

# Lecture #7: Regular Expressions and Regular Operations

## What Will Happen During the Lecture

### Remember... You Had Homework!

Students were asked to work through the following set of lecture notes before this lecture.

- Lecture Notes — “Regular Expressions and Regular Operations”.

As always, you may attend the lecture presentation if you have not worked through this material ahead of time — but it will not be repeated for you, and you might get a little bit lost, during the presentation, if you haven’t worked through this.

### Problems To Be Solved

#### Interpretation of a Regular Expression

A regular expression  $\omega$ , over an alphabet  $\Sigma$ , will be presented — and students will be asked to try to confirm that  $\omega$  is, indeed, a regular expression over  $\Sigma$ , and to identify the language of this regular expression.

This will, ideally, help students to understand regular expressions. They also give students practice in using the kind of *recursive definitions* that have been used to define regular expressions and their languages.

#### Writing a Regular Expression for a Given Language

A language over an alphabet  $\Sigma$  will be described in simple English. A strategy that one might use, to produce a regular expression for a given language based on this kind of description, will be (informally) described — and applied to discover a regular expression, over  $\Sigma$ , whose language is the one that has been described.

## **If You Want To Get Started . . .**

An outline for notes, to be used during the lecture presentation, is also available. If you have time then you should try to solve the problems in the outline ahead of time. Then you can compare your work to what the instructor is presenting.