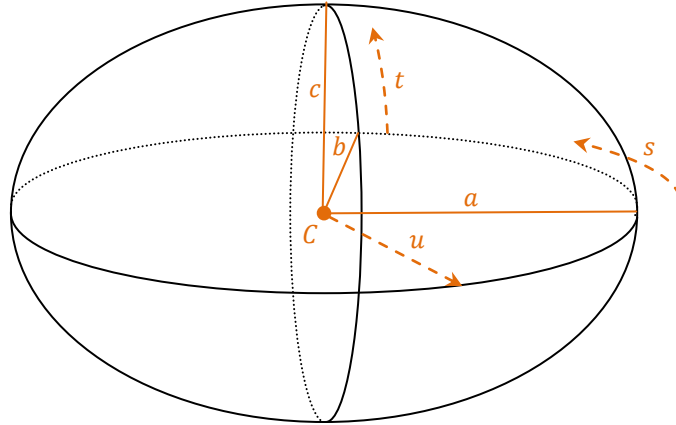


Parametric Ellipsoid (Volume)

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



$$\begin{aligned}x &= x_C + u \cdot a \cdot \cos(2\pi \cdot s) \cdot \sin(2\pi \cdot t) \\y &= y_C + u \cdot b \cdot \sin(2\pi \cdot s) \cdot \sin(2\pi \cdot t) \\z &= z_C + u \cdot c \cdot \cos(2\pi \cdot t)\end{aligned}$$

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 volume is shown drawn below. The surface is sampled evenly in s , t , and u .

