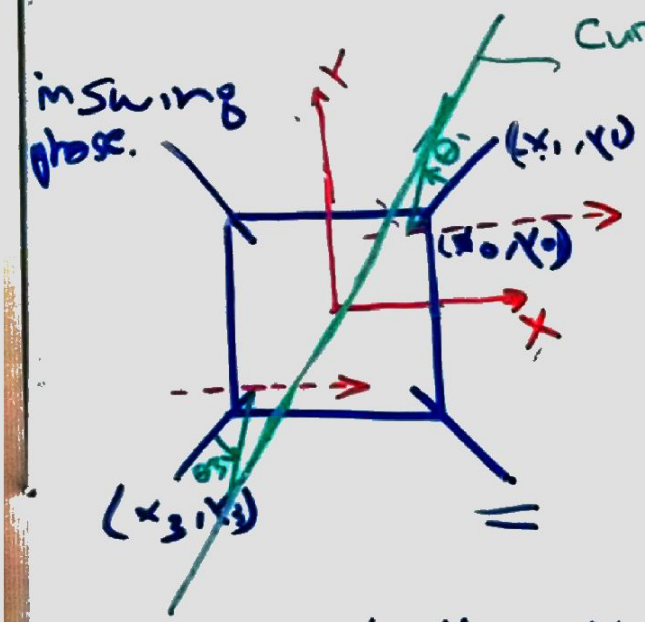
Everyday it gets easier. But you have to do it Everyday



$$(x_1 - x_0) = L_T \cos\left(\frac{\pi}{4} + \theta_1\right)$$
$$(y_1 - y_0) = L_T \sin\left(\frac{\pi}{4} + \theta_1\right)$$
$$\theta_1 \in \{-\theta_m, \theta_m\}$$

$$(x_3 + x_0) = L_T \cos\left(\frac{-3\pi}{4} + \theta_3\right)$$
$$(y_3 + x_0) = L_T \sin\left(\frac{-3\pi}{4} + \theta_3\right)$$
$$\theta_3 \in \{-\theta_m, \theta_m\}$$

$$\frac{Y - y_1}{X - x_1} = \frac{y_3 - y_1}{x_3 - x_1}$$ Current support line.

Support line is the line joining the two legs currently in contact with the ground. Previous support line was the support line just before the other two legs lost contact from the ground.

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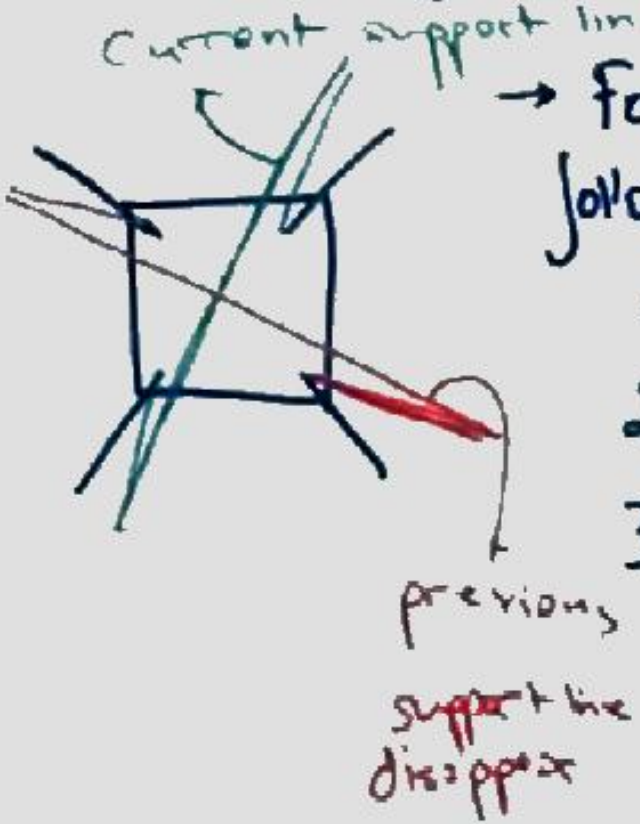

→ for any orbit we will have the following -

1. Current support line (changing)
2. Previous support line (disappearing)
3. Next support line (appearing)

- Of the 8 orbit possibilities the above 3 lines or the family of the above three lines must be known.

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→ One way of identifying the current gait is using simple if-else type program which takes the relative phases of the joint activations of all legs as input.

→ Another possibility is not choosing gait patterns in which the support line is not diagonal.