Composition followed by differentiation between weighted Bergman spaces and weighted Banach spaces of holomorphic functions

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Abstract

Let ϕ be an analytic self-map of the open unit disk $\mathbb{D}$ in the complex plane. Such a map induces through composition a linear composition operator $C_\phi : f \mapsto f \circ \phi$. We are interested in the combination of C_ϕ with the differentiation operator D, that is in the operator $DC_\phi : f \mapsto \phi' \cdot (f' \circ \phi)$ acting between weighted Bergman spaces and weighted Banach spaces of holomorphic functions.