MOD 8.5.17 [4]

Die $n-1$ x-Variablen, die Wert 1 haben, sind per Konstruktion

$$x_{J(1),J(2)}, \quad x_{J(2),J(3)}, \quad \dots, \quad x_{J(n-1),J(n)} \qquad (5).$$

Wegen (3) gilt also insbesondere

$$\underbrace{p_{J(1)}}_{1} < p_{J(2)} < p_{J(3)} < \dots < p_{J(n-1)} < \underbrace{p_{J(n)}}_{n}$$

Wegen $p_i \in [n]\ \forall i \in [n]$ ist also

$$p_1 = 1, \ p_{J(2)} = 2, \ p_{J(3)} = 3, \dots, \ p_{J(n-1)} = n-1, \ p_n = n,$$

d.h. $i \mapsto p_i$ ist die Umkehr-Bijektion zu $j \mapsto J(j)$ und (wegen (5))

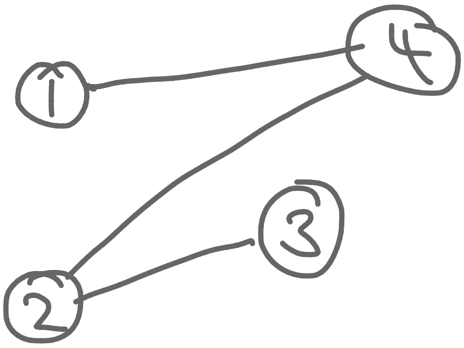
$$x_{ij} = 1 \iff p_j = p_{i+1} \qquad \boxed{\Xi}$$

[9]

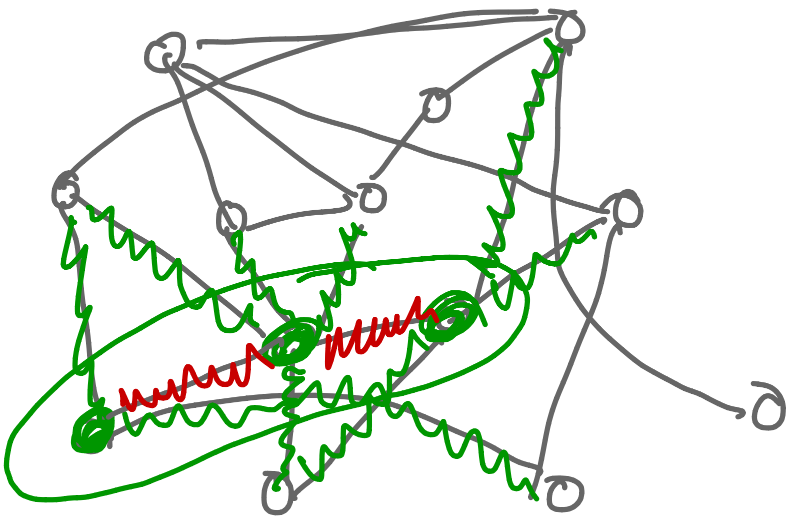
[10] $G = (V, E)$

$V = \{1, 2, 3, 4\}$

$E = \{\{1,4\}, \{2,3\}, \{2,4\}\}$

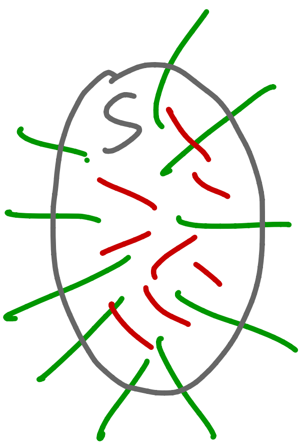


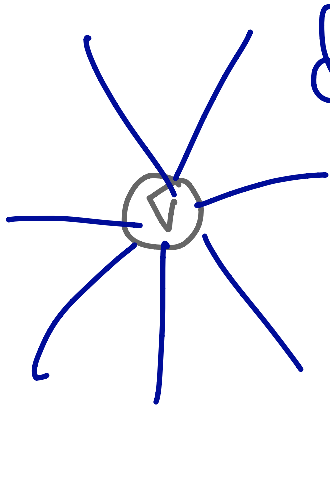
[11]



$\delta(S)$

$E(S)$





$\delta(v)$

[12] G a graph

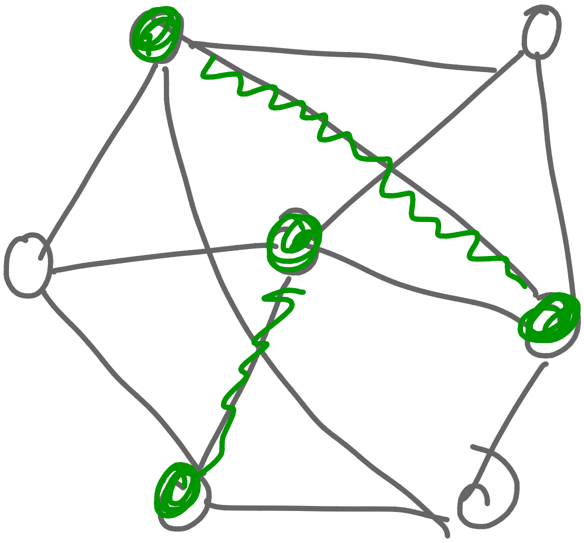
$$\left|\{(v,e) : v \in V(G), e \in E(G), v \in e\}\right|$$

$$= \sum_{e \in E(G)} \underbrace{\left|\{v \in V(G) : v \in e\}\right|}_{2} = 2 \cdot |E(G)|$$

$$= \sum_{v \in V(G)} \underbrace{\left|\{e \in E(G) : v \in e\}\right|}_{d(v)}$$

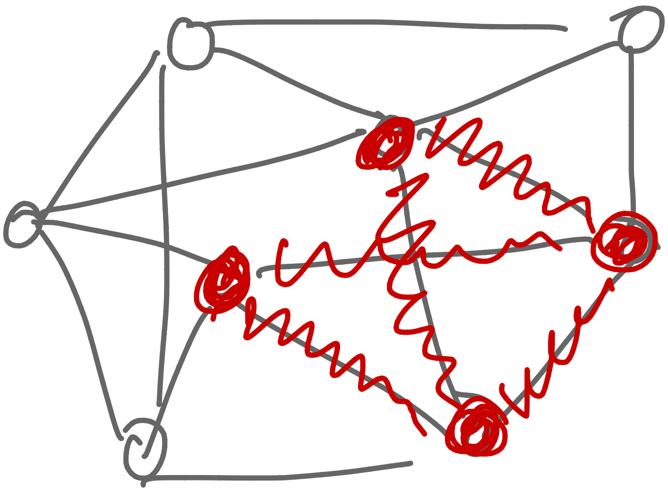
$$\Longrightarrow \sum_{v \in V(G)} d(v) \in 2\mathbb{Z}$$

[13]



Untergraph, nicht spannend, nicht induziert

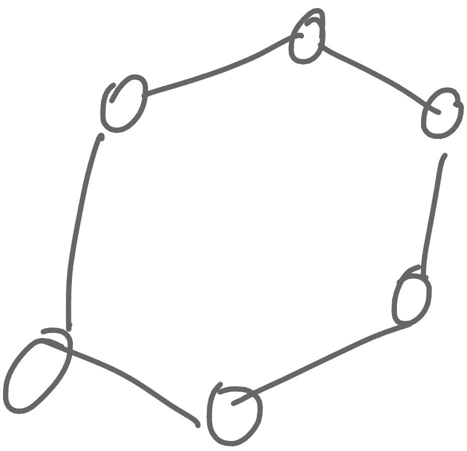
[14]



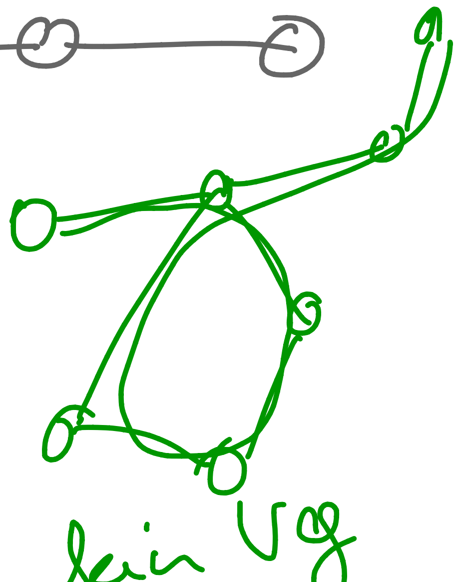
induzierter Untergraph

[15]

Weg

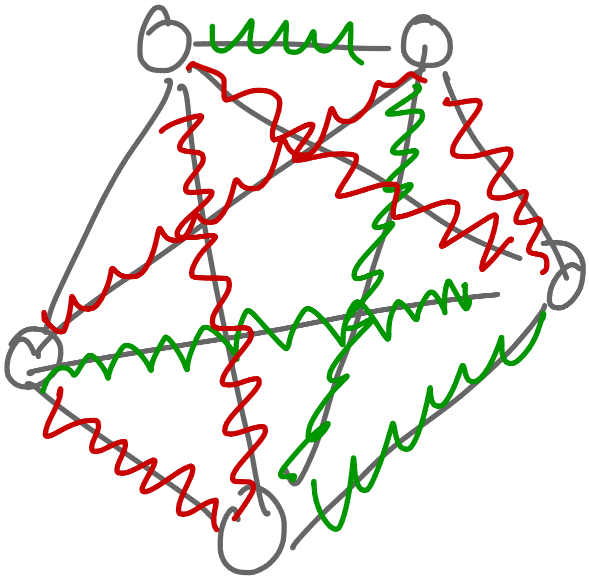


Kreis



kein Weg

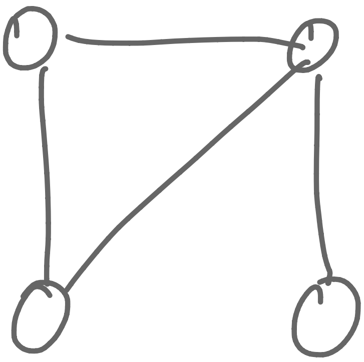
[16]



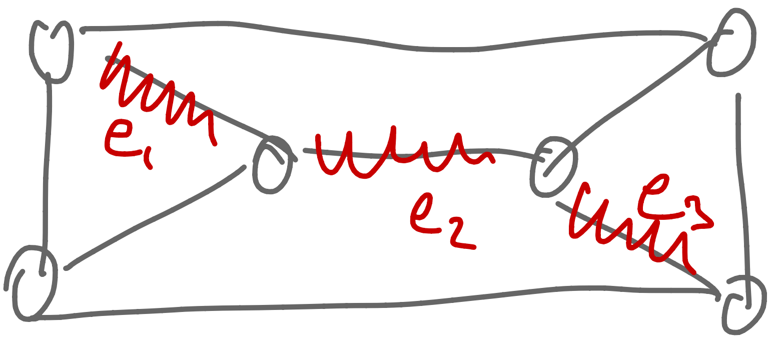
G

Hamilton-Weg in G

Hamilton-Kreis in G



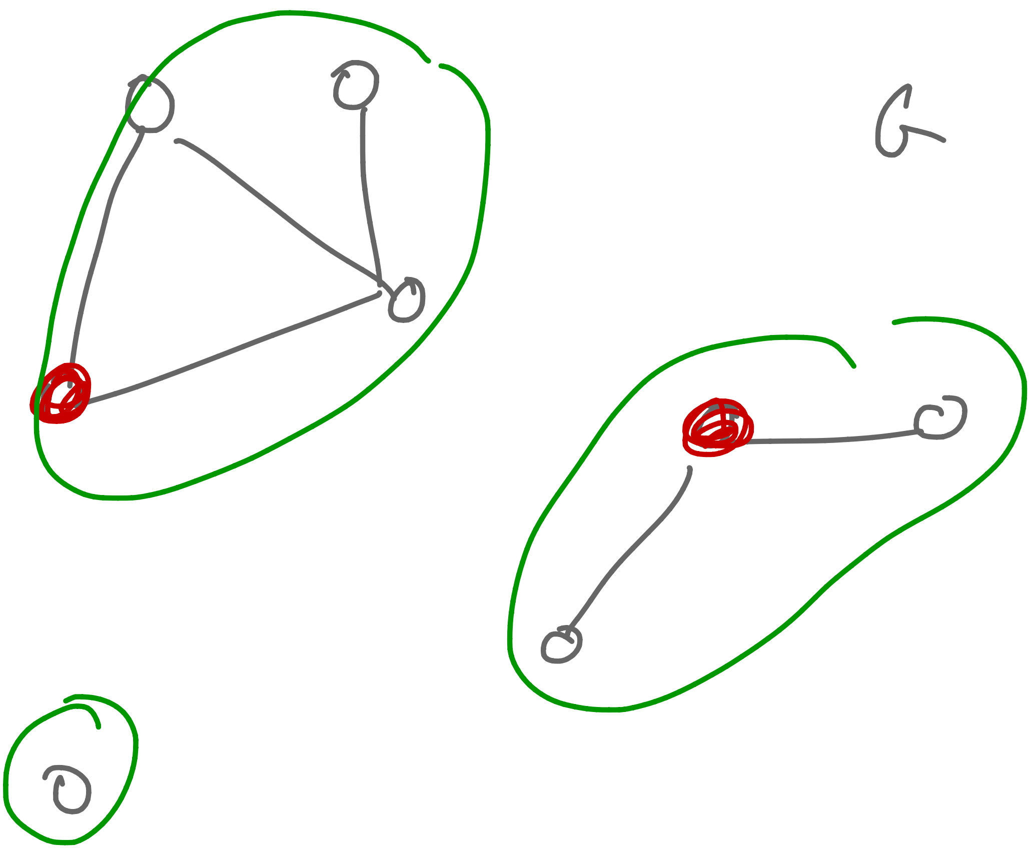
hat keinen Hamilton-Kreis



H

$\{e_1, e_2, e_3\}$ ist ein Weg in H

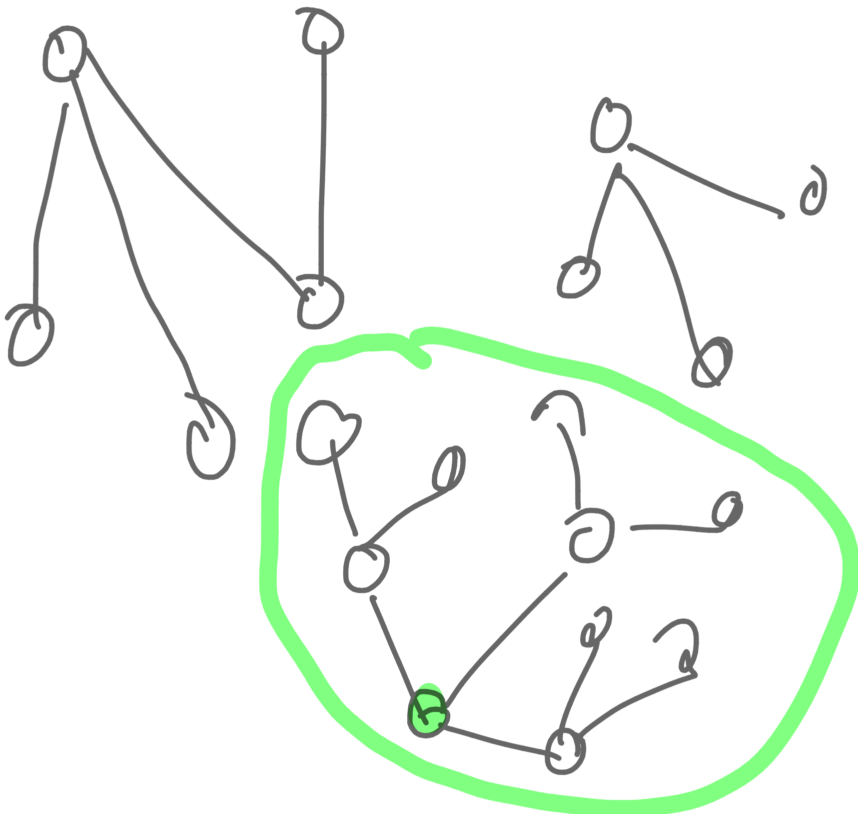
[17]



nicht zusammenhängend (kein ∘ - ∘ -Weg)

3 Zusammenhangskomponenten

[18]



[19] <u>Begründung</u>: Sei $\emptyset \neq W \subseteq E(G)$

inklusionsmaximal unter den Wegen in G;

dann haben die beiden Endknoten

von W jeweils Grad 1.