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A note on Briot-Bouquet-Bernoulli differential subordination

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Abstract: Let p, q be analytic functions in the unit disk $\mathcal{U}$. For $\alpha \in [0, 1)$ the authors consider the differential subordination and the differential equation of the Briot-Bouquet type:

$$p^{1-\alpha}(z) + \frac{zp'(z)}{\delta p^{\alpha}(z) + \lambda p(z)} \prec h(z), \quad z \in \mathcal{U},$$

$$q^{1-\alpha}(z) + \frac{nzq'(z)}{\delta q^{\alpha}(z) + \lambda q(z)} = h(z), \quad z \in \mathcal{U},$$

with $p(0) = q(0) = h(0) = 1$. The aim of the paper is to find the dominant and the best dominant of the above subordination. In addition, the authors give some particular cases of the main result obtained for appropriate choices of functions h.

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