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Torin Greenwood* (toringr@math.upenn.edu). *Coefficients of Bivariate Analytic Functions with Algebraic Singularities.*

Flajolet and Odlyzko (1990) analyzed the coefficients of a class of univariate generating functions with algebraic singularities. These results have been extended to classes of multivariate generating functions by Gao and Richmond (1992) and Hwang (1996, 1998), in both instances by reducing the multivariate case to the univariate case. In this paper, we analyze the coefficients of a broader class of bivariate generating functions with algebraic singularities and smooth minimal critical points. Instead of reducing bivariate functions to the univariate case immediately, we apply the new multivariate analytic approaches outlined by Pemantle and Wilson (2013). The dominating contributions to the multivariate Cauchy integral formula are found by integrating over quasi-local cycles near the critical points of the function. Through explicit contour deformations near these critical points, we can manipulate the integrand until it is nearly the product of two univariate functions, leaving us with easily computable one-dimensional integrals. (Received September 16, 2014)