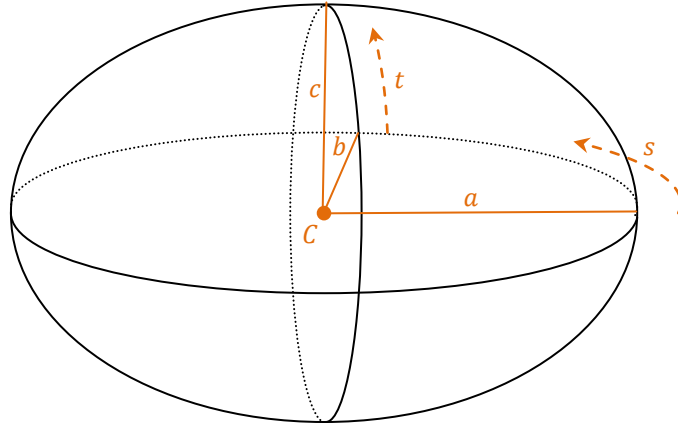


Parametric Sphere (Surface)

A parametric ellipsoid surface can be defined by a center point C , the three axis radii a , b , and c , and two parameters s and t .

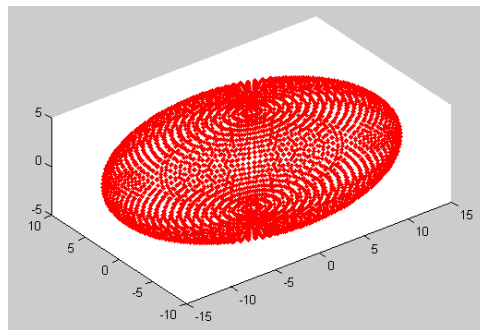


$$\begin{aligned}x &= x_c + a \cdot \cos(2\pi \cdot s) \cdot \sin(2\pi \cdot t) \\y &= y_c + b \cdot \sin(2\pi \cdot s) \cdot \sin(2\pi \cdot t) \\z &= z_c + c \cdot \cos(2\pi \cdot t)\end{aligned}$$

These equations allow the definition of a 3D ellipsoid with its axes aligned with the x , y , and z axes of the coordinate system. To create an ellipsoid that is not bound to the coordinate axes, the three parametric equations must be rotated to the desired orientation using a transformation matrix.

[TBD]

An example ellipsoid surface is shown drawn below. The surface is sampled evenly in s and t .



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Parametric Ellipsoid (Surface)

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