CS 0368-4246: Combinatorial Methods in Algorithms (Spring 2025) March 24, 2025

Lecture 2: Color Coding and Randomized Cycle Finding

Instructor: *Or Zamir*

Homework Questions

1. Show that a P_k can be found in $O\left((k+2)!n\right)$ time, without checking all edges.
2. Show that a P_3 can be found in time $O(n+m)$ deterministically.
3. (a) Find a K_4 in $O(n^{\omega+1})$ time.
   (b) Find a K_6 in $O(n^{2\omega})$ time.
   (c) How quickly can you find a K_r for general r?