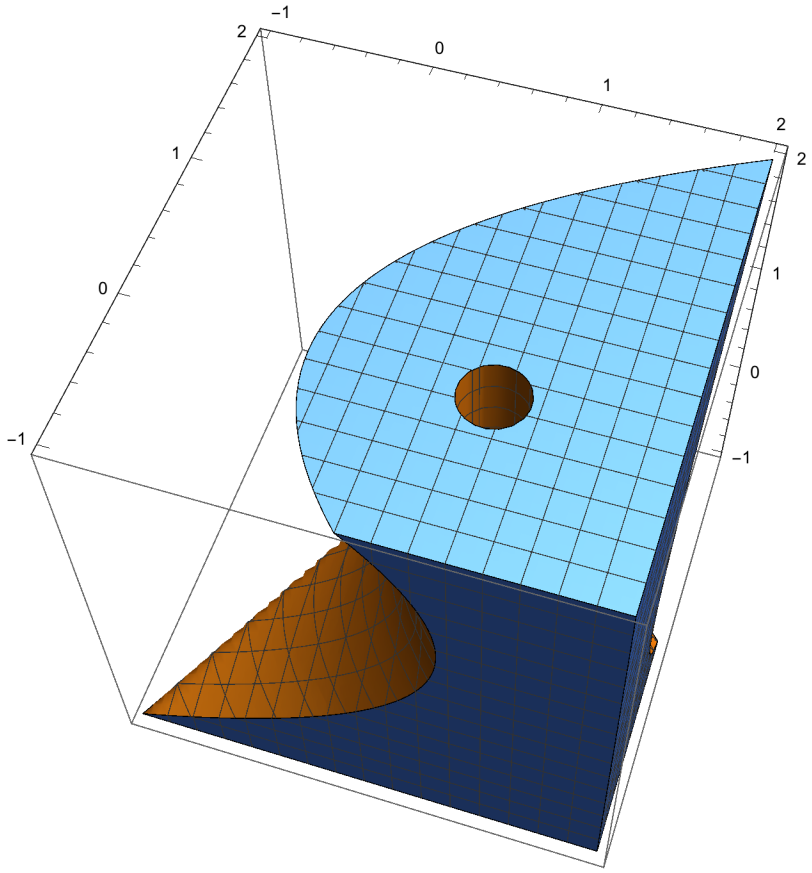
In[103]:=

```
ClearAll["Global`*"]
NM[u_] := Sqrt[u.u] ;

Dist[l1_, l2_, p_] := NM[
    Cross[l2 - l1, l1 - p]] / NM[l2 - l1]


a1 = {1, 0, 0};
a2 = {1, 0, 1};
b1 = {0, 1, 0};
b2 = {1, 1, 0};
c1 = {0, 0, 1};
c2 = {0, 1, 1};
d1 = {1, 0, 0};
d2 = {1, 0, 1};

F[x_, y_, z_] :=
 If[Dist[a1, a2, {x, y, z}] <= Dist[b1, b2, {x, y, z}] && Dist[a1, a2, {x, y, z}] <=
    Dist[c1, c2, {x, y, z}] && Dist[a1, a2, {x, y, z}] <= Dist[d1, d2, {x, y, z}], 1, 0]
FF[x_, y_, z_] := If[Dist[d1, d2, {x, y, z}] <= Dist[b1, b2, {x, y, z}] &&
   Dist[d1, d2, {x, y, z}] <= Dist[c1, c2, {x, y, z}] &&
   Dist[d1, d2, {x, y, z}] <= Dist[a1, a2, {x, y, z}], 1, 0]
```

In[119]:=
```
KUSsph = RegionPlot3D[F[x, y, z] == 1 && Dist[a1, a2, {x, y, z}] > .2,
  {x, -1, 2}, {y, -1, 2}, {z, -1, 2}, PlotPoints → 50]
```

Out[119]=



In[117]:=
```
Export["KUSsph.stl", KUSsph]
```

Out[117]= KUSsph.stl

In[118]:=
```
KUS3 = RegionPlot3D[
  FF[x, y, z] == 1 && Dist[d1, d2, {x, y, z}] > .2 && NM[{x, y, z} - {1 / 2, 1 / 2, 1 / 2}] < 2,
  {x, -2, 3}, {y, -2, 3}, {z, -2, 3}, PlotPoints → 50]
```

Out[118]= $Aborted

```
{a11, a21, b11, b21, c11, c21, d11, d21, e11, e21, f11, f21} =
  RandomReal[{-1, 1}, {12, 3}];
F1[x_, y_, z_] := If[

   Dist[a11, a21, {x, y, z}] < Dist[b11, b21, {x, y, z}] &&
    Dist[a11, a21, {x, y, z}] < Dist[c11, c21, {x, y, z}]
    && Dist[a11, a21, {x, y, z}] < Dist[d11, d21, {x, y, z}] &&
    Dist[a11, a21, {x, y, z}] < Dist[e11, e21, {x, y, z}]
    && Dist[a11, a21, {x, y, z}] < Dist[f11, f21, {x, y, z}], 1, 0];
```

```
F2[x_, y_, z_] := If[

   Dist[a11, a21, {x, y, z}] > Dist[b11, b21, {x, y, z}] &&
    Dist[b11, b21, {x, y, z}] < Dist[c11, c21, {x, y, z}]
    && Dist[b11, b21, {x, y, z}] < Dist[d11, d21, {x, y, z}] &&
    Dist[b11, b21, {x, y, z}] < Dist[e11, e21, {x, y, z}]
    && Dist[b11, b21, {x, y, z}] < Dist[f11, f21, {x, y, z}], 1, 0];
F3[x_, y_, z_] := If[

   Dist[c11, c21, {x, y, z}] < Dist[b11, b21, {x, y, z}] &&
    Dist[a11, a21, {x, y, z}] > Dist[c11, c21, {x, y, z}]
    && Dist[c11, c21, {x, y, z}] < Dist[d11, d21, {x, y, z}] &&
    Dist[c11, c21, {x, y, z}] < Dist[e11, e21, {x, y, z}]
    && Dist[c11, c21, {x, y, z}] < Dist[f11, f21, {x, y, z}], 1, 0];
F4[x_, y_, z_] := If[

   Dist[d11, d21, {x, y, z}] < Dist[b11, b21, {x, y, z}] &&
    Dist[d11, d21, {x, y, z}] < Dist[c11, c21, {x, y, z}]
    && Dist[a11, a21, {x, y, z}] > Dist[d11, d21, {x, y, z}] &&
    Dist[d11, d21, {x, y, z}] < Dist[e11, e21, {x, y, z}]
    && Dist[d11, d21, {x, y, z}] < Dist[f11, f21, {x, y, z}], 1, 0];
F1[x_, y_, z_] := If[

   Dist[e11, e21, {x, y, z}] < Dist[b11, b21, {x, y, z}] &&
    Dist[e11, e21, {x, y, z}] < Dist[c11, c21, {x, y, z}]
    && Dist[e11, e21, {x, y, z}] < Dist[d11, d21, {x, y, z}] &&
    Dist[a11, a21, {x, y, z}] > Dist[e11, e21, {x, y, z}]
    && Dist[e11, e21, {x, y, z}] < Dist[f11, f21, {x, y, z}], 1, 0];

F6[x_, y_, z_] := If[

   Dist[f11, f21, {x, y, z}] < Dist[b11, b21, {x, y, z}] &&
    Dist[f11, f21, {x, y, z}] < Dist[c11, c21, {x, y, z}]
    && Dist[f11, f21, {x, y, z}] < Dist[d11, d21, {x, y, z}] &&
    Dist[f11, f21, {x, y, z}] < Dist[e11, e21, {x, y, z}]
    && Dist[a11, a21, {x, y, z}] > Dist[f11, f21, {x, y, z}], 1, 0];
```

```
KUS1 =
  RegionPlot3D[F1[x, y, z] == 1, {x, -5, 5}, {y, -5, 5}, {z, -5, 5}, PlotPoints → 50];
KUS2 = RegionPlot3D[F2[x, y, z] == 1, {x, -5, 5},
   {y, -5, 5}, {z, -5, 5}, PlotPoints → 50];
KUS3 = RegionPlot3D[F3[x, y, z] == 1, {x, -5, 5}, {y, -5, 5},
   {z, -5, 5}, PlotPoints → 50];
KUS4 = RegionPlot3D[F4[x, y, z] == 1, {x, -5, 5}, {y, -5, 5},
   {z, -5, 5}, PlotPoints → 50];
KUS5 = RegionPlot3D[F5[x, y, z] == 1, {x, -5, 5}, {y, -5, 5},
   {z, -5, 5}, PlotPoints → 50];
KUS6 = RegionPlot3D[F6[x, y, z] == 1, {x, -5, 5}, {y, -5, 5},
   {z, -5, 5}, PlotPoints → 50];
```

```
{KUS1, KUS2, KUS3, KUS4, KUS5, KUS6}
```

```
1 + 1
```