Consequences of the Connection Formulae for Sturm-Liouville Spectral Functions

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For a special case of the Sturm-Liouville equation $-(py')' + qy = \lambda wy$ on $[0, \infty)$ with the initial condition $y(0)\cos\alpha + p(0)y'(0)\sin\alpha = 0,\ \alpha \in [0, \pi)$, it is shown that given the spectral derivative $\rho'_\alpha(\mu)$ for two values of $\alpha \in [0, \pi)$ at a fixed $\mu = \mathrm{Re}\{\lambda\} \geq \Lambda_0$, it is possible to uniquely determine $\rho'_\beta(\mu),\ \beta \in [0, \pi)$. An explicit formula is derived to accomplish this.