UNIQUENESS OF *L*-FUNCTIONS CONCERNING HOMOGENEOUS DIFFERENTIAL POLYNOMIALS WITH WEAKLY WEIGHTED SHARING

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Abstract. The $\mathfrak{L}$- functions with Riemann zeta function and its various generalizations have been widely examined by mathematicians worldwide. $\mathfrak{L}$- functions are analytically continued as meromorphic functions and $\mathfrak{L}$- functions are Selberg class functions, with the Riemann zeta function serving as the prototype. It is convenient to study the value distribution and uniqueness problems on $\mathfrak{L}$- functions and arbitrary meromorphic functions. Additionally, we can better examine some of the classical results, since $\mathfrak{L}$- functions only have a possible pole at $z = 1$. In this paper, by using the concept of weakly weighted sharing, we study the value distribution of a $\mathfrak{L}$- function and an arbitrary meromorphic function when certain type of homogeneous differential polynomials $\zeta^n Q(\zeta)$ and $\mathfrak{L}^n Q(\mathfrak{L})$ share $\omega(\rho, \iota)$. Our results extends and generalizes some recent results due to X. M. Li et al.(Filomat 33:18, 2019, 5767-5776).