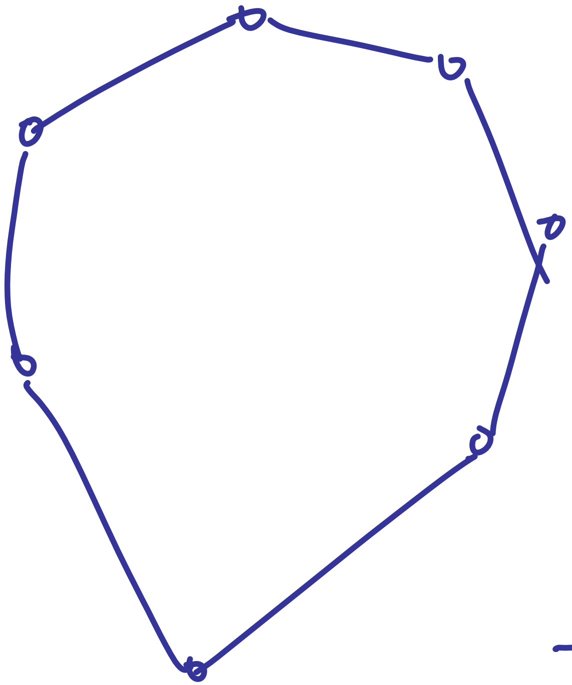
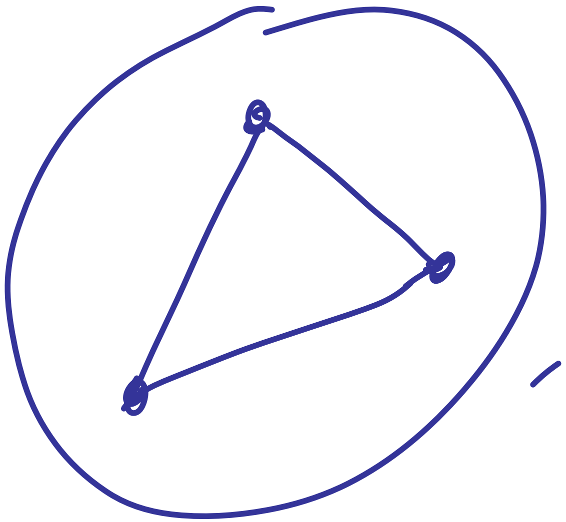


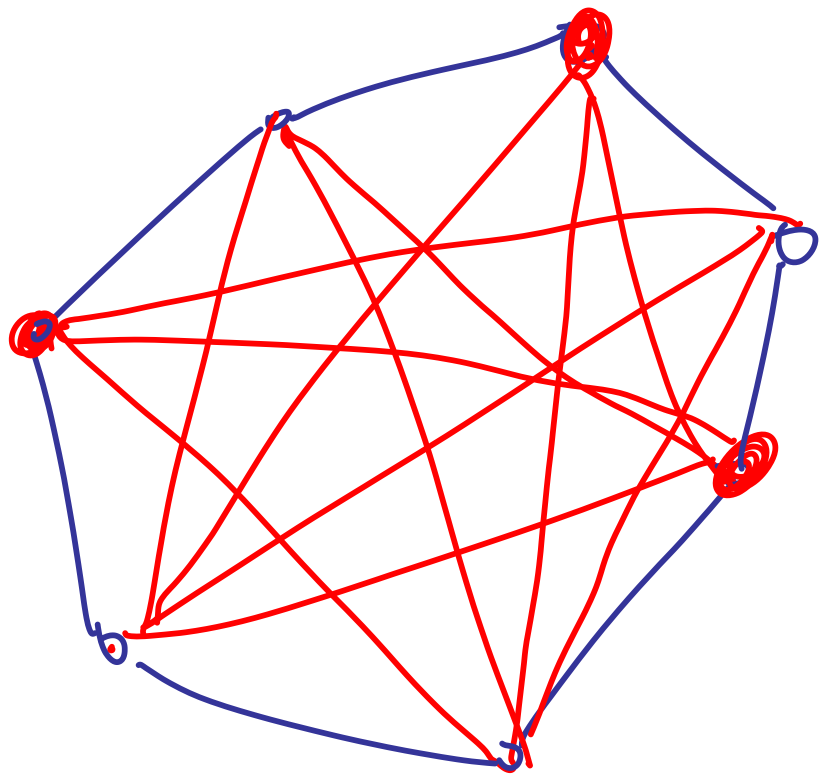
$\chi(G) = 3$

$\omega(G) = 2$



$\omega = 3$

$\chi > \omega$



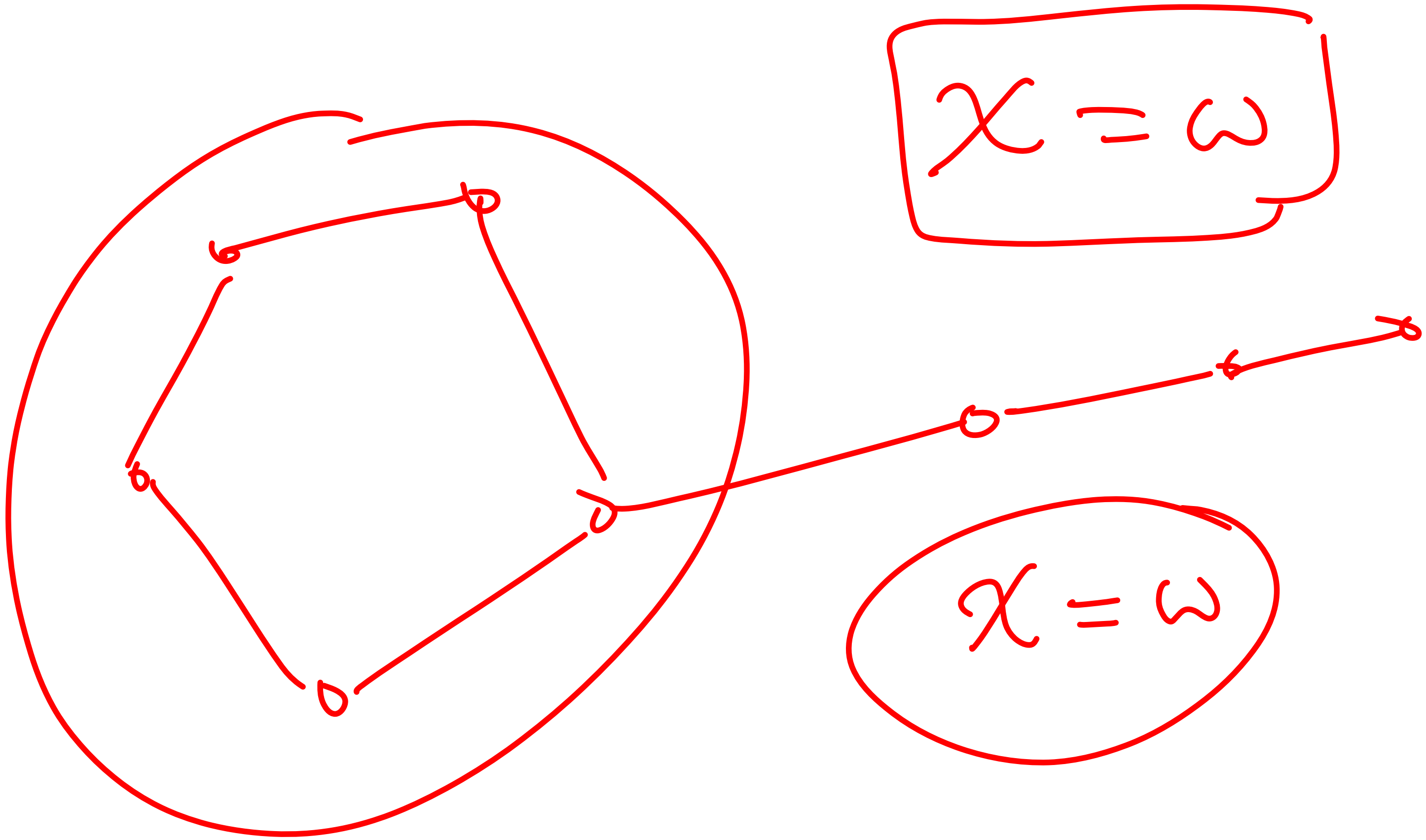
$\chi = k$

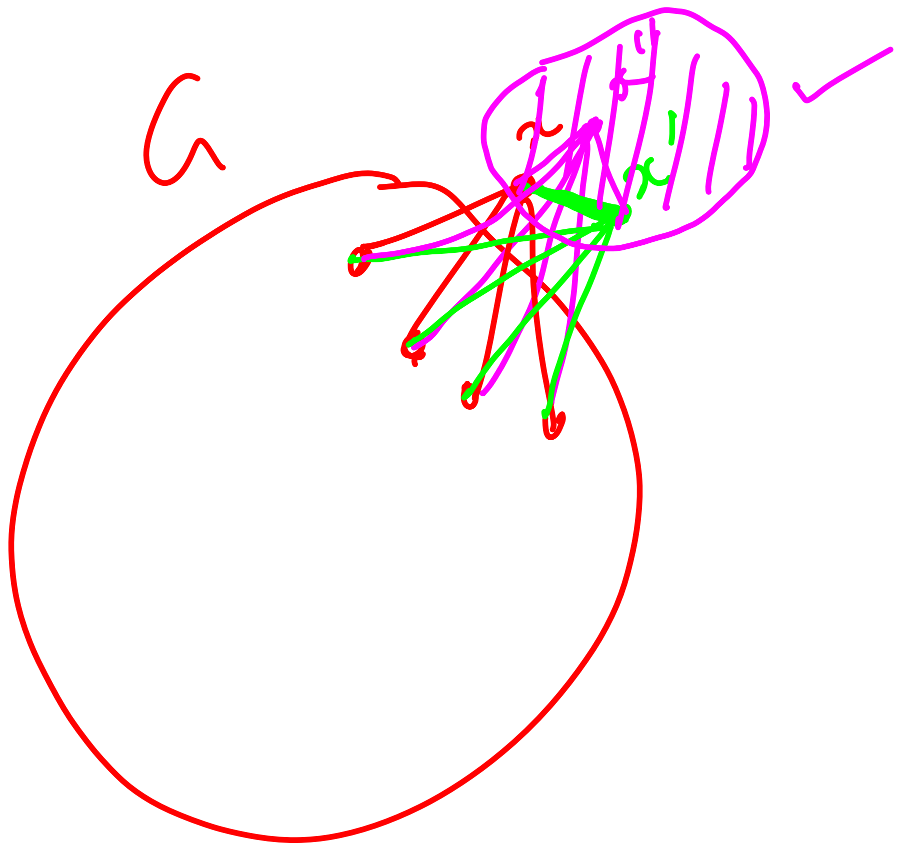
$\left\lceil \frac{n}{2} \right\rceil$

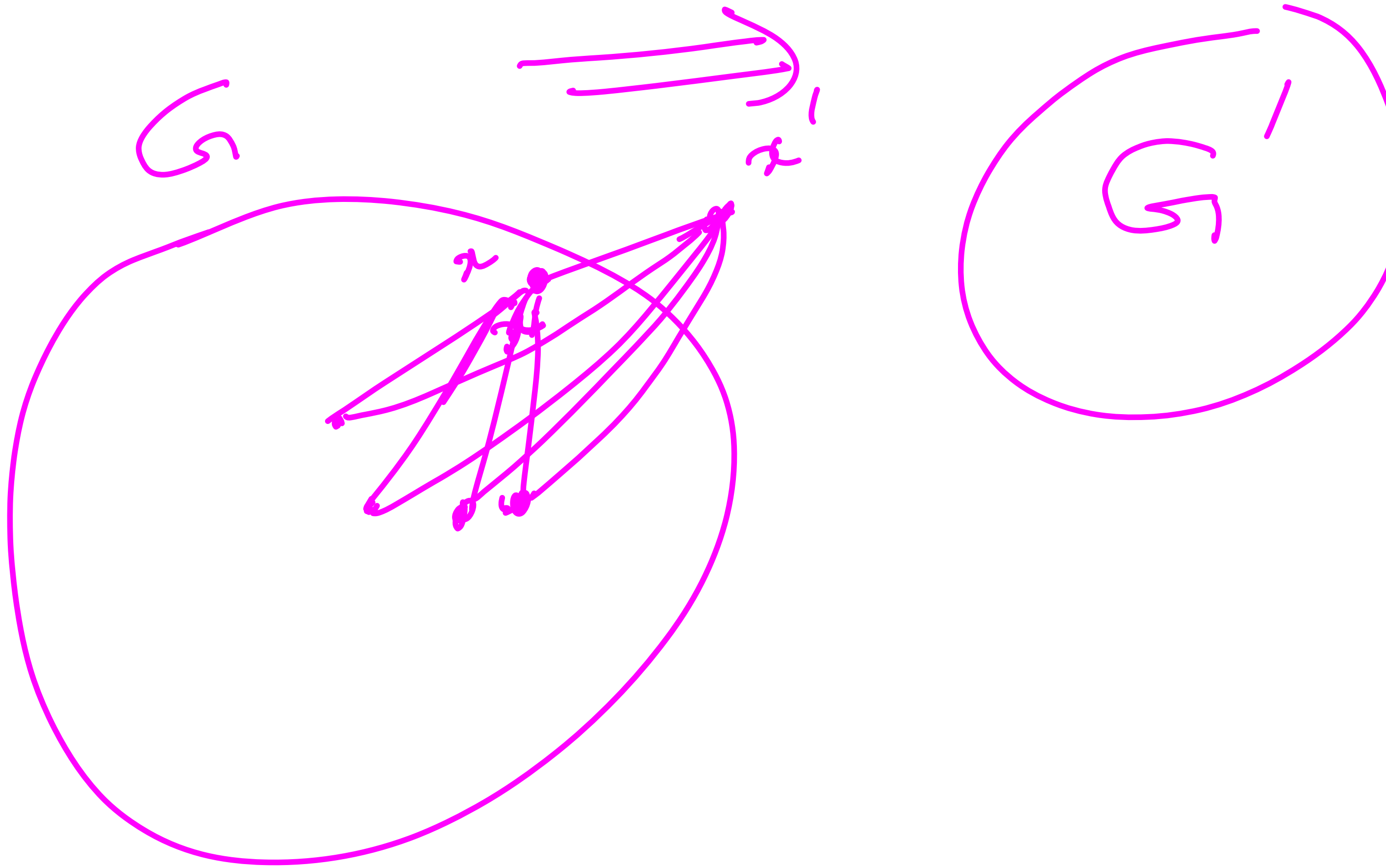
$\alpha = \left\lfloor \frac{n}{2} \right\rfloor$

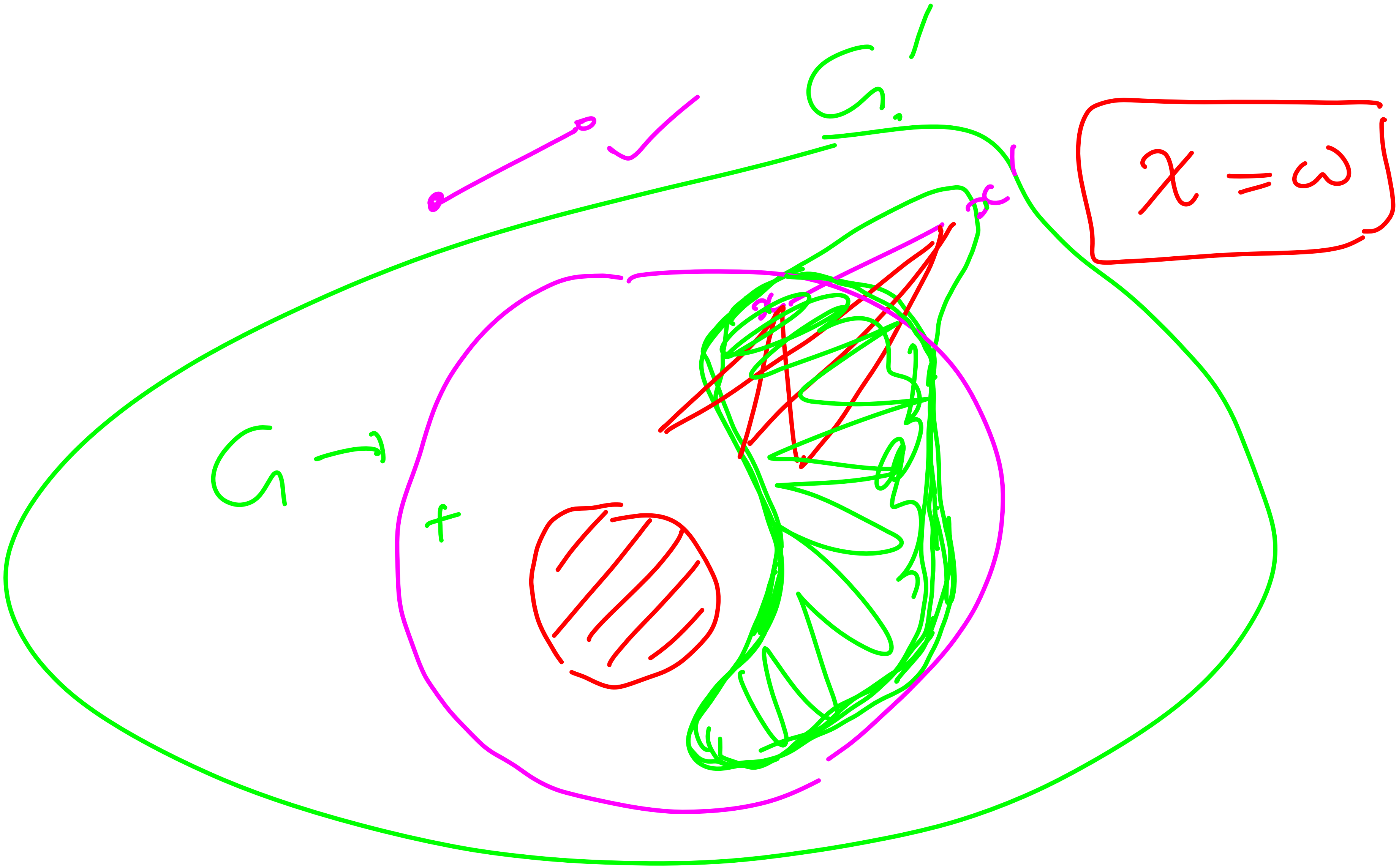
$\alpha < k$

$\chi(\bar{G}) > \omega(\bar{G})$

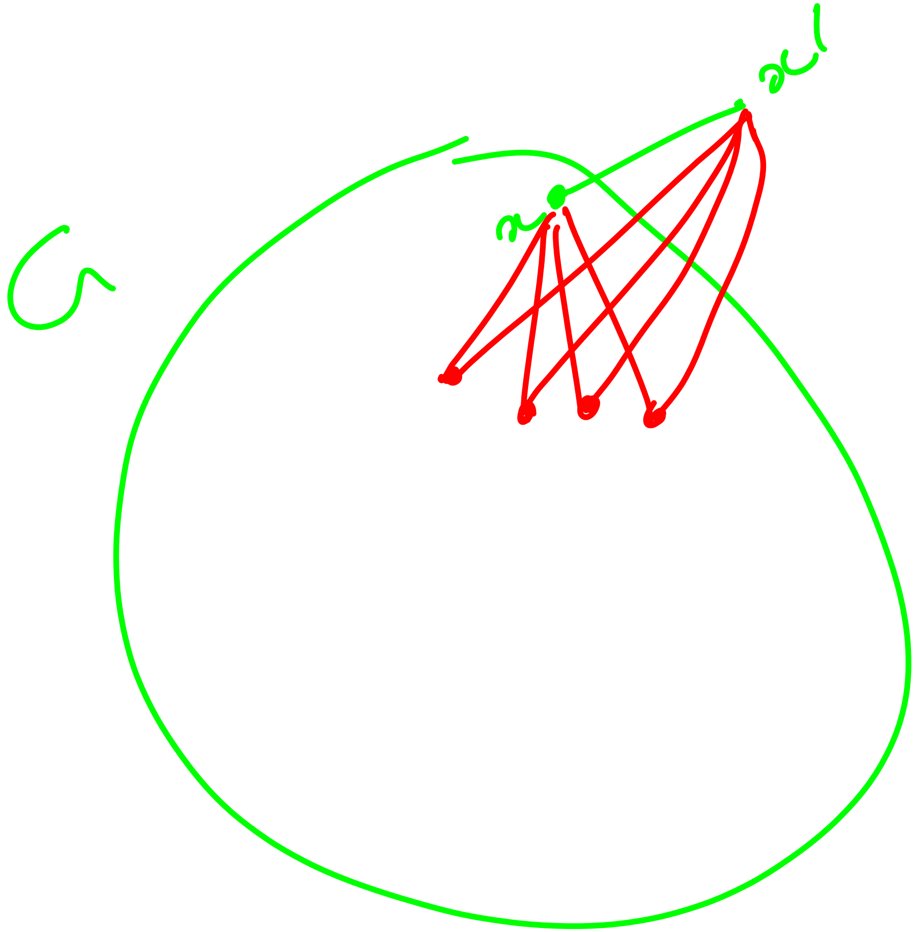

$x = \omega$
$x = \omega$


G
x
x'


G
G'



G'
G
x = ω

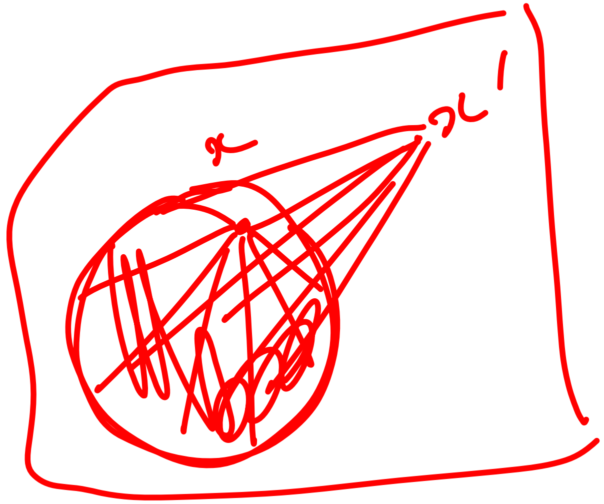


$\omega(G') = \chi(G')$

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

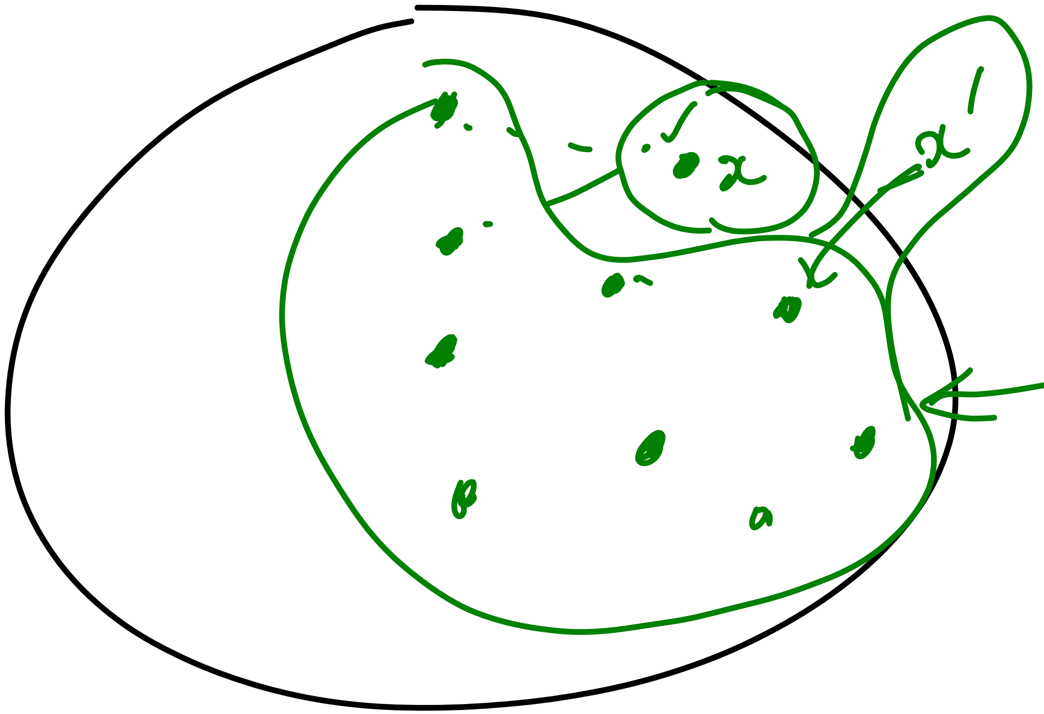
$\downarrow +1 \qquad \downarrow +1$

$\omega(G')$


x
x'

ω - coloring of G

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



$C \leftarrow x$

$C - \{x\} + x'$

$$G'' \longrightarrow \omega - 1 = \underbrace{\overset{\omega}{\underset{\downarrow}{}}\!\!\chi(G) - 1}_{1\,+}$$

$$G' \qquad\qquad\qquad\qquad = \chi(G')$$

$$= \underline{\underline{\omega}}$$

G is a perfect

$\overline{G}$ is perfect

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

$$\boxed{k(G) = \alpha(G)}$$

K in G such that

K intersect with all the

maximum independent sets

of G

$$K \to \{k_1, k_2, k_3, \ldots\ldots\}$$

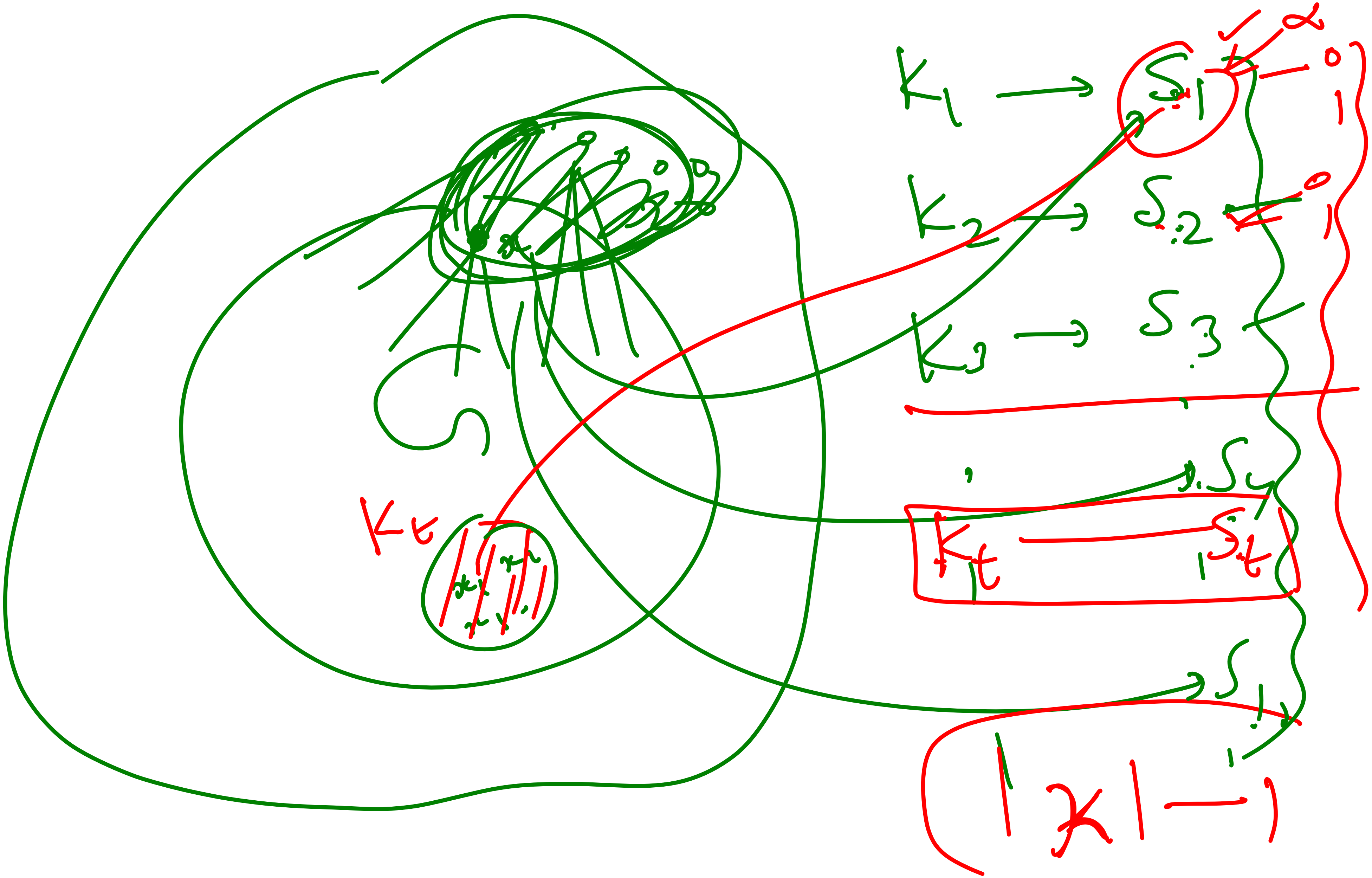
$$S_1$$

$$\boxed{|S_1| = \alpha}$$

$$k_1 \cap S_1 = \phi$$

$$k_2 \cap S_2 = \phi$$

$$\left\{ \begin{array}{l} k_i \longleftrightarrow S_i \\ k_i \cap S_i = \phi \end{array} \right\} \quad \boxed{|S_i| = \alpha}$$


$K_1 \to S_1$
$K_2 \to S_2$
$K_3 \to S_3$
S_4
$K_t \to S_t$
K_t
$|K| - 1$
α
0
1

$G \longrightarrow G'$

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

$\chi(G') > \omega(G')$

$|X|$

$|X|-1$

$\omega(G')$

X of $G \longrightarrow$

$$\underbrace{\omega(G')} = \sum_{x \in X} h(x) \leq |\cancel{X}| - 1 \checkmark$$

$$X = \{x_1, x_2, \ldots x_t\}$$

$$\underline{\checkmark\, \chi(G') \geq |X| \geq |X - 1| \geq \omega(G)}$$

$$x \geq \frac{|G'|}{\alpha(G')} \quad \alpha$$

$$\boxed{\alpha(G') \leq \alpha(G)}$$

$$\boxed{\chi > \frac{|G'| = \cancel{K}\,\cancel{\alpha}}{\cancel{\alpha}}}$$

$$|G'| = \sum_{x \in V(G)} h(x) = \alpha |K|$$