Part I
Introduction and Terminology

This part gives an introduction to the present monograph in order to express all its upcoming discussion clearly and precisely. First, it places all the material covered in the book into the scientific context. Then, it reviews all the necessary mathematical concepts so no other sources are needed to grasp all the topics covered in the book. Finally, it gives an overview of formal language theory in order to make the entire monograph completely self-contained. This part consists of three chapters.

Chapter 1 demonstrates that regulated grammars and automata represent a significant investigation area in theoretical computer science. Specifically, they fulfill a crucially important role in formal language theory and its applications.

Chapter 2 reviews the mathematical ideas, notions, concepts, and methods underlying some mathematical areas because they are needed for understanding this book. These areas include set theory, discrete mathematics, and graph theory.

Chapter 3 gives an overview of formal language theory. Apart from its classical rudiments, it covers several less-known areas of this theory, such as fundamentals concerning parallel grammars, because these areas are also needed to fully grasp some upcoming topics included in the book.

Readers having solid background in the topics covered in Chaps. 2 and 3 can only treat them as a reference for the terminology used throughout the rest of the book.