1158-30-260   **Bogdan Ion***, Department of Mathematics, 301 Thackeray Hall, University of Pittsburgh, Pittsburgh, PA 15260. *Bernoulli polynomials and Dirichlet series.*

For a given sequence one can associate a power series and a Dirichlet series. We investigate the relationship between possible singularities that appear went we analytically continue both of these series. The most basic case, when the power series has a pole singularity at $z = 1$ is analyzed in detail by employing some (infinite order) discrete derivative operator (associated to the power series) that we call Bernoulli operator. Its main property is that it naturally acts on the vector space of analytic functions in the plane (with possible isolated singularities) that fall in the image of the Laplace-Mellin transform (for the variable in some half-plane). The action of the Bernoulli operator on the function t^s, provides the analytic continuation of the associated Dirichlet series and also detailed information about the location of poles, their resides, and special values. Using examples of arithmetic origin, I will attempt to illustrate what is reasonable to expect when the power series has a non-pole singularity at $z = 1$. (Received March 02, 2020)