

# CS310 Automata Theory – 2016-2017

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Lecture 34: Effective computation

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Proof idea: Analyze the construction of Problem 3 from Tutorial 9.

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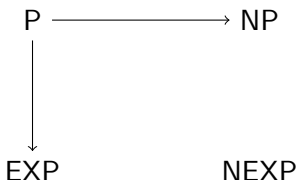
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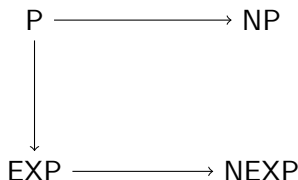
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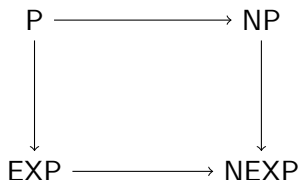
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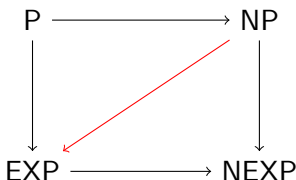
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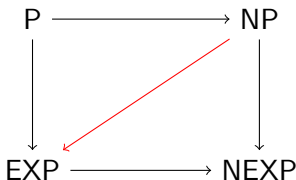
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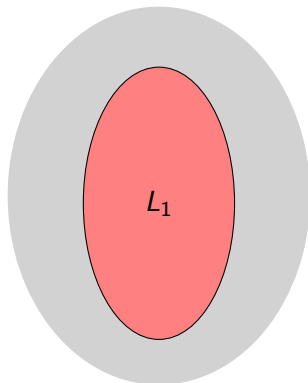
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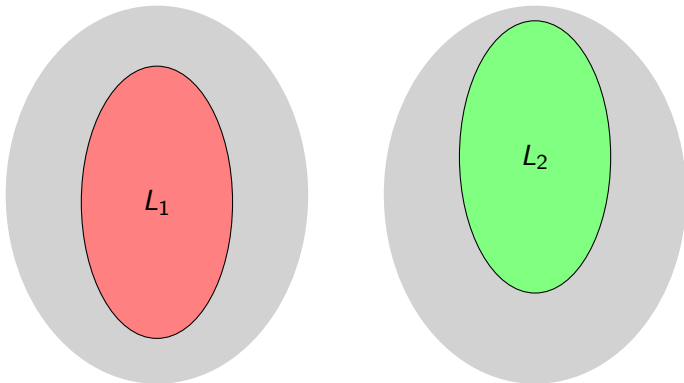
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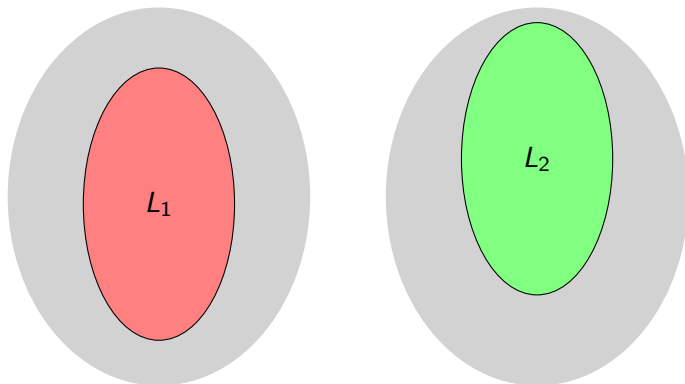




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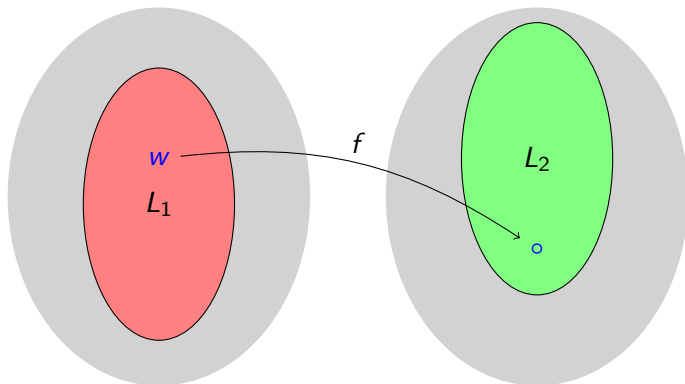
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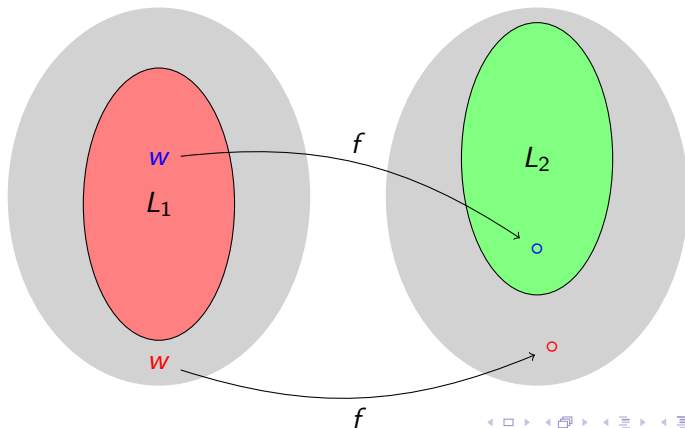
A language  $L_1$  is said to be polynomial time reducible to another language  $L_2$ , denoted as  $L_1 \leq_m L_2$ , if there exists a polynomial time computable function  $f$  such that for all  $w \in \Sigma^*$ ,  $w \in L_1 \Leftrightarrow f(w) \in L_2$ .



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Theorem ([Cook-Levin, 1970])

*SAT is NP-complete.*

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$$PSPACE = \bigcup_k \text{SPACE}(n^k)$$

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