B.-Q. Li
KODAI MATH. J.
11 (1988), 287—294

ON THE QUANTITY $\delta_s(g(z), f)$ OF GAPPY ENTIRE FUNCTIONS

BY BAO-QIN LI

1. Introduction.

Let $f(z)=\sum_{n=0}^{\infty} a_n z^n$ be a transcendental entire function. We denote by $\Lambda_f=\{\lambda_k\}$, $M_f=\{u_k\}$, $k=1, 2, \cdots$ the sequences of exponents n for which $a_n \neq 0$ and $a_n=0$ respectively, arranged in increasing order. Also let $g(z)$ be an arbitrary meromorphic function in the plane growing slowly compared with the function $f(z)$, i. e., $T(r, g)=o\{T(r, f)\}$ as $r\to\infty$.

If $f(z)$ has finite order we define

$$\delta_s(g(z), f)=1-\varliminf_{r\to\infty}\frac{N\left(r, \frac{1}{f-g(z)}\right)}{T(r, f)}.$$

If $f(z)$ has infinite order, let E be any set in $(1, \infty)$ having finite length. We define

$$\delta_s(g(z), f)=1-\sup_E \varliminf_{r\to\infty, r\notin E}\frac{N\left(r, \frac{1}{f-g(z)}\right)}{T(r, f)}=\inf_E \varlimsup_{r\to\infty, r\notin E}\frac{m\left(r, \frac{1}{f-g(z)}\right)}{T(r, f)}.$$

Obviously

$$\delta(g(z), f)=1-\varlimsup_{r\to\infty}\frac{N\left(r, \frac{1}{f-g(z)}\right)}{T(r, f)}\leqq\delta_s(g(z), f).$$

In [1], we obtained the following

THEOREM A. *Let dn be the highest common factor of all the numbers $\lambda_{m+1}-\lambda_m$ for $m\geqq n$ and suppose that*

$$d_n \longrightarrow \infty \quad \text{as } n\to\infty. \tag{1.1}$$

Then

$$\delta_s(g(z), f)=0 \tag{1.2}$$

for every entire function $g(z)$ satisfying $T(r, g)=o\{T(r, f)\}$ as $r\to\infty$.

Received January 19, 1988