Proof. If α satisfies the given condition concerning its modulus, then

$$\frac{|R(\alpha+re^{i\theta})-\zeta|}{|\chi(\alpha+re^{i\theta})|}>2,$$

as can be found by following the argument used in the proof of Theorem 23, and hence

$$|S(\alpha+re^{i\theta})-\zeta|>|\chi(\alpha+re^{i\theta})|,$$

where both $S(\lambda)-\zeta$ and $\chi(\lambda)$ are regular inside and on the circle $|\lambda-\alpha|=r$. This final inequality implies that in the interior of the circle $|\lambda-\alpha|=r$ the function $R(\lambda)-\zeta=\{S(\lambda)-\zeta\}-\chi(\lambda)$ has zero-points whose number (counted according to multiplicity) is equal to that of zero-points of $S(\lambda)-\zeta$ in the interior of the same circle as it, according to the rewritten Rouché theorem quoted to prove Theorem 17 in Part VI.

With this result the present theorem has been proved.

References

[1] S. Inoue: Some applications of the functional-representations of normal operators in Hilbert spaces. V, Proc. Japan Acad., **38**, 706–710 (1962).

[2] ——: Ibid., 706–708.

Correction to Sakuji Inoue: "Some Applications of the Functional-Representations of Normal Operators in Hilbert Spaces. V" (Proc. Japan Acad., **38**, 706–710 (1962)).

Page 706, line 14: For "$M_S(r, 0)\geqq Kr^d$" read "$M_S(r, 0)\leqq Kr^d$".

Corrections to S. Inoue: "On the Functional-Representations of Normal Operators in Hilbert Spaces" (Proc. Japan Acad., **38**, 18–22 (1962)), and "Some Applications of the Functional-Representations of Normal Operators in Hilbert Spaces" (Proc. Japan Acad., **38**, 263–268 (1962)).

Page 18, line 4 from the foot, and Page 263, line 9: Add "If the whole subset with non-zero measure of the continuous spectrum of N lies on a circumference with center at the origin," in front of "then".