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Summary: Lecture 4

Summary for the chapters X and X. [1]

Asymmetry of non-deterministic revisited

to check if formular is non satisfiable
question whether NP = coNP

similar isuues is non-deterministic space:
write down n nodes on a ... non-det. will succeed if it is possible
to show that it is impossible to ... in SPACE was unsolved until the 80s
h for function (yes or no or h?)
h is yes
everything that fails stops in stae with no

Immerman-Szelepscènyi

how many distinct nodes can be reached in a graph if you start from a graph x
$s(0)$ will contain node 1 and $s(1)$ will contain all neighbours of 1
we will have actual names
4 nested for loops and algorithm happens in the middle
outer for loop:
computes number of nodes reachable from initial node (for k steps with k as the interative thingy in the for loop)
in each step we override the previous set with the next one because we only have limited space
second loop:
we get how far we got in the previous steps and sum up how far we can get (because we can get previous set size?)
third loop:
the actual magic happens here: checking something
Aux sounds like a port for headphones
return no when all guesses were correct? we remember solution that we were supposed to reach beforehand

References

[1] Christos H. Papadimitriou. *Computational Complexity*. Addison-Wesley Publishing Company, 1994.