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1. The subclass $\mathcal{S}_{\Sigma}^{h,p}$

In this section, we introduce and investigate the general subclass $\mathcal{S}_{\Sigma}^{h,p}$.

Definition 1..1. Let the functions $h, p : \mathbb{U} \to \mathbb{C}$ be so constrained that

$$\min\{\mathfrak{Re}(h(z)), \mathfrak{Re}(p(z))\} > 0 \qquad z \in \mathbb{U} \quad and \quad h(0) = p(0) = 1$$

Also let the function f, defined by (**??**), be in the analytic function class $\mathcal{A}$. we say that

$$f \in \ \mathcal{S}_{\Sigma}^{h,p}(k, \lambda) \quad , \quad (k \in \mathbb{N}_0 \ , \ 0 \leq \lambda < 1)$$

if the following conditions are satisfied:

$$f \in \ \Sigma \qquad and \quad \frac{\mathcal{D}^{k+1} f(z)}{(1-\lambda)\mathcal{D}^k f(z) + \lambda \mathcal{D}^{k+1} f(z)} \in h(\mathbb{U}) \qquad (z \in \mathbb{U}) \tag{1..1}$$

and

$$\frac{\mathcal{D}^{k+1} g(w)}{(1-\lambda)\mathcal{D}^k g(w) + \lambda \mathcal{D}^{k+1} g(w)} \in p(\mathbb{U}) \qquad (w \in \mathbb{U}). \tag{1..2}$$

where the function $g(w)$ is given by (**??**).