

- The angular motion is given by

$$\begin{aligned} \varphi - \varphi_0 = & (1 + k)v + \left( \frac{f_{4\varphi}}{c^4} + \frac{f_{6\varphi}}{c^6} \right) \sin 2v + \left( \frac{g_{4\varphi}}{c^4} + \frac{g_{6\varphi}}{c^6} \right) \sin 3v \\ & + \frac{i_{6\varphi}}{c^6} \sin 4v + \frac{h_{6\varphi}}{c^6} \sin 5v, \end{aligned}$$

where  $v = 2 \arctan \left[ \left( \frac{1+e_\varphi}{1-e_\varphi} \right)^{1/2} \tan \frac{u}{2} \right]$

\*  $v$  is the true anomaly

\*  $k$  is the measure of the advance of the periastron &  $e_\varphi$  is the 'angular eccentricity'

\*  $f_{4\varphi}$ ,  $f_{6\varphi}$ ,  $g_{4\varphi}$ ,  $g_{6\varphi}$ ,  $i_{6\varphi}$ , and  $h_{6\varphi}$  are 2PN & 3PN order orbital functions expressible in terms of  $E$ ,  $L$ ,  $m_1$  and  $m_2$