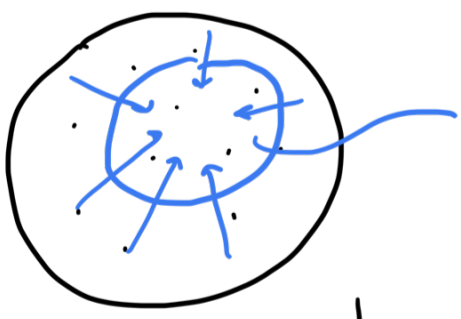
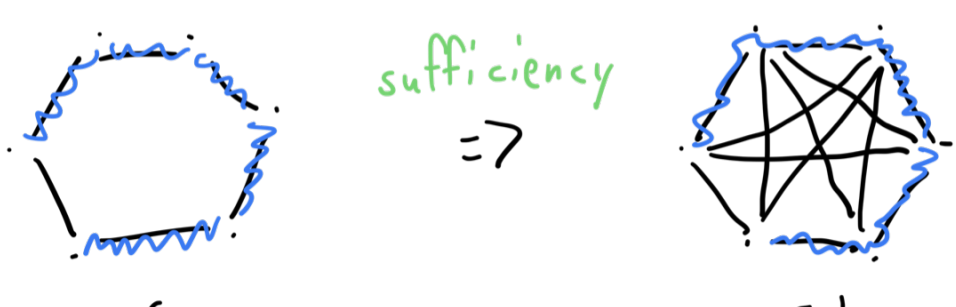
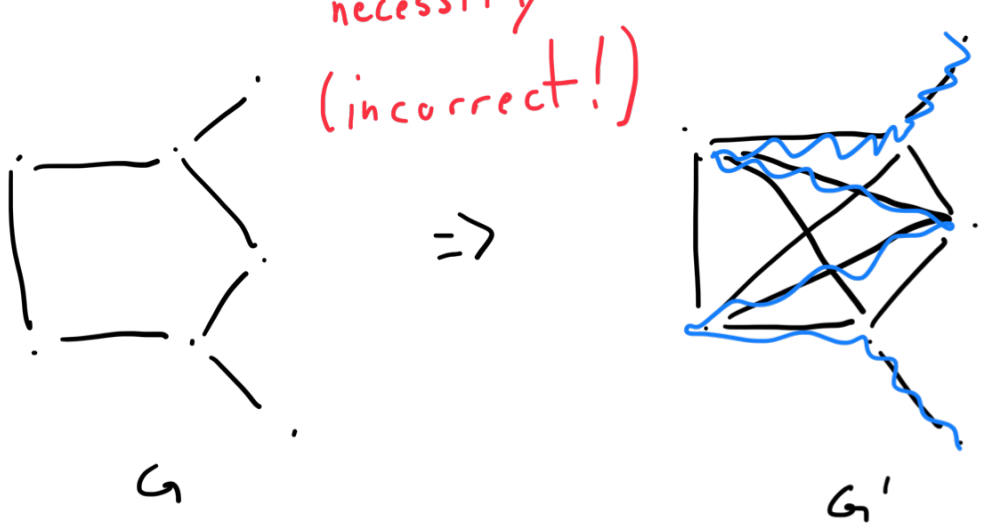
"Theorem": Hamiltonian Path (HP) is NPC even on chordal graph.

"Proof": HP is NP on a chordal graph.
Given a chordal graph $G = (V, E)$ and a path P, we can easily iterate to check that P contains all vertices in V, so $|P| = |V|$.
This takes $O(n)$.
Next, we show HP is NP-hard on a chordal graph. We reduce from HP on a general graph.



Let G be a general/arbitrary graph. We add edges to G until the new graph G' is chordal





"An HP in G' implies an HP in G"
$p \rightarrow q$
$\Downarrow$
$\neg q \rightarrow \neg p$ (contrapositive)
"No HP in G implies no HP in G'"