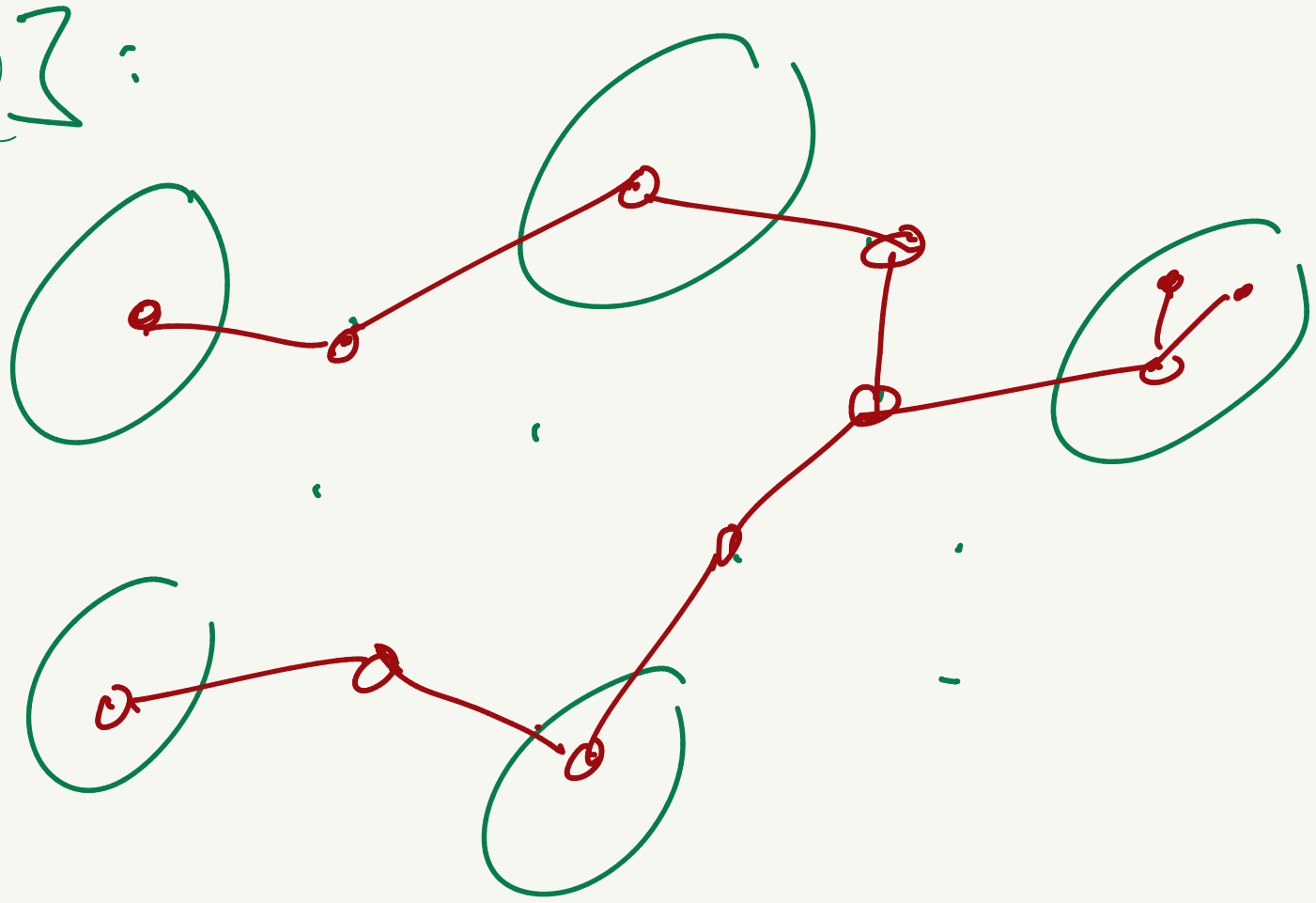
Q7:



x_v : 1 if use vertex v } binary

y_e : 1 if use edge e. }

$y_{uv} \le x_u$, $y_{uv} \le x_v$

y : spanning tree on induced graph.

$$\sum y_e = \sum x_v - 1$$

$$\forall S \subseteq V : \sum_{e \in E(S)} y_e \le |S| - 1$$

To force $y_{uv} = 1$ if $x_u = x_v = 1$: NOT HERE.

$y_{uv} \ge x_u + x_v - 1$.

Q5:

Hamiltonian path → leaves.

S_0: use leaves as a subroutine to solve HP

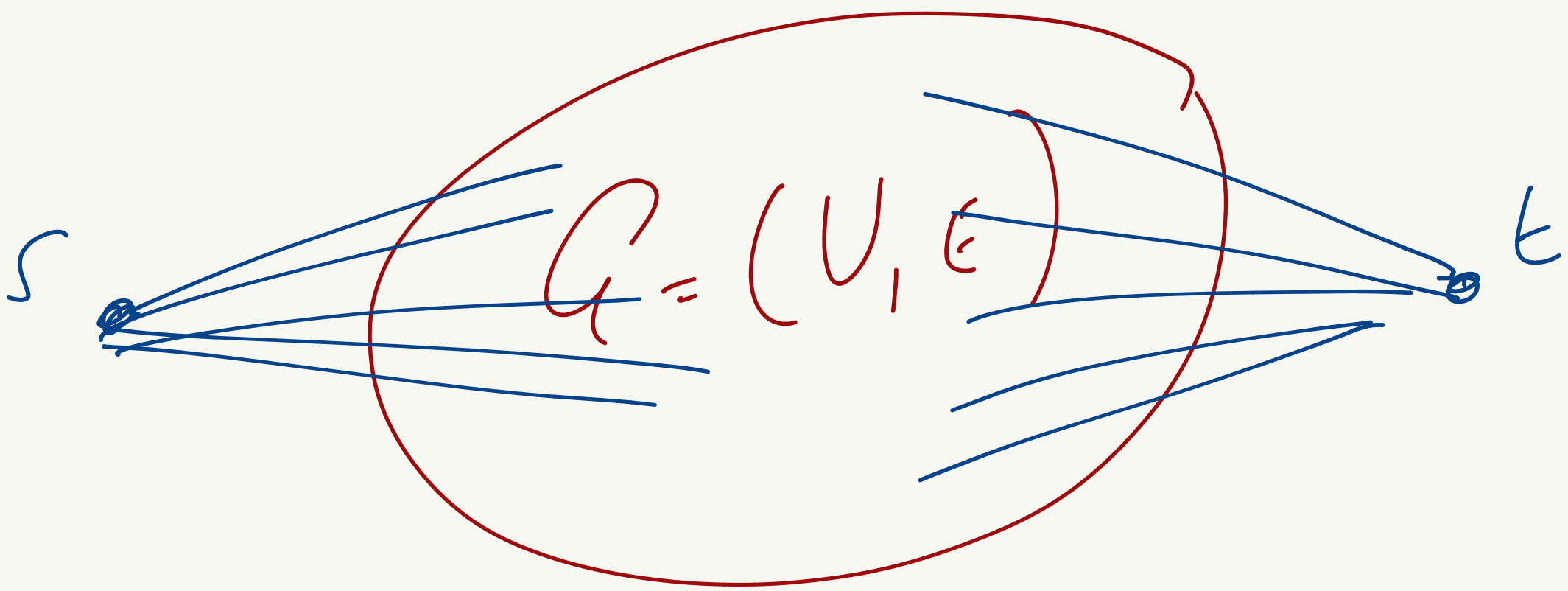
Loop through all pairs

Pick pair of vertices $u, v \in V$.

Is there a spanning tree with leaves $\{u, v\}$?

If YES: stop, have HP

end loop.


S
G = (V, E)
t