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An Extension of a Normality Result of D. Drasin and H. Chen & X. Hua for Analytic Functions

CMFT 1 No.2 (2001), 457–478. [ISSN 1617-9447]

Abstract. We show that if an entire function f satisfies

$$af^n(z) + f^{(k)}(z) + P[f](z) \neq 0$$

for all $z \in \mathbb{C}$, for some $n \geq 2$, $k \geq 1$, $a \neq 0$, and with P a differential polynomial of a certain form, then f must be a constant. We also prove the corresponding normality criterion where the coefficients are meromorphic functions. This generalizes results of Hayman [7], Drasin [5] and Chen and Hua [2].

Keywords. Normality, differential polynomials, Zalcman's Lemma, Bloch's Principle, Tumura-Clunie Theorem.

2000 MSC. 30D35, 30D45.

Received. January 7, 2002.