In the class \( S \) of functions \( f(z) = z + c_2z^2 + c_3z^3 + \ldots \), regular and univalent in \( |z| < 1 \), the following bound is obtained: 
\[
|c_{n+1} - c_n| < 4.26, \quad n = 1, 2, \ldots 
\]

In this paper we consider the following two classes of functions:

- **S**, the class of functions \( f(z) = z + \sum_{n=2}^{\infty} c_n z^n \), regular and univalent in the disk \( |z| < 1 \);
- **\( \Sigma \)**, the class of functions \( F(z) = z + \alpha_0 + \alpha z^{-1} + \ldots \), meromorphic and univalent in the domain \( |z| > 1 \).

The order of growth of the coefficients for the class \( S \) was obtained by Littlewood [1] in 1925:
\[
|c_n| < e^n, \quad n = 2, 3, \ldots
\]

In 1964, I. M. Milin [2] proved that
\[
|c_n| < 1.243^n, \quad n = 2, 3, \ldots
\]

With respect to the growth of neighboring coefficients, a smaller order of growth was obtained in 1946 by G. M. Goluzin (see [3], pp. 193-195):
\[
|\{c_{n+1}\} - |c_n\}| < Cn^{n/3} \ln n, \quad n = 2, 3, \ldots
\]
where \( C \) is an absolute constant. This bound was later improved by M. Biernacki [4]:
\[
|\{c_{n+1}\} - |c_n\}| < C (\ln n)^{n/4},
\]
subsequently, Kheiman [5] obtained the following result:
\[
|\{c_{n+1}\} - |c_n\}| < C, \quad n = 1, 2, \ldots
\]

Only recently, I. M. Milin [6] showed that in this inequality \( C < 9 \).

We shall show below that \( C < 4.26 \).

**Theorem.** The following inequality holds for each \( n = 1, 2, \ldots \):
\[
f(\zeta) = \zeta + c_2 \zeta^2 + \ldots + c_n \zeta^n + \ldots
\]
for the functions
\[
|\{c_{n+1}\} - |c_n\}| < 4.26
\]  

**Proof.** Let us take an arbitrary function \( f(\zeta) \in S \), and let us form from it the function \( F(z) \in \Sigma : F(z) = [f(z^{-1})]^{-1}, \quad |z| > 1 \). Let us now select a value of \( t \) on the circle \( |z| = \rho > 1 \), such that
\[
|F(t)| = \min_{|z|=\rho} |F(z)|, \quad (2)
\]
and let us form the function \( (1-t/z)f'(1/z) \). According to the Cauchy formula for the Taylor coefficients of this function, we shall have
\[
(n+1) c_{n+1} - nc_n = \frac{1}{2\pi i} \int_{|z|=\rho} \left( 1 - \frac{t}{z} \right) f' \left( \frac{1}{z} \right) z^n dz.
\]  

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Noting that
\[ f'(1/z) = z^2F''(z)/F^2(z), \]
we may rewrite Eq. (3) thus:
\[
(n + 1)c_{n+1} - n c_n t = \frac{1}{2\pi i} \oint_{|z|=\rho} \left( \frac{z^{n+1}}{F(z) - F(t)} - \frac{z^n}{F(z)} \right) \frac{dz}{z}.
\]  

Eq. (4)

Each function \( F(z) \in \Sigma \) generates, through the expansion
\[
\ln \frac{z-t}{F(z) - F(t)} = \sum_{k=0}^{\infty} A_k (t) z^{-k}, \quad |z| > 1, \quad |t| > 1.
\]
a system of functions \( \{A_k(z)\}_{1}^{\infty} \). From the properties of the system \( \{A_k(z)\}_{1}^{\infty} \) (see [7]), we note the inequality
\[
\sum_{k=0}^{\infty} k |A_k(z)| z^{-k} < \ln \frac{\rho}{\rho^2 - 1}, \quad |z| = \rho > 1.
\]

Further, for an arbitrary sequence of complex numbers \( \{A_k\}_{1}^{\infty} \), which generates a sequence \( \{D_k\}_{0}^{\infty} \) by means of the expansion
\[
\exp \sum_{k=0}^{\infty} A_k z^k = \sum_{h=0}^{\infty} D_h z^h,
\]
we can obtain, for \( n = 1, 2, \ldots \), the following three inequalities (see [8, 9]):
\[
|D_n| \leq \exp \left\{ \frac{1}{2} \left( \sum_{k=1}^{n} k |A_k|^2 - \sum_{h=1}^{n+1} k^2 |A_k|^2 \right) \right\},
\]

\[
\sum_{k=0}^{n} |D_k|^2 \leq (n+1) \exp \left\{ \sum_{k=0}^{n+1} k |A_k|^2 - \sum_{h=1}^{n+1} k^2 |A_k|^2 \right\},
\]

\[
\sum_{h=0}^{\infty} |D_h|^2 \leq \exp \left\{ \sum_{k=0}^{\infty} k |A_k|^2 \right\}.
\]

Let us now return to Eq. (4). Noting that
\[
\left( \ln \frac{z-t}{F(z) - F(t)} \right)' = \frac{z-t}{z-i} - \frac{z}{z-t} F'\left( \frac{z}{z-i} F(z) - F(t) \right)
\]
and
\[
\left( \ln \frac{z-t}{F(z) - F(t)} \right)' = z \left( \ln \frac{z-t}{F(z) - F(t)} \right)' = \frac{z-t}{z-i} - \frac{z}{z-t} F'\left( \frac{z}{z-i} F(z) - F(t) \right) + \frac{z-t}{z-i} F'(t),
\]
we can transform the first term of the integrand in Eq. (4) in the following way:
\[
\frac{z}{z-t} F'(z) - \frac{z-t}{z-i} F'(t) = -z \left[ \frac{z-t}{F(z) - F(t)} \right]' - \left[ \frac{z-t}{F(z) - F(t)} \right] \frac{z-t}{z-t} F'(t) + \frac{z-t}{z-i} F'(t).
\]

If we take this into account, and if we also use the Taylor series expansions for \(|z| > 1\) of the functions \((z-t)/(F(z) - F(t))\) and \(z/F(z)\), namely
\[
\frac{z-t}{F(z) - F(t)} = \sum_{k=0}^{\infty} D_k (t) z^{-k}, \quad D_0 (t) = 1,
\]
we can rewrite formula (4) as follows:
\[
nc_{n+1} - nc_n t = \frac{1}{2\pi i} \oint_{|z|=\rho} \left[ \frac{z}{z-t} F'(z) - \frac{z-t}{z-i} F'(t) \right] \frac{dz}{z}.
\]

*By using a representation of this kind for the integrand, I. M. Milin obtained the result mentioned above.