LATTICE POLYNOMIALS AND ITS APPLICATION TO SWITCHING CIRCUITS

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Boolean polynomials have been applied to switching circuits. The problem of getting the minimal polynomial given any Boolean polynomial, which is the algebraic representation of specified switching circuit, is still open. For getting the minimal polynomial in many cases are not unique. Several researchers have worked on obtaining a minimal polynomial. McClusky method has some limitation. After the advent computer the table of Karunaugh gives a method of shading of squares, which gives the minimal Boolean polynomial. Since in all these cases we adopt the distributive law and also the notion of unique complements we cannot say our methods are the most generalized ones. For in general a switching polynomial may not satisfy the distributive law. Also we can have in practice more than one complement or need not in certain cases have a complement at all. To over come all these problems if we construct instead of “Boolean polynomials” “lattice polynomials” i.e., polynomials over lattices all these problems are solved. So in this dissertation for the first time we use lattice polynomials and construct switching circuits.