closed interval with norm the absolute value of the function, and the space of all functions which are Lebesgue integrable to the pth power, $p \geqq 1$, with norm the pth root of the integral of the pth power of the absolute value of the function, are all spaces with a denumerable base in the sense of Schauder and Banach, and consequently of type A, the above theorem holds of all completely continuous linear transformations with Banach spaces as domains and such spaces as ranges.*

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MULTIVALENT FUNCTIONS OF ORDER p†

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1. **Introduction.** For the class of k-wise symmetric functions

$$f(z) = \sum_{n=1}^{\infty} a_n z^n, \qquad a_1 = 1, \ a_n = 0 \text{ for } n \not\equiv 1 \pmod{k}, \tag{1.1}$$

which are regular and univalent within the unit circle, it has been conjectured that there exists a constant $A(k)$ so that for all n

$$| a_n | \leqq A(k) n^{2/k-1}. \tag{1.2}$$

Proofs of this inequality for $k = 1, 2, 2, 3$, were given by J. E. Littlewood,§ R. E. A. C. Paley and J. E. Littlewood,|| E. Landau,¶ and V. Levin** respectively. As far as the author is aware there is no valid proof†† for $k > 3$ in the literature as yet.

It is the purpose of this note to point out that the methods of proof

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* Hildebrandt, this Bulletin, vol. 36 (1931), p. 197.

† Presented to the Society, February 20, 1937.

‡ The author is indebted to the referee for helpful suggestions which led to a revision of this note.

§ See J. E. Littlewood, *On inequalities in the theory of functions*, Proceedings of the London Mathematical Society, (2), vol. 23 (1925), pp. 481–519.

|| See R. E. A. C. Paley and J. E. Littlewood, *A proof that an odd schlicht function has bounded coefficients*, Journal of the London Mathematical Society, vol. 7 (1932), pp. 167–169.

¶ See E. Landau, *Über ungerade schlichte Funktionen*, Mathematische Zeitschrift, vol. 37 (1933), pp. 33–35.

** See V. Levin, *Ein Beitrag zum Koeffizientproblem der schlichten Funktionen*, Mathematische Zeitscrift, vol. 38 (1934), pp. 306–311.

†† See K. Joh and S. Takahashi, *Ein Beweis für Szegösche Vermutung über schlichte Potenzreihen*, Proceedings of the Imperial Academy of Japan, vol. 10 (1934) pp. 137–139. The proof therein was found to be defective: see Zentralblatt für Mathematik, vol. 9 (1934), pp. 75–76.