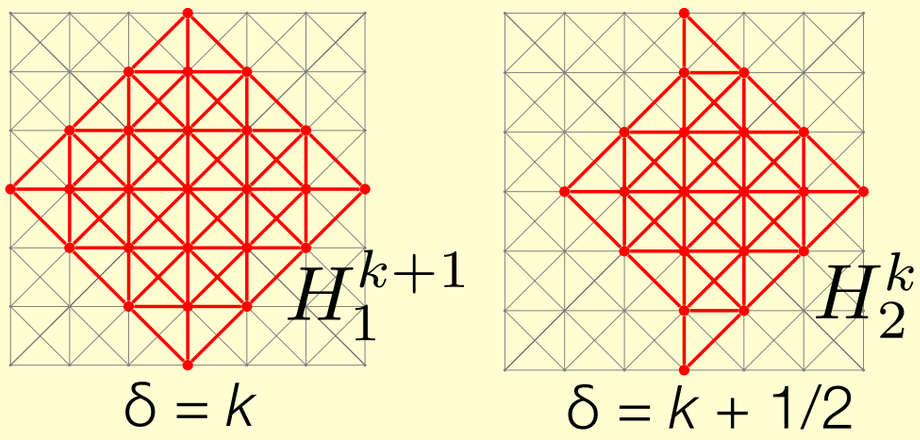
(**Q1**) Special subgraphs of a chess grid govern hyperbolicity in Helly graphs

Our Contribution

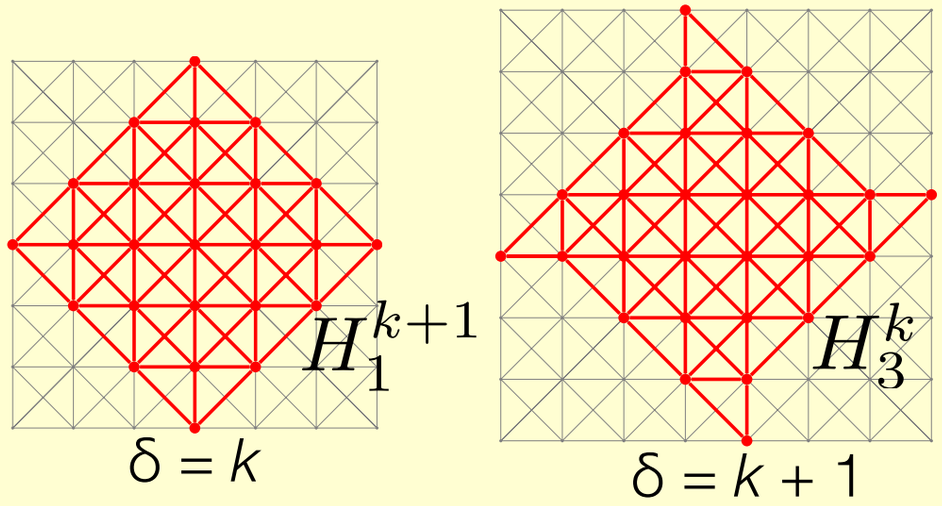
Theorem [4]: We show that for Helly graphs and any integer *k*,

- ***hb*(*G*) ≤ *k*** **if and only if *G* has neither isometric H_1^{k+1} nor H_2^k**



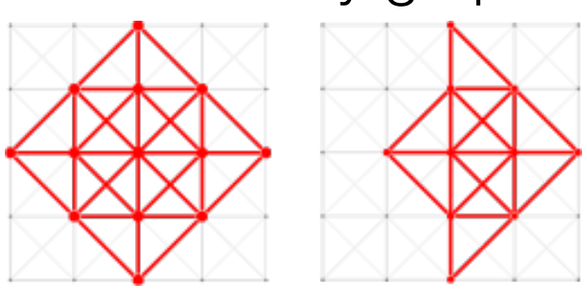
hb(*G*) is an integer

- ***hb*(*G*) ≤ *k*+1/2** **if and only if *G* has neither isometric H_1^{k+1} nor H_3^k**

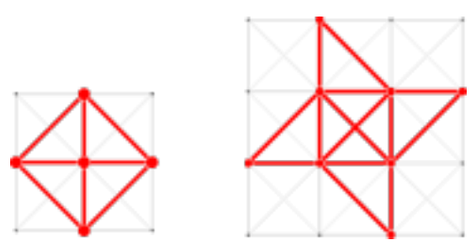


hb(*G*) is a half-integer

Example: forbidden isometric subgraphs for **1-hyperbolic** Helly graphs.



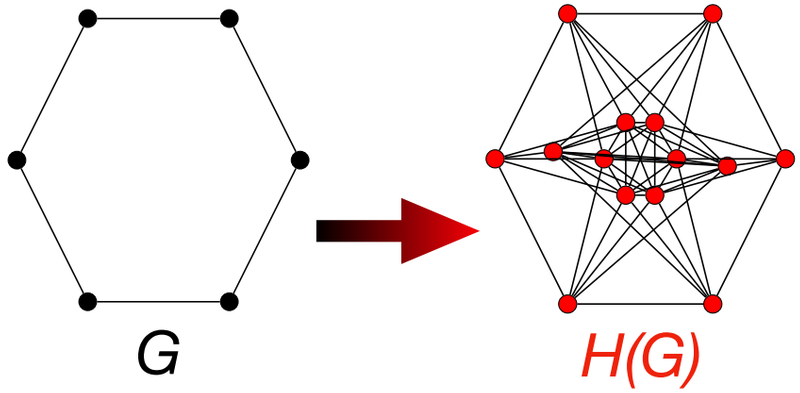
Example: forbidden isometric subgraphs for **1/2-hyperbolic** Helly graphs.



[4] F. Dragan and H. Guarnera, *Obstructions to a small hyperbolicity in Helly graphs*, under review.

(**Q2**) How big is $H(G)$ with respect to G?

Every graph G can be isometrically embedded into the smallest Helly graph $H(G)$, called the injective hull of G.

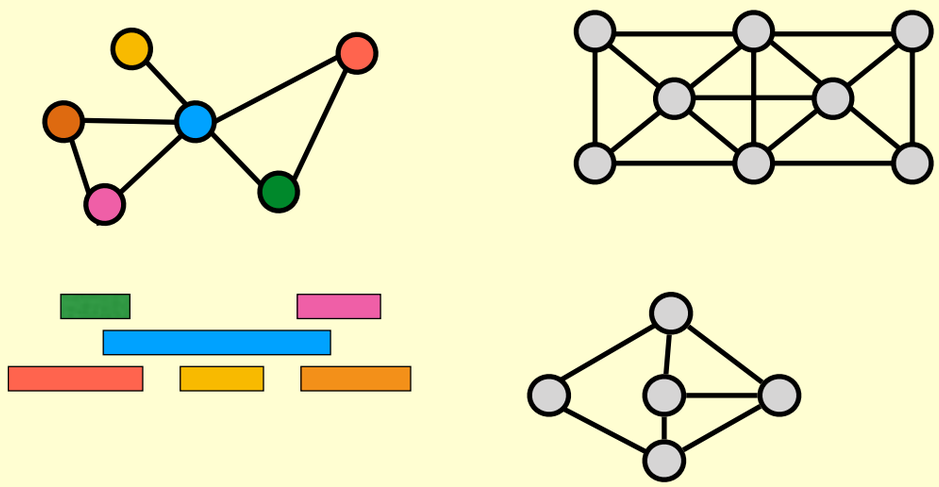


Our Contribution

Theorem [5]: There are some graph classes for which $H(G)$ …

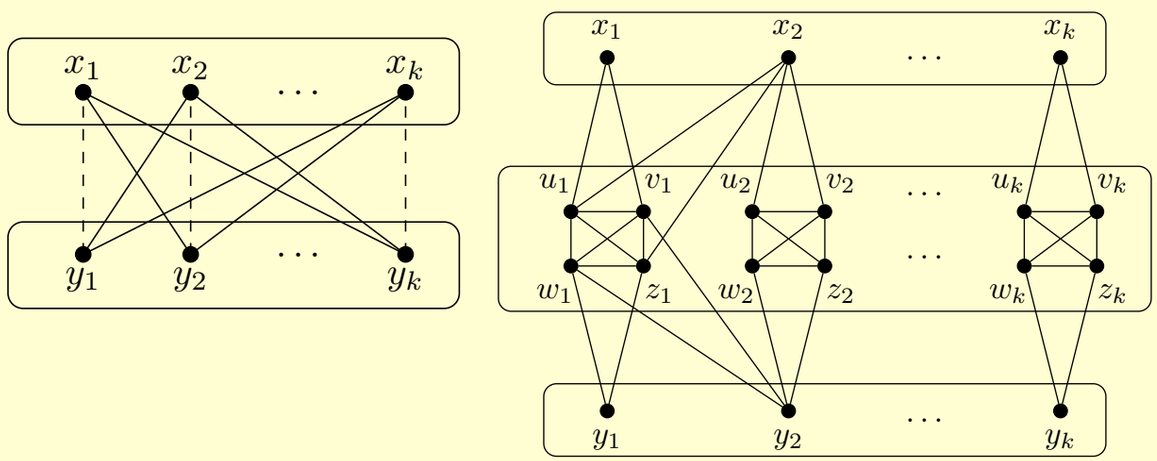
contains at most $2n$ vertices.

- Interval graphs
- Helly graphs
- Distance hereditary graphs



can contain at least 2^n vertices.

- Chordal bipartite graphs
- Chordal graphs
- Cocomparability graphs



[5] F. Dragan, H. Guarnera, A. Leitert, *Hellification of special graph classes*, manuscript in preparation.