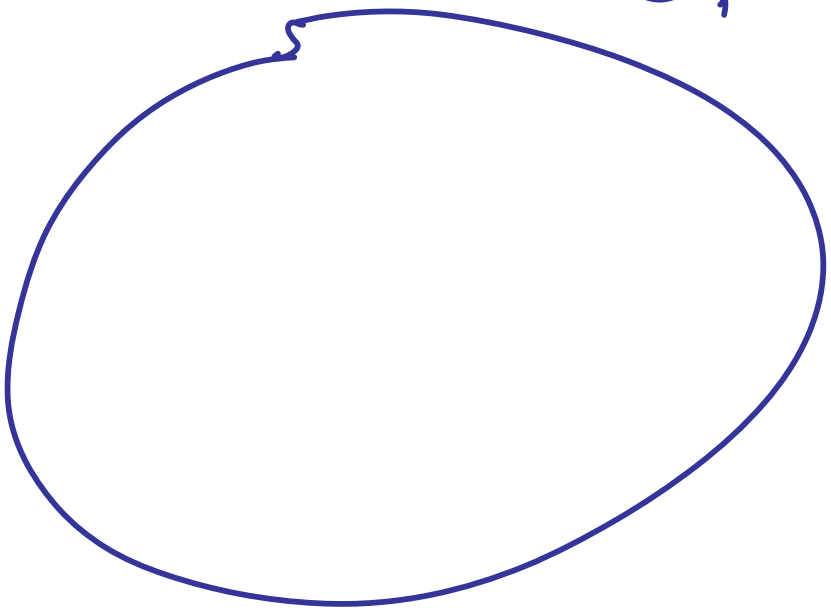
$$\chi(G) \geq \omega(G)$$

$$\boxed{\chi(G) = \omega(G)}$$

$\chi(G) = k$

$H = G \cup K_k$

G



$\forall$ H is an induced subgraph of G

$$\chi(H) = \omega(H)$$

$$\chi(G) = 2$$

$$\omega(G) = 2$$

$$\chi(H) = \omega(H)$$

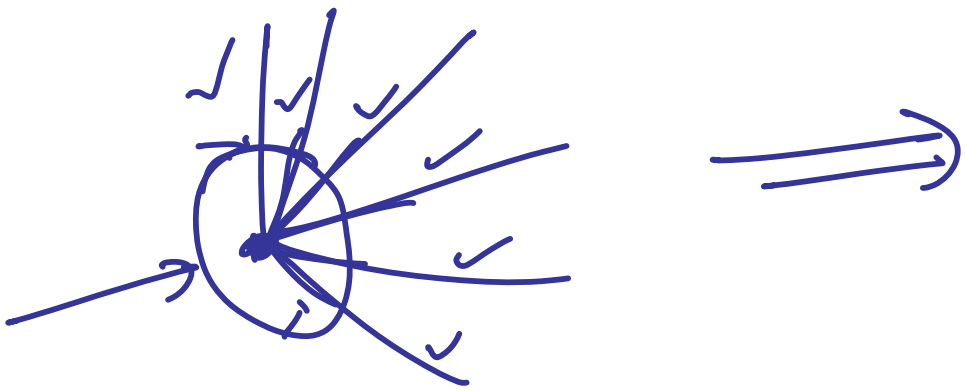
$\alpha(G)$
$\alpha'(G)$

$$\chi(\bar{G}) \leftarrow \boxed{\alpha'(G) + n - 2\alpha'(G)}$$

$$= n - \alpha'(G)$$

$$= n - \beta(G)$$

$$= \alpha(G) = \omega(\bar{G})$$



$$\Delta = \omega(L(a))$$

$$\chi(L(a))$$

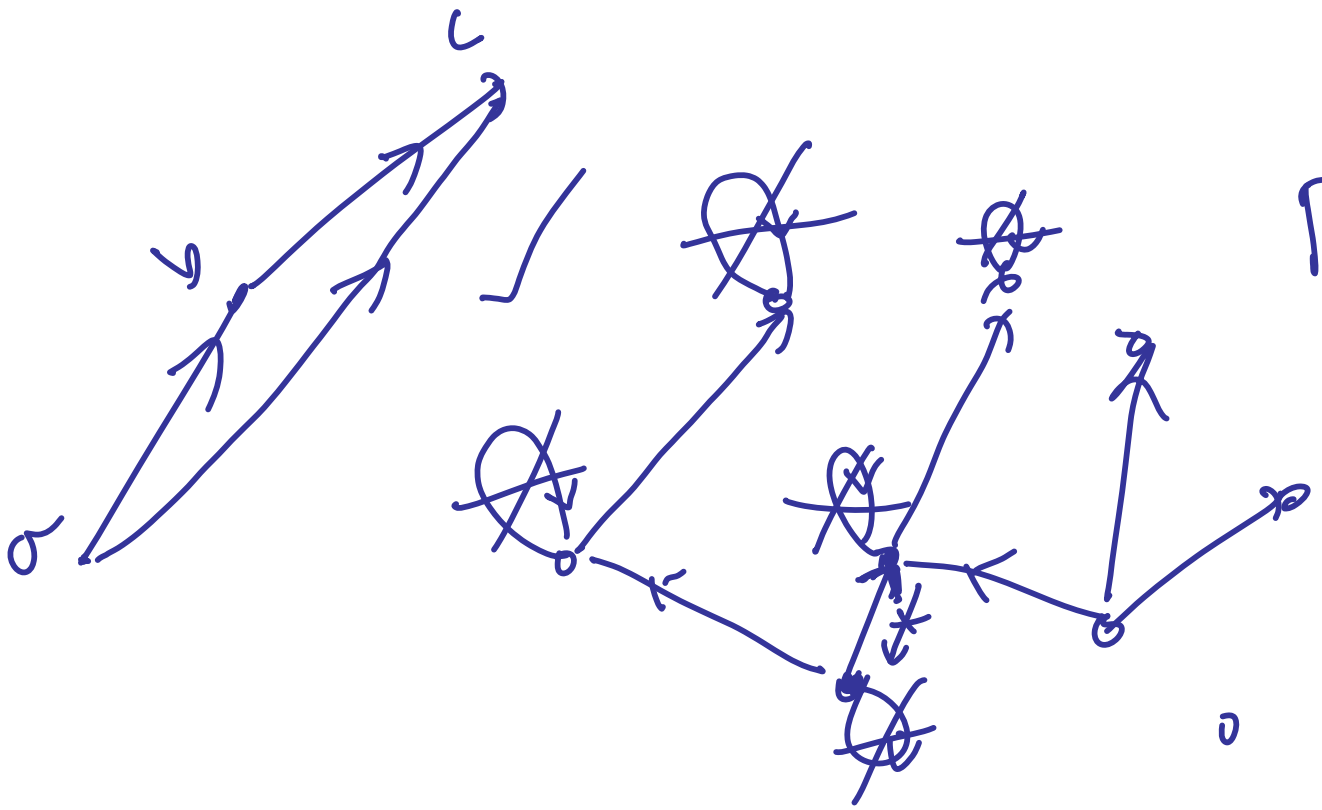
$$\Delta = \chi'(a) = \chi(L(a))$$

$$\alpha'(G) = \alpha(L(G))$$

$$= \omega(\overline{L(G)})$$

$$\chi(\overline{L(G)}) = k(L(G))$$

$$= \beta(G)$$



U

$R \subseteq U \times U$

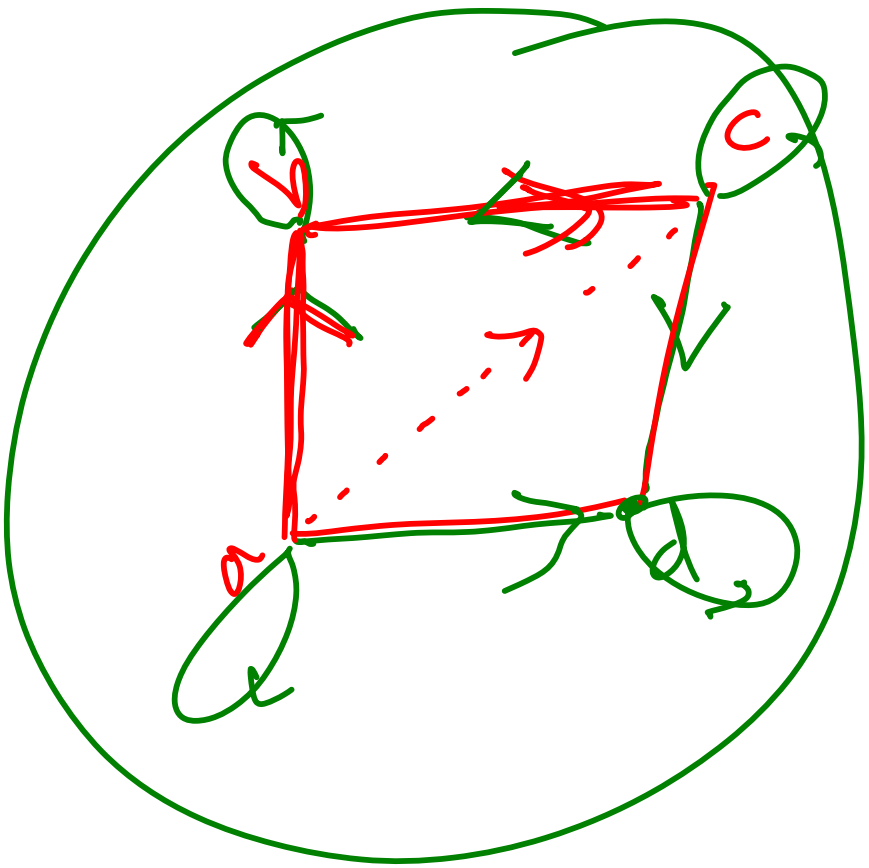
$(a,a) \in R$

$(a,b) \in R$

$(b,a) \notin R$

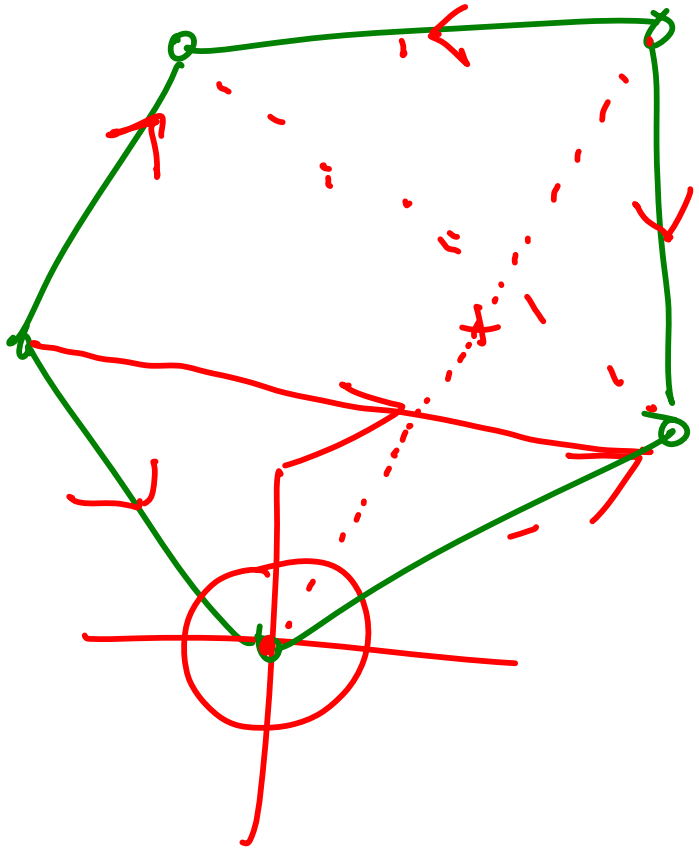
$(a,b) \in R$

$(b,c) \in R \quad (a,c) \in R$



(a, b), (c, b)

(a, d) (c, d)



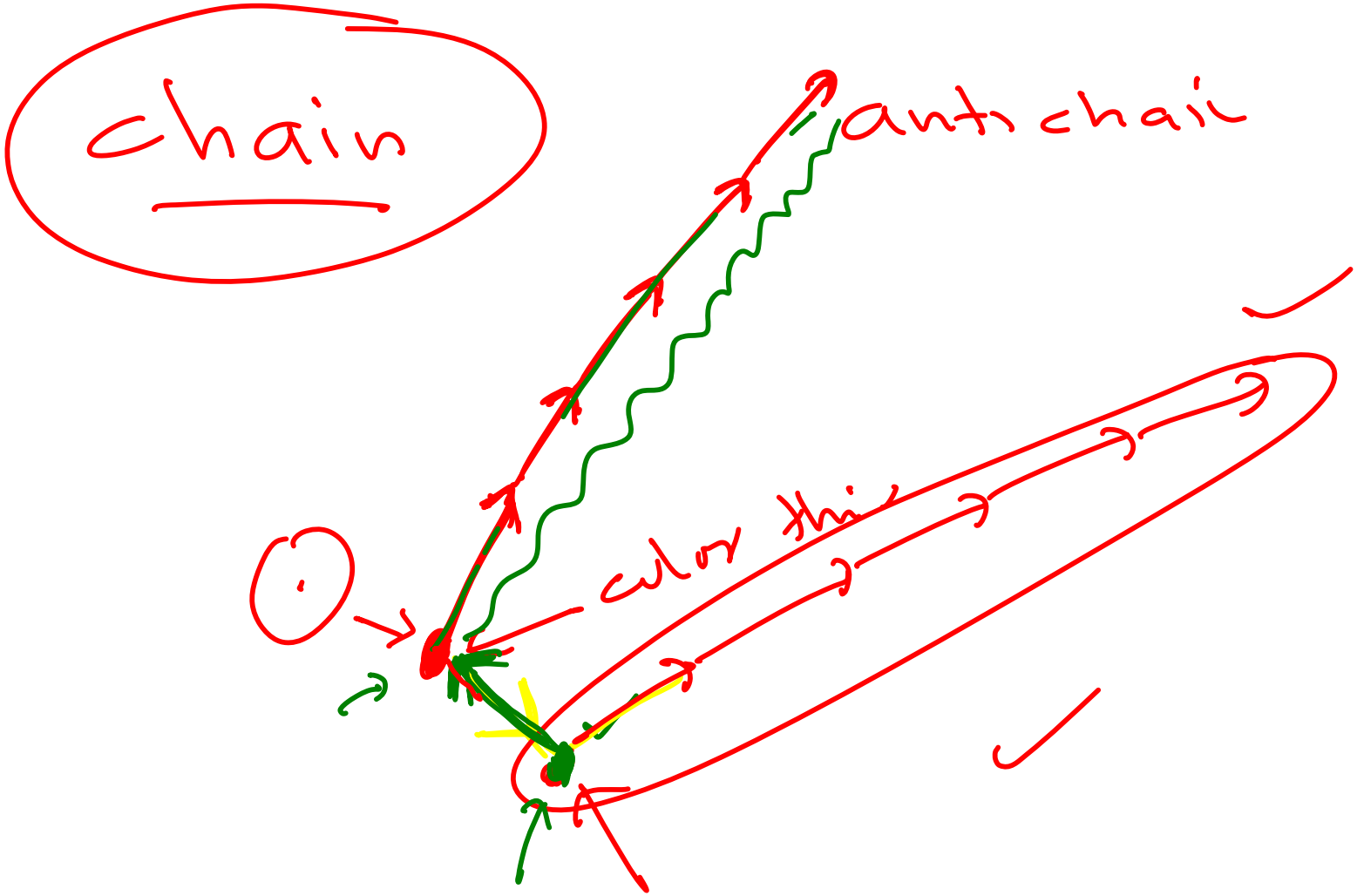
odd cycles

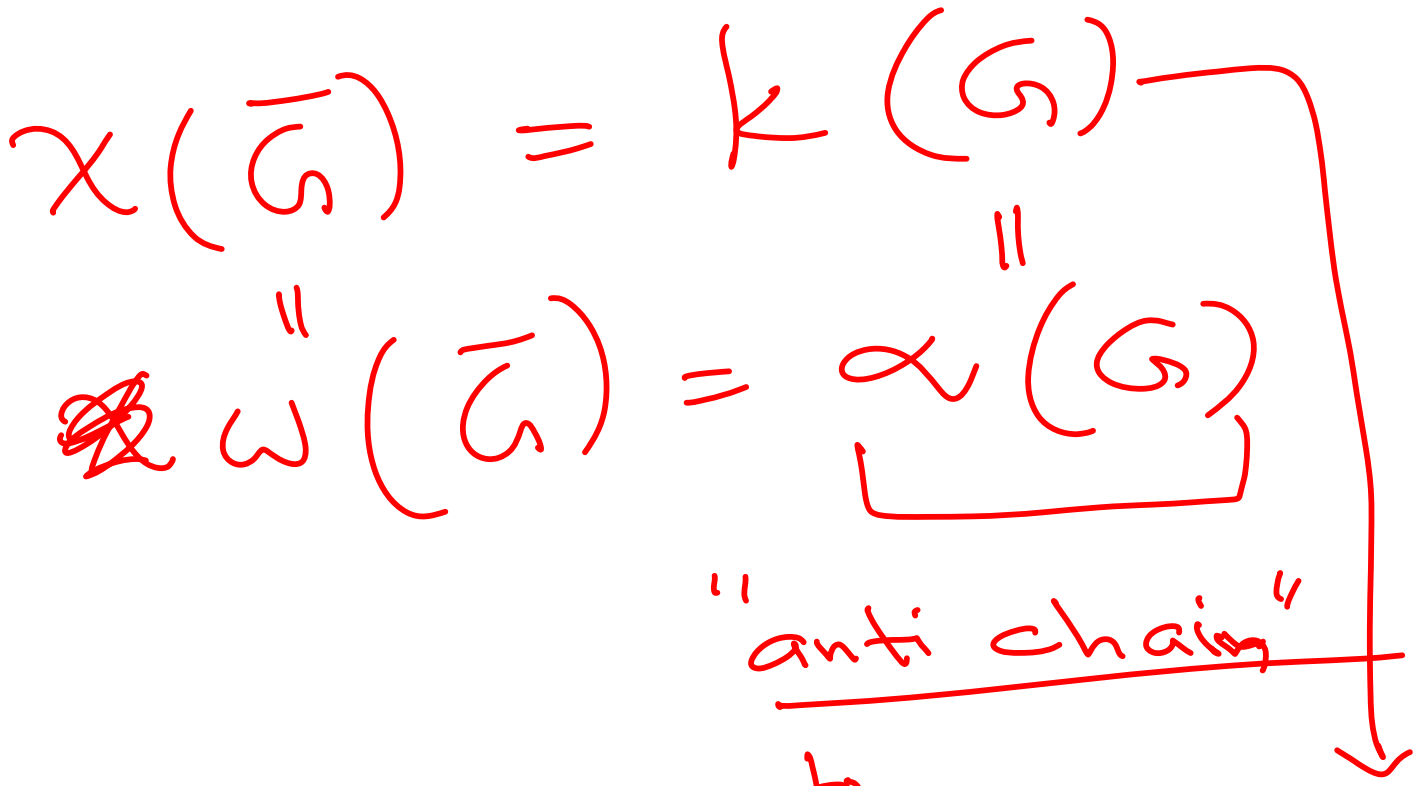
transitive orientation

Comparability graphs

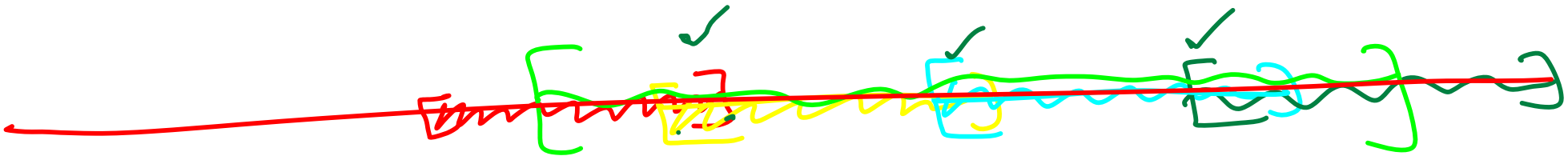
$\chi(G)$ $\quad$ $\omega(G) \leq \chi(G)$

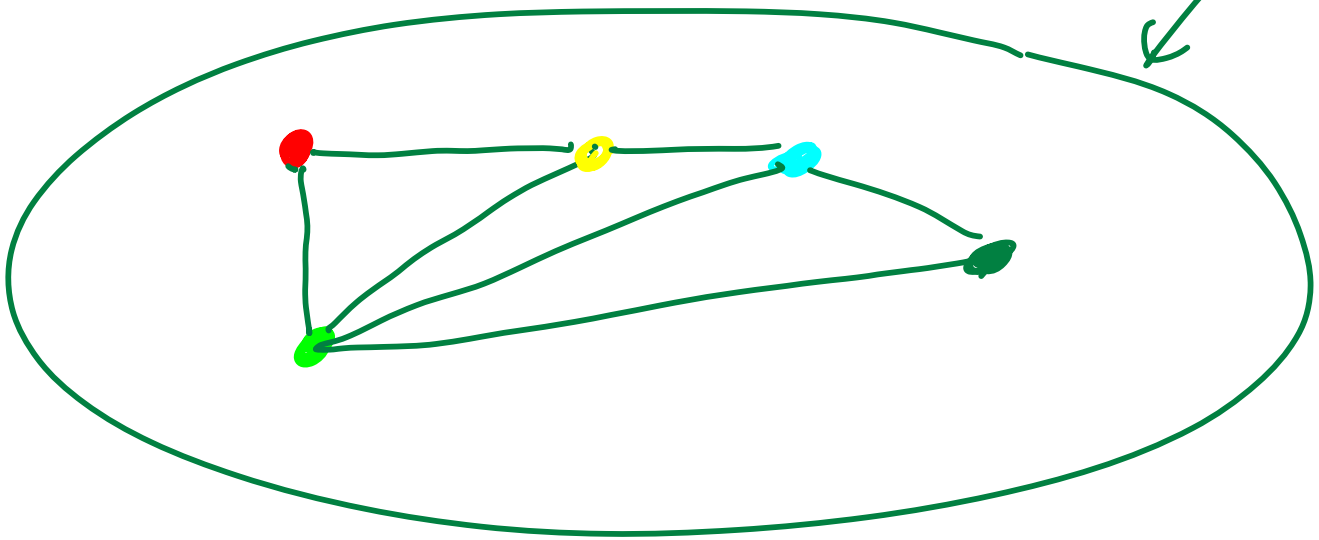
$\omega(G)$ $\quad$ $\omega(G) = \chi(G)$


chain
anti chain
color this


$\chi(\bar{G}) = k(G)$
$\omega(\bar{G}) = \alpha(G)$
"anti chain"
minimum # of chain to cover the elements of the

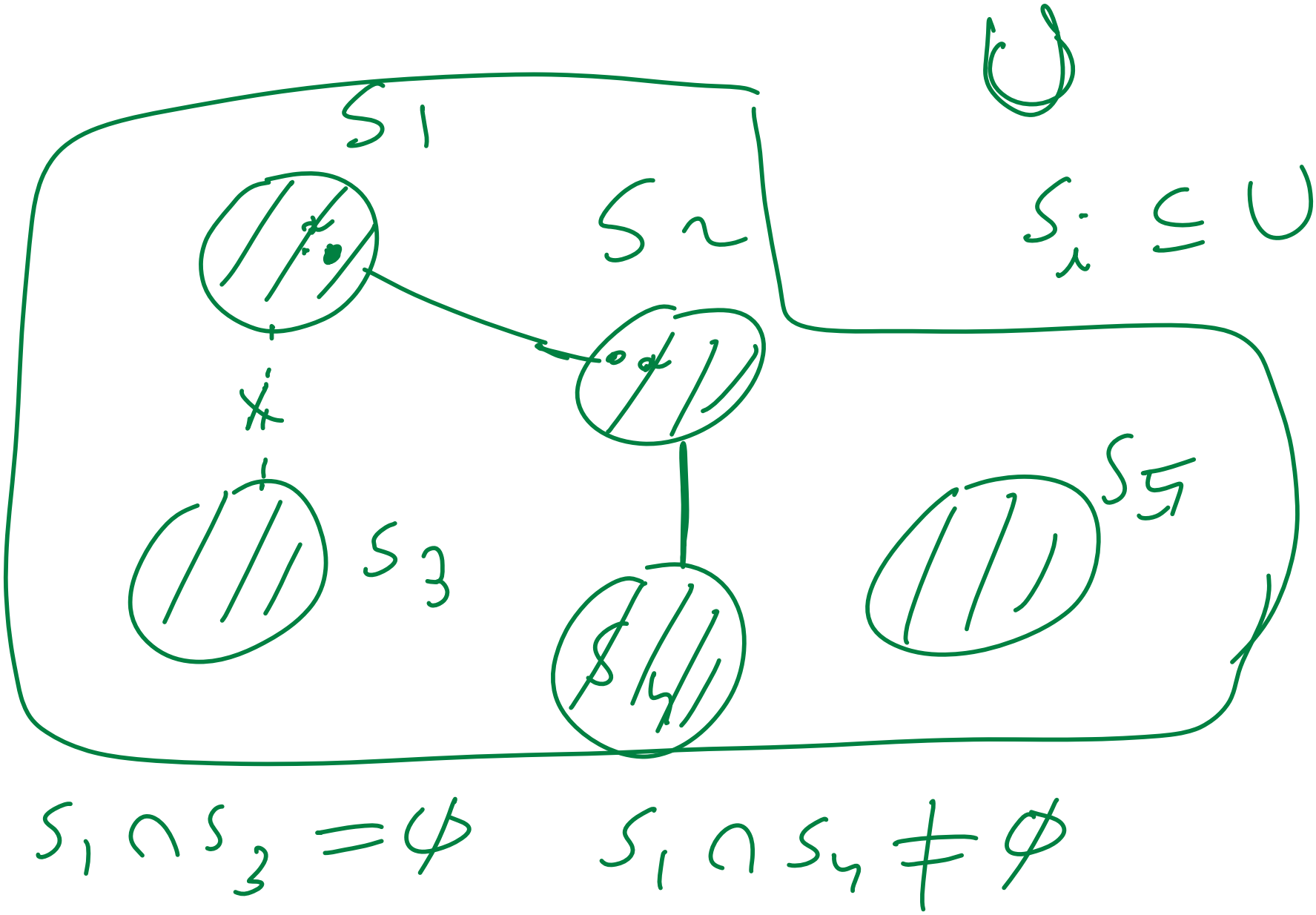
U is the real line



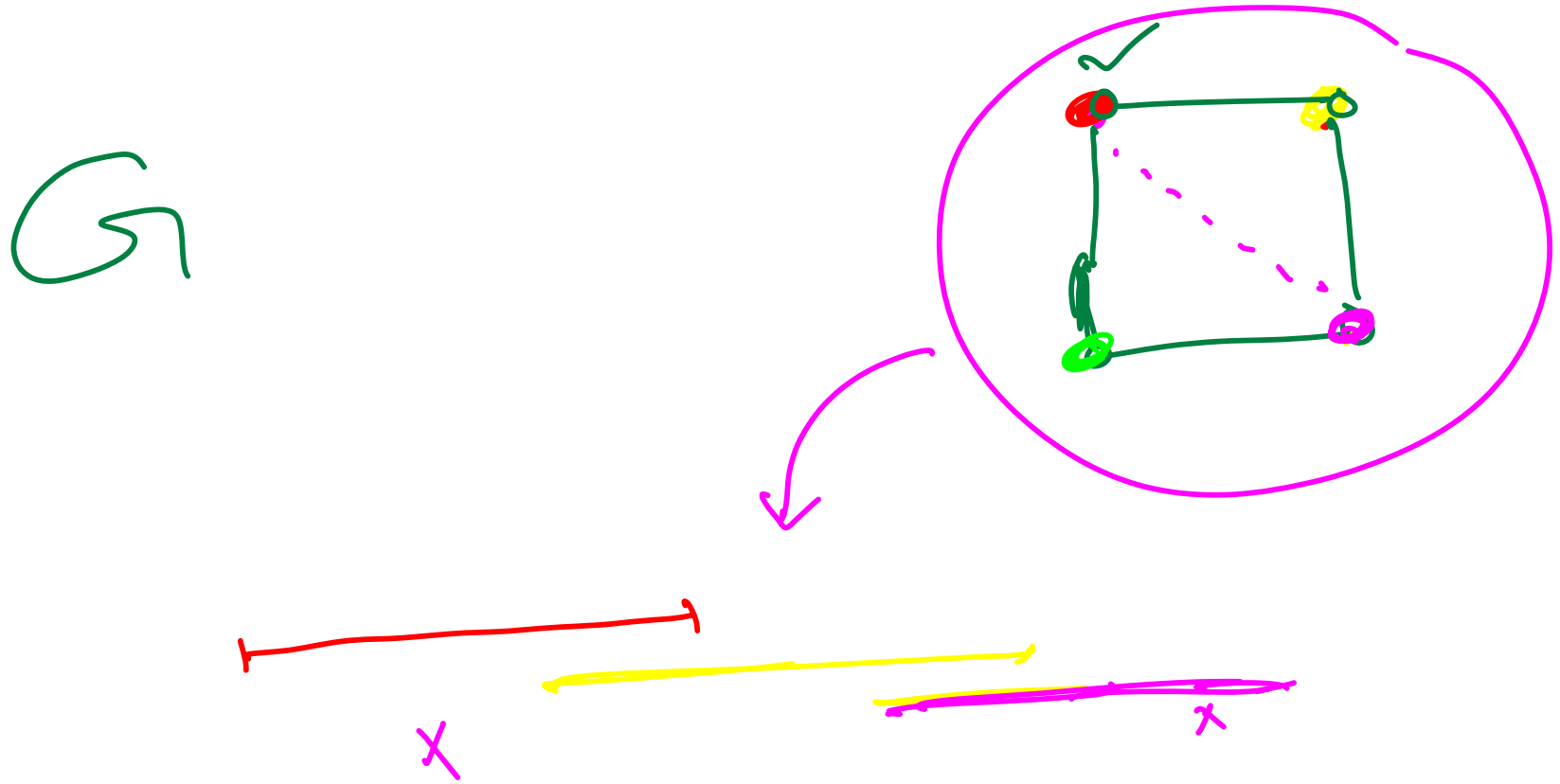


interval graph

Ex



$S_1 \cap S_3 = \phi$ $S_1 \cap S_4 \neq \phi$



$\chi(G)$

$\omega(G)$

$$\chi(G) = \omega(G)$$