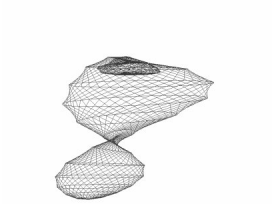
Twisted and bent sphere along y-axis

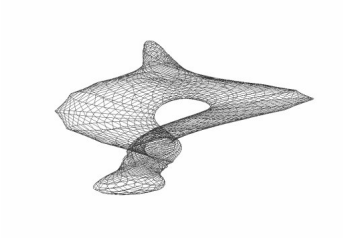


theta = (y*PI/180)
k = 1.5

Twisted and bent sphere along y-axis

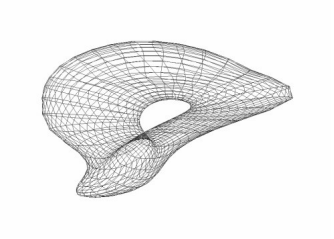
theta=tan(y*PI/180)
k = 1.5

Twisted and bent Torus along y-axis



theta=(y*PI/180)
k = 1.0

Twisted and bent Torus along y-axis



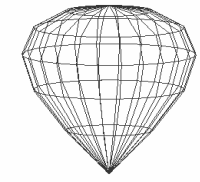
theta=sin(y*PI/180)
k = 1.0

# Local Deformation

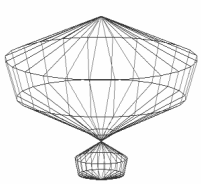
- We may also be able to do local deformation of the object by changing the certain portion of the object.
- Half of the object is deformed in to different shapes. Then other half either remaining so or changed.
- We can use regular deformation techniques such as tapering, twisting bending for this work.
- Different local deformations are achieved by applying tapering to one half and twisting or bending to other half of the object which is to be deformed.
- Combination of the three are also applied to objects results in good output.

# Snapshots of Local Deformation

## Tapered Sphere

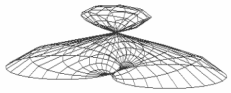


Upper Half Tapered
using simple function

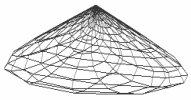


Lower Half Tapered
using sine function

## Tapered Torus

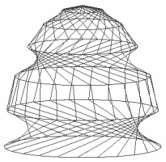


Upper Half Tapered
using cosine function



Lower Half Tapered
using Tan function

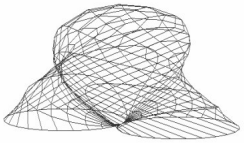
## Twisted Sphere



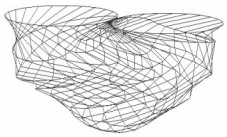
Upper Half Twisted
using cosine function

Lower Half Twisted
using Tan function

## Twisted Torus

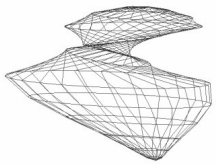


Upper Half Twisted
using simple function

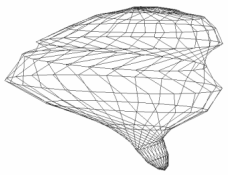


Lower Half Twisred
using sine function

## Sphere tapered, twisted and bent along y-axis

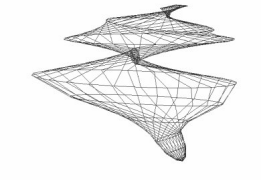


Twist – cosine function
Taper – Simple function
Bending – k= 2.8

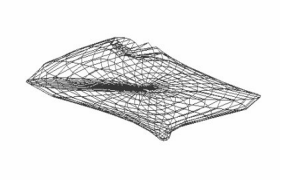


Twist – sine function
Taper – cosine function
Bending – k= 2.8

## Sphere and torus tapered, twisted and bent along y-axis



Sphere
Twist – simple function
Taper – cosine function
Bending – k= 2.8



Torus
Twist – Simple function
Taper – cosine function
Bending – k= 2.8

## Animation by Regular Deformation

- We may also able to animate the objects which is deformed by regular deformation technique.
- This is done by changing the scaling parameter of the regular deformation functions.
- Tapering, twisting and bending functions are used to animate the object.
- Timing is very important in animation that is if we increase the delay we cannot get the smooth animation.

# Program Execution

**Animating the torus and sphere using different tapering, twisting and bending functions**

- **Anim_torus_taper.c**
- **Anim_torus_twist.c**
- **Anim_torus_taper_bend.c**
- **Anim_torus_taper_twist_bend.c**
- **Anim_sphere_taper_twist_bend.c**