
STEPHEN GILLEN, University of Pennsylvania

Gillis-Reznick-Zeilberger's power series and the mysterious factor of 3

Analytic combinatorics in several variables (ACSV) is the study of approximating series coefficients of generating functions asymptotically using methods from topology and complex analysis. We examine two examples of generating functions with "lacunas", where the minimal singularity does not contribute asymptotically and lower critical points dominate. In one example, the coefficient asymptotics are exactly what would be expected from the smooth-point formula at the lower critical points, but in the other, they appear to be off by a factor of three. We aim to determine the source of the enigmatic factor of three.