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On a Class of Univalent Functions with Negative Coefficients defined by General Linear Operator

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Abstract: In this study $S_m^{s,c}(\mu,\beta,\delta,\mathrm{A},\mathrm{B})$ of an univalent function with negative coefficients which is defined by a new general linear operator $H_m^{s,c}$ have been introduced. The sharp results for coefficient estimators, distortion and closure bounds, Hadamard product and Neighbourhood, and this paper deals with the utilizing of many of the results for classical hypergeometric functions, where there can be generalized to m-hypergeometric functions .

Subclasses of univalent functions are presented, and it has involving operator $H_m^{s,c}(\mathrm{c}_i,\mathrm{b}_j)$ which generalizes many well –known. Denote A be the class function f and other results have been studied.

Keywords: Univalent functions, coefficient estimator, linear operator, neighbourhood

1 INTRODUCTION

Many researchers such as Mohammed and Darus[8], Adweby and Darus[1] and others have used the m-hypergeometric function for studying certain families of mathematic viable functions in an open unit disk. The m-hypergeometric functions are generalized configuration of the classical hypergeometric functions. Then by assuming the limit $m\to 1$, It would return to a classical hypergeometric functions. The formal set of hypergeometric functions have been used and introduced by many famous researchers were started by Euler in (1748), Guass (1813) and Cauchy (1852) see[4]. Also, it was converted a simple notation $\lim_{m\to 1}\frac{1-m^c}{1-m}=c$ into a symmetric theory of hypergeometric function in same trend of theory of Gauss hypergeometric function.

Here this study deals with the utilizing of many of the results for classical hypergeometric function, where there can be generalized to m-hypergeometric functions.

In this work, a subclass of univalent function is introduced, and it has involving operator $H_m^{s,c}(\mathrm{c}_i,\mathrm{b}_j)$ which generalizes many well-known. Denote A be a class of functions f of the form

$$f(\mathrm{z})=\mathrm{z}+\sum_{n=2}^{\infty}a_n z^n \tag{1.1}$$

Which are analytic and univalent in the open unit disc $U=\{z\in \mathbf{C}:|z|<1\}$. A function $f\in A$ is said to be starlike of complex order if the following condition (see [2]) is satisfied.

$$Re\left\{\frac{\frac{z(f'(\mathrm{z}))}{f(\mathrm{z})}-1}{2\delta\left(\frac{z(f'(\mathrm{z}))}{f(\mathrm{z})}-\mu\right)-\left(\frac{z(f'(\mathrm{z}))}{f(\mathrm{z})}-1\right)}\right\}>\beta,\left(0\le\mu<\frac{1}{2\delta},0<\beta\le 1,\frac{1}{2}\le\delta\le 1\right). \tag{1.2}$$

For complex parameters $c_1,c_2,\ldots,\mathrm{c}_t$ and $b_1,b_2,\ldots,b_r$ where $b_j\in \mathbf{C}\backslash\{0,-1,-2,\ldots\}$, $(\mathrm{j}=1,2,\ldots,\mathrm{r},|\mathrm{m}|<1)$, the m-hypergeometric

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