

Lambert Algorithm

Given: r_1, r_2 , space triangle (geometric info), TOF
Find: transfer arc

1. Distinguish angular separation between r_1 and r_2
Identify transfer angle as $< 180^\circ$ or $> 180^\circ$



2. Calculate TOF_{par} ; compare $\text{TOF}_{\text{desired}}$ with TOF_{par}

$$\text{TOF} < \text{TOF}_{\text{par}} \quad \text{Red arrow pointing right}$$

$$\text{TOF} > \text{TOF}_{\text{par}} \quad \text{Red arrow pointing right}$$

3. Guess ' a ':

$$a = a_{\min} \quad \text{smallest } a \text{ for elliptical arcs}$$

$$a = 0 \quad \text{smallest } a \text{ for hyperbolic arcs}$$

4. Calculate α_o, β_o or α'_o, β'_o

[4a. Decide on transfer type if not already known: A or B]

5. Iterate on ' a '

- 6.

Lambert Solving, TOF vs. Semimajor Axis with Ellipses

