

$$z^w = \frac{z - \underline{z}^{\underline{t}} \bar{w}}{1 - 2z\dot{w} + \underline{z}^{\underline{t}} \bar{w}\dot{w}} = \frac{z - \underline{z}^{\underline{\kappa}} \bar{z} \bar{w}}{1 - 2z\dot{\kappa}w + \underline{z}^{\underline{\kappa}} \bar{z} \bar{w}\dot{\kappa}w}$$

$${}^z \Delta_w = 1 - 2z\dot{w} + \underline{z}^{\underline{t}} \bar{w}\dot{w} = 1 - 2z\dot{\kappa}w + \underline{z}^{\underline{\kappa}} \bar{z} \bar{w}\dot{\kappa}w$$

$$\dot{\kappa} * z = \dot{\kappa} z - \underline{t} \bar{z} + \underline{z}^{\underline{\kappa}} z \dot{\kappa} = \dot{\kappa} z - \underline{t} \bar{z} + z \dot{\kappa}$$

$$u \dot{\kappa} z = \underline{u} \dot{\kappa} z z + \underline{z}^{\underline{\kappa}} z u - \underline{u} \dot{\kappa} \bar{z} \bar{z}$$

$$w Q_z = 2z\dot{w} z - z \underline{t} \bar{w} = z\dot{w} z = 2\underline{z}^{\underline{\kappa}} w z - \underline{z}^{\underline{\kappa}} \bar{z} \bar{w}$$

$$\bar{w} Q_z = 2\underline{z}^{\underline{\kappa}} \bar{w} z - \underline{z}^{\underline{\kappa}} \bar{z} w = 2\underline{w} \dot{\kappa} \bar{z} z - \underline{z}^{\underline{\kappa}} \bar{z} w$$

$$\bar{w} Q_z = 2\underline{z}^{\underline{\kappa}} \bar{w} z - \underline{z}^{\underline{\kappa}} \bar{z} w = 2\underline{w} \dot{\kappa} \bar{z} z - \underline{z}^{\underline{\kappa}} \bar{z} w$$

$$z^w = {}^z B_w^{-1} \underbrace{z - w Q_z}$$

$${}^z B_w z^w = z - w Q_z = z - 2\underline{z}^{\underline{\kappa}} w z + \underline{z}^{\underline{t}} \bar{w}$$

$${}^z B_w \overbrace{z - \underline{z}^{\underline{t}} \bar{w}} = \overbrace{1 - 2z\dot{w} + \underline{z}^{\underline{t}} \bar{w}\dot{w}} \overbrace{z - 2\underline{z}^{\underline{\kappa}} w z + \underline{z}^{\underline{t}} \bar{w}}$$