$$ {}^{x\ 1/2}\Phi_\lambda = \begin{bmatrix} \varrho+\lambda | \varrho-\lambda \\ d/2 \end{bmatrix} \left(\frac{x}{x-1} \right) = (1-x)^{\varrho+\lambda} \begin{bmatrix} \varrho+\lambda | \lambda-\varrho+d/2 \\ d/2 \end{bmatrix} (x) $$

$$ {}^{z}\Phi_\lambda = {}^{\mathfrak{e}^{it}\overline{z}}\Phi_\lambda = {}^{\overline{z}}\Phi_\lambda = \begin{bmatrix} \varrho+\lambda | \varrho-\lambda \\ d/2 \end{bmatrix} \left(-z^{z}\bar{z} \right) = \left(1-z\bar{z} \right)^{\varrho+\lambda} \begin{bmatrix} \varrho+\lambda | \lambda-\varrho+d/2 \\ d/2 \end{bmatrix} \left(z\bar{z} \right) $$

$$ {}^{z:\bar{w}}_{\mathbb{C}}\Phi_\lambda = \begin{bmatrix} \varrho+\lambda | \varrho-\lambda \\ d/2 \end{bmatrix} \left(-z^{w}\bar{w} \right) = \left(1-z\bar{w} \right)^{\varrho+\lambda} \begin{bmatrix} \varrho+\lambda | \lambda-\varrho+d/2 \\ d/2 \end{bmatrix} \left(z\bar{w} \right) $$

$$ {}^{z:\bar{w}}\widetilde{H} = {}^{-w:z^{w}}H $$

$$ {}^{z:\bar{w}}_{\mathbb{C}}\widetilde{\Phi} = {}^{-w:z^{w}}_{\mathbb{C}}\Phi = \begin{bmatrix} \varrho+\lambda | \varrho-\lambda \\ d/2 \end{bmatrix} \left(-(-w)^{z^{w}}\overline{z^{w}} \right) = \begin{bmatrix} \varrho+\lambda | \varrho-\lambda \\ d/2 \end{bmatrix} \left(w\bar{z} \right) $$

$$ = \left(1+w\frac{\bar{z}}{1-w\bar{z}} \right)^{\varrho+\lambda} \begin{bmatrix} \varrho+\lambda | \lambda-\varrho+d/2 \\ d/2 \end{bmatrix} \left(-w\frac{\bar{z}}{1-w\bar{z}} \right) = \left(1-w\bar{z} \right)^{-\varrho-\lambda} \begin{bmatrix} \varrho+\lambda | \lambda-\varrho+d/2 \\ d/2 \end{bmatrix} \left(-w\frac{\bar{z}}{1-w\bar{z}} \right) $$