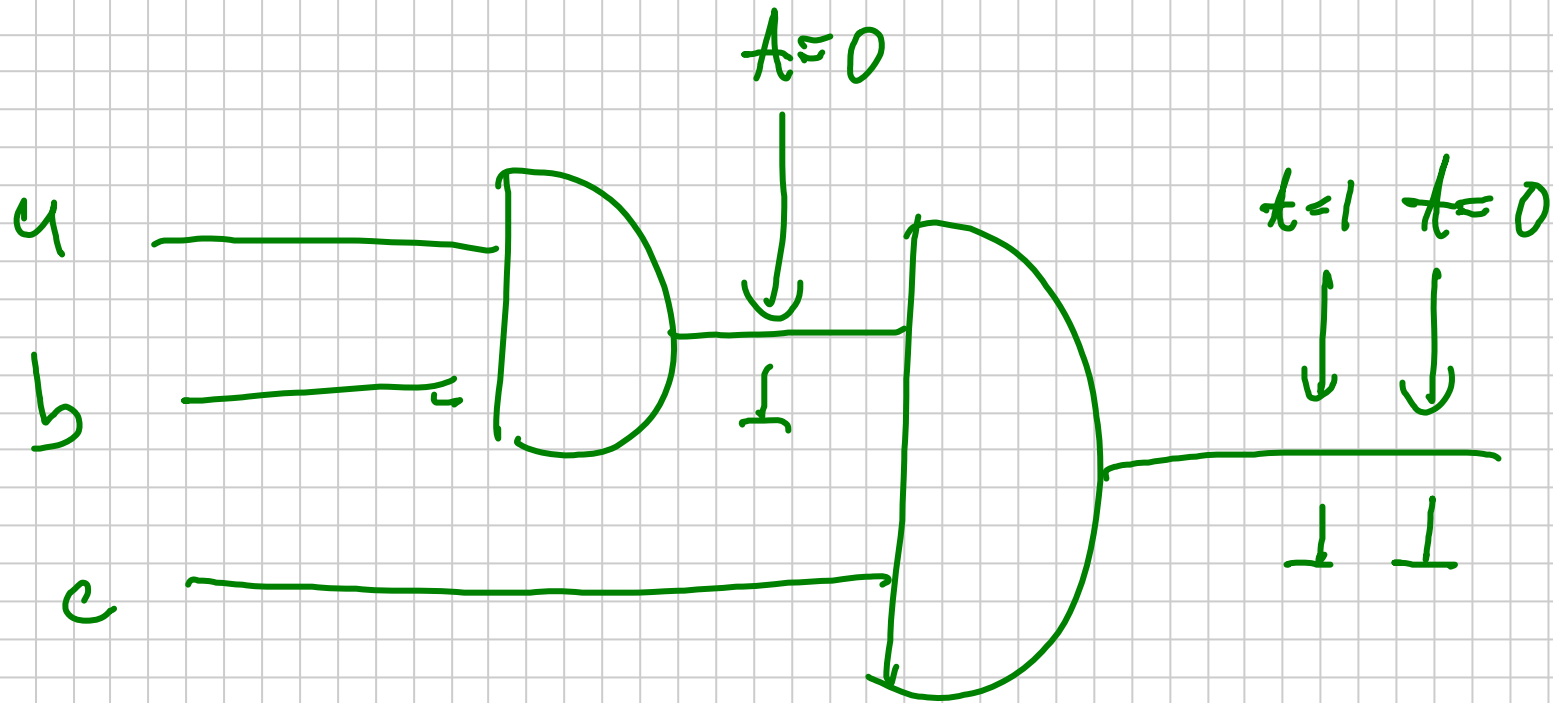
$$\text{BoolStream}$$

$$\text{0 : Time} \quad \text{succ : Time} \rightarrow \text{Time} \}$$

$$\mathcal{PF} = \{ \text{-- @ --} : \text{BoolStream} \times \text{Time} \rightarrow ? \text{Bool} \}$$



@ : Bool Stream \times Time \rightarrow ? Bool



$\Gamma F = \{ \text{javac} : \text{FileName} \times \text{FileHandle} \}$
 $\rightarrow \text{Error Code}$

$S = \{ \text{Options}, \text{File}, \text{Bytecode} \}$

$PF = \{$

$\text{javac} : \text{Options} \times \text{File} \rightarrow \{ \text{Bytecode} \}$

Options: "Liste von Optionen"

|
kann leer sein.

ist das möglich?

$$f : S_1 \times \dots \times S_n \rightarrow \underbrace{T_1 \times \dots \times T_k}_T$$

$$f_1 : S_1 \times \dots \times S_n \rightarrow T_1$$

⋮

$$f_k : S_1 \times \dots \times S_n \rightarrow T_k$$

Signaturen ;

Symbol versatz

Algebren ;

interpretieren Symbole

$$S = \{ \text{Nat} \}$$

$$\Sigma$$

$$\text{PF} = \{ 0 : \text{Nat}, \\ \text{succ} : \text{Nat} \rightarrow \text{Nat} \}$$

$$\text{PF} = \{ _ _ _ : \text{Nat} \times \text{Nat} \rightarrow ? \text{Nat} \}$$

$$P = \{ \text{even} : \text{Nat} \}$$

$$A(\text{Nat}) = \mathbb{N}$$

$$A(0) = 0$$

$$A(\text{succ})(x) = x + 1 \quad \text{für alle } x \in A(\text{Nat})$$

\downarrow
 \mathbb{N}

$$A(\text{---})(x, y) = \begin{cases} x - y & \text{für } x \geq y \\ \perp & \text{sonst} \end{cases}$$

für alle $x, y \in A(\text{Nat})$

\downarrow
 \mathbb{N}

$$A(\text{even}) = \{2x \mid x \in \mathbb{N}\} \subseteq A(\text{Nat}) = \mathbb{N}$$

$$\mathcal{B}(\text{Nat}) = \{*\}$$

$$\mathcal{B}(0) = *$$

$$\mathcal{B}(\text{succ})(*) = *$$

$$\mathcal{B}(\text{---})(*, *) = \perp$$

$$\mathcal{B}(\text{even}) = \emptyset$$

$$C(\text{Nat}) = \{ \text{stick figure 1}, \text{stick figure 2} \}$$

$$C(0) = \text{stick figure 1}$$

$$C(\text{succ})(\text{stick figure 1}) = \text{stick figure 2}$$

$$C(\text{succ})(\text{stick figure 2}) = \text{stick figure 1}$$

$$C(\text{--}) (x, y) = \perp$$

für alle
 $x, y \in C(\text{Nat})$

$$C(\text{zero}) = \{ \text{stick figure 1} \}$$

$$D(\text{Nat}) = \mathbb{R}$$

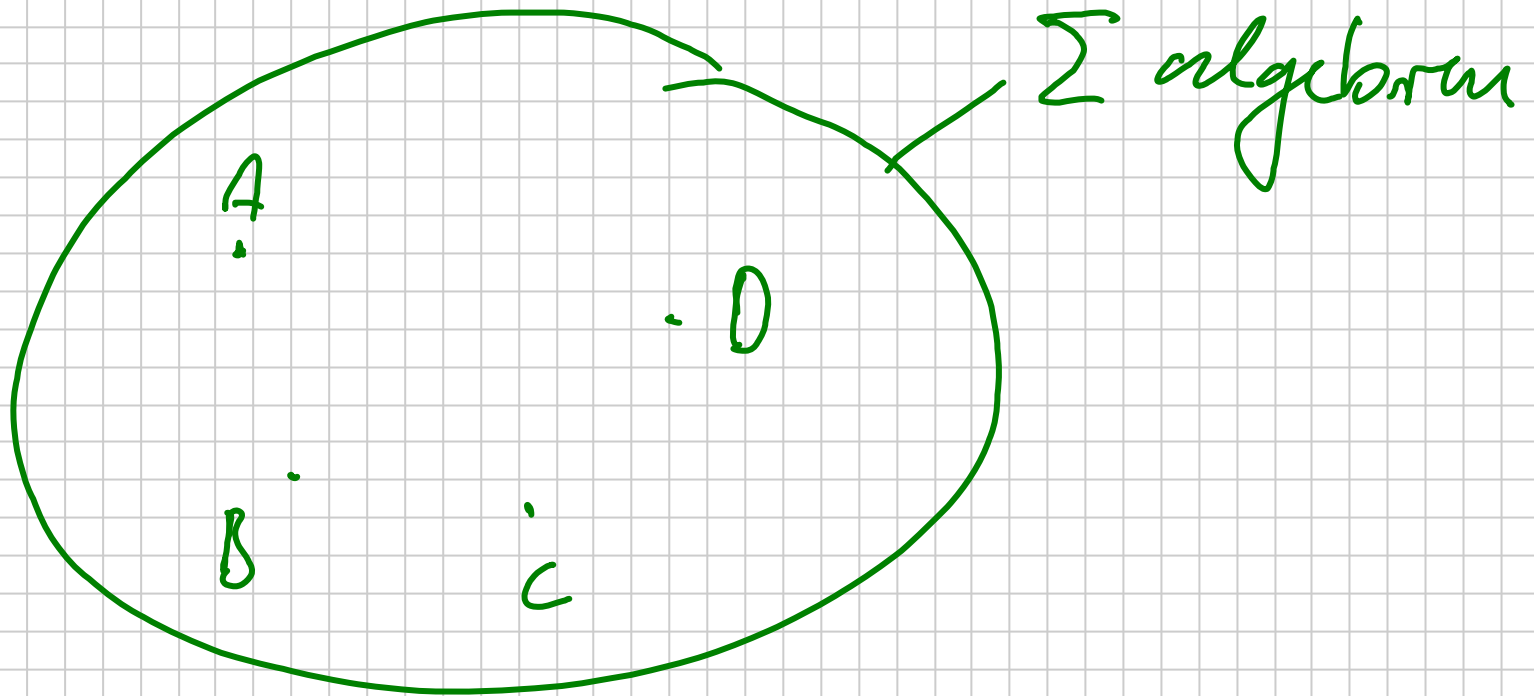
$$D(0) = \mathbb{W}$$

$$D(\text{succ})(x) = e^x \quad \text{für alle } x \in \mathbb{R}$$

$$D(\text{mult})(x, y) = x * y \quad \text{für alle } x, y \in \mathbb{R}$$

$$D(\text{even}) = \mathbb{Z}$$

\mathbb{Z}



Java- "Programm" - Algebra J

$J(\text{Datenbank}) = \text{Java-Typ}$
|
Liste

$J(\text{String}) = \text{Java-String}$

$J(\text{Number}) = \text{int aus Java}$

$J(\text{initial}) = \text{Java-Objekt von Typ}$
Liste