

Lecture #10: Nonregular Expressions, Part One

Assumptions

- Preliminary material for this lecture has been reviewed.

Objective

Practice using the Pumping Lemma for Regular Languages to prove that a given language is not regular.

Questions for Review

1. State the *Pumping Lemma for Regular Languages* as precisely as you can.
2. Describe a process you can follow to use the above “Pumping Lemma” to prove that a given language is *not* a regular language.
3. Describe a language that has been proved *not* to be regular using the above process.

Problem To Be Solved

Let $\Sigma = \{a\}$. Prove that the language

$$L = \{a^{(n^2)} \mid n \in \mathbb{N}\}$$

is not regular.

Solution: