$$z^2 = \frac{1}{c^2} = \frac{c^2+s^2}{c^2} = \frac{c^2}{c^2} + \frac{s^2}{c^2} = 1 + t^2$$

$$\frac{dt}{d\theta} = \frac{d}{d\theta}\frac{s}{c} = \frac{s_\theta c - s c_\theta}{c^2} = \frac{c^2+s^2}{c^2} = \frac{1}{c^2} = z^2$$

$$\frac{dz}{d\theta} = \frac{d}{d\theta}\frac{1}{c} = \frac{1_\theta c - 1 c_\theta}{c^2} = \frac{s}{c^2} = \frac{1}{c}\frac{s}{c} = zt$$

$$\left[\begin{array}{l} t = \tan\theta \\ \sqrt{1+t^2} = \sec\theta \\ dt = (\sec\theta)^2 d\theta \end{array}\right]$$

$$\left[\begin{array}{l} z = \sec\theta \\ \sqrt{z^2-1} = \tan\theta \\ dz = (\sec\theta)(\tan\theta)\, d\theta \end{array}\right]$$