Institut for Matematik og Datalogi
Syddansk Universitet

March 5, 2020
JFB

DM553/MM850 – Complexity and Computability 2020 – Lecture 8

Lecture, February 28

We finished chapter 4 and began on section 5.3 of chapter 5..

Lecture, March 4

We will continue on chapter 5, starting with section 5.3 (note that we will be skipping the last part of section 5.1, having to do with reductions via computation histories).

Lecture, March 17

We will finish chapter 5. Then, we will begin on NP-Completeness. starting with section 7.3 in Sipser's book, introducing definitions and showing that 3-SAT and CLIQUE are NP-Complete. Note that some of this is also in chapter 34 in the CLRS book.

Problems to be discussed on March 18/19

Do Problem 5.29 in Sipser's book.

From CLRS, do:

1. 34.1-3, 34.1-5, 34.2-3.
2. Suppose that there is a language L for which there is an algorithm that accepts any string $x \in L$ in polynomial time and rejects any $x \notin L$, but this algorithm runs in super-polynomial (more than polynomial) time if $x \notin L$. Argue that L can be decided in polynomial time.
3. 34.2-4 (skip Kleene star), 34.2-8.
4. 34.3-6.

Study group suggestion

Try preparing a presentation of the proof that the Post Correspondence Problem is undecidability.