The position at can be computed in either of two ways: \( u \) then \( v \) or \( v \) then \( u \)

\[(1-v)[(1-u)A + uB] + v[(1-u)D + uC]\]

or

\[(1-u)[(1-v)A + vD] + u[(1-v)B + vC]\]

However, either order gives the same result.

\[(1-u)(1-v)A + u(1-v)B + uvC + (1-u)vD\]

\[= T(u,v)\]
Let's add curves!

How can we define a curvy boundary such that we can compute the interior point?!

\[ P_0(u) = A \rightarrow B \]
\[ P_1(u) = D \rightarrow C \]
\[ P_2(u) = A \rightarrow D \]
\[ P_3(u) = B \rightarrow C \]

**Coons Patch**

\[ R = (1-u)P_0(u) + uP_1(u) \]
\[ S = (1-u)P_2(u) + uP_3(u) \]

Result = \[ R(u,v) + S(u,v) - T(u,v) \]

\[ = T + (R-T) + (S-T) \]