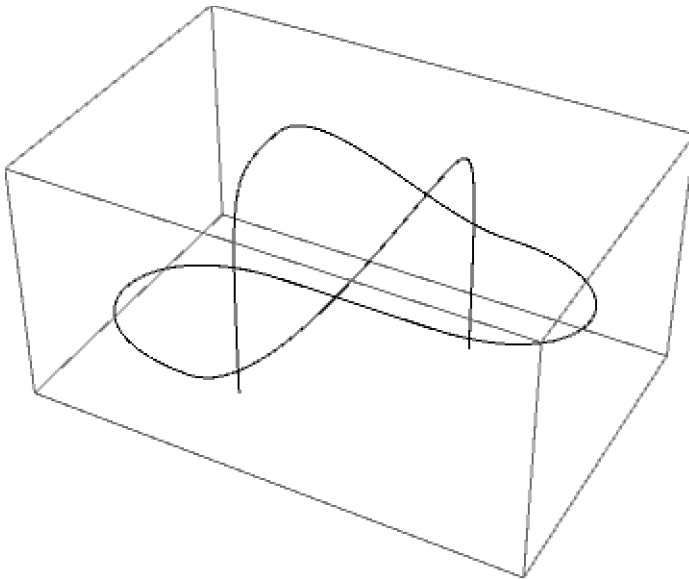


Pensieve header: Drawing a ribbon knot, colour coded as in pensieve://2015-07/PolyPoly/. Continued pensieve://Projects/RibbonKnots/.

```
SetDirectory["C:\\drorbn\\AcademicPensieve\\Projects\\Killam-2017"]
```

```
C:\\drorbn\\AcademicPensieve\\Projects\\Killam-2017
```

```
pts = {
  {-1, -1, 0}, {-1, -1, 3},
  {-1, -1, 3}, {-1, 0, 3}, {-1, 1, 3},
  {0, 2, 1}, {1, 2, 1}, {3, 2, 1},
  {3, 0, 1}, {1, 0, 1}, {0, 0, 1}
};
pts = Join[pts, Reverse[pts /. {x_, y_, z_} => {-x, -y, z}]];
Graphics3D[BezierCurve[pts]] // Rasterize
```



```
Partition[pts, 4, 3]
```

```
{{{-1, -1, 0}, {-1, -1, 3}, {-1, -1, 3}, {-1, 0, 3}},
 {{-1, 0, 3}, {-1, 1, 3}, {0, 2, 1}, {1, 2, 1}},
 {{1, 2, 1}, {3, 2, 1}, {3, 0, 1}, {1, 0, 1}}, {{1, 0, 1}, {0, 0, 1}, {0, 0, 1}, {-1, 0, 1}},
 {{-1, 0, 1}, {-3, 0, 1}, {-3, -2, 1}, {-1, -2, 1}},
 {{-1, -2, 1}, {0, -2, 1}, {1, -1, 3}, {1, 0, 3}},
 {{1, 0, 3}, {1, 1, 3}, {1, 1, 3}, {1, 1, 0}}}
```

```

MakeImage["RibbonKnot",
  zs = 0.5;
   $\gamma$ s = BezierFunction /@ Partition[pts /. {x_, y_, z_}  $\Rightarrow$  {x, y, z * zs}, 4, 3];
  dt = 1 / 120; r = 0.1;
  Graphics3D[{
    Green,
    Tube[{{-1, 0, -zs}, {-1, 0, zs}}, r / 2],
    Tube[{{1, 0, -zs}, {1, 0, zs}}, r / 2],
    Red, CapForm[None],
    Table[{
      Tube[Table[ $\gamma$ [t], {t, 0, 1, dt}], r],
      Tube[Table[ $\gamma$ [t] * {1, 1, -1}, {t, 0, 1, dt}], r]
    }, { $\gamma$ ,  $\gamma$ s}],
    Opacity[0.6], Blue, EdgeForm[None],
    Table[
      Polygon[{{ $\gamma$ [t],  $\gamma$ [t + dt], {1, 1, -1} *  $\gamma$ [t + dt], {1, 1, -1} *  $\gamma$ [t]}],
      { $\gamma$ ,  $\gamma$ s}, {t, 0, 1 - dt, dt}
    ]
  ], Boxed  $\rightarrow$  False, ViewPoint  $\rightarrow$  {1.73822, -2.13894, -1.96304},
  ViewVertical  $\rightarrow$  {0.498569, -0.732403, -1.02979}],
  ImageSize  $\rightarrow$  720]

```

