



Assignment 6, Complexity Theory, WiSe 16/17

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Exercise 6.1 Show that a language L is in ZPP if and only if L is accepted by a probabilistic Turing machine with error probability zero and expected polynomial running time. Here the expectation is taken over all possible random strings on the random tape.

Exercise 6.2 Show that if $\text{SAT} \in \text{BPP}$ then $\text{SAT} \in \text{RP}$.

Exercise 6.3 Show that NP is closed under positive polynomial time Turing reductions.

Exercise 6.4 Show that if $\text{NP} \subseteq \text{BPP}$, then $\text{PH} \subseteq \text{BPP}$.