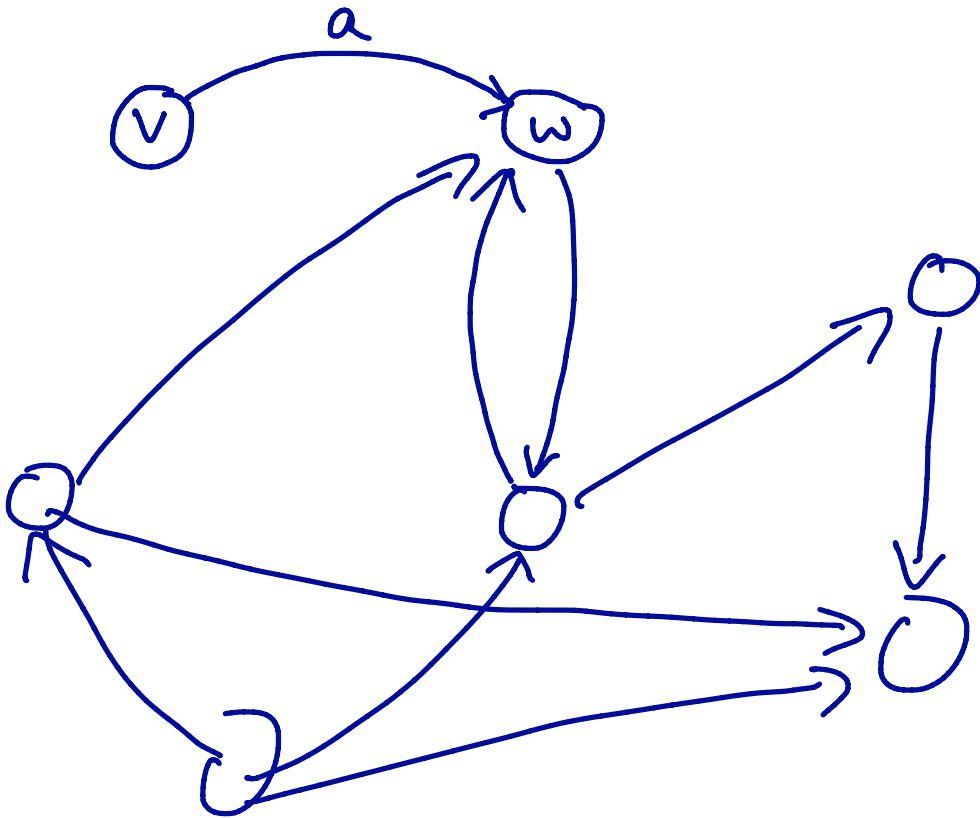


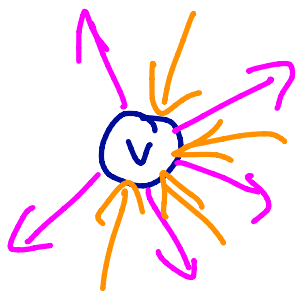
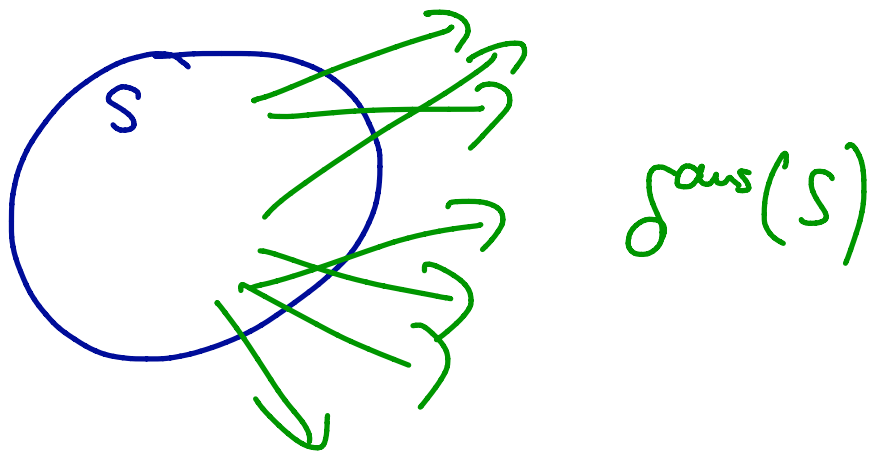
VL 7 (24.5.16)

MODELLIERUNG 1
(V. KABEL, OVGU MD)

[28]



[29]

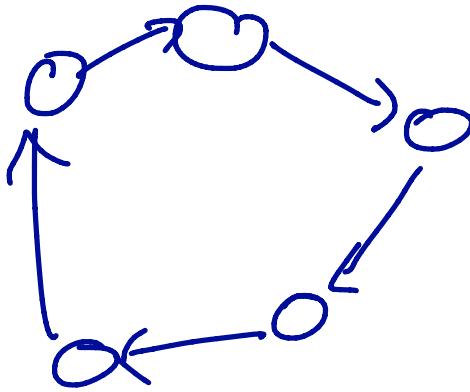


$\delta^{\text{out}}(v)$
 $\delta^{\text{in}}(v)$

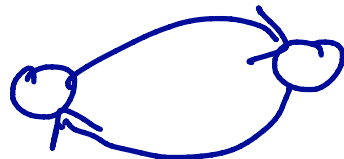
[32]



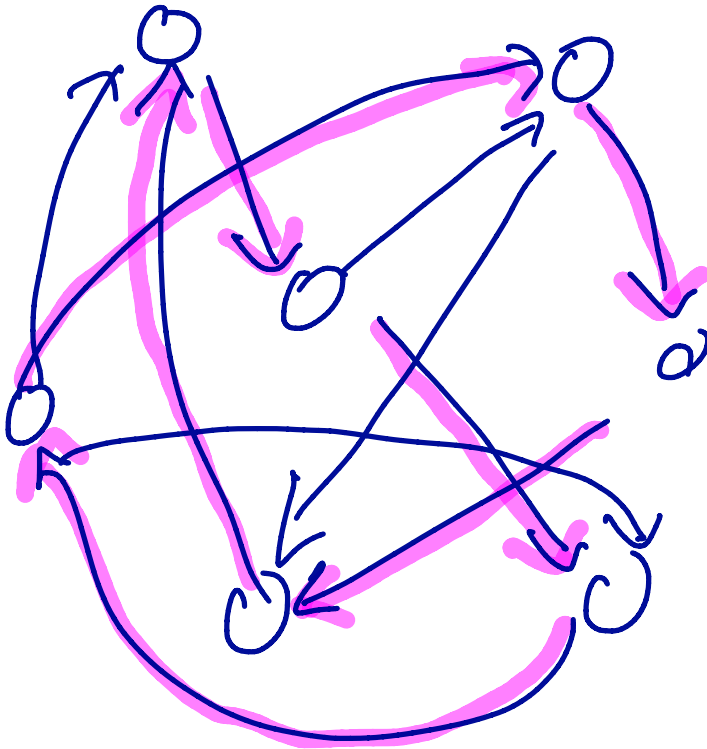
gerichteter Weg



gerichteter Kreis

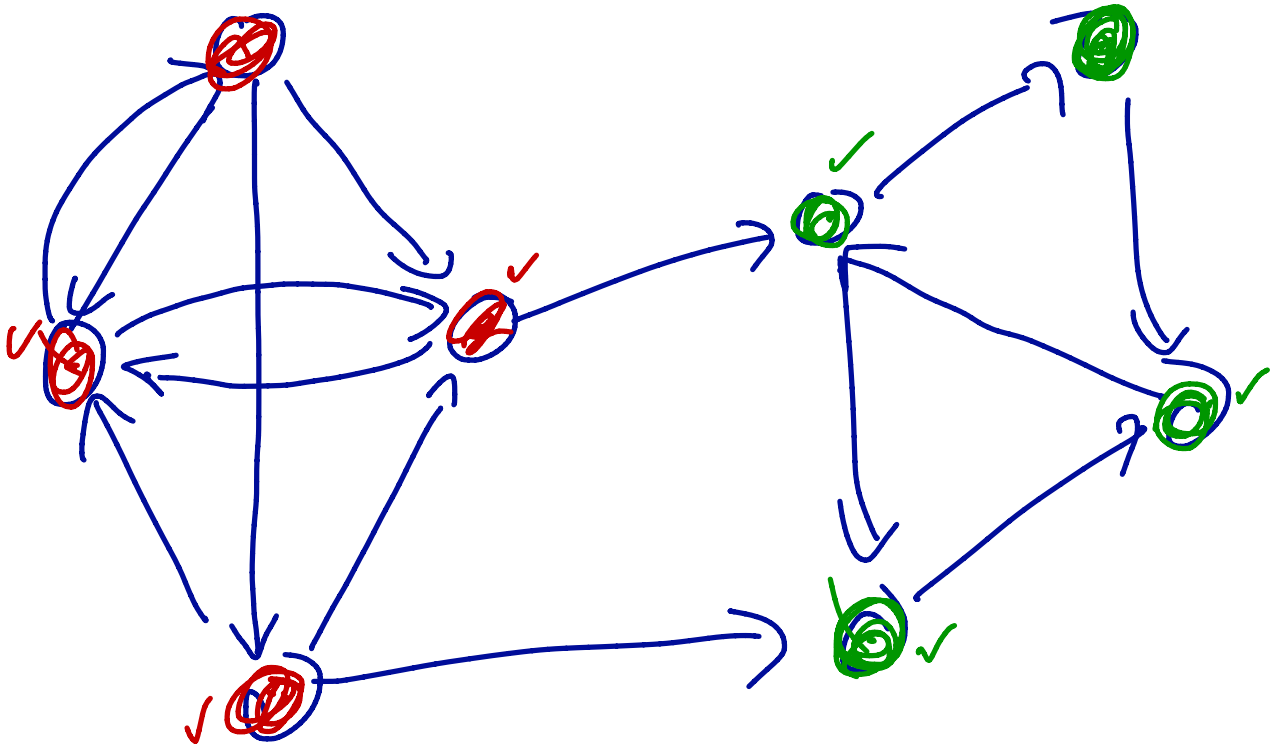


[33]



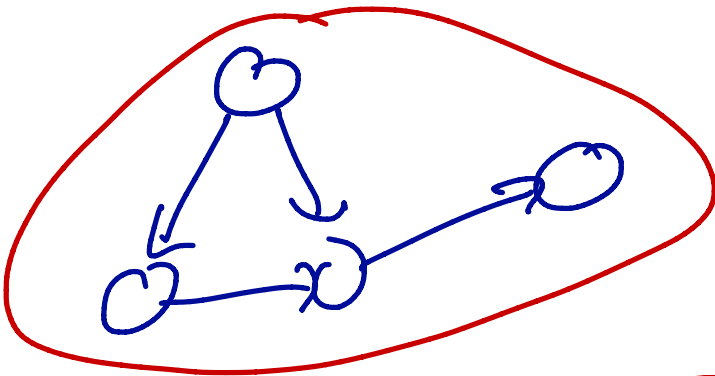
Hamiltonian-Kreis
in D .

[34]

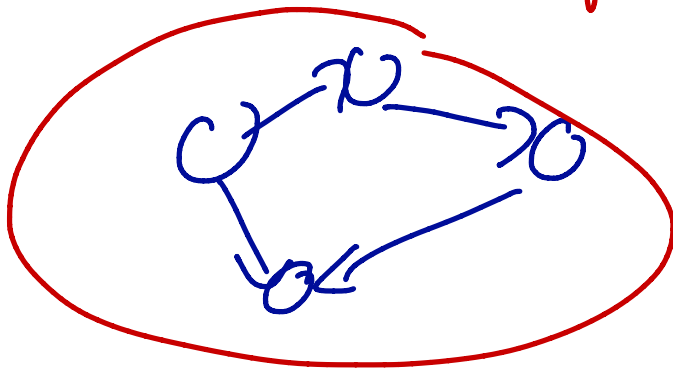


2 starke Zusammenhangskomponenten

[35]



2 schwache Zusammenhangskomponenten

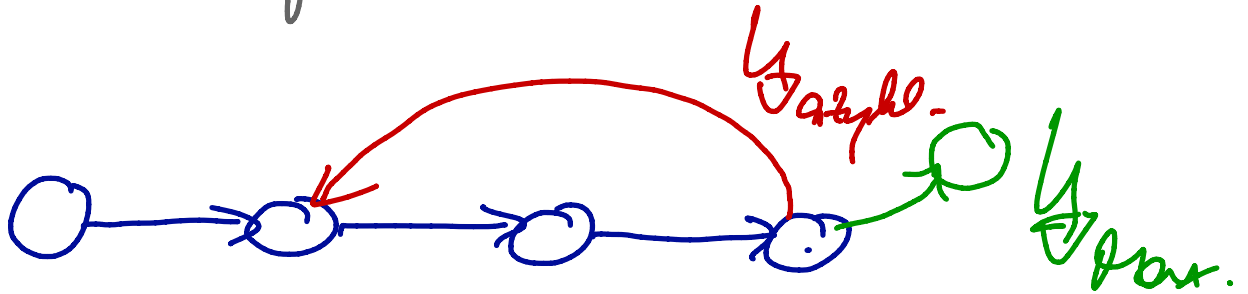


[37]

Knoten mit

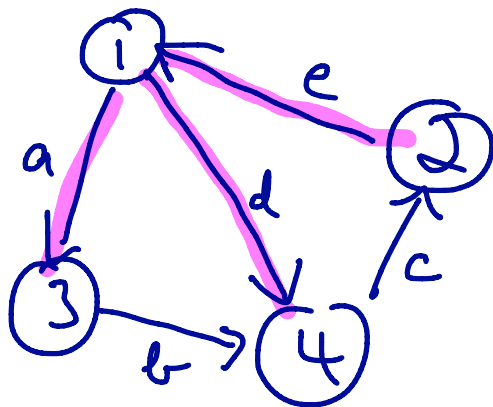
Ausgrad 0 : "Senke"

Eingrad 0 : "Quelle"



Beweis: Wähle inklusivmaximalen
gerichteten Weg γ in D . Sein
Endknoten ist eine Senke,
und sein Anfangsknoten ist
eine Quelle.

[38]



D

$$\begin{matrix} & \text{a} & \text{b} & \text{c} & \text{d} & \text{e} \\ \begin{matrix} 1 \\ 2 \\ 3 \\ 4 \end{matrix} & \begin{bmatrix} -1 & 0 & 0 & -1 & 1 \\ 0 & 0 & 1 & 0 & -1 \\ 1 & -1 & 0 & 0 & 0 \\ 0 & 1 & -1 & 1 & 0 \end{bmatrix} & = & \text{Inc}(D) \end{matrix}$$

$n = |V(D)|$
D schwach sh.

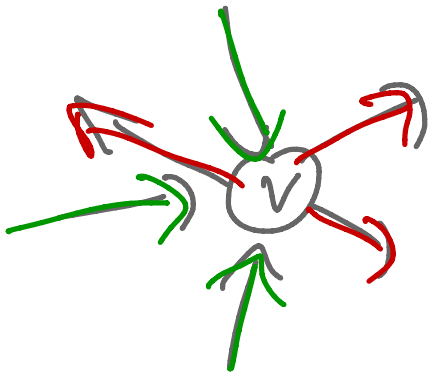
$$\begin{matrix} 1 & 1 & 1 \\ 0 & 0 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \end{matrix}$$

$\leftarrow \dim_{\mathbb{F}_2} \text{Kern} = 0$

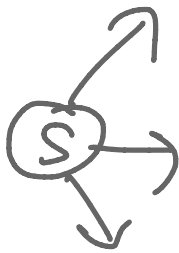
[43] $x \in \mathbb{R}^{A(D)}$ s-t-Fluss \Leftrightarrow

$$0 \leq x_a \leq u_a \quad \forall a \in A(D)$$

$$\sum_{a \in \delta^{\text{in}}(v)} x_a = \sum_{a \in \delta^{\text{out}}(v)} x_a \quad \forall v \in V(D) \setminus \{s, t\}$$



Wert von x : $\sum_{a \in \delta^{\text{out}}(s)} x_a - \sum_{a \in \delta^{\text{in}}(s)} x_a$



$\equiv (!) \leftarrow$

$$\sum_{a \in \delta^{\text{in}}(t)} x_a - \sum_{a \in \delta^{\text{out}}(t)} x_a$$