

Summary: Lecture 2

Summary for the chapters 7.1 *Complexity classes* and 7.2 *Hierarchy problem*. [2]

Complexity classes

Background knowledge:

A complexity class is a set which contains problems with similar complexities. The complexities are examined in regards of a specific resource, for example time or space. For the problems the most efficient solution/algorithm is analysed.

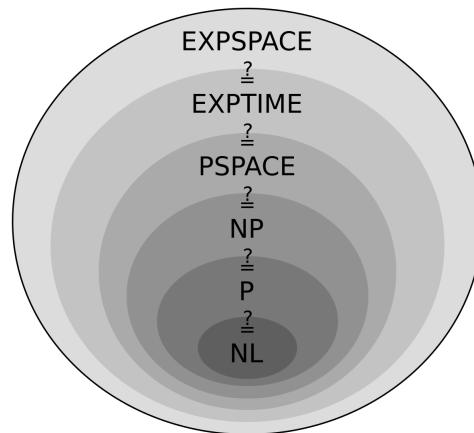


Figure 1: Complexity classes [1]

Usually the complexity depends on the input size. With the asymptotic complexity, classes are built, which are the complexity classes. [3]

Summary:

Parameters of complexity classes:

- Model of computation:
here: multistring Turing Machine
- Mode of computation:
for example: deterministic or non-deterministic (deterministic: the computer will always produce the same output for a given input while going through the same states, non-deterministic: can show different behaviors for the same input)
- Resources:
hjdksl
- Restrictions:
hjdkks

Hierarchy problem

References

- [1] *Complexity classes diagram image source*. https://en.wikipedia.org/wiki/Complexity_class.
- [2] Christos H. Papadimitriou. *Computational Complexity*. Addison-Wesley Publishing Company, 1994.
- [3] Prof. Dr. Thomas Schwentick. *Lecture notes in Grundbegriffe der theoretischen Informatik*. https://www.cs.tu-dortmund.de/nps/de/Studium/Ordnungen_Handbuecher_Beschluesse/Modulhandbuecher/Archiv/Bachelor_LA_GyGe_Inf_Modellv/_Module/INF-BfP-GTI/index.html.