Moldoveanu, Silvia; **Pascu, N. N.**; **Petrila, T.**

A new generalization of the univalence criteria of Becker and of Nehari. (English)

Zbl 0889.30020
Mathematica 37(60), No. 1-2, 183-188 (1995).

Let A denote the class of functions f analytic in the unit disk $U=\{z:|z|<1\}$, $f(0)=f'(0)-1=0$.

Theorem: Let $f\in A$ and let g be an analytic function in U, $g(0)=1$. If $|c|<1$, $f'(z)g'(z)\neq 0$ in U and for any $z\in U$,

$$\left|c(c+1)|z|^4+z(1-|z|^2)\left\{|z|^2(c+1)\left(\frac{f''(z)}{f'(z)}+2\frac{g'(z)}{g(z)}\right)+\right.\right. \\ \left.\left. z(1-|z|^2)\left[\frac{g'(z)}{g(z)}\frac{f''(z)}{f'(z)}+2\left(\frac{g'(z)}{g(z)}\right)^2-\frac{g''(z)}{g(z)}\right]\right\}\right|\leq |z|^2|c+1|$$

then f is univalent in U.

For $c=0$ and appropriate g the above theorem becomes Becker's or Nehari's univalence criterion.

Reviewer: J.Waniurski (Lublin)

MSC:

30C55 General theory of univalent and multivalent functions of one complex variable
30C45 Special classes of univalent and multivalent functions of one complex variable (starlike, convex, bounded rotation, etc.)
30C80 Maximum principle, Schwarz's lemma, Lindelöf principle, analogues and generalizations; subordination