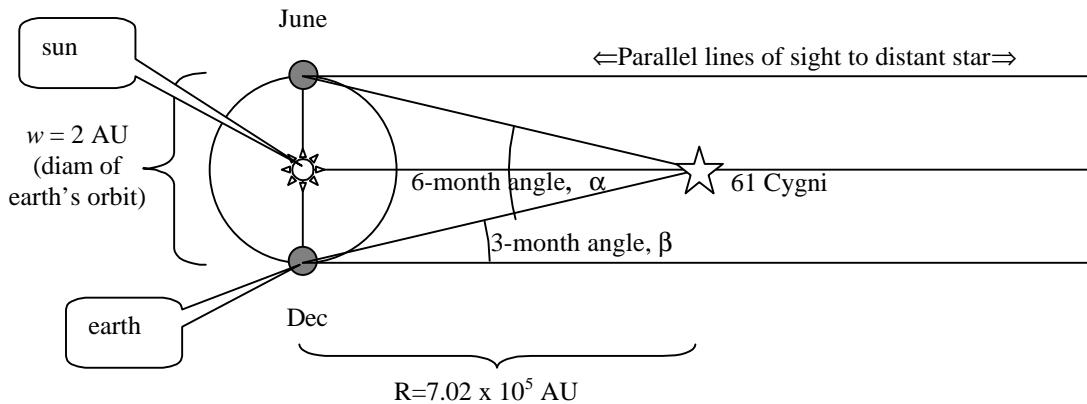


## Aristotle's mistake

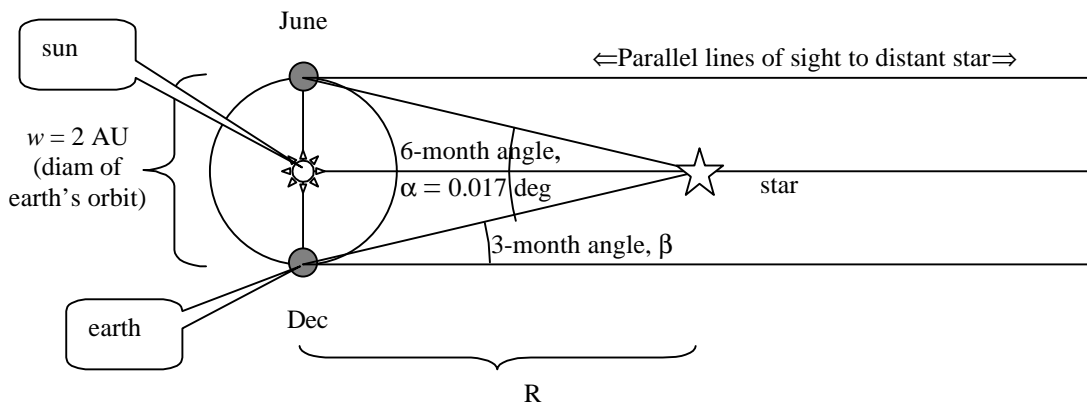


By observer's triangle, parallax angle of 61 Cygni is calculated to be:

$$a = \frac{57.3 \text{ deg}}{R} \times w = \frac{57.3 \text{ deg}}{7.02 \times 10^5 \text{ AU}} \times 2 \text{ AU} \cong 1.64 \times 10^{-4} \text{ deg}$$

Star	6-month parallax angle (degrees)	Distance (AU)
61 Cygni	$1.63 \times 10^{-4}$	$7.02 \times 10^5$
Vega	$6.8 \times 10^{-5}$	$1.68 \times 10^6$
$\alpha$ Centauri	$4.16 \times 10^{-4}$	$2.75 \times 10^5$

The resolving power of the 20/20 human eye is considered to be 1 arcminute (0.017 degrees). Stellar parallax could be observed by the unaided human eye as long as the parallax angle was at least this big. We can calculate the distance at which the parallax angle of a star would be 1 arcminute or more by the observer's triangle:



$$R = \frac{57.3 \text{ deg}}{a} \times w = \frac{57.3 \text{ deg}}{0.017 \text{ deg}} \times 2 \text{ AU} \cong 6.7 \times 10^3 \text{ AU}$$

We would be able to see stellar parallax for a star that was six or seven thousand times farther away than the sun, but not for stars farther away than that. Aristotle made the mistake of failing to imagine that the nearest stars were simply too far away for our eyes to see the parallax. All the nearest stars have parallax angles smaller than the resolving power of the human eye.