

Algebraic independence of G -functions and q -series

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A D -finite generating series with a positive radius of convergence is a frequent example of G -function arising from Combinatorics. In many cases, we observe that G -functions reduced modulo a prime p are p -automatic and satisfy simple congruences such as Lucas' congruences. I will explain how to use those congruences to prove the algebraic independence of G -functions. Furthermore, we proved similar congruences for q -analogs of classical generating series but modulo a cyclotomic polynomial instead of a prime p . I will explain how to transfer the algebraic independence of G -functions to such q -analogs.

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