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The sticky shuffle Hopf algebra in stochastic analysis

Abstract

The sticky shuffle product, known to some as the stuffle product, has been discovered several times in various mathematical contexts. I shall describe how I came across it as the multiplication rule for iterated stochastic integrals. It forms part of a Hopf algebra structure which, in the case of quantum stochastic integrals, is neither commutative nor cocommutative. I will discuss stochastic interpretations of the coproduct and antipode of this Hopf algebra.