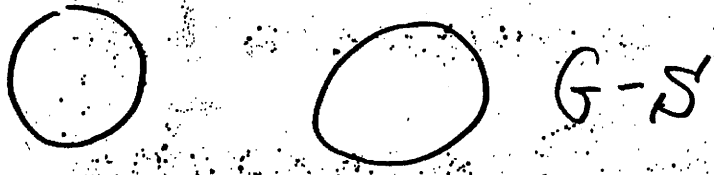
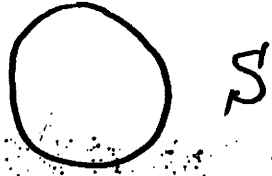


Between 2- and 3-colorability



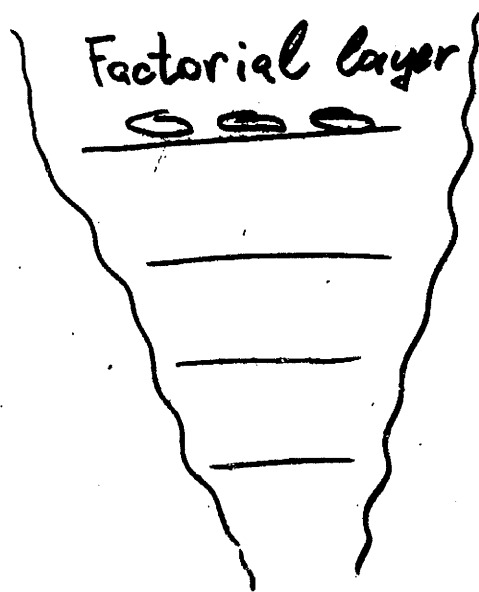
Problem. Let X be a class of bipartite graphs.

Determine if a given graph G has an independent set S s. t.

$$G-S \in X$$

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Speed of hereditary properties



X_1

$\text{deg} \leq 1$

X_2

bip. complements

X_3

chain graphs

Conjecture. The problem is NP-complete
if and only if X contains one
of the classes X_1, X_2, X_3

Polynomial part is true
The conjecture is true for
 $X = X_1$ NP-complete

Problem 2. Let X be a class of bipartite graphs.

Given a bipartite graph G , find a maximum subset of vertices inducing in G a graph from the class X .

Th. Problem 2 is NP-hard if X contains one of the classes X_1, X_2, X_3 , and polynomial-time solvable otherwise.