Given a pan angle, θ_P, and a verge angle, θ_V, the right and left camera angles, θ_R and θ_L are

$$\theta_R = \tan^{-1}\left(\frac{\cos\theta_V \sin\theta_P + \sin\theta_V}{\cos\theta_V \cos\theta_P}\right) \tag{1}$$

and

$$\theta_L = \tan^{-1}\left(\frac{\cos\theta_V \sin\theta_P - \sin\theta_V}{\cos\theta_V \cos\theta_P}\right). \tag{2}$$

Given the left and right camera angles, The pan and verge angles are

$$\theta_P = \tan^{-1}\left(\frac{1}{2}\left[\tan\theta_L + \tan\theta_R\right]\right) \tag{3}$$

and

$$\theta_V = \tan^{-1}\left(\frac{\sin(\theta_R - \theta_L)}{\sqrt{\cos^2\theta_R + 2\cos\theta_R \sin\theta_L \cos(\theta_R - \theta_L) + \cos^2\theta_L}}\right). \tag{4}$$