B6.0 A DIRECT EXPRESSION FOR LINES OF CONSTANT VIEW TIME AS A FUNCTION OF RELATIVE INCLINATION AND PHASE

$$\frac{D^2}{2R^2} = 1 - \cos(\theta+\phi)\cos\theta - \sin(\theta+\phi)\sin\theta\cos i$$

is the initial expression for range given the T (time of viewing) should be a function symmetric about $\theta = -\phi/2$

let

$$\theta = -\frac{\phi}{2} + \omega t_1$$

then

$$\frac{D^2}{2R^2} = 1 - \cos\left(\frac{\phi}{2}+\omega t_1\right)\cos\left(\frac{\phi}{2}-\omega t_1\right) + \sin\left(\frac{\phi}{2}+\omega t_1\right)\sin\left(\frac{\phi}{2}+\omega t_1\right)\cos i$$

where

$$\omega t_1 = \frac{\phi}{2} + \omega t$$

$$t_1 = \frac{\phi}{2\omega} + t$$

This function is symmetric in + and - t,

Setting a camera range: $D = CR$

and setting a time $t_1$ : $t_1 = \frac{T}{2}$

gives a parametric equation between $\phi$ and i.