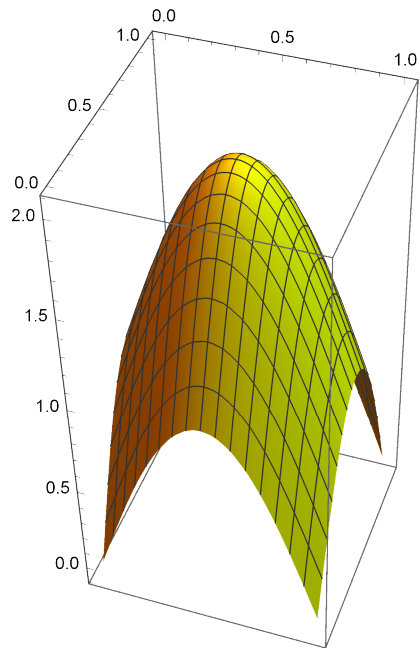


```
In[ ]:= r[u_, v_] := {u, v, Sin[u Pi] + Sin[v Pi]}
```

```
In[ ]:= S = ParametricPlot3D[r[u, v], {u, 0, 1}, {v, 0, 1}, PlotStyle -> Yellow]
```

Out[]:=



```
In[ ]:= cu0[t_] := r[t, 0];
```

```
cu1[t_] := r[t, 1];
```

```
c0v[t_] := r[0, t];
```

```
c1v[t_] := r[1, t];
```

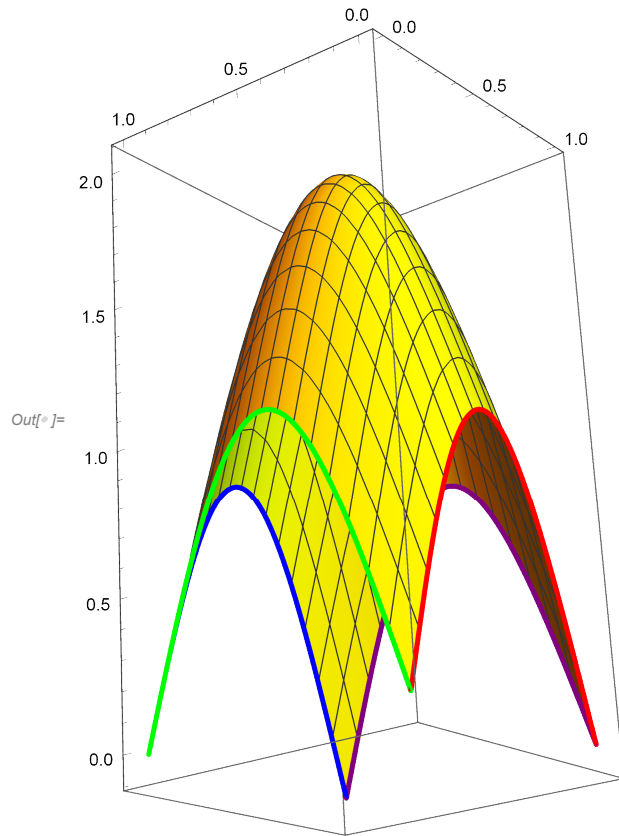
```
In[ ]:= Cu0 = ParametricPlot3D[cu0[t], {t, 0, 1}, PlotStyle -> {Thickness[0.01], Red}];
```

```
Cu1 = ParametricPlot3D[cu1[t], {t, 0, 1}, PlotStyle -> {Thickness[0.01], Blue}];
```

```
C0v = ParametricPlot3D[c0v[t], {t, 0, 1}, PlotStyle -> {Thickness[0.01], Green}];
```

```
C1v = ParametricPlot3D[c1v[t], {t, 0, 1}, PlotStyle -> {Thickness[0.01], Purple}];
```

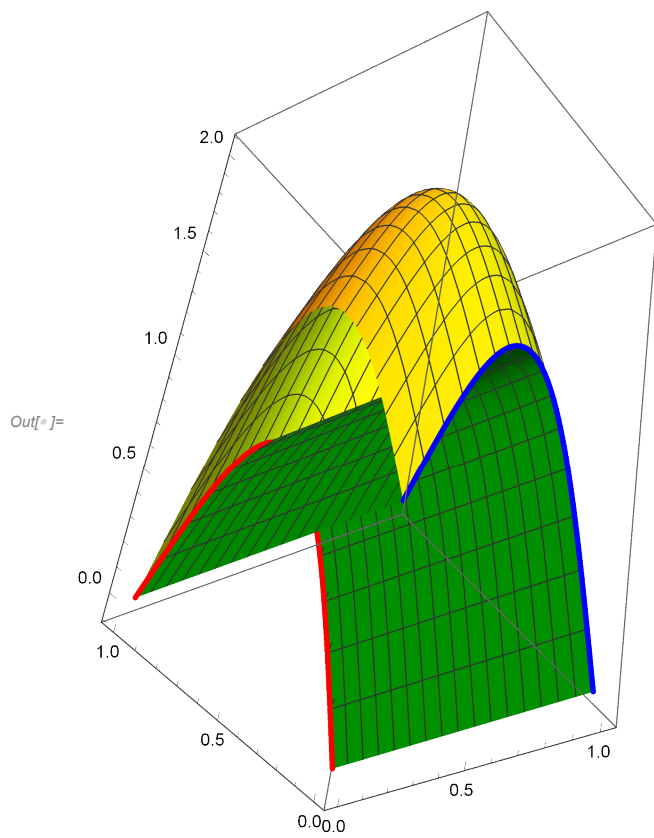
In[9]:= **Show[S, Cu0, Cu1, C0v, C1v]**



In[14]:= **r2[u_, v_] := (1 - v) r[u, 0] + v r[u, 1]**

In[16]:= **S2 = ParametricPlot3D[r2[u, v], {u, 0, 1}, {v, 0, 1}, PlotStyle -> Green];**

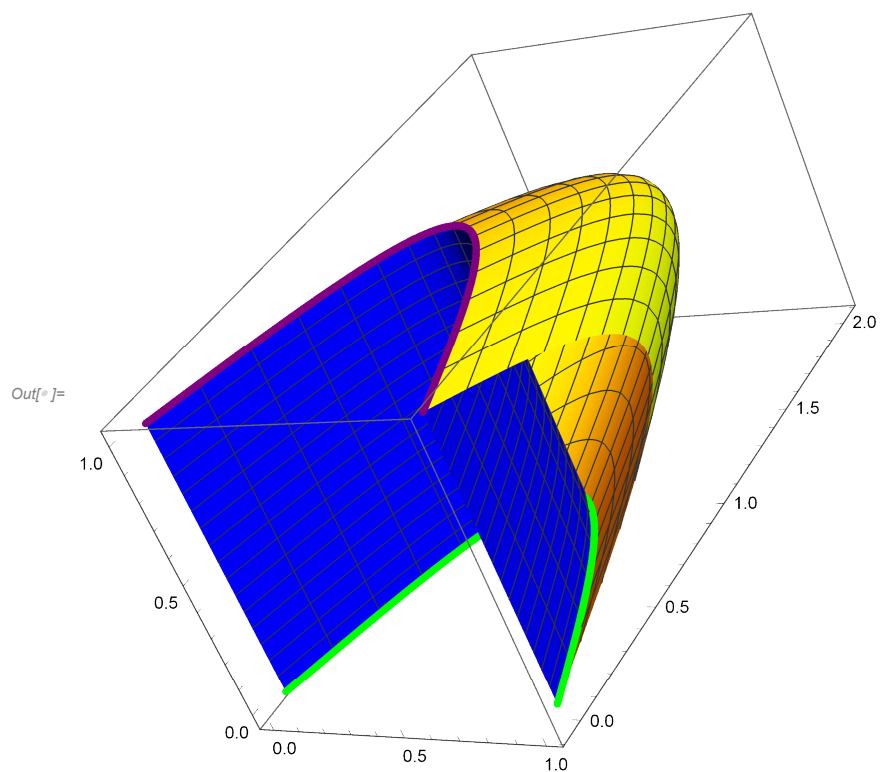
In[17]:= Show[S, S2, Cu0, Cu1]



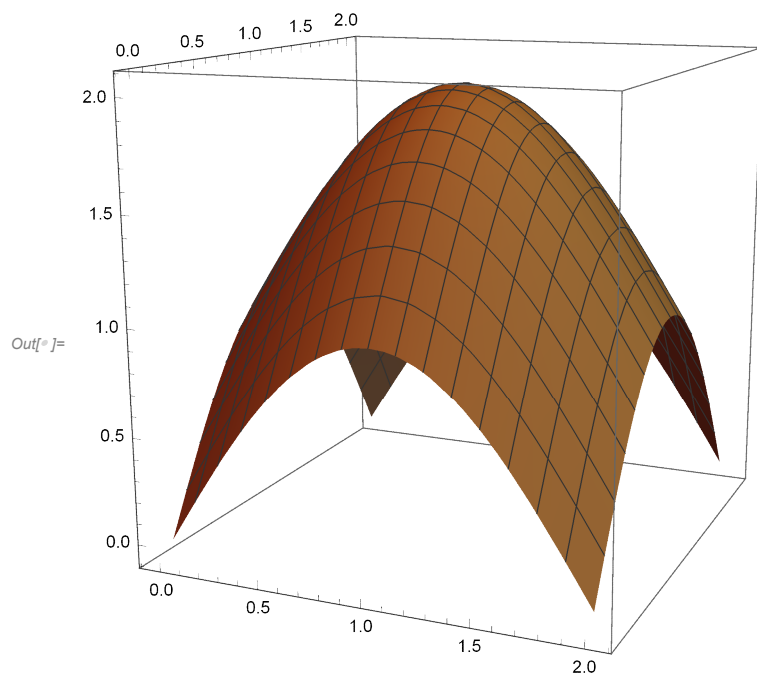
In[18]:= $r1[u_, v_] := (1 - u) r[0, v] + u r[1, v]$

In[20]:= $S1 = \text{ParametricPlot3D}[r1[u, v], \{u, 0, 1\}, \{v, 0, 1\}, \text{PlotStyle} \rightarrow \text{Blue}];$

In[^e]:= Show[S, S1, C0v, C1v]

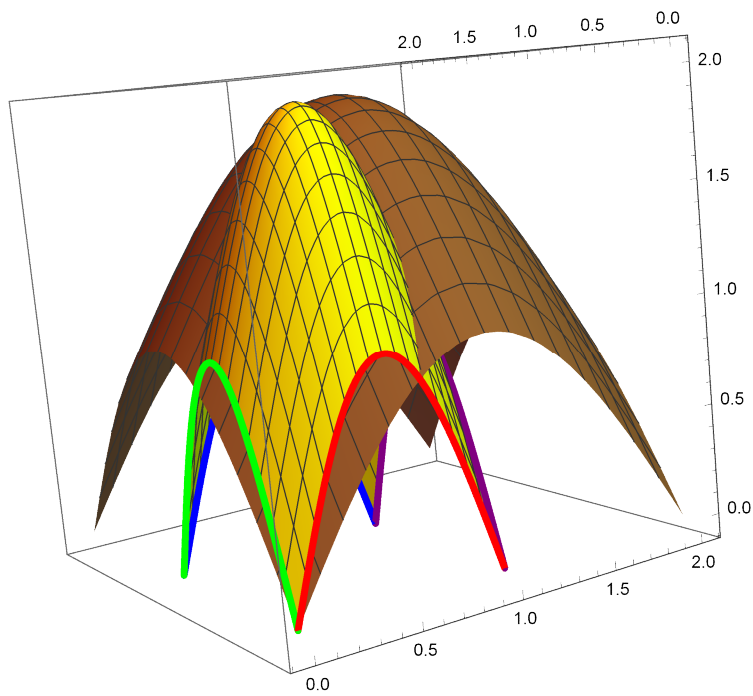


In[22]:= S12 = ParametricPlot3D[r1[u, v] + r2[u, v], {u, 0, 1}, {v, 0, 1}, PlotStyle → Brown]



In[23]:= Show[S12, S, Cu0, Cu1, C0v, C1v]

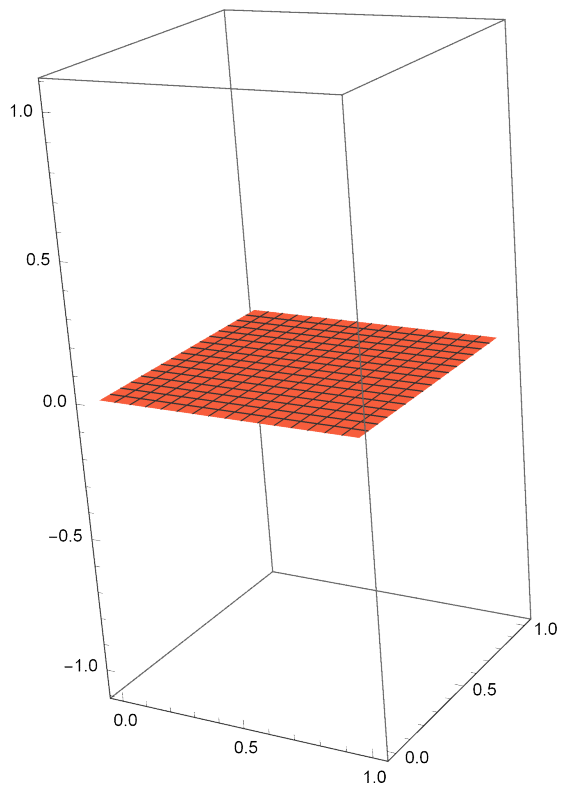
Out[23]=



In[24]:= r3[u_, v_] := (1 - v) r1[u, 0] + v r1[u, 1]

In[25]:= S03 = ParametricPlot3D[r3[u, v], {u, 0, 1}, {v, 0, 1}, PlotStyle -> Pink]

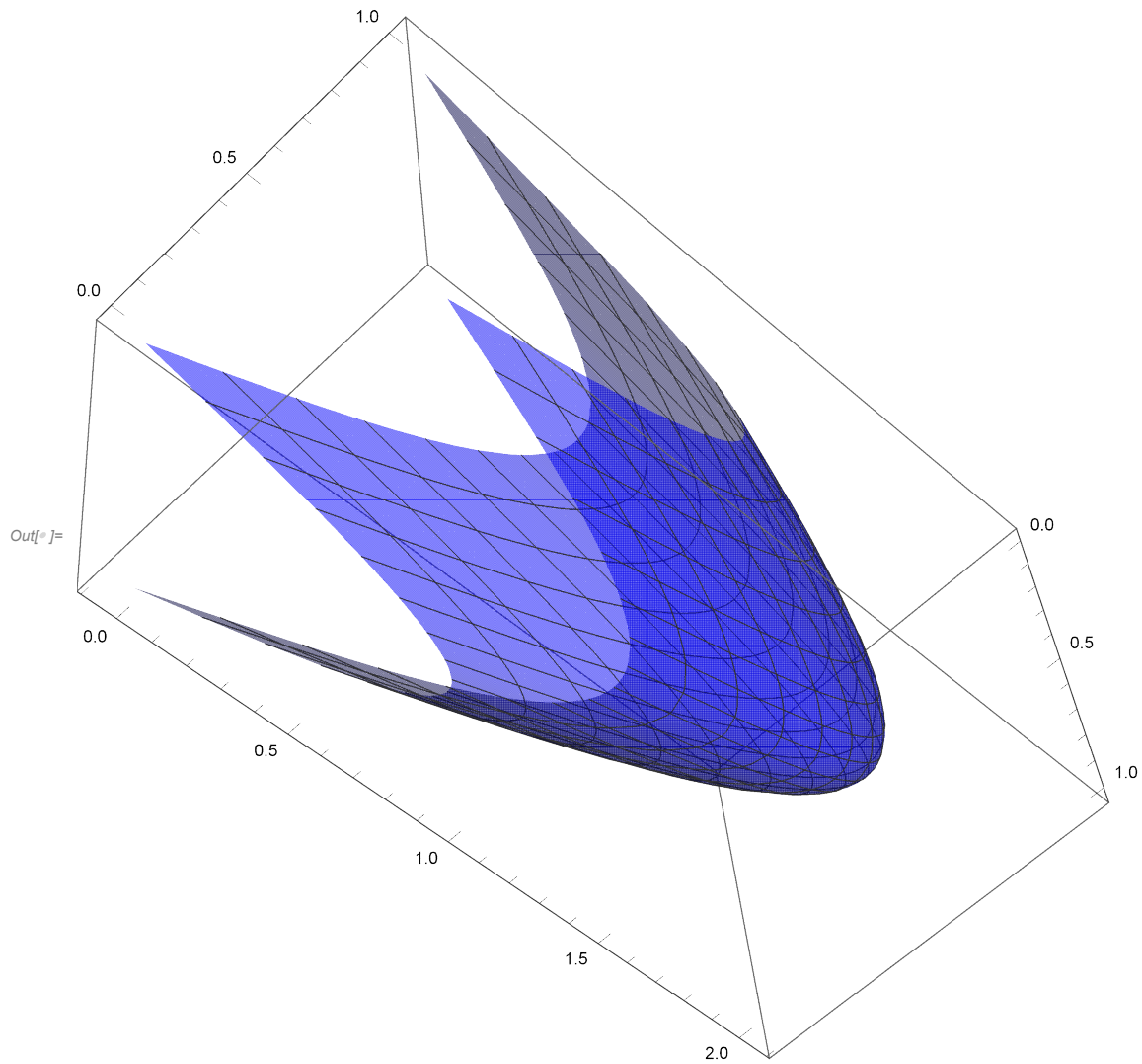
Out[25]=



```
(*
r3[u,v] - (1-u) r2[0,v] - u r2[1,v] //Simplify
{0,0,0}
*)
```

```
In[26]:= Coons[u_, v_] := r1[u, v] + r2[u, v] - r3[u, v]
```

```
In[30]:= S3 = ParametricPlot3D[Coons[u, v], {u, 0, 1}, {v, 0, 1}, PlotStyle -> {Blue, Opacity[0.5]}]
```



```
In[31]:= Show[S, S3, C0v, C1v, Cu0, Cu1]
```

