SOME GENERAL DISTORTION RESULTS FOR $K(\alpha)$ AND $S^*(\alpha)$

EDUARD ŞTEFAN GRIGORICIUC

Abstract. In this paper we present some general distortion results for the classes $K(\alpha)$ and $S^*(\alpha)$ of convex, respectively starlike functions of order α on the unit disc. For this, we start from a classical result for the class S of univalent and normalized functions on the unit disc. Furthermore, since when $\alpha = 0$ these classes reduce to the well-known classes of starlike and convex functions, we obtain also some general distortion results for the classes K and S^* of convex, respectively starlike functions on the unit disc.

MSC 2010. 30C45, 30C50.

Key words. Univalent functions, starlikeness of order α , convexity of order α , coefficient estimates, distortion results.

REFERENCES

- S. Cobzaş, Differential calculus (in Romanian), Cluj University Press, Cluj-Napoca, 1997.
- [2] P. L. Duren, Univalent functions, Springer-Verlag Inc., New York, 1973.
- [3] N. Ghosh and A. Vasudevarao, Coefficient estimates for certain subclass of analytic functions defined by subordonation, Filomat, 31 (2017), 3307–3318.
- [4] A. W. Goodman, Univalent functions, Vols. I and II, Mariner Publ. Co., Tampa, Florida, 1983.
- [5] I. Graham and G. Kohr, Geometric function theory in one and higher dimensions, Pure and Applied Mathematics, Marcel Dekker, Vol. 255, Marcel Dekker Inc., New York, 2003.
- [6] M. Klein, Functions starlike of order α , Trans. Amer. Math. Soc., **131** (1968), 99–106.
- [7] G. Kohr and P. T. Mocanu, Special chapters of complex analysis (in Romanian), Cluj University Press, Cluj-Napoca, 2005.
- [8] P. T. Mocanu, T. Bulboacă and G. Ş. Sălăgean, Geometric theory of univalent functions (in Romanian), Casa Cărții de Știință, Cluj-Napoca, 2006.
- [9] B. Pinchuk, On starlike and convex functions of order α, Duke Math. J., 35 (1968), 721–734.
- [10] M. S. Robertson, On the theory of univalent functions, Ann. of Math. (2), 37 (1936), 374–408.
- [11] A. Schild, On starlike functions of order α , Amer. J. Math., 87 (1965), 65–70.

The author thank the referee for his/her helpful comments and suggestions.

DOI: 10.24193/mathcluj.2022.2.07

Received March 3, 2021 Accepted May 12, 2021 Babeş-Bolyai University Faculty of Mathematics and Computer Science Department of Mathematics Cluj-Napoca, Romania E-mail: eduard.grigoriciuc@ubbcluj.ro https://orcid.org/0000-0003-2897-0706