Computing in anonymous networks has been widely studied for a long time. Recently, we defined two natural notions of anonymous computation and related them to each other using similar notions of completeness like you already know for classes $\mathcal{P}$ and $\mathcal{NP}$. But still, there are many open questions that ask for answers.

For example, in our model we define a certain type of distributed oracles, and how distributed algorithms can invoke them. While we found a definition that is proven to be sound, other definitions of oracles may be possible. On the other hand, one natural way of defining an oracle turned out to be too powerful. We also found, that the exact definition of a problem is crucial. Seemingly minor modifications in the problem statement may render it complete for some class, while other variants to define the problem are not.

The goal of this thesis is to gain further insight on the impact of different definitions for oracles and their invocation, and/or problems in our model.

Goal

The goal of this thesis is to gain further insight in properties of anonymous distributed networks and computational models. Since there are many possible research directions for this thesis, let's meet and I will be happy to lay them out in more detail.

Requirements

- Interest in theoretical aspects of distributed computing, and the will to learn and come up with variants of specific models.
- Creative thinking and problem solving.
- The ability to come up with and write proofs in a formal setting.

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