Commuting degrees of BCK-algebras

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Given a finite algebraic structure A and first order formula in k-free variables, what is the probability that a randomly selected k-tuple over A satisfies that formula? This type of question has been investigated in the context of groups, rings, semigroups, and more recently Heyting algebras. In this talk, we discuss the probability that two elements in a finite BCK-algebra commute, which we call the *commuting degree* of that algebra. We will show that, for each $n \geq 2$, there is a BCK-algebra of order n realizing each possible commuting degree. In fact, more generally, every rational number in $(0, 1]$ is the commuting degree of some finite BCK-algebra.