Summary of Lecture 13

Reading: [Arora-Barak (AB)] Chap 6.4, 7.1, 7.2

- Karp-Lipton Theorem: if NP⊆P/poly, then PH collapses to the second level. Use the assumption that NP⊂P/poly to switch the order of the qualifiers in the definition of the second level of PH.
- Karp-Lipton-Meyer Theorem: If $EXP \subseteq P/poly$, then $EXP = \Sigma_2$. We need to use the ideas (local checks) from the proof of the Cook-Levin theorem and two qualifiers to simulate the computation in EXP.
- Examples of randomized algorithms. See more in Chapter 7.2 [Arora-Barak].
- Monte-Carlo and Las Vegas randomized algorithms (and the Markov inequality in probability theory).