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CORRECTIONS TO THE PAPER "THE NEVANLINNA CHARACTERISTICS AND MAXIMUM MODULUS OF GAP POWER SERIES"

The formulation of Lemma 3 in [1] was incorrect. Actually, the authors have proved in [1] the following

Lemma 3′. *If the conditions of Lemma 2 are satisfied, then* $\forall\sigma\in[-1;0)\setminus E_4$, $d_0E_4=0$, *we have*

$$\ln\gamma\Big(\sigma+\frac{\Gamma(v_0(\sigma))}{v_0(\sigma)}\Big)\le\ln\gamma(\sigma)+\frac{1}{\beta(v_0(\sigma))},\tag{3.4}$$

where $\beta(v)$ *is a positive continuous increasing to* $+\infty$ *function such that (3.2) holds with the function* $\Gamma_1(v)=\Gamma(v)\beta(v)$ *instead of* $\Gamma(v)$*. Moreover,* $E_3\subset E_4$*.*

Remark 1. In [1, inequality (3.4)] "ln"-s were omitted.

Remark 2. Lemma 3 was used in the proof of Lemma 6 in [1]. Inequality (3.4) turned out to be sufficient to prove Lemma 6.

Lemma 6. *Let conditions (2.1) of Theorem 1 and (3.2) of Lemma 2 hold with* $\Gamma(t)=n_f^*(t)\stackrel{\text{def}}{=}\hat n_f(t)\beta(t)$*, where* $\beta(t)$ *as above. Then*

$$\Lambda(r)\stackrel{\text{def}}{=}\sum_{n_k>v(r)}|a_k|r^{n_k}=o(1),\quad r\to1-0, r\notin E_6,$$

where $d_1E_6=0$*, and* $v(r)$ *is the unique solution of the equation* $n_f^*(v)=3\ln\mu(r,f)$*.*

Proof of Lemma 6. We put $\sigma=r-1$, $\gamma(\sigma)=3\ln\mu(1+\sigma,f)$. Thus the conditions of Lemmas 2 and 3 hold. They yield that outside a set E_6 such that $d_1E_6=0$ we have

$$\ln\Big(3\ln\mu\Big(r+\frac{n_f^*(v(r))}{v(r)},f\Big)\Big)\le\ln\Big(3\ln\mu(r,f)\Big)+\frac{1}{\beta(v(r))},\tag{3.18}$$

where $v(r)$ is the unique solution of the equation $n_f^*(v)=3\ln\mu(r,f)$. Inequality (3.18) implies for $r\to1-0$, $r\notin E_6$,

$$\mu(r+\delta^*(r),f)\le\mu(r,f)^{\exp\left\{1/\beta(v(r))\right\}}=\mu(r,f)^{1+o(1)},\tag{3.19}$$

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where $\delta^*(r) = n_f^*(v(r))/v(r)$. Using (3.19), we obtain as $r \to 1-0$, $r \notin E_6$,

$$\Lambda(r) = \sum_{n_k > v(r)} |a_k| r^{n_k} \le \mu(r + \delta^*(r), f) \sum_{n_k > v(r)} \Big(\frac{r}{r+\delta^*(r)}\Big)^{n_k} \le$$
$$\le \mu(r,f)^{1+o(1)} \Big(\frac{r}{r+\delta^*(r)}\Big)^{v(r)} \sum_{n=0}^{+\infty} \Big(1 + \frac{\delta^*(r)}{r}\Big)^{-n} =$$
$$= (1+o(1))\mu(r,f)^{1+o(1)} \exp\Big\{-v(r)\ln\Big(1+\frac{\delta^*(r)}{r}\Big)\Big\} \frac{1}{\delta^*(r)} =$$
$$= (1+o(1))\mu(r,f)^{1+o(1)} \exp\big\{-(1+o(1))v(r)\delta^*(r) - \ln\delta^*(r)\big\} =$$
$$= (1+o(1))\mu(r,f)^{1+o(1)} \exp\big\{-(1+o(1))n_f^*(v(r)) + \ln v(r)\big\}.$$

Take into account that $\ln t \le \frac{1}{2}\hat{n}_f(t) = o(n_f^*(t))$ as $t \to +\infty$ and recall that $n_f^*(v) = 3\ln\mu(r,f)$. Thus,

$$\Lambda(r) \le (1+o(1))\mu(r,f)^{1+o(1)} \exp\big\{-(1+o(1))n_f^*(v(r))\big\} =$$
$$= \exp\big\{-(2+o(1))\ln\mu(r,f)\big\} = o(1), \quad r \to 1-0, r \notin E_6.$$

Lemma 6 is proved. □

Thus, Theorem 1 remains valid.

REFERENCES

1. Skaskiv O. B., Chyzhykov I. E. *The Nevanlinna characteristics and maximum modulus of gap power series,* Mat. Studii **13** (2000), no. 2, 125–133.

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