

This paper is focused on finite automata and their ability to recognize certain significant classes of regular languages. First of all we define core terms of the theory of finite automata, then we proceed to provide an overview of their properties. Thereafter we focus on extending finite automata into biautomata by equipping them by an extra "backwards" transformation function and on examining properties of such structures. While doing so we especially focus on comparing similar properties of automata and biautomata. In the second part of this paper we demonstrate the utility of biautomata by providing an improved proof of famous Simon's theorem, which characterizes piecewise testable languages. This proof is a slightly modified version of the result of O. Klíma a L. Polák.