Dec & Lat names
≡ : same contrary : ≢

▶ Ho ° '.

▶ Dec ° '.

⊕ H+D ° '. c → c_0 .

or 90°00'.0

λ_1 . λ → Lat ° '. λ → λ_1 .

⊖ H+D-90° ° '. λ → λ_0 .

If H+D ≤ 90°: H+D ▶ c_0
If H+D > 90°: H+D-90° ▶ λ_0

λ_2 . c → c_2 .

If H+D ≤ 90° &:
• if Dec ≡ Lat: $\lambda_2 = c_0 \oplus \lambda_1$
• if Dec ≢ Lat: $\lambda_2 = c_0 \ominus \lambda_1$
If H+D > 90°: $\lambda_2 = \lambda_1 \ominus \lambda_0$

c_3 . c → λ_3 .

If Dec ≡ Lat: $\lambda_3 = c_1 \ominus \lambda_1$
If Dec ≢ Lat: $\lambda_3 = c_1 \oplus \lambda_1$

⊕ $c_3 + c_2$.

⊖ $c_3 - c_2$.

⊘ $\frac{c_3 + c_2}{2}$. c → u ° '.

⊘ $\frac{c_3 - c_2}{2}$. c → v ° '.

If $c_3 > c_2$: $(c_3 - c_2)/2 = c$ ▶ v

If $c_3 \le c_2$: $(c_3 - c_2)/2 = \lambda$ ▶ θ
$v = \theta + 90°$

or 90°00'.0

λ → θ ° '.

⊕ v ° '.

▶ Ho ° '.

▶ Dec ° '.

⊖ H-D ° '. c → c_1 .

Notes & Key

▶ : input values	c : from angle or λ to c	All values are absolute!
⊕, ⊖ : add, subtract	λ : from angle to λ	H±D = Ho ± Dec
⊘ : divide ($c_3 \pm c_2$) by 2	c : from c to angle	input Lat = DR/EP Lat
○ : choose ⊕, ⊖ or none	λ : from λ to angle	output Lon = AP Lon!

LOP

360° ° '.

▶ p ° '. — If Dec ≥ Ho: p = v; If Dec ≤ Ho: p = u

○ LHA ° '. — If body to West of observer: LHA = p; If body to East of observer: LHA = 360° ⊖ p

▶ GHA ° '.

⊖ **Lon** E/W ° '. — If LHA < GHA: Lon = West; If LHA > GHA: Lon = East

180° / 360° ° '.

▶ z ° '. — If Dec ≥ Ho: z = u; If Dec ≤ Ho: z = v

○ Z ° '. — If Dec = North: Z = z; If Dec = South: Z = 180° ⊖ z

○ **Zn** ° '.

Lat = North	LHA	Lat = South
Zn = 360° ⊖ Z	≤ 180°	Zn = 180° ⊕ Z
Zn = Z	≥ 180°	Zn = 180° ⊖ Z