ASYMPTOTIC DENSITY FOR EQUIVALENCE

Grzegorz Matecki
Computer Science Departament, Jagiellonian University,
Nawojki 11, 30-072 Kraków, Poland
matecki@ii.uj.edu.pl

Abstract

In this paper we study the asymptotic behavior of the fraction of true formulas against all formulas over k propositional variables with equivalence as the only connective in the language. We investigate the size of the tautology fraction of length n (at most n, respectively) against the number of all formulas of length n (at most n, respectively). In both cases we are interested in finding the limit of each fraction when $n \to \infty$.

In this paper we show that asymptotic density for the language based on equivalence does not exist but for every k there are exactly two limit points: 0 and $1/2^{k-1}$ ($1/2^{k-1}(4k+1)$ and $4k/2^{k-1}(4k+1)$, respectively for cumulation density).