



FIGURE 4. Images depicting sharpness of radius result in Corollary 2.11.

In the next corollary we obtain the sharp $\mathcal{S}^*(\beta)$ -radius for the class $\mathcal{F}_{\mathcal{LP}}$.

Corollary 2.12. Suppose $0 \leq \beta < 1$ and $f \in \mathcal{F}_{\mathcal{LP}}$, then sharp $\mathcal{S}^*(\beta)$ -radius is $\tanh^2(\pi\sqrt{\beta}/2\sqrt{2})$.

Remark 2.13. On replacing β with $1 - \alpha$ ($0 < \alpha \leq 1$), in Corollary 2.12 we get the radius of starlikeness of order α obtained in Corollary 2.8. Moreover, from Corollary 2.12 we obtain the sharp \mathcal{S}_α^* -radius for the class $\mathcal{F}_{\mathcal{LP}}$, where $\mathcal{S}_\alpha^* = \{f \in \mathcal{A} : |zf'(z)/f(z) - 1| < 1 - \alpha\}$.

Corollary 2.14. Let $\eta = \sqrt{2} - 1$ and suppose $f \in \mathcal{F}_{\mathcal{LP}}$, then the following holds (see Fig. 5)

- (i) $f \in \mathcal{S}_{\mathcal{L}}^*$ in $|z| < \tanh^2(\pi\sqrt{\eta}/2\sqrt{2}) \approx 0.376 \dots$