
From Ben-Or/Tiwari to QD and Generalized Eigenvalues

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Abstract

The numerical QD-algorithm is an ingenious tool for determining the poles of a meromorphic function directly from its Taylor coefficients, under certain conditions.

We show that the QD-algorithm is converging to the solution of a generalized eigenvalue problem, which can be viewed as a reformulation of Prony's method. We also note that Prony's method is closely related to the Ben-Or/Tiwari algorithm for interpolating a sparse polynomial.

We demonstrate such connections through examples in Maple, on one as well as on more variables.
