How to read the tables

Below a short overview over the different colums is given. To use the quadrature rules only the last two rows (ShunnHam & Reference) are of importance. As these two columns contain all the information needed to build the quadrature method. The column 'ShunnHam' indicates how to combine simplex quadrature rule into the correct Duffy transformation. The column 'Reference' gives the location of quadrature points on the reference Tetrahedron is: (0,0,0), (1,0,0), (0,1,0), (0,0,1) and the reference triangle is the: (0,0), (1,0), (0,1).

The table also contain more information that was used for the identification of the correct Duffy transformation after the relative coordinates transformation.

N.T.	
No.	Internal numbering of the subdomain. If there are two numbers
	there, this means that the two domains have the same shape and
	can be easily tranformed into each other. For the affected tables
	the transformation is given above the table.
Domain.	Integration bounds of the subdomain after relative coordinate
	transformation.
Corners	Corners of the subdomain domain in (z,x)-coordinates.
Idx	As it is difficult to find transformation from a refrence subdomain
	to the actual subdomain by hand, a brute froce algrithm was use
	to find a good mapping and this number in dicates which mapping
	was chossen.
Mapping	Mapping from the reference subdomain for which one can find a
	suitable Duffy transformation quite easily to the actual subdo-
	main.
	Attention: The coordinates reverse to (x,z) instead of (z,x) .
(x,z)	ξ_i resp. η_i are points on the reference subdomain transformed by
	the mapping in the previous column.
(x,y)	Transformed points on in the original coordinates (x,y). Form the
	Duffy transomation the shape of the refrence subdomain can be
	deduced.
Tensor-Product	Duffy transformation to the hypercube.
ShunnHam	Duffy transformation of the more economical simplex tensor-
	product.
Reference	Coordinates of the quadrature points on the reference elements.

Triangle-Triangle

Positive Distance

No.	Domain	(x,y)	Tensor-Prodcut	ShunnHamm	Reference
	$0 \le x_1 \le 1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$[1-\xi_1]$
1	$0 \le x_2 \le x_1$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} & & & & & & & & & & & & & & & & & &$
1	$0 \le y_1 \le 1$	$y_1 = \xi_3$	$\xi_3 = x_3$	$\xi_3 = y_1$	$v = \begin{bmatrix} 1 - \xi_3 \end{bmatrix}$
	$0 \le y_2 \le y_1$	$y_2 = \xi_4$	$\xi_4 = x_3 x_4$	$\xi_4 = y_2$	$\begin{bmatrix} v - [\xi_4] \end{bmatrix}$

Common Vertex

Relative coordinate transformation: $\vec{z} = (x_1, x_2, y_1, y_2)$

No.	Domain	(x,y)	Tensor-Prodcut	ShunnHamm	Reference
	$0 \le z_1 \le 1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\begin{bmatrix} 1 - \xi_1 \end{bmatrix}$
1	$0 \le z_2 \le z_1$	$x_2 = \xi_2$	$\xi_2 = x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} 1 - \xi_1 \\ \xi_2 \end{bmatrix}$
1	$0 \le z_3 \le z_1$	$y_1 = \xi_3$	$\xi_3 = x_1 x_3$	$\xi_3 = x_1 y_1$	$v = \begin{bmatrix} 1 - \xi_3 \\ \xi_4 \end{bmatrix}$
	$0 \le z_4 \le z_3$	$y_2 = \xi_4$	$\xi_4 = x_1 x_3 x_4$	$\xi_4 = x_1 y_2$	$\begin{bmatrix} v - [\xi_4] \end{bmatrix}$
	$0 \le z_3 \le 1$	$x_1 = \xi_3$	$\xi_1 = x_1$	$\xi_1 = x_1$	$1 - \xi_3$
2	$0 \le z_4 \le z_3$	$x_2 = \xi_4$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} & 30 \\ & \xi_4 \end{bmatrix}$
	$0 \le z_1 \le z_3$	$y_1 = \xi_1$	$\xi_3 = x_1 x_3$	$\xi_3 = x_1 y_1$	$v = \begin{bmatrix} 1 - \xi_1 \\ \xi_2 \end{bmatrix}$
	$0 \le z_2 \le z_1$	$y_2 = \xi_2$	$\xi_4 = x_1 x_3 x_4$	$\xi_4 = x_1 y_2$	$\begin{bmatrix} & & & & & & & & & & & & & & & & & & &$

Common Edge

Relative coordinate transformation: $(x_1, z_1, z_2, z_3) = (x_1, y_1 - x_1, y_2, x_2)$

No.	Domain	Corners	Idx	Mapping	(x,z)	(x,y)	Tensor-Product	ShunnHam	Reference
1	$-1 \le z_1 \le 0$ $0 \le z_2 \le 1 + z_1$ $0 \le z_3 \le z_2 - z_1$	$\begin{bmatrix} -1 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} -1 \\ 0 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix}$		$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & 1 & -1 & 0 \end{bmatrix}$	$x_1 = \xi_1$ $z_1 = -\xi_3$ $z_2 = \xi_2 - \xi_3$	$x_1 = \xi_1$ $x_2 = \xi_4$ $y_1 = \xi_1 - \xi_3$	$\xi_1 = x_1 \xi_2 = x_1 x_2 \xi_3 = x_1 x_2 x_3$	$\xi_1 = x_1$ $\xi_2 = x_2$ $\xi_3 = x_2 y_1$	$u = \begin{bmatrix} 1 - \xi_1 \\ \xi_4 \end{bmatrix}$ $\vdots \begin{bmatrix} 1 - (\xi_1 - \xi_3) \end{bmatrix}$
	$z_2 - z_1 \le x_1 \le 1$				$z_3 = \xi_4$	$y_2 = \xi_2 - \xi_3$	$\xi_4 = x_1 x_2 x_4$	$\xi_4 = x_2 z_1$	$v = \begin{bmatrix} 1 & (\xi_1 & \xi_3) \\ \xi_2 - \xi_3 \end{bmatrix}$
2	$-1 \le z_1 \le 0$ $0 \le z_2 \le 1 + z_1$	$\begin{bmatrix} -1 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix}$	10	$ \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & -1 \end{bmatrix} $	$x_1 = \xi_1$ $z_1 = -\xi_4$	$x_1 = \xi_1$ $x_2 = \xi_2$	$\begin{aligned} \xi_1 &= x_1 \\ \xi_2 &= x_1 x_2 \end{aligned}$	$\xi_1 = x_1$ $\xi_2 = x_2$	$u = \begin{bmatrix} 1 - \xi_1 \\ \xi_2 \end{bmatrix}$
	$z_2 - z_1 \le z_3 \le 1$ $z_3 \le x_1 \le 1$	$\begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix}$	10	$ \begin{bmatrix} 0 & 0 & 1 & -1 \\ 0 & 1 & 0 & 0 \end{bmatrix} $	$z_2 = \xi_3 - \xi_4$ $z_3 = \xi_2$	$ y_1 = \xi_1 - \xi_4 y_2 = \xi_3 - \xi_4 $	$\begin{cases} \xi_3 = x_1 x_2 x_3 \\ \xi_4 = x_1 x_2 x_3 x_4 \end{cases}$	$\xi_3 = x_2 y_1$ $\xi_4 = x_2 y_2$	$v = \begin{bmatrix} 1 - (\xi_1 - \xi_4) \\ \xi_3 - \xi_4 \end{bmatrix}$
3	$0 \le z_1 \le 1$ $0 \le z_2 \le z_1$	$\begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix}$	1	$\begin{bmatrix} 1 & 0 & -1 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$	$x_1 = \xi_1 - \xi_3$ $z_1 = \xi_3$	$x_1 = \xi_1 - \xi_3 x_2 = \xi_2 - \xi_3$	$\begin{cases} \xi_1 = x_1 \\ \xi_2 = x_1 x_2 \end{cases}$	$\begin{cases} \xi_1 = x_1 \\ \xi_2 = x_2 \end{cases}$	$u = \begin{bmatrix} 1 - (\xi_1 - \xi_3) \\ \xi_2 - \xi_3 \end{bmatrix}$
	$0 \le z_3 \le 1 - z_1$ $z_3 \le x_1 \le 1 - z_1$	$\begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix}$	1	$\begin{bmatrix} 0 & 0 & 0 & 1 \\ 0 & 1 & -1 & 0 \end{bmatrix}$	$z_2 = \xi_4$ $z_3 = \xi_2 - \xi_3$	$y_1 = \xi_1$ $y_2 = \xi_4$	$\begin{cases} \xi_3 = x_1 x_2 x_3 \\ \xi_4 = x_1 x_2 x_3 x_4 \end{cases}$	$\begin{cases} \xi_3 = x_2 y_1 \\ \xi_4 = x_2 y_2 \end{cases}$	$v = \begin{bmatrix} 1 - \xi_1 \\ \xi_4 \end{bmatrix}$
4	$0 \le z_1 \le 1$ $z_1 \le z_2 \le 1$	$\begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix}$	1	$ \begin{bmatrix} 1 & 0 & 0 & -1 \\ 0 & 0 & 0 & 1 \end{bmatrix} $	$\begin{vmatrix} x_1 = \xi_1 - \xi_4 \\ z_1 = \xi_4 \end{vmatrix}$	$\begin{vmatrix} x_1 = \xi_1 - \xi_4 \\ x_2 = \xi_3 - \xi_4 \end{vmatrix}$	$\begin{cases} \xi_1 = x_1 \\ \xi_2 = x_1 x_2 \end{cases}$	$\begin{cases} \xi_1 = x_1 \\ \xi_2 = x_2 \end{cases}$	$u = \begin{bmatrix} 1 - (\xi_1 - \xi_4) \\ \xi_3 - \xi_4 \end{bmatrix}$
4	$0 \le z_3 \le z_2 - z_1$ $z_2 - z_1 \le x_1 \le 1 - z_1$	$\begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix}$	1	$\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & -1 \end{bmatrix}$	$z_2 = \xi_2$ $z_3 = \xi_3 - \xi_4$	$y_1 = \xi_1$ $y_2 = \xi_2$	$\begin{cases} \xi_3 = x_1 x_2 x_3 \\ \xi_4 = x_1 x_2 x_3 x_4 \end{cases}$	$\xi_3 = x_2 y_1$ $\xi_4 = x_2 y_2$	$v = \begin{bmatrix} 1 - \xi_1 \\ \xi_2 \end{bmatrix}$
5	$0 \le z_1 \le 1$ $z_1 \le z_2 \le 1$	$\begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix}$	1	$ \begin{bmatrix} 1 & 0 & 0 & -1 \\ 0 & 0 & 0 & 1 \end{bmatrix} $	$x_1 = \xi_1 - \xi_4$ $z_1 = \xi_4$	$x_1 = \xi_1 - \xi_4 x_2 = \xi_2 - \xi_4$	$\xi_1 = x_1$ $\xi_2 = x_1 x_2$	$\xi_1 = x_1$ $\xi_2 = x_2$	$u = \begin{bmatrix} 1 - (\xi_1 - \xi_4) \\ \xi_2 - \xi_4 \end{bmatrix}$
	$ z_2 - z_1 \le z_3 \le 1 - z_1 $ $ z_3 \le x_1 \le 1 - z_1 $	$\begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix}$	1	$ \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & -1 \end{bmatrix} $	$z_2 = \xi_3$ $z_3 = \xi_2 - \xi_4$	$y_1 = \xi_1$ $y_2 = \xi_3$	$\begin{cases} \xi_3 = x_1 x_2 x_3 \\ \xi_4 = x_1 x_2 x_3 x_4 \end{cases}$	$\xi_3 = x_2 y_1$ $\xi_4 = x_2 y_2$	$v = \begin{bmatrix} 1 - \xi_1 \\ \xi_3 \end{bmatrix}$

Common Face

Relative coordinate transformation: $(x_1, x_2, z_1, z_2) = (x_1, x_2, y_1 - x_1, y_2 - x_2)$ Reference A: $(\hat{x}, \hat{z}) = (x, -z)$, Reference B: $(\hat{x}, \hat{z}) = (x + z, z)$

No.	Domain	Corners	Idx	Mapping	(\hat{x},\hat{z})	(x,y)	Tensor-Product	ShunnHam	Reference A	Reference B
	$0 \le \hat{z}_1 \le 1$	[0] [0] [0] [0] [1]		[1 0 0 0]	$\hat{x}_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$	$[1 - (\xi_1 - \xi_4)]$
1/6	$\hat{z}_1 \le \hat{z}_2 \le 1$		7	$\begin{bmatrix} 1 & -1 & 1 & 0 \end{bmatrix}$	$\hat{x}_2 = \xi_1 - \xi_2 + \xi_3$	$x_2 = \xi_1 - \xi_2 + \xi_3$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_1 - \xi_2 + \xi_3 \end{bmatrix}$	$u = \begin{bmatrix} \begin{pmatrix} 3 & 3 \\ \xi_1 - \xi_2 \end{bmatrix} \end{bmatrix}$
1/0	$\hat{z}_2 \le \hat{x}_1 \le 1$			$\begin{bmatrix} 0 & 0 & 0 & 1 \end{bmatrix}$	$\hat{z}_1 = \xi_4$	$y_1 = \xi_1 - \xi_4$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$v = \begin{bmatrix} 1 - (\xi_1 - \xi_4) \end{bmatrix}$	$v = \begin{bmatrix} 1 - \xi_1 \end{bmatrix}$
	$\hat{z}_2 \le \hat{x}_2 \le \hat{x}_1$			$\begin{bmatrix} 0 & 0 & 1 & 0 \end{bmatrix}$	$\hat{z}_2 = \xi_3$	$y_2 = \xi_1 - \xi_2$	$\xi_4 = x_1 x_2 x_3 x_4$	$\xi_4 = x_3 y_1$	$\begin{bmatrix} v - \begin{bmatrix} \xi_1 - \xi_2 \end{bmatrix} \end{bmatrix}$	$v = \left[\xi_1 - \xi_2 + \xi_3\right]$
	$0 \le \hat{z}_1 \le 1$	$\lceil 0 \rceil \lceil 0 \rceil \lceil 0 \rceil \lceil 1 \rceil \lceil 1 \rceil$		$\begin{bmatrix} 1 & 0 & 0 & 0 \end{bmatrix}$	$\hat{x}_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$	$[1 - (\xi_1 - \xi_3)]$
2/5	$0 \le \hat{z}_2 \le \hat{z}_1$		1	$\begin{bmatrix} 0 & 1 & -1 & 1 \end{bmatrix}$	$\hat{x}_2 = \xi_2 - \xi_3 + \xi_4$	$x_2 = \xi_2 - \xi_3 + \xi_4$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} 3 \\ \xi_2 - \xi_3 + \xi_4 \end{bmatrix}$	$u = \begin{bmatrix} \xi_2 - \xi_3 \end{bmatrix}$
2/3	$\hat{z}_1 \le \hat{x}_1 \le 1$			$\begin{bmatrix} 0 & 0 & 1 & 0 \end{bmatrix}$	$\hat{z}_1 = \xi_2$	$y_1 = \xi_1 - \xi_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$v = \begin{bmatrix} 1 - (\xi_1 - \xi_3) \end{bmatrix}$	$v = \begin{bmatrix} 1 - \xi_1 \\ 1 - \xi_1 \end{bmatrix}$
	$\hat{z}_2 \le \hat{x}_2 \le \hat{x}_1 - \hat{z}_1 + \hat{z}_2$			$\begin{bmatrix} 0 & 0 & 0 & 1 \end{bmatrix}$	$\hat{z}_2 = \xi_4$	$y_2 = \xi_2 - \xi_3$	$\xi_4 = x_1 x_2 x_3 x_4$	$\xi_4 = x_3 y_1$	$\begin{bmatrix} v - [\xi_2 - \xi_3] \end{bmatrix}$	$v = \left[\xi_2 - \xi_3 + \xi_4\right]$
	$-1 \le \hat{z}_1 \le 0$	[-1] $[0]$ $[0]$ $[0]$ $[0]$		$\begin{bmatrix} 1 & 0 & 0 & -1 \end{bmatrix}$	$\hat{x}_1 = \xi_1 - \xi_4$	$x_1 = \xi_1 - \xi_4$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\left[1 - (\xi_1 - \xi_4)\right]$	$\begin{bmatrix} 1 - \xi_1 \end{bmatrix}$
3/4	$0 \le \hat{z}_2 \le 1 + \hat{z}_1$		$\begin{vmatrix} 10 \end{vmatrix}$	$\begin{bmatrix} 0 & 1 & 0 & -1 \end{bmatrix}$	$\hat{x}_2 = \xi_2 - \xi_4$	$x_2 = \xi_2 - \xi_4$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_2 - \xi_4 \end{bmatrix}$	$u = \begin{bmatrix} 3 \\ \xi_2 - \xi_3 \end{bmatrix}$
3/4	$\hat{z}_2 \le \hat{x}_1 \le 1 + \hat{z}_1$		10	$\begin{bmatrix} 0 & 0 & 0 & -1 \\ 0 & 0 & 1 & 1 \end{bmatrix}$	$\hat{z}_1 = -\xi_4$	$y_1 = \xi_1$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$v = \begin{bmatrix} 1 - \xi_1 \end{bmatrix}$	$v = \begin{bmatrix} 1 - (\xi_1 - \xi_4) \end{bmatrix}$
	$\hat{z}_2 \le \hat{x}_2 \le \hat{x}_1$				$\hat{z}_2 = \xi_3 - \xi_4$	$y_2 = \xi_2 - \xi_3$	$\xi_4 = x_1 x_2 x_3 x_4$	$\xi_4 = x_3 y_1$	$\begin{bmatrix} v - [\xi_2 - \xi_3] \end{bmatrix}$	$c = \begin{bmatrix} \xi_2 - \xi_4 \end{bmatrix}$

Tetrahedron-Triangle

Positive Distance

No.	Domain	(x,y)	Tensor-Product	ShunnHam	Reference
	$0 \le x_1 \le 1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - \xi_1 \rceil$
	$0 \le x_2 \le x_1$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \left \xi_1 - \xi_2 \right $
1	$0 \le x_3 \le x_2$	$x_3 = \xi_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} \xi_3 \end{bmatrix}$
	$0 \le y_1 \le 1$	$y_1 = \xi_4$	$\xi_4 = x_4$	$\xi_4 = y_1$	$v = \begin{bmatrix} 1 - \xi_4 \end{bmatrix}$
	$0 \le y_2 \le y_1$	$y_2 = \xi_5$	$\xi_5 = x_4 x_5$	$\xi_5 = y_2$	[ξ ₅]

Common Vertex

Relative coordinate transformation: $\vec{z} = (x_1, x_2, x_3, y_1, y_2)$

No.	Domain	(x,y)	Tensor-Product	ShunnHam	Reference
	$0 \le z_1 \le 1 x_1 = \xi_1$		$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - \xi_1 \rceil$
	$0 \le z_2 \le z_1$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \left \xi_1 - \xi_2 \right $
1	$0 \le z_3 \le z_2$	$x_3 = \xi_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} \xi_3 \end{bmatrix}$
	$0 \le z_4 \le z_1 y_1 =$		$\xi_4 = x_1 x_4$	$\xi_4 = x_1 y_1$	$v = \begin{bmatrix} 1 - \xi_4 \\ \xi_5 \end{bmatrix}$
	$0 \le z_5 \le z_4$	$y_2 = \xi_5$	$\xi_5 = x_1 x_4 x_5$	$\xi_5 = x_1 y_2$	[ξ ₅]
	$0 \le z_4 \le 1$	$x_1 = \xi_3$	$\xi_1 = x_1$	$\xi_1 = y_1$	$\lceil 1 - \xi_3 \rceil$
	$0 \le z_5 \le z_4$	$x_2 = \xi_4$	$\xi_2 = x_1 x_2$	$\xi_2 = y_2$	$u = \left \xi_3 - \xi_4 \right $
2	$0 \le z_1 \le z_4$	$x_3 = \xi_5$	$\xi_3 = x_1 x_3$	$\xi_3 = y_1 x_1$	$\begin{bmatrix} \xi_5 \end{bmatrix}$
	$0 \le z_2 \le z_1 y_1 = \xi_1$		$\xi_4 = x_1 x_3 x_4$	$\xi_4 = y_1 x_2$	$v = \begin{bmatrix} 1 - \xi_1 \end{bmatrix}$
	$0 \le z_3 \le z_2$	$y_2 = \xi_2$	$\xi_5 = x_1 x_3 x_4 x_5$	$\xi_5 = y_1 x_3$	$v = \begin{bmatrix} \xi_2 \end{bmatrix}$

Common Edge

Relative coordinate transformation: $(x_1, z_1, z_2, z_3, z_4) = (x_1, y_1 - x_1, y_2, x_2, x_3)$

No.	Domain	Corners	Idx	Mapping	(x,z)	(x,y)	Tensor-Product	ShunnHam	Reference
	$-1 \le z_1 \le 0$	$\lceil -1 \rceil \lceil -1 \rceil \lceil -1 \rceil \lceil 0 \rceil$		[1 0 0 0 0]	$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - \xi_1 \rceil$
	$0 \le z_2 \le 1 + z_1$			0 0 0 0 -1	$z_1 = -\xi_5$	$x_2 = \xi_3$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \xi_1 - \xi_3 $
1	$0 \le z_3 \le z_2 - z_1$		6	0 1 0 0 -1	$z_2 = \xi_2 - \xi_5$	$x_3 = \xi_4$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_2 y_1$	$\begin{bmatrix} & \xi_4 & \end{bmatrix}$
	$0 \le z_4 \le z_3$			$ \left \begin{array}{cccccccccccccccccccccccccccccccccccc$	$z_3 = \xi_3$	$y_1 = \xi_1 - \xi_5$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_2 y_2$	$v = \begin{bmatrix} 1 - (\xi_1 - \xi_5) \end{bmatrix}$
	$z_2 - z \le x_1 \le 1$				$z_4 = \xi_4$	$y_2 = \xi_2 - \xi_5$	$\xi_5 = x_1 x_2 y_2$	$\xi_5 = x_2 z_1$	$\begin{bmatrix} \xi_2 - \xi_5 \end{bmatrix}$
	$-1 \le z_1 \le 0$	$\lceil -1 \rceil$ $\lceil -1 \rceil$ $\lceil 0 \rceil$		[1 0 0 0 0]	$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - \xi_1 \rceil$
	$0 \le z_2 \le 1 + z_1$			0 0 0 -1 0	$z_1 = -\xi_4$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \left \xi_1 - \xi_2 \right $
2	$z2 - z1 \le z_3 \le 1$		42		$z_2 = \xi_3 - \xi_4$	$x_3 = \xi_5$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_2 y_1$	$\begin{bmatrix} \xi_5 \end{bmatrix}$
	$0 \le z_4 \le z_3$	$\begin{bmatrix} 0 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix}$		$ \left \begin{array}{cccccccccccccccccccccccccccccccccccc$	$z_3 = \xi_2$	$y_1 = \xi_1 - \xi_4$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_2 y_2$	$v = \begin{bmatrix} 1 - (\xi_1 - \xi_4) \end{bmatrix}$
	$z3 \le x_1 \le 1$				$z_4 = \xi_5$	$y_2 = \xi_3 - \xi_4$	$\xi_5 = x_1 x_2 y_2$	$\xi_5 = x_2 z_1$	$\begin{bmatrix} \xi_3 - \xi_4 \end{bmatrix}$
	$0 \le z_1 \le 1$	[0] [0] [0] [1] [1]		$\begin{bmatrix} 1 & 0 & 0 & -1 & 0 \end{bmatrix}$	$x_1 = \xi_1 - \xi_4$	$x_1 = \xi_1 - \xi_4$	$\xi_1 = x_1$	$\xi_1 = x_1$	$[1-(\xi_1-\xi_4)]$
	$0 \le z_2 \le z_1$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			$z_1 = \xi_4$	$x_2 = \xi_2 - \xi_4$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_1 - \xi_2 \end{bmatrix}$
3	$0 \le z_3 \le 1 - z1$		1	0 0 0 0 1	$z_2 = \xi_5$	$x_3 = \xi_3 - \xi_4$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_2 y_1$	$\begin{bmatrix} \xi_3 - \xi_4 \end{bmatrix}$
	$0 \le z_4 \le z_3$			$\begin{bmatrix} 0 & 1 & 0 & -1 & 0 \\ 0 & 0 & 1 & 1 & 0 \end{bmatrix}$	$z_3 = \xi_2 - \xi_4$	$y_1 = \xi_1$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_2 y_2$	$v = \begin{bmatrix} 1 - \xi_1 \end{bmatrix}$
	$z3 \le x_1 \le 1 - z1$				$z_4 = \xi_3 - \xi_4$	$y_2 = \xi_5$	$\xi_5 = x_1 x_2 x_3 y_1 y_2$	$\xi_5 = x_2 z_3$	[ξ ₅]
	$0 \le z_1 \le 1$	[0] [0] [0] [0] [1]		[1 0 0 0 -1]	$x_1 = \xi_1 - \xi_5$	$x_1 = \xi_1 - \xi_5$	$\xi_1 = x_1$	$\xi_1 = x_1$	$[1-(\xi_1-\xi_5)]$
	$z_1 \le z_2 \le 1$			0 0 0 0 1	$z_1 = \xi_5$	$x_2 = \xi_3 - \xi_5$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_1 - \xi_3 \end{bmatrix}$
4	$0 \le z_3 \le z_2 - z_1$		2	0 1 0 0 0	$z_2 = \xi_2$	$x_3 = \xi_4 - \xi_5$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_2 y_1$	$\begin{bmatrix} \xi_4 - \xi_5 \end{bmatrix}$
	$0 \le z_4 \le z_3$			$ \begin{bmatrix} 0 & 0 & 1 & 0 & -1 \\ 0 & 0 & 0 & 0 & -1 \end{bmatrix} $	$z_3 = \xi_3 - \xi_5$	$y_1 = \xi_1$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_2 y_2$	$v = \begin{bmatrix} 1 - \xi_1 \end{bmatrix}$
	$z_2 - z_1 \le x_1 \le 1 - z_1$				$z_4 = \xi_4 - \xi_5$	$y_2 = \xi_2$	$\xi_5 = x_1 x_2 x_3 y_1 y_2$	$\xi_5 = x_2 z_3$	$v = [\xi_2]$
	$0 \le z_1 \le 1$	[0] [0] [0] [0] [0] [1]			$x_1 = \xi_1 - \xi_2 + \xi_3$	$x_1 = \xi_1 - \xi_2 + \xi_3$	$\xi_1 = x_1$	$\xi_1 = x_1$	$[1 - (\xi_1 - \xi_2 + \xi_3)]$
	$z_1 \le z_2 \le 1$			0 1 -1 0 0	$z_1 = \xi_2 - \xi_3$	$x_2 = \xi_3$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_1 - \xi_2 \end{bmatrix}$
5	$z_2 - z_1 \le z_3 \le 1 - z_1$			$\begin{bmatrix} 0 & 1 & -1 & 0 & 1 \end{bmatrix}$	$z_2 = \xi_2 - \xi_3 + \xi_5$	$x_3 = \xi_4$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_2 y_1$	$\begin{bmatrix} & & & & & & & \end{bmatrix}$
	$0 \le z_4 \le z_3$	$egin{array}{ c c c c c c c c c c c c c c c c c c c$		$\begin{bmatrix} 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \end{bmatrix}$	$z_3 = \xi_3$	$y_1 = \xi_1$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_2 y_2$	$v = \begin{bmatrix} 1 - \xi_1 \\ \xi_1 \end{bmatrix}$
	$z_3 \le x_1 \le 1 - z1$				$z_4 = \xi_4$	$y_2 = \xi_2 - \xi_3 + \xi_5$	$\xi_5 = x_1 x_2 x_3 y_2$	$\xi_5 = x_2 y_1 z_1$	$\left[\xi_2-\xi_3+\xi_5\right]$

Common Face

Relative coordinate transformation: $(x_1, x_2, z_1, z_2, z_3) = (x_1, x_2, y_1 - x_1, y_2 - x_2, x_3)$

		$(x_1, x_2, z_1, z_2, z_3) = (x_1, x_2, y_1 - x_1, y_2 - x_2, x_1)$	- /	M	()	()	T D 14	C1	Reference
No.	$ \begin{array}{c c} \text{Domain} \\ -1 \le z_1 \le 0 \end{array} $	Corners	Iax	Mapping	(x, z) $x_1 = \xi_1$	(x,y)	Tensor-Product $\xi_1 = x_1$	ShunnHam $\xi_1 = x_1$	
		$\begin{bmatrix} -1 \end{bmatrix} \begin{bmatrix} -1 \end{bmatrix} \begin{bmatrix} 0 \end{bmatrix}$		$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 \end{bmatrix}$	<u> </u>	$x_1 = \xi_1$	_		$\left[1-\xi_1\right]$
	$-1 \le z_2 \le z_1$	$egin{array}{ c c c c c c c c c c c c c c c c c c c$		$\begin{bmatrix} 0 & 1 & 0 & 0 & 0 \end{bmatrix}$	$x_2 = \xi_2$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_1 - \xi_2 \end{bmatrix}$
1	$0 \le z_3 \le -z_2$		581	$\begin{bmatrix} 0 & 0 & -1 & 0 & 1 \\ 0 & 0 & 1 & 0 & 0 \end{bmatrix}$	$z_1 = -\xi_3 + \xi_5$	$x_3 = \xi_3 - \xi_4$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\left[\xi_3 - \xi_4\right]$
	$-z_2 \le x_2 \le 1$			$\begin{bmatrix} 0 & 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & -1 & 0 \end{bmatrix}$	$z_2 = -\xi_3$	$y_1 = \xi_1 - \xi_3 + \xi_5$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_3 y_1$	$v = \begin{bmatrix} 1 - (\xi_1 - \xi_3 + \xi_5) \end{bmatrix}$
	$x_2 \le x_1 \le 1$			$\begin{bmatrix} 0 & 0 & 1 & -1 & 0 \end{bmatrix}$	$z_3 = \xi_3 - \xi_4$	$y_2 = \xi_2 - \xi_3$	$\xi_5 = x_1 x_2 x_3 y_2$	$\xi_5 = x_3 z_1$	$\begin{bmatrix} c - \begin{bmatrix} \xi_2 - \xi_3 \end{bmatrix} \end{bmatrix}$
	$-1 \le z_1 \le 0$	$\lceil -1 \rceil \lceil 0 \rceil \lceil 0 \rceil \lceil 0 \rceil \lceil 0 \rceil$		[1 0 0 0 0]	$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - \xi_1 \rceil$
	$-1 \le z_2 \le z_1$			$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \end{bmatrix}$	$x_2 = \xi_2$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \left \xi_1 - \xi_2 \right $
2	$-z_2 \le z_3 \le 1$		62	$\begin{bmatrix} 0 & 0 & 0 & 0 & -1 \end{bmatrix}$	$z_1 = -\xi_5$	$x_3 = \xi_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} \xi_3 \end{bmatrix}$
	$z_3 \le x_2 \le 1$			$\begin{bmatrix} 0 & 0 & -1 & 1 & -1 \end{bmatrix}$	$z_2 = -\xi_3 + \xi_4 - \xi_5$	$y_1 = \xi_1 - \xi_5$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_3 y_1$	$\left[1 - (\xi_1 - \xi_5) \right]$
	$x_2 \le x_1 \le 1$			$\begin{bmatrix} 0 & 0 & 1 & 0 & 0 \end{bmatrix}$	$z_3 = \xi_3$	$y_2 = \xi_2 - \xi_3 + \xi_4 - \xi_5$	$\xi_5 = x_1 x_2 x_3 y_1 y_2$	$\xi_5 = x_3 y_2$	$v = \begin{bmatrix} \xi_2 - \xi_3 + \xi_4 - \xi_5 \end{bmatrix}$
	$-1 \le z_1 \le 0$			F4 0 0 0 0 7	$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	Г 1 с 7
	$z_1 \le z_2 \le 0$	$egin{bmatrix} -1 & -1 & -1 & -1 & 0 & 0 & 0 \ -1 & -1 & 0 & 0 & 0 & 0 \end{bmatrix}$		$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & -1 & 1 \end{bmatrix}$	$x_2 = \xi_2 - \xi_4 + \xi_5$	$x_2 = \xi_2 - \xi_4 + \xi_5$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} 1 - \xi_1 \\ \xi_1 - \xi_2 + \xi_4 - \xi_5 \end{bmatrix}$
2	$0 \le z_3 \le -z_2$	$egin{bmatrix} -1 & -1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$	91	$\begin{bmatrix} 0 & 1 & 0 & -1 & 1 \\ 0 & 0 & -1 & 0 & 0 \end{bmatrix}$	$z_1 = -\xi_3$	$x_2 - \xi_2 - \xi_4 + \xi_5$ $x_3 = \xi_3 - \xi_4$	$\xi_2 = x_1 x_2$ $\xi_3 = x_1 x_2 x_3$	$\begin{cases} \zeta_2 - x_2 \\ \xi_3 = x_3 \end{cases}$	$ \begin{vmatrix} u - \left \zeta_1 - \zeta_2 + \zeta_4 - \zeta_5 \right \\ \xi_3 - \xi_4 \end{vmatrix} $
'			91	$\begin{bmatrix} 0 & 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 1 & -1 \end{bmatrix}$,		_		
	$-z_2 \le x_2 \le 1 + z_1 - z_2$			$\begin{bmatrix} 0 & 0 & 1 & 1 & 1 \\ 0 & 0 & 1 & -1 & 0 \end{bmatrix}$	$z_2 = -\xi_3 + \xi_4 - \xi_5$	$y_1 = \xi_1 - \xi_3$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_3 y_1$	$v = \begin{bmatrix} 1 - (\xi_1 - \xi_3) \\ \xi_2 - \xi_3 \end{bmatrix}$
	$x_2 + z_2 - z_1 \le x_1 \le 1$			[]	$z_3 = \xi_3 + \xi_4$	$y_2 = \xi_2 - \xi_3$	$\xi_5 = x_1 x_2 x_3 y_1 y_2$	$\xi_5 = x_3 y_2$	
	$-1 \le z_1 \le 0$	$\begin{bmatrix} -1 \\ -1 \end{bmatrix} \begin{bmatrix} -1 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix}$		$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 \end{bmatrix}$	$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$z_1 \le z_2 \le 0$			$\begin{bmatrix} 0 & 1 & -1 & 1 & 0 \end{bmatrix}$	$x_2 = \xi_2 - \xi_3 + \xi_4$	$x_2 = \xi_2 - \xi_3 + \xi_4$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \xi_1 - \xi_2 + \xi_3 - \xi_4 $
4	$-z_2 \le z_3 \le 1 + z_1 - z_2$		61	$\begin{bmatrix} 0 & 0 & -1 & 0 & 1 \end{bmatrix}$	$z_1 = -\xi_3 + \xi_5$	$x_3 = \xi_4$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	ξ4
	$z_3 \le x_2 \le 1 + z_1 - z_2$			$\begin{bmatrix} 0 & 0 & 0 & -1 & 1 \\ 0 & 0 & 0 & 1 & 0 \end{bmatrix}$	$z_2 = -\xi_4 + \xi_5$	$y_1 = \xi_1 - \xi_3 + \xi_5$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_3 y_1$	$v = \begin{bmatrix} 1 - (\xi_1 - \xi_3 + \xi_5) \end{bmatrix}$
	$x_2 + z_2 - z_1 \le x_1 \le 1$			$\begin{bmatrix} 0 & 0 & 0 & 1 & 0 \end{bmatrix}$	$z_3 = \xi_4$	$y_2 = \xi_2 - \xi_3 + \xi_5$	$\xi_5 = x_1 x_2 x_3 y_1 y_2$	$\xi_5 = x_3 y_2$	$\begin{bmatrix} c & - \\ & \xi_2 - \xi_3 + \xi_5 \end{bmatrix}$
	$0 \le z_1 \le 1$	[0][0][0][0][1]		Γ1 0 0 0 -1]	$x_1 = \xi_1 - \xi_5$	$x_1 = \xi_1 - \xi_5$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - (\xi_1 - \xi_5) \rceil$
	$z_1 - 1 \le z_2 \le 0$	$\begin{bmatrix} 0 \\ -1 \end{bmatrix} \begin{bmatrix} 0 \\ -1 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \end{bmatrix}$		$\begin{bmatrix} 1 & 0 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 & -1 \end{bmatrix}$	$x_2 = \xi_2 - \xi_5$	$x_2 = \xi_2 - \xi_5$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} -\zeta_1 & \zeta_3 \\ \xi_1 - \xi_2 \end{bmatrix}$
5	$0 \le z_3 - z_2$		61	0 0 0 0 1	$z_1 = \xi_5$	$x_3 = \xi_3 - \xi_4$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} \xi_3 - \xi_4 \end{bmatrix}$
	$-z_2 \le x_2 \le 1 - z_1$			0 0 -1 0 1	$z_2 = -\xi_3 + \xi_5$	$y_1 = \xi_1$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_3 y_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$x_2 \le x_1 \le 1 - z_1$			$\begin{bmatrix} 0 & 0 & 1 & -1 & 0 \end{bmatrix}$	$z_3 = \xi_3 - \xi_4$	$y_2 = \xi_2 - \xi_3$	$\xi_5 = x_1 x_2 x_3 y_1 y_2$	$\xi_5 = x_3 y_2$	$v = \begin{bmatrix} 1 & 31 \\ \xi_2 - \xi_3 \end{bmatrix}$
	$0 \le z_1 \le 1$ $0 \le z_1 \le 1$			F4 0 0 4 4 7	$x_1 = \xi_1 - \xi_4 + \xi_5$	$x_1 = \xi_1 - \xi_4 + \xi_5$	$\xi_1 = x_1$	$\xi_1 = x_1$	[1 (c c c)]
	$z_1 - 1 \le z_2 \le 0$	$\begin{bmatrix} 0 \\ -1 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \end{bmatrix}$		$\begin{bmatrix} 1 & 0 & 0 & -1 & 1 \\ 0 & 1 & 0 & -1 & 1 \end{bmatrix}$	$x_2 = \xi_2 - \xi_4 + \xi_5$	$x_2 = \xi_2 - \xi_4 + \xi_5$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} 1 - (\xi_1 - \xi_4 + \xi_5) \\ \xi_1 - \xi_2 \end{bmatrix}$
6	$-z_2 \le z_3 1 - z_1$	$\begin{bmatrix} -1 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix}$	32	$\begin{bmatrix} 0 & 1 & 0 & -1 & 1 \\ 0 & 0 & 0 & 1 & -1 \end{bmatrix}$	$z_1 = \xi_4 - \xi_5$	$x_3 = \xi_3 - \xi_4 + \xi_5$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} a - \begin{bmatrix} \zeta_1 & \zeta_2 \\ \xi_3 - \xi_4 + \xi_5 \end{bmatrix}$
			02	$\begin{bmatrix} 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & -1 & 1 & 0 \end{bmatrix}$					$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$z_3 \le x_2 \le 1 - z_1$			$\begin{bmatrix} 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & -1 & 1 \end{bmatrix}$	$z_2 = -\xi_3 + \xi_4$	$y_1 = \xi_1$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_3 y_1$	$v = \begin{vmatrix} 1 & \zeta_1 \\ \xi_2 - \xi_3 + \xi_5 \end{vmatrix}$
	$x_2 \le x_1 \le 1 - z_1$				$z_3 = \xi_3 - \xi_4 + \xi_5$	$y_2 = \xi_2 - \xi_3 + \xi_5$	$\xi_5 = x_1 x_2 x_3 y_1 y_2$		
	$0 \le z_1 \le 1$	$\begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix}$		$\begin{bmatrix} 1 & 0 & 0 & -1 & 0 \end{bmatrix}$	$x_1 = \xi_1 - \xi_4$	$x_1 = \xi_1 - \xi_4$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\left[1-(\xi_1-\xi_4)\right]$
	$0 \le z_2 \le z_1$			$\begin{bmatrix} 0 & 1 & 0 & -1 & 0 \end{bmatrix}$	$x_2 = \xi_2 - \xi_4$	$x_2 = \xi_2 - \xi_4$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_1 - \xi_2 \end{bmatrix}$
7	$0 \le z_3 1 - z_1$		1		$z_1 = \xi_4$	$x_3 = \xi_3 - \xi_4$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} & \xi_3 - \xi_4 \end{bmatrix}$
	$z_3 \le x_2 \le 1 - z_1$			$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 1 & 0 \end{bmatrix}$	$z_2 = \xi_5$	$y_1 = \xi_1$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_3 y_1$	$v = \begin{bmatrix} 1 - \xi_1 \\ \xi_1 \end{bmatrix}$
	$x_2 \le x_1 \le 1 - z_1$			$\begin{bmatrix} 0 & 0 & 1 & -1 & 0 \end{bmatrix}$	$z_3 = \xi_3 - \xi_4$	$y_2 = \xi_2 - \xi_4 + \xi_5$	$\xi_5 = x_1 x_2 x_3 y_1 y_2$	$\xi_5 = x_3 y_2$	$v = \left[\xi_2 - \xi_4 + \xi_5\right]$
	$-1 \le z_1 \le 0$	$\lceil -1 \rceil$ $\lceil 0 \rceil$ $\lceil 0 \rceil$ $\lceil 0 \rceil$ $\lceil 0 \rceil$		Γ1 0 0 0 0 7	$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$0 \le z_2 \le 1 + z_1$	$\begin{bmatrix} -1 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix}$		$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & -1 & 1 & -1 \end{bmatrix}$	$x_2 = \xi_2 - \xi_3 + \xi_4 - \xi_5$	$x_2 = \xi_2 - \xi_3 + \xi_4 - \xi_5$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_1 - \xi_2 + \xi_3 - \xi_4 + \xi_5 \end{bmatrix}$
8	$0 \le z_3 1 + z_1 - z_2$		31	0 0 -1 1 0	$z_1 = -\xi_3 + \xi_4$	$x_3 = \xi_4 - \xi_5$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} \xi_4 - \xi_5 \end{bmatrix}$
	$z_3 \le x_2 \le 1 + z_1 - z_2$			0 0 0 0 1	$z_2 = \xi_5$	$y_1 = \xi_1 - \xi_3 + \xi_4$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_3 y_1$	$v = [1 - (\xi_1 - \xi_3 + \xi_4)]$
	$x_2 + z_2 - z_1 \le x_1 \le 1$			$\begin{bmatrix} 0 & 0 & 0 & 1 & -1 \end{bmatrix}$	$z_3 = \xi_4 - \xi_5$	$y_2 = \xi_2 - \xi_3 + \xi_4$	$\xi_5 = x_1 x_2 x_3 y_1 y_2$	$\xi_5 = x_3 y_2$	$v = \begin{bmatrix} \xi_2 - \xi_3 + \xi_4 \end{bmatrix}$
	$0 \le z_1 \le 1$			Γ ₁ 0 0 4 4 7	$x_1 = \xi_1 - \xi_4 + \xi_5$	$x_1 = \xi_1 - \xi_4 + \xi_5$	$\xi_1 = x_1$	$\xi_1 = x_1$	Γ ₁ (¢, ¢ ¢) 7
	$z_1 \le z_2 \le 1$	$\begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix}$		$\begin{bmatrix} 1 & 0 & 0 & -1 & 1 \\ 0 & 1 & 0 & -1 & 0 \end{bmatrix}$	$x_2 = \xi_2 - \xi_4$	$x_2 = \xi_2 - \xi_4$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} 1 - (\xi_1 + \xi_4 + \xi_5) \\ \xi_1 - \xi_2 + \xi_5 \end{bmatrix}$
9	$0 \le z_3 1 - z_2$		$ \ _{2} $	$\begin{bmatrix} 0 & 1 & 0 & -1 & 0 \\ 0 & 0 & 0 & 1 & -1 \end{bmatrix}$	$z_1 = \xi_4 - \xi_5$	$x_2 = \xi_2 = \xi_4$ $x_3 = \xi_3 - \xi_4$	$\xi_2 = x_1 x_2 $ $\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{vmatrix} a - \begin{vmatrix} \zeta_1 - \zeta_2 + \zeta_5 \\ \xi_3 - \xi_4 \end{vmatrix}$
			-	$\begin{bmatrix} 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 & 0 \end{bmatrix}$					$\begin{bmatrix} 1 - \xi_1 \end{bmatrix}$
	$z_3 \le x_2 \le 1 - z_2$			0 0 1 -1 0	$z_2 = \xi_4$	$y_1 = \xi_1$	$\xi_4 = x_1 x_2 x_3 y_1$	$\xi_4 = x_3 y_1$	$v = \begin{bmatrix} 1 & \zeta_1 \\ \xi_2 \end{bmatrix}$
	$x_2 + z_2 - z_1 \le x_1 \le 1 - z_1$				$z_3 = \xi_3 - \xi_4$	$y_2 = \xi_2$	$\xi_5 = x_1 x_2 x_3 y_1 y_2$	$\xi_5 = x_3 y_2$	L 34 J

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${\bf Tetrahedron-Tetrahedron}$

Positive Distance

No.	Domain	(x,y)	Tensor-Product	ShunnHam	Reference
	$0 \le x_1 \le 1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - \xi_1 \rceil$
	$0 \le x_2 \le x_1$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} 1 & \zeta_1 \\ \xi_1 - \xi_2 \end{bmatrix}$
1	$0 \le x_3 \le x_2$	$x_3 = \xi_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\left[\begin{array}{c}\xi_3\end{array}\right]$
1	$0 \le y_1 \le 1$	$y_1 = \xi_4$	$\xi_4 = x_4$	$\xi_4 = y_1$	$\lceil 1 - \xi_4 \rceil$
	$0 \le y_2 \le y_1$	$y_2 = \xi_5$	$\xi_5 = x_4 x_5$	$\xi_5 = y_2$	$v = \left \xi_4 - \xi_5 \right $
	$0 \le y_3 \le y_2$	$y_3 = \xi_6$	$\xi_6 = x_4 x_5 x_6$	$\xi_6 = y_3$	<u></u> ξ ₆]

Common Vertex

Relative coordinate transformation: $\vec{z} = (x_1, x_2, x_3, y_1, y_2, y_3)$

No.	Domain	(x,y)	Tensor-Product	ShunnHam	Reference
	$0 \le z_1 \le 1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - \xi_1 \rceil$
	$0 \le z_2 \le z_1$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	
1	$0 \le z_3 \le z_2$	$x_3 = \xi_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$u = \begin{bmatrix} \xi_1 - \xi_2 \\ \xi_3 \end{bmatrix}$
1	$0 \le z_4 \le z_1$	$y_1 = \xi_4$	$\xi_4 = x_1 x_4$	$\xi_4 = x_1 y_1$	$\left[1-\xi_4\right]$
	$0 \le z_5 \le z_4$	$y_2 = \xi_5$	$\xi_5 = x_1 x_4 x_5$	$\xi_5 = x_1 y_2$	$v = \left \xi_4 - \xi_5 \right $
	$0 \le z_6 \le z_5$	$y_3 = \xi_6$	$\xi_6 = x_1 x_4 x_5 x_6$	$\xi_6 = x_1 y_3$	[ξ6]
	$0 \le z_4 \le 1$	$x_1 = \xi_4$	$\xi_1 = x_1$	$\xi_1 = y_1$	$\lceil 1 - \xi_3 \rceil$
	$0 \le z_5 \le z_4$	$x_2 = \xi_5$	$\xi_2 = x_1 x_2$	$\xi_2 = y_2$	$u = \begin{bmatrix} 1 & \zeta_3 \\ \xi_3 - \xi_4 \end{bmatrix}$
2	$0 \le z_6 \le z_5$	$x_3 = \xi_6$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = y_3$	$\left[\begin{array}{cc} \xi_5 \end{array}\right]$
2	$0 \le z_1 \le z_4$	$y_1 = \xi_1$	$\xi_4 = x_1 x_4$	$\xi_4 = y_1 x_1$	$\left[1-\xi_1\right]$
	$0 \le z_2 \le z_1$	$y_2 = \xi_2$	$\xi_5 = x_1 x_4 x_5$	$\xi_5 = y_1 x_2$	$v = \left \xi_1 - \xi_2 \right $
	$0 \le z_3 \le z_2$	$y_3 = \xi_3$	$\xi_6 = x_1 x_4 x_5 x_6$	$\xi_6 = y_1 x_3$	[ξ3]

Common Edge

 $(x,z) = (x_1, y_1 - x_1, y_2, y_3, x_2, x_3)$

No.	Domain	Corners	Idx	Mapping	(x,z)	(x,y)	Tensor-Product	ShunnHam	Reference
	$-1 \le z_1 \le 0$	$\lceil -1 \rceil \lceil -1 \rceil \lceil -1 \rceil \lceil 0 \rceil$		[1 0 0 0 0 0]	$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - \xi_1 \rceil$
	$0 \le z_2 \le 1 + z_1$			0 -1 0 0 1 0	$z_1 = -\xi_2 + \eta_2$	$x_2 = \xi_2 - \eta_1$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \left \xi_1 - \xi_2 + \eta_1 \right $
1	$0 \le z_3 \le z_2$		1089238	$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & 0 \end{bmatrix}$	$z_2 = \eta_2$	$x_3 = \xi_3 - \eta_1$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_2 y_1$	$\begin{bmatrix} \xi_3 - \eta_1 \end{bmatrix}$
1	$0 \le z_4 \le z_2 - z_1$	$ egin{array}{ c c c c c c c c c c c c c c c c c c c$	1000200	$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & -1 \\ 0 & 1 & 0 & -1 & 0 & 0 \end{bmatrix}$	$z_3 = \eta_2 - \eta_3$	$y_1 = \xi_1 - \xi_2 + \eta_2$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_2 y_2$	$\left[1-(\xi_{1}-\xi_{2}+\eta_{2})\right]$
	$0 \le z_5 \le z_4$			$\begin{bmatrix} 0 & 1 & 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & -1 & 0 & 0 \end{bmatrix}$	$z_4 = \xi_2 - \eta_1$	$y_2 = \eta_2$	$\eta_2 = x_1 x_2 y_2$	$\eta_2 = x_2 z_1$	$v = \begin{bmatrix} \xi_1 - \xi_2 \\ \eta_2 - \eta_3 \end{bmatrix}$
	$z_2 - z_1 \le x_1 \le 1$				$z_5 = \xi_3 - \eta_1$	$y_3 = \eta_2 - \eta_3$	$\eta_3 = x_1 x_2 y_2 y_3$	$\eta_3 = x_2 z_2$	L 72 73 J
	$-1 \le z_1 \le 0$	$\lceil -1 \rceil$ $\lceil -1 \rceil$ $\lceil 0 \rceil$		[1 0 0 0 0 0]	$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - \xi_1 \rceil$
	$0 \le z_2 \le 1 + z_1$			$\begin{bmatrix} 0 & -1 & 1 & 0 & 0 & 0 \end{bmatrix}$	$z_1 = -\xi_2 + \xi_3$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \left \xi_1 - \xi_2 \right $
2	$0 \le z_3 \le z_2$		82555	0 0 0 1 0 0	$z_2 = \eta_1$	$x_3 = \xi_2 - \eta_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_2 y_1$	$\lfloor \xi_2 - \eta_3 \rfloor$
-	$z2 - z1 \le z_4 \le 1$		02000		$z_3 = \eta_2$	$y_1 = \xi_1 - \xi_2 + \xi_3$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_2 y_2$	$\left[1-(\xi_1-\xi_2+\xi_3)\right]$
	$0 \le z_5 \le z_4$			0	$z_4 = \xi_2$	$y_2 = \eta_1$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_2 y_3$	$v = \begin{bmatrix} \xi_1 - \xi_2 + \xi_3 - eta_1 \\ \eta_2 \end{bmatrix}$
	$z_4 \le x_1 \le 1$				$z_5 = \xi_2 - \eta_3$	$y_3 = \eta_2$	$\eta_3 = x_1 x_2 y_3$	$\eta_3 = x_2 z_1$	$\lfloor \qquad \qquad $
	$0 \le z_1 \le 1$	[0] [0] [0] [0] [1] [1]		[1 0 0 -1 0 0]	$x_1 = \xi_1 - \eta_1$	$x_1 = \xi_1 - \eta_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$[1 - (\xi_1 - \eta_1)]$
	$0 \le z_2 \le z_1$			0 0 0 1 0 0	$z_1 = \eta_1$	$x_2 = \xi_2 - \eta_1$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_1 - \xi_2 \end{bmatrix}$
3	$0 \le z_3 \le z_2$		1	0 0 0 0 1 0	$z_2 = \eta_2$	$x_3 = \xi_3 - \eta_1$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_2 y_1$	$\begin{bmatrix} \xi_3 - \eta_1 \end{bmatrix}$
	$0 \le z_4 \le 1 - z_1$				$z_3 = \eta_3$	$y_1 = \xi_1$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_2 y_2$	$\left[1-\xi_1\right]$
	$0 \le z_5 \le z_4$	$ \begin{bmatrix} 0 & 0 & 0 & 1 \\ 0 & 1 & 1 \end{bmatrix} \begin{bmatrix} 0 & 1 & 0 & 0 \\ 1 & 1 & 0 & 0 \end{bmatrix} \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix} $		$\begin{bmatrix} 0 & 1 & 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & -1 & 0 & 0 \end{bmatrix}$	$z_4 = \xi_2 - \eta_1$	$y_2 = \eta_2$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_2 y_3$	$v = \left \xi_1 - \eta_2 \right $
	$z_4 \le x_1 \le 1 - z_1$				$z_5 = \xi_3 - \eta_1$	$y_3 = \eta_3$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_2 y_4$	$\begin{bmatrix} \eta_3 \end{bmatrix}$

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4	$0 \le z_{1} \le 1$ $z_{1} \le z_{2} \le 1$ $0 \le z_{3} \le z_{2}$ $0 \le z_{4} \le z_{2} - z_{1}$ $0 \le z_{5} \le z_{4}$ $z_{2} - z_{1} \le x_{1} \le 1 - z_{1}$	$ \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \\ 1 \\ 1 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \\ 1 \\ 1 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \\ 1 \\ 1 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \\ 1 \\ 1 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \\ 1 \\ 1 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 1 \\ 1 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0$	1688	$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & -1 \\ 0 & 0 & 0 & 0 & 1 & -1 \end{bmatrix}$	$x_{1} = \xi_{1} - \eta_{3}$ $z_{1} = \eta_{3}$ $z_{2} = \xi_{2}$ $z_{3} = \xi_{3}$ $z_{4} = \eta_{1} - \eta_{3}$ $z_{5} = \eta_{2} - \eta_{3}$	$x_{1} = \xi_{1} - \eta_{3}$ $x_{2} = \eta_{1} - \eta_{3}$ $x_{3} = \eta_{2} - \eta_{3}$ $y_{1} = \xi_{1}$ $y_{2} = \xi_{2}$ $y_{3} = \xi_{3}$	$\xi_1 = x_1$ $\xi_2 = x_1 x_2$ $\xi_3 = x_1 x_2 x_3$ $\eta_1 = x_1 x_2 y_1$ $\eta_2 = x_1 x_2 y_1 y_2$ $\eta_3 = x_1 x_2 y_1 y_2 y_3$	$\xi_{1} = x_{1}$ $\xi_{2} = x_{2}$ $\xi_{3} = x_{2}y_{1}$ $\eta_{1} = x_{2}z_{1}$ $\eta_{2} = x_{2}z_{2}$ $\eta_{3} = x_{2}z_{3}$	$u = \begin{bmatrix} 1 - (\xi_1 - \eta_3) \\ \xi_1 - \eta_1 \\ \eta_2 - \eta_3 \end{bmatrix}$ $v = \begin{bmatrix} 1 - \xi_1 \\ \xi_1 - \xi_2 \\ \xi_2 \end{bmatrix}$
5	$0 \le z_1 \le 1$ $z_1 \le z_2 \le 1$ $0 \le z_3 \le z_2$ $z_2 - z_1 \le z_4 \le 1 - z_1$ $0 \le z_5 \le z_4$ $z_4 \le x_1 \le 1 - z_1$	$ \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \\ 0 \\ 0 \end{bmatrix} $	5058	$\begin{bmatrix} 1 & 0 & 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 & -1 & 0 \\ 0 & 1 & -1 & 0 & 0 & 0 \end{bmatrix}$		$x_{1} = \xi_{1} - \eta_{2}$ $x_{2} = \xi_{2} - \eta_{2}$ $x_{3} = \xi_{2} - \xi_{3}$ $y_{1} = \xi_{1}$ $y_{2} = \eta_{1}$ $y_{3} = \eta_{3}$	$\xi_{1} = x_{1}$ $\xi_{2} = x_{1}x_{2}$ $\xi_{3} = x_{1}x_{2}x_{3}$ $\eta_{1} = x_{1}x_{2}y_{1}$ $\eta_{2} = x_{1}x_{2}x_{3}y_{1}y_{2}$ $\eta_{3} = x_{1}x_{2}y_{1}y_{3}$	$\xi_{1} = x_{1}$ $\xi_{2} = x_{2}$ $\xi_{3} = x_{2}y_{1}$ $\eta_{1} = x_{2}z_{1}$ $\eta_{2} = x_{2}y_{1}z_{2}$ $\eta_{3} = x_{2}z_{1}w_{1}$	$u = \begin{bmatrix} 1 - (\xi_1 - \eta_2) \\ \xi_1 - \xi_2 \\ \xi_2 - \xi_3 \end{bmatrix}$ $v = \begin{bmatrix} 1 - \xi_1 \\ \xi_1 - \eta_1 \\ \eta_3 \end{bmatrix}$

Common Face

Relative coordinate transform: $(x_1, x_2, z_1, z_2, z_3, z_4) = (x_1, x_2, y_1 - x_1, y_2 - x_2, y_3, x_3)$

No.		$1, z_2, z_3, z_4) - (x_1, x_2, y_1 - x_1, y_2 - x_2, y_3, x_3)$ Corners	Idx	Mapping	(x,z)	(x,y)	Tensor-Product	ShunnHam	Reference
	$-1 \le z_1 \le 0$	$\begin{bmatrix} -1 \end{bmatrix} \begin{bmatrix} -1 \end{bmatrix} \begin{bmatrix} 0 \end{bmatrix}$		Γ ₁ 0 0 0 0 0 7	$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - \xi_1 \rceil$
	$-1 \le z_2 \le z_1$	$\begin{bmatrix} 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ -1 & -1 & -1 & -1 & -1 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$			$x_2 = \xi_2$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} -\xi_1 \\ \xi_1 - \xi_2 \end{bmatrix}$
1	$0 \le z_3 \le 1 + z_2$		23144	0 0 -1 1 0 0	$z_1 = -\xi_3 + \eta_1$	$x_3 = \xi_3 - \eta_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\left[\xi_3-\eta_3\right]$
1	$z_3 - z_2 \le z_4 \le 1$	0 1 0 1 00 0 0 1 0			$z_2 = -\xi_3 + \eta_1 - \eta_2$	$y_1 = \xi_1 - \xi_3 + \eta_1$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_3 y_1$	$[1-(\xi_1-\xi_3+\eta_1)]$
	$z_4 \le x_2 \le 1$				$z_3 = \eta_1 - \eta_2$	$y_2 = \xi_2 - \xi_3 + \eta_1 - \eta_2$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_3 y_2$	$v = \left[\begin{array}{c c} \xi_1 - \xi_2 + \eta_2 \end{array} \right]$
	$x_2 \le x_1 \le 1$				$z_4 = \xi_3 - \eta_3$	$y_3 = \eta_1 - \eta_2$	$\eta_3 = x_1 x_2 x_3 y_3$	$\eta_3 = x_3 z_1$	$\begin{bmatrix} & \eta_1 - \eta_2 & \end{bmatrix}$
	$-1 \le z_1 \le 0$	$\lceil -1 \rceil \lceil 0 \rceil$		[1 0 0 0 0 0]	$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - \xi_1 \rceil$
	$-1 \le z_2 \le z_1$	$\begin{bmatrix} 1 & 1 & 0 & 0 & 0 & 0 & 0 \\ -1 & -1 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$			$x_2 = \xi_2$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} -\zeta_1 \\ \xi_1 - \xi_2 \end{bmatrix}$
2	$0 \le z_3 \le 1 + z_2$		289	0 0 0 -1 1 0	$z_1 = -\eta_1 + \eta_2$	$x_3 = \xi_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} & & & & & \\ & & & & & \end{bmatrix}$
4	$0 \le z_4 \le z_3 - z_2$		209		$z_2 = -\xi_3 + \eta_2$	$y_1 = \xi_1 - \eta_1 + \eta_2$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_3 y_1$	$[1-(\xi_1-\eta_1+\eta_2)]$
	$z_3 - z_2 \le x_2 \le 1$			$ \left \begin{array}{cccccccccccccccccccccccccccccccccccc$	$z_3 = \eta_3$	$y_2 = \xi_2 - \xi_3 + \eta_2$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_3 y_2$	$v = \xi_1 - \xi_2 + \xi_3 - \eta_1 $
	$x_2 \le x_1 \le 1$				$z_4 = \xi_3$	$y_3 = \eta_3$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_3 y_3$	η_3
3	$-1 \le z_1 \le 0$	$\lceil -1 \rceil \lceil -1 \rceil \lceil -1 \rceil \lceil 0 \rceil$		[1 0 0 0 0 0]	$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$z1 \le z_2 \le 0$			$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & -1 & 1 & 0 & 0 \end{bmatrix}$	$x_2 = \xi_2 - \xi_3 + \eta_1$	$x_2 = \xi_2 - \xi_3 + \eta_1$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_1 - \xi_2 + \xi_3 - \eta_1 \end{bmatrix}$
	$0 \le z_3 \le 1 + z_1$		2545		$z_1 = -\xi_3 + \eta_3$	$x_3 = \eta_1 - \eta_2$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\left[\qquad \eta_1 - \eta_2 \qquad \right]$
'	$0 \le z_4 \le z_3 - z_2$		2040		$z_2 = -\eta_1 + \eta_3$	$y_1 = \xi_1 - \xi_3 + \eta_3$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_3 y_1$	$[1-(\xi_1-\xi_3+\eta_3)]$
	$z_3 - z_2 \le x_2 \le 1 + z_1 - z_2$			$ \left \begin{array}{cccccccccccccccccccccccccccccccccccc$	$z_3 = \eta_3$	$y_2 = \xi_2 - \xi_3 + \eta_3$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_3 y_2$	$v = \left \begin{array}{c} \xi_1 - \xi_2 \end{array} \right $
	$x_2 + z_2 - z_1 \le x_1 \le 1$				$z_4 = \eta_1 - \eta_2$	$y_3 = \eta_3$	$\eta_3 = x_1 x_2 x_3 y_1 y_3$	$\eta_3 = x_3 y_1 z_1$	$\begin{bmatrix} & \eta_3 & \end{bmatrix}$
	$-1 \le z_1 \le 0$	$\begin{bmatrix} -1 \end{bmatrix} \begin{bmatrix} -1 \end{bmatrix} \begin{bmatrix} 0 \end{bmatrix}$		[1 0 0 0 0 0]	$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$z1 \le z_2 \le 0$			$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & -1 & 1 & 0 & 0 \end{bmatrix}$	$x_2 = \xi_2 - \xi_3 + \eta_1$	$x_2 = \xi_2 - \xi_3 + \eta_1$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \left[\xi_1 - \xi_2 + \xi_3 - \eta_1 \right]$
	$0 \le z_3 \le 1 + z_1$		290	0 0 -1 0 1 0	$z_1 = -\xi_3 + \eta_2$	$x_3 = \eta_1$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$ig ig egin{array}{cccccccccccccccccccccccccccccccccccc$
4	$z_3 - z_2 \le z_4 \le 1 + z_1 - z_2$		290		$z_2 = -\eta_1 + \eta_2$	$y_1 = \xi_1 - \xi_3 + \eta_2$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_3 y_1$	$[1-(\xi_1-\xi_3+\eta_2)]$
	$z_4 \le x_2 \le 1 + z_1 - z_2$			$ \left \begin{array}{cccccccccccccccccccccccccccccccccccc$	$z_3 = \eta_2 - \eta_3$	$y_2 = \xi_2 - \xi_3 + \eta_2$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_3 y_2$	$v = \left \begin{array}{c} \xi_1 - \xi_2 \end{array} \right $
	$x_2 + z_2 - z_1 \le x_1 \le 1$				$z_4 = \eta_1$	$y_3 = \eta_2 - \eta_3$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_3 y_3$	$\left[\eta_2 - \eta_3 \right]$
	$0 \le z_1 \le 1$			[1 0 -1 1 0 0]	$x_1 = \xi_1 - \xi_3 + \eta_1$	$x_1 = \xi_1 - \xi_3 + \eta_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$[1 - (\xi_1 - \xi_3 + \eta_1)]$
	$z1 - 1 \le z_2 \le 0$	$egin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$		$\begin{bmatrix} 1 & 0 & 1 & 1 & 0 & 0 \\ 0 & 1 & -1 & 1 & 0 & 0 \end{bmatrix}$	$x_2 = \xi_2 - \xi_3 + \eta_1$	$x_2 = \xi_2 - \xi_3 + \eta_1$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_1 & \xi_3 & \xi_1 \\ \xi_1 & \xi_2 \end{bmatrix}$
5	$0 \le z_3 \le 1 - z_1 + z_2$		1782	0 0 1 -1 0 0	$z_1 = \xi_3 - \eta_1$	$x_3 = \eta_1 - \eta_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\left[\qquad \eta_1 - \eta_3 \qquad \right]$
"	$0 \le z_4 \le z_3 - z_2$		1782		$z_2 = -\eta_1 + \eta_2$	$y_1 = \xi_1$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_3 y_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$z_3 - z_2 \le x_2 \le 1 - z_1$			$\left \begin{array}{cccccccccccccccccccccccccccccccccccc$	$z_3 = \eta_2$	$y_2 = \xi_2 - \xi_3 + \eta_2$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_3 y_2$	$v = \xi_1 - \xi_2 + \xi_3 - \eta_2 $
	$x_2 \le x_1 \le 1 - z_1$				$z_4 = \eta_1 - \eta_3$	$y_3 = \eta_2$	$\eta_3 = x_1 x_2 x_3 y_1 y_3$	$\eta_3 = x_3 y_1 z_1$	$\lfloor \qquad \qquad \rfloor$

	0 < 1		I I			<i>*</i> * .	<i>*</i>	<u> </u>	
	$0 \le z_1 \le 1$	[0][0][0][0][0][0][1]		$\begin{bmatrix} 1 & 0 & -1 & 1 & 0 & 0 \end{bmatrix}$	$x_1 = \xi_1 - \xi_3 + \eta_1$	$x_1 = \xi_1 - \xi_3 + \eta_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$[1-(\xi_1-\xi_3+\eta_1)]$
	$z1 - 1 \le z_2 \le 0$	$\begin{bmatrix}0\\-1\end{bmatrix}\begin{bmatrix}0\\0\end{bmatrix}\begin{bmatrix}0\\0\end{bmatrix}\begin{bmatrix}0\\0\end{bmatrix}\begin{bmatrix}0\\0\end{bmatrix}\begin{bmatrix}0\\0\end{bmatrix}\begin{bmatrix}0\end{bmatrix}\begin{bmatrix}1\\0\end{bmatrix}$		0 1 -1 1 0 0	$x_2 = \xi_2 - \xi_3 + \eta_1$	$x_2 = \xi_2 - \xi_3 + \eta_1$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \left \begin{array}{cc} \xi_1 - \xi_2 \end{array} \right $
6	$0 \le z_3 \le 1 - z_1 + z_2$		163		$z_1 = \xi_3 - \eta_1$	$x_3 = \eta_1$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} & & \eta_1 & & \end{bmatrix}$
	$z_3 - z_2 \le z_4 \le 1 - z_1$			$\begin{bmatrix} 0 & 0 & 0 & -1 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$	$z_2 = -\eta_1 + \eta_2$	$y_1 = \xi_1$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_3 y_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$z_4 \le x_2 \le 1 - z_1$	$ \begin{bmatrix} 1 & 0 & 0 & 1 & 1 & 1 & 0 \\ 1 & 0 & 1 & 1 & 1 & 1 & 0 \end{bmatrix} $		$\left \begin{array}{ccccccc} 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 1 & 0 & 0 \end{array}\right $	$z_3 = \eta_3$	$y_2 = \xi_2 - \xi_3 + \eta_2$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_3 y_2$	$v = \xi_1 - \xi_2 + \xi_3 - \eta_2 $
	$x_2 \le x_1 \le 1 - z_1$				$z_4 = \eta_1$	$y_3 = \eta_3$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_1$	$\eta_3 = x_3 y_3$	$\begin{bmatrix} & \eta_3 & \end{bmatrix}$
	$0 \le z_1 \le 1$	$\lceil 0 \rceil \lceil 0 \rceil \lceil 0 \rceil \lceil 0 \rceil \lceil 1 \rceil \lceil 1 \rceil \lceil 1 \rceil$		[1 0 0 -1 0 0]	$x_1 = \xi_1 - \eta_1$	$x_1 = \xi_1 - \eta_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\left[1-(\xi_1-\eta_1)\right]$
	$0 \le z_2 \le z_1$			$\begin{bmatrix} 1 & 0 & 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & -1 & 0 & 0 \end{bmatrix}$	$x_2 = \xi_2 - \eta_1$	$x_2 = \xi_2 - \eta_1$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_1 & \xi_1 & \xi_2 \\ \xi_1 & \xi_2 \end{bmatrix}$
7	$0 \le z_3 \le z_2$		9		$z_1 = \eta_1$	$x_3 = \xi_3 - \eta_1$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} & \dot{\xi}_3 - \dot{\eta}_1 \end{bmatrix}$
'	$0 \le z_4 \le 1 - z_1$				$z_2 = \eta_2$	$y_1 = \xi_1$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_3 y_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$z_4 \le x_2 \le 1 - z_1$			$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & -1 \end{bmatrix}$	$z_3 = \eta_2 - \eta_3$	$y_2 = \xi_2 - \eta_1 + \eta_2$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_3 y_2$	$v = \xi_1 - \xi_2 + \eta_1 - \eta_2 $
	$x_2 \le x_1 \le 1 - z_1$				$z_4 = \xi_3 - \eta_1$	$y_3 = \eta_2 - \eta_3$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_3 y_3$	$\left[\begin{array}{ccc} \eta_2 - \eta_3 \end{array} \right]$
	$0 \le z_1 \le 1$			[1 0 0 0 1 0]	$x_1 = \xi_1 - \eta_2$	$x_1 = \xi_1 - \eta_2$	$\xi_1 = x_1$	$\xi_1 = x_1$	[1 (¢ m)]
	$0 \le z_2 \le z_1$	$\begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix}$		$\begin{bmatrix} 1 & 0 & 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 & -1 & 0 \end{bmatrix}$	$x_2 = \xi_2 - \eta_2$	$x_2 = \xi_2 - \eta_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} 1 - (\xi_1 - \eta_2) \\ \xi_1 - \xi_2 \end{bmatrix}$
	$z_2 \le z_3 \le 1 - z_1 + z_2$			$\begin{bmatrix} 0 & 1 & 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 \end{bmatrix}$	$z_1 = \eta_2$	$x_3 = \eta_1 - \eta_2$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{vmatrix} \alpha & \zeta_1 & \zeta_2 \\ \eta_1 - \eta_2 \end{vmatrix}$
8	$0 \le z_4 \le z_3 - z_2$		1	$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$	$z_2 = \eta_3$	$y_1 = \xi_1$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_3 y_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$z_3 - z_2 \le x_2 \le 1 - z_1$			0 0 1 0 -1 1	$z_3 = \xi_3 - \eta_2 + \eta_3$	$y_1 = \xi_1$ $y_2 = \xi_2 - \eta_2 + \eta_3$	$\eta_1 = x_1 x_2 x_3 y_1 $ $\eta_2 = x_1 x_2 x_3 y_1 y_2 $	$\eta_1 = x_3 y_2$	$v = \begin{bmatrix} \xi_1 - \xi_2 + \eta_2 - \eta_3 \end{bmatrix}$
	$x_2 \le x_2 \le 1 - z_1$ $x_2 \le x_1 \le 1 - z_1$			$\begin{bmatrix} 0 & 0 & 0 & 1 & -1 & 0 \end{bmatrix}$	$z_4 = \eta_1 - \eta_2$	$y_3 = \xi_3 - \eta_2 + \eta_3$ $y_3 = \xi_3 - \eta_2 + \eta_3$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_3 y_3$	$\begin{bmatrix} \xi_3 - \eta_2 + \eta_3 \end{bmatrix}$
	$0 \le z_1 \le 1$				$\frac{z_4 - \eta_1}{x_1 = \xi_1 - \eta_2}$	$\frac{y_3 - \xi_3 - \eta_2 + \eta_3}{x_1 = \xi_1 - \eta_2}$	$\xi_1 = x_1$	$\xi_1 = x_1$	F. (5)]
	$0 \le z_2 \le z_1$	$\begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix}$			$x_2 = \xi_2 - \eta_2$	$x_2 = \xi_2 - \eta_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$\begin{bmatrix} 1 - (\xi_1 - \eta_2) \end{bmatrix}$
	$z_2 \le z_3 \le 1 - z_1 + z_2$	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		$\left \begin{array}{cccccccccccccccccccccccccccccccccccc$	$z_1 = \eta_2$	$x_3 = \xi_3 - \eta_2$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	
9	$z_2 \le z_3 \le 1 - z_1 + z_2$ $z_3 - z_2 \le z_4 \le 1 - z_1$		2	$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 & -1 \end{bmatrix}$	-	$y_1 = \xi_1$		_	$\begin{bmatrix} & \xi_3 & \eta_2 & J \\ & 1 - \xi_1 & J \end{bmatrix}$
				$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & 0 & -1 \\ 0 & 0 & 0 & 1 & 0 & -1 \end{bmatrix}$	$z_2 = \eta_2 - \eta_3$		$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_3 y_1$	$v = \begin{bmatrix} 1 & \zeta_1 \\ \xi_1 - \xi_2 + \eta_3 \end{bmatrix}$
	$z_4 \le x_2 \le 1 - z_1$			$\begin{bmatrix} 0 & 0 & 1 & 0 & -1 & 0 \end{bmatrix}$	$z_3 = \eta_1 - \eta_3$	$y_2 = \xi_2 - \eta_3$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_3 y_2$	$\begin{bmatrix} \eta_1 - \eta_3 \end{bmatrix}$
-	$x_2 \le x_1 \le 1 - z_1 \\ -1 \le z_1 \le 0$				$z_4 = \xi_3 - \eta_2$ $x_1 = \xi_1$	$y_3 = \eta_1 - \eta_3$ $x_1 = \xi_1$	$\frac{\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3}{\xi_1 = x_1}$	$\eta_3 = x_3 y_3$ $\xi_1 = x_1$	
	$0 \le z_1 \le 0$ $0 \le z_2 \le 1 + z_1$	$\begin{bmatrix} -1 \end{bmatrix} \begin{bmatrix} 0 \end{bmatrix}$					-	_	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
					$x_2 = \xi_2 - \eta_1$	$x_2 = \xi_2 - \eta_1$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_1 - \xi_2 + \eta_1 \\ \xi_1 - \xi_2 \end{bmatrix}$
10	$0 \le z_3 \le z_2$		154	$\left \begin{array}{cccccccccccccccccccccccccccccccccccc$	$z_1 = -\eta_3$	$x_3 = \xi_3 - \eta_1$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} \xi_3 - \eta_1 \end{bmatrix}$
	$0 \le z_4 \le 1 + z_1 - z_2$			$\left[\begin{array}{cccccccccccccccccccccccccccccccccccc$	$z_2 = \eta_1 - \eta_3$	$y_1 = \xi_1 - \eta_3$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_3 y_1$	$v = \begin{bmatrix} 1 - (\xi_1 - \eta_3) \\ \xi_1 - \xi_2 \end{bmatrix}$
	$z_4 \le x_2 \le 1 + z_1 - z_2$			$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 1 & -1 & 0 & 0 \end{bmatrix}$	$z_3 = \eta_2 - \eta_3$	$y_2 = \xi_2 - \eta_3$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_3 y_2$	v =
	$x_2 + z_2 - z_1 \le x_1 \le 1$				$z_4 = \xi_3 - \eta_1$	$y_3 = \eta_2 - \eta_3$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_3 y_3$	[72 73]
	$-1 \le z_1 \le 0$	$\begin{bmatrix} -1 \end{bmatrix} \begin{bmatrix} 0 \end{bmatrix}$			$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$0 \le z_2 \le 1 + z_1$			0 1 0 0 -1 0	$x_2 = \xi_2 - \eta_2$	$x_2 = \xi_2 - \eta_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \left \xi_1 - \xi_2 + \eta_2 \right $
11	$z_2 \le z_3 \le 1 + z1$		154	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -1 \end{bmatrix}$	$z_1 = -\eta_3$	$x_3 = \eta_1 - \eta_2$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} \eta_1 - \eta_2 \end{bmatrix}$
	$0 \le z_4 \le z_3 - z_2$	$\left \begin{array}{c c c c c c c c c c c c c c c c c c c $		$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & -1 \\ 0 & 0 & 1 & 0 & 0 & 1 \end{bmatrix}$	$z_2 = \eta_2 - \eta_3$	$y_1 = \xi_1 - \eta_3$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_3 y_1$	$\left[1-(\xi_1-\eta_3)\right]$
	$z_3 - z_2 \le x_2 \le 1 + z_1 - z_2$			$\left \begin{array}{cccccccccccccccccccccccccccccccccccc$	$z_3 = \xi_3 - \eta_3$	$y_2 = \xi_2 - \eta_3$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_3 y_2$	$v = \begin{bmatrix} \xi_1 - \xi_2 \\ \xi_1 - \xi_2 \end{bmatrix}$
	$x_2 + z_2 - z_1 \le x_1 \le 1$				$z_4 = \eta_1 - \eta_2$	$y_3 = \xi_3 - \eta_3$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_3 y_3$	$\begin{bmatrix} \xi_3 - \eta_3 \end{bmatrix}$
	$-1 \le z_1 \le 0$	[-1] $[0]$ $[0]$ $[0]$ $[0]$ $[0]$		[1 0 0 0 0 0]	$x_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$0 \le z_2 \le 1 + z_1$			$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & -1 & 0 \end{bmatrix}$	$x_2 = \xi_2 - \eta_2$	$x_2 = \xi_2 - \eta_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \left \xi_1 - \xi_2 + \eta_2 \right $
12	$z_2 \le z_3 \le 1 + z1$		153	$\begin{bmatrix} 0 & 0 & 0 & 0 & -1 & 1 \end{bmatrix}$	$z_1 = -\eta_2 + \eta_3$	$x_3 = \xi_3 - \eta_2$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} \xi_3 - \eta_2 \end{bmatrix}$
12	$z3 - z2 \le z_4 \le 1 + z_1 - z_2$		100		$z_2 = \eta_3$	$y_1 = \xi_1 - \eta_2 + \eta_3$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_3 y_1$	$[1-(\xi_1-\eta_2+\eta_3)]$
	$z_4 \le x_2 \le 1 + z_1 - z_2$				$z_3 = \eta_1 - \eta_2 + \eta_3$	$y_2 = \xi_2 - \eta_2 + \eta_3$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_3 y_2$	$v = \left \begin{array}{cc} \xi_1 - \xi_2 \end{array} \right $
	$x_2 + z_2 - z_1 \le x_1 \le 1$				$z_4 = \xi_3 - \eta_2$	$y_3 = \eta_1 - \eta_2 + \eta_3$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_3 y_3$	$\begin{bmatrix} \eta_1 - \eta_2 + \eta_3 \end{bmatrix}$
	$0 \le z_1 \le 1$	[0] [0] [0] [0] [0] [0] [1] [1]		[1 0 0 0 -1 0]	$x_1 = \xi_1 - \eta_2$	$x_1 = \xi_1 - \eta_2$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\begin{bmatrix} 1-(\xi_1-\eta_2) \end{bmatrix}$
	$z_1 \le z_2 \le 1$	$\begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$		$\begin{bmatrix} 1 & 0 & 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & -1 & 0 & 0 \end{bmatrix}$	$x_2 = \xi_2 - \eta_1$	$x_2 = \xi_2 - \eta_1$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{vmatrix} 1 - (\xi_1 - \eta_2) \\ \xi_1 - \xi_2 + \eta_1 - \eta_2 \end{vmatrix}$
10	$0 \le z_3 \le z_2$			$\begin{bmatrix} 0 & 1 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 \end{bmatrix}$	$z_1 = \eta_2$	$x_3 = \xi_3 - \eta_1$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} \zeta_1 & \zeta_2 + \eta_1 & \eta_2 \\ \xi_3 - \eta_1 & \end{bmatrix}$
13	$0 \le z_4 \le 1 - z_2$		$\begin{vmatrix} 4 \end{vmatrix}$		$z_2 = \eta_1$	$y_1 = \xi_1$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_3 y_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$z_4 \le x_2 \le 1 - z_2$				$z_3 = \eta_3$	$y_2 = \xi_2$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_3 y_2$	$v = \left \xi_1 - \xi_2 \right $
	$x_2 + z_2 - z_1 \le x_1 \le 1 - z_1$				$z_4 = \xi_3 - \eta_1$	$y_3 = \eta_3$	$\eta_3 = x_1 x_2 x_3 y_1 y_3$	$\eta_3 = x_3 y_1 z_1$	$\begin{bmatrix} \eta_3 \end{bmatrix}$
	w ₂ + ~ ₂ ~ ₁ ⊇ w ₁ ⊇ 1 ~ ₁				~4 53 7/1	<i>გ</i> ე '/3	75 ~1~2~39193	13 - 239121	

14	$0 \le z_1 \le 1$ $z_1 \le z_2 \le 1$ $z_2 \le z_3 \le 1$ $0 \le z_4 \le z_3 - z_2$ $z_3 - z_2 \le x_2 \le 1 - z_2$ $x_2 + z_2 - z_1 \le x_1 \le 1 - z_1$	$\begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $	$\begin{bmatrix} 1 & 0 & 0 & 0 & -1 & 1 \\ 0 & 1 & 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & -1 & 0 \end{bmatrix}$	$x_{1} = \xi_{1} - \eta_{2} + \eta_{3}$ $x_{2} = \xi_{2} - \eta_{2}$ $z_{1} = \eta_{2} - \eta_{3}$ $z_{2} = \eta_{2}$ $z_{3} = \xi_{3}$ $z_{4} = \eta_{1} - \eta_{2}$	$x_{1} = \xi_{1} - \eta_{2} + \eta_{3}$ $x_{2} = \xi_{2} - \eta_{2}$ $x_{3} = \eta_{1} - \eta_{2}$ $y_{1} = \xi_{1}$ $y_{2} = \xi_{2}$ $y_{3} = \xi_{3}$	$\xi_1 = x_1$ $\xi_2 = x_1 x_2$ $\xi_3 = x_1 x_2 x_3$ $\eta_1 = x_1 x_2 x_3 y_1$ $\eta_2 = x_1 x_2 x_3 y_1 y_2$ $\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\xi_1 = x_1$ $\xi_2 = x_2$ $\xi_3 = x_3$ $\eta_1 = x_3 y_1$ $\eta_2 = x_3 y_2$ $\eta_3 = x_3 y_3$	$u = \begin{bmatrix} 1 - (\xi_1 - \eta_2 + \eta_3) \\ \xi_1 - \xi_2 + \eta_3 \\ \eta_1 - \eta_2 \end{bmatrix}$ $v = \begin{bmatrix} 1 - \xi_1 \\ \xi_1 - \xi_2 \\ \xi_3 \end{bmatrix}$
15	$0 \le z_1 \le 1$ $z_1 \le z_2 \le 1$ $z_2 \le z_3 \le 1$ $z_3 - z_2 \le z_4 \le 1 - z_2$ $z_4 \le x_2 \le 1 - z_2$ $x_2 + z_2 - z_1 \le x_1 \le 1 - z_1$	$\begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $	$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & -1 \\ 0 & 1 & 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 & -1 & 0 \end{bmatrix}$	$x_{1} = \xi_{1} - eta_{3}$ $x_{2} = \xi_{2} - \eta_{2}$ $z_{1} = \eta_{3}$ $z_{2} = \eta_{2}$ $z_{3} = \eta_{1}$ $z_{4} = \xi_{3} - \eta_{2}$	$x_{1} = \xi_{1} - \eta_{3}$ $x_{2} = \xi_{2} - \eta_{2}$ $x_{3} = \xi_{1} - \eta_{2}$ $y_{1} = \xi_{1}$ $y_{2} = \xi_{2}$ $y_{3} = \eta_{1}$	$\begin{cases} \xi_1 = x_1 \\ \xi_2 = x_1 x_2 \\ \xi_3 = x_1 x_2 x_3 \\ \eta_1 = x_1 x_2 x_3 y_1 \\ \eta_2 = x_1 x_2 x_3 y_1 y_2 \\ \eta_3 = x_1 x_2 x_3 y_1 y_2 y_3 \end{cases}$	$\xi_1 = x_1$ $\xi_2 = x_2$ $\xi_3 = x_3$ $\eta_1 = x_3 y_1$ $\eta_2 = x_3 y_2$ $\eta_3 = x_3 y_3$	$u = \begin{bmatrix} 1 - (\xi_1 - \eta_3) \\ \xi_1 - \xi_2 + \eta_2 - \eta_3 \\ \xi_3 - \eta_2 \end{bmatrix}$ $v = \begin{bmatrix} 1 - \xi_1 \\ \xi_1 - \xi_2 \\ \eta_1 \end{bmatrix}$

Common Volume

Relativ coordinate transform: $(x_1, x_2, x_3, z_1, z_2, z_3) = (x_1, x_2, x_3, y_1 - x_1, y_2 - x_2, y_3 - x_3)$ Reference A: $(\hat{x}, \hat{z}) = (x, -z)$, Reference B: $(\hat{x}, \hat{z}) = (x + z, z)$

No.	Domain $(x, z) = (x, -z)$, Reference B	Corners	Idx	Mapping	(\hat{x},\hat{z})	(x,y)	Tensor-Product	ShunnHam	Reference A	Reference B
	$0 \le \hat{z}_1 \le 1$	[0] [0] [0] [0] [0] [1]		[1 0 0 0 0 0]	$\hat{x}_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - \xi_1 \rceil \rceil$	$\lceil 1 - (\xi_1 - \eta_2 + \eta_3) \rceil$
	$\hat{z}_1 \le \hat{z}_2 \le 1$		2	$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 \end{bmatrix}$	$\hat{x}_2 = \xi_2$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} 1 & \zeta_1 \\ \xi_1 - \xi_2 \end{bmatrix}$	$u = \begin{bmatrix} 1 & (\xi_1 & \eta_2 + \eta_3) \\ \xi_1 - \xi_2 + \eta_3 \end{bmatrix}$
1/18	$\hat{z}_2 \le \hat{z}_3 \le 1$			0 0 1 0 0 0	$\hat{x}_3 = \xi_3$	$x_3 = \xi_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\begin{bmatrix} \vdots & \vdots & \vdots \\ \xi_3 & \end{bmatrix}$	$\begin{bmatrix} & & & & & & & \\ & & & & & & \\ & & & & $
1/10	$\hat{z}_3 \le \hat{x}_3 \le 1$			0 0 0 0 1 -1	$\hat{z}_1 = \eta_2 - \eta_3$	$y_1 = \xi_1 - \eta_2 + \eta_3$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_4$	$[1-(\xi_1-\eta_2+\eta_3)]$	$\lceil 1 - \xi_1 \rceil$
	$\hat{x}_3 \le \hat{x}_2 \le 1$	$ \begin{bmatrix} 0 & 0 & 1 & 1 & 1 & 1 & 1 \\ 0 & 1 & 1 & 1 & 1 & 1 \end{bmatrix} $		$\left[\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\hat{z}_2 = \eta_2$	$y_2 = \xi_2 - \eta_2$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_4 y_1$	$v = \begin{cases} \xi_1 - \xi_2 + \eta_3 \\ \xi_1 - \xi_2 + \eta_3 \end{cases}$	$v = \left \begin{array}{c} \xi_1 - \xi_2 \\ \epsilon \end{array} \right $
	$\hat{x}_2 \le \hat{x}_1 \le 1$				$\hat{z}_3 = \eta_1$	$y_3 = \xi_3 - \eta_1$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_4 y_2$	$\begin{bmatrix} & \xi_3 - \eta_1 \end{bmatrix}$	[ξ ₃]
	$0 \le \hat{z}_1 \le 1$	$\lceil 0 \rceil \lceil 1 \rceil \lceil 1 \rceil$		[1 0 0 0 0 0]	$\hat{x}_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$	$[1 - (\xi_1 - \eta_3)]$
	$\hat{z}_1 \le \hat{z}_2 \le 1$			$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 \end{bmatrix}$	$\hat{x}_2 = \xi_2$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \begin{bmatrix} \xi_1 - \xi_2 \end{bmatrix}$	$u = \left[\xi_1 - \xi_2 + \eta_1 - \eta_3 \right]$
2/17	$0 \le \hat{z}_3 \le \hat{z}_2$		9	0 0 1 -1 1 0	$\hat{x}_3 = \xi_3 - \eta_1 + \eta_2$	$x_3 = \xi_3 - \eta_1 + \eta_2$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\left[\xi_3 - \eta_1 + \eta_2\right]$	$\begin{bmatrix} & & & & & \\ & & & & & \end{bmatrix}$
2/11	$\hat{z}_3 \le \hat{x}_3 \le 1 - \hat{z}_2 + \hat{z}_3$				$\hat{z}_1 = \eta_3$	$y_1 = \xi_1 - \eta_3$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_4$	$\left[1 - (\xi_1 - \eta_3) \right]$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$\hat{x}_3 - \hat{z}_3 + \hat{z}_2 \le \hat{x}_2 \le 1$	$ \begin{bmatrix} 0 & 0 & 1 & 1 & 1 & 1 & 1 & 1 \\ 0 & 1 & 1 & 1 & 1 & 1 & 1 \end{bmatrix} $		$\begin{bmatrix} 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 \end{bmatrix}$	$\hat{z}_2 = \eta_1$	$y_2 = \xi_2 - \eta_1$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_4 y_1$	$v = \begin{bmatrix} \xi_1 - \xi_2 + \eta_1 - \eta_3 \end{bmatrix}$	$v = \begin{bmatrix} \xi_1 - \xi_2 \\ \xi_2 \end{bmatrix}$
	$\hat{x}_2 \le \hat{x}_1 \le 1$				$\hat{z}_3 = \eta_2$	$y_3 = \xi_3 - \eta_1$	$\eta_3 = x_1 x_2 x_3 y_1 y_3$	$\eta_3 = x_4 z_1$	$\begin{bmatrix} & \xi_3 - \eta_1 \end{bmatrix}$	$\lfloor \xi_3 - \eta_1 + \eta_2 \rfloor$
	$0 \le \hat{z}_1 \le 1$	[0] [0] [0] [0] [0] [1]		[1 0 0 0 0 0]	$\hat{x}_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\lceil 1 - \xi_1 \rceil$	$\begin{bmatrix} 1-(\xi_1-\eta_3) \end{bmatrix}$
	$\hat{z}_1 \le \hat{z}_2 \le 1$			$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 \end{bmatrix}$	$\hat{x}_2 = \xi_2$	$x_2 = \xi_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \left \xi_1 - \xi_2 \right $	$u = \left[\xi_1 - \xi_2 + \eta_2 - \eta_3 \right]$
3/16	$\hat{z}_z - 1 \le \hat{z}_3 \le 0$	$egin{bmatrix} -1 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$	151	$\begin{bmatrix} 0 & 0 & 1 & -1 & 0 & 0 \end{bmatrix}$	$\hat{x}_3 = \xi_3 - \eta_1$	$x_3 = \xi_3 - \eta_1$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\lfloor \xi_3 - \eta_1 \rfloor$	$\begin{bmatrix} \xi_3 - \eta_2 \end{bmatrix}$
3/10	$0 \le \hat{x}_3 \le 1 - \hat{z}_2 + \hat{z}_3$		101	0 0 0 0 0 1	$\hat{z}_1 = \eta_3$	$y_1 = \xi_1 - \eta_3$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_4$	$\left[1 - (\xi_1 - \eta_3) \right]$	$\left[1-\xi_1\right]$
	$\hat{x}_3 - \hat{z}_3 + \hat{z}_2 \le \hat{x}_2 \le 1$	$egin{array}{ c c c c c c c c c c c c c c c c c c c$	'	$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & -1 & 1 & 0 \end{bmatrix}$	$\hat{z}_2 = \eta_2$	$y_2 = \xi_2 - \eta_2$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_4 y_1$	$v = \begin{bmatrix} \xi_1 - \xi_2 + \eta_2 - \eta_3 \\ \xi_3 - \eta_2 \end{bmatrix}$	$v = \begin{bmatrix} \xi_1 - \xi_2 \\ \xi_1 - \xi_2 \end{bmatrix}$
	$\hat{x}_2 \le \hat{x}_1 \le 1$				$\hat{z}_3 = -\eta_1 + \eta_2$	$y_3 = \xi_3 - \eta_2$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_4 y_2$		$\lfloor \xi_3 - \eta_1 \rfloor$
	$0 \le \hat{z}_1 \le 1$	[0] [0] [0] [0] [0] [1] [1]		[1 0 0 0 0 0]	$\hat{x}_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$	$\left[1-(\xi_1-\eta_2)\right]$
	$0 \le \hat{z}_2 \le \hat{z}_1$			$\begin{bmatrix} 0 & 1 & 0 & 0 & -1 & 1 \end{bmatrix}$	$\hat{x}_2 = \xi_2 - \eta_2 + \eta_3$	$x_2 = \xi_2 - \eta_2 + \eta_3$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \left \xi_1 - \xi_2 + \eta_2 - \eta_3 \right $	$u = \begin{bmatrix} \xi_1 - \xi_2 \end{bmatrix}$
4/15	$\hat{z}_2 \le \hat{z}_3 \le 1 - \hat{z}_1 + \hat{z}_2$		1	0 0 1 0 -1 1	$\hat{x}_3 = \xi_3 - \eta_2 + \eta_3$	$x_3 = \xi_3 - \eta_2 + \eta_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\left[\xi_3 - \eta_2 + \eta_3 \right]$	$\begin{bmatrix} \xi_3 - \eta_1 \end{bmatrix}$
1/10	$\hat{z}_3 \le \hat{x}_3 \le 1 - \hat{z}_1 + \hat{z}_2$		1	0 0 0 0 1 0	$\hat{z}_1 = \eta_2$	$y_1 = \xi_1 - \eta_2$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_4$	$[1-(\xi_1-\eta_2)]$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$\hat{x}_3 \le \hat{x}_2 \le 1 - \hat{z}_1 + \hat{z}_2$	$ \begin{bmatrix} 0 & 0 & 1 & 1 & 1 & 1 & 0 & 1 \\ 0 & 1 & 1 & 1 & 1 & 1 & 1 \end{bmatrix} $		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 1 & -1 & 1 \end{bmatrix}$	$\hat{z}_2 = \eta_3$	$y_2 = \xi_2 - \eta_2$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_4 y_1$	$v = \begin{bmatrix} \xi_1 - \xi_2 \end{bmatrix}$	$v = \xi_1 - \xi_2 + \eta_2 - \eta_3 $
	$\hat{x}_2 - \hat{z}_2 + \hat{z}_1 \le \hat{x}_1 \le 1$				$\hat{z}_3 = \eta_1 - \eta_2 + \eta_3$	$y_3 = \xi_3 - \eta_1$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_4 y_2$	$\begin{bmatrix} \xi_3 - \eta_1 \end{bmatrix}$	$\begin{bmatrix} \xi_3 - \eta_2 + \eta_3 \end{bmatrix}$
	$0 \le \hat{z}_1 \le 1$	$\lceil 0 \rceil \lceil 0 \rceil \lceil 0 \rceil \lceil 0 \rceil \lceil 1 \rceil \lceil 1 \rceil \lceil 1 \rceil$		[1 0 0 0 0 0]	$\hat{x}_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$	$\lceil 1 - (\xi_1 - \eta_1) \rceil$
	$0 \le \hat{z}_2 \le \hat{z}_1$			$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & -1 & 1 & 0 \end{bmatrix}$	$\hat{x}_2 = \xi_2 - \eta_1 + \eta_2$	$x_2 = \xi_2 - \eta_1 + \eta_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	$u = \left \xi_1 - \xi_2 + \eta_1 - \eta_2 \right $	$u = \begin{bmatrix} \xi_1 - \xi_2 \end{bmatrix}$
5/14	$0 \le \hat{z}_3 \le \hat{z}_2$		1	$\begin{bmatrix} 0 & 0 & 1 & -1 & 0 & 1 \end{bmatrix}$	$\hat{x}_3 = \xi_3 - \eta_1 + \eta_3$	$x_3 = \xi_3 - \eta_1 + \eta_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$	$\left[\xi_3 - \eta_1 + \eta_3 \right]$	$\begin{bmatrix} \xi_3 - \eta_1 \end{bmatrix}$
0/14	$\hat{z}_3 \le \hat{x}_3 \le 1 - \hat{z}_1 + \hat{z}_3$		•	0 0 0 1 0 0	$\hat{z}_1 = \eta_1$	$y_1 = \xi_1 - \eta_1$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_4$	$\left[1-(\xi_1-\eta_1)\right]$	$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$
	$\hat{x}_3 - \hat{z}_3 + \hat{z}_2 \le \hat{x}_2 \le 1 - \hat{z}_1 + \hat{z}_2$	$ \begin{bmatrix} 0 & 0 & 1 & 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 1 & 1 & 1 & 1 \end{bmatrix} $		$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$	$\hat{z}_2 = \eta_2$	$y_2 = \xi_2 - \eta_1$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_4 y_1$	$v = \begin{bmatrix} \xi_1 - \xi_2 \end{bmatrix}$	$v = \begin{bmatrix} \xi_1 - \xi_2 + \eta_1 - \eta_2 \end{bmatrix}$
	$\hat{x}_2 - \hat{z}_2 + \hat{z}_1 \le \hat{x}_1 \le 1$				$\hat{z}_3 = \eta_3$	$y_3 = \xi_3 - \eta_1$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_4 y_2$	$\begin{bmatrix} \xi_3 - \eta_1 \end{bmatrix}$	$\begin{bmatrix} & & & & & & \\ & & & & & \\ & & & & & \end{bmatrix}$

	$0 \le \hat{z}_1 \le 1$	[0] [0] [0] [0] [0] [1] [1]		[1 0 0 0 0 0]	$\hat{x}_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$		$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$	$\Gamma 1 - (\xi_1)$	$\lfloor -\eta_2 ceil$
	$0 \le \hat{z}_2 \le \hat{z}_1$			$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & -1 \end{bmatrix}$	$\hat{x}_2 = \xi_2 - \eta_3$	$x_2 = \xi_2 - \eta_3$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	u =	$ \xi_1 - \xi_2 + \eta_3 $	$u = \begin{bmatrix} \xi_1 \end{bmatrix}$	
6/13	$\hat{z}_1 - 1 \le \hat{z}_3 \le 0$	-1 0 0 0 0 0 0	152	0 0 1 -1 0 0	$\hat{x}_3 = \xi_3 - \eta_1$	$x_3 = \xi_3 - \eta_1$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$		$\begin{bmatrix} \xi_3 - \eta_1 \end{bmatrix}$	ξ_3 -	- η_2
0/13	$0 \le \hat{x}_3 \le 1 - \hat{z}_1 + \hat{z}_3$		102	0 0 0 0 1 0	$\hat{z}_1 = \eta_2$	$y_1 = \xi_1 - \eta_2$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_4$		$\lceil 1 - (\xi_1 - \eta_2) \rceil$		ξ_1
	$\hat{x}_3 - \hat{z}_3 + \hat{z}_2 \le \hat{x}_2 \le 1 - \hat{z}_1 + \hat{z}_2$			$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & -1 & 1 & 0 \end{bmatrix}$	$\hat{z}_2 = \eta_2 - \eta_3$	$y_2 = \xi_2 - \eta_2$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_4 y_1$	v =	$\xi_1 - \xi_2$	$v = \begin{cases} \xi_1 - \xi_2 \end{cases}$	
	$\hat{x}_2 - \hat{z}_2 + \hat{z}_1 \le \hat{x}_1 \le 1$				$\hat{z}_3 = -\eta_1 + \eta_2$	$y_3 = \xi_3 - \eta_2$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_4 y_2$		$\begin{bmatrix} \xi_3 - \eta_2 \end{bmatrix}$	Γ ζ3 —	$\cdot \eta_1$
	$0 \le \hat{z}_1 \le 1$	$\lceil 0 \rceil \lceil 1 \rceil$		$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$	$\hat{x}_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$		$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$	Γ1 — (<i>ξ</i> 1	$[-\eta_2+\eta_3]$
	$\hat{z}_1 - 1 \le \hat{z}_2 \le 0$	$\begin{vmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{vmatrix}$			$\hat{x}_2 = \xi_2 - \eta_1 + \eta_3$	$x_2 = \xi_2 - \eta_1 + \eta_3$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	u =	$\left \xi_1 - \xi_2 + \eta_1 - \eta_3 \right $		$\xi_1 - \xi_2$
7/12	$0 \le \hat{z}_3 \le 1 - \hat{z}_1 + \hat{z}_2$		152	0 0 1 -1 0 1	$\hat{x}_3 = \xi_3 - \eta_1 + \eta_3$	$x_3 = \xi_3 - \eta_1 + \eta_3$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$		$\begin{bmatrix} \xi_3 - \eta_1 + \eta_3 \end{bmatrix}$		
1/12	$\hat{z}_3 \le \hat{x}_3 \le 1 - \hat{z}_1 + \hat{z}_2$		102	$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & -1 \end{bmatrix}$	$\hat{z}_1 = \eta_2 - \eta_3$	$y_1 = \xi_1 - \eta_2 + \eta_3$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_4$		$\left[1 - (\xi_1 - \eta_2 + \eta_3)\right]$	[1	$-\xi_1$
	$\hat{x}_3 \le \hat{x}_2 \le 1 - \hat{z}_1 + \hat{z}_2$			$\begin{bmatrix} 0 & 0 & 0 & -1 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$	$\hat{z}_2 = -\eta_1 + \eta_2$	$y_2 = \xi_2 - \eta_2 + \eta_3$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_4 y_1$	v =	$\xi_1 - \xi_2$	$v = \left \xi_1 - \xi_2 \right $	
	$\hat{x}_2 - \hat{z}_2 + \hat{z}_1 \le \hat{x}_1 \le 1$			$[0 \ 0 \ 0 \ 0 \ 0 \ 1]$	$\hat{z}_3 = \eta_3$	$y_3 = \xi_3 - \eta_1$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_4 y_2$		$\begin{bmatrix} \xi_3 - \eta_1 \end{bmatrix}$	L ξ ₃ -	$-\eta_1 + \eta_3$
	$0 \le \hat{z}_1 \le 1$			[1 0 0 0 0 0]	$\hat{x}_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$		$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$	Γ 1 – ($(\xi_1 - \eta_3)$
	$\hat{z}_1 - 1 \le \hat{z}_2 \le 0$	$\begin{vmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 \end{vmatrix}$		$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & -1 & 0 & 0 \end{bmatrix}$	$\hat{x}_2 = \xi_2 - \eta_1$	$x_2 = \xi_2 - \eta_1$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	u =	$u = \begin{vmatrix} \xi_1 - \xi_2 + \eta_1 \end{vmatrix}$	I	$\frac{(\xi_1 - \eta_3)}{1 - \xi_2}$
8/11	$\hat{z}_2 \le \hat{z}_3 0$	$\begin{vmatrix} -1 & 0 & 0 & 0 & 0 & 0 & 0 \end{vmatrix}$	301	$\begin{bmatrix} 0 & 0 & 1 & -1 & 0 & 0 \end{bmatrix}$	$\hat{x}_3 = \xi_3 - \eta_1$	$x_3 = \xi_3 - \eta_1$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$		$\begin{bmatrix} \xi_3 - \eta_1 \end{bmatrix}$		$\left[1+\eta_2-\eta_3\right]$
0/11	$0 \le \hat{x}_3 \le 1 - \hat{z}_1 + \hat{z}_2$		301	0 0 0 0 0 1	$\hat{z}_1 = \eta_3$	$y_1 = \xi_1 - \eta_3$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_4$		$\left[1 - (\xi_1 - \eta_3) \right]$	\[\begin{array}{cccccccccccccccccccccccccccccccccccc	ξ_1
	$\hat{x}_3 \le \hat{x}_2 \le 1 - \hat{z}_1 + \hat{z}_2$			$\begin{bmatrix} 0 & 0 & 0 & -1 & 0 & 1 \\ 0 & 0 & 0 & 0 & -1 & 1 \end{bmatrix}$	$\hat{z}_2 = -\eta_1 + \eta_3$	$y_2 = \xi_2 - \eta_3$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_4 y_1$	v =	$\xi_1 - \xi_2$	$v = \left \xi_1 - \xi_2 \right $	
	$\hat{x}_2 - \hat{z}_2 + \hat{z}_1 \le \hat{x}_1 \le 1$				$\hat{z}_3 = -\eta_2 + \eta_3$	$y_3 = \xi_3 - \eta_1 + \eta_2 - \eta_3$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_4 y_2$		$\lfloor \xi_3 - \eta_1 + \eta_2 - \eta_3 \rfloor$	L ξ ₃ -	$\cdot \eta_1$
	$0 \le \hat{z}_1 \le 1$	$\lceil 0 \rceil \lceil 1 \rceil$		[1 0 0 0 0 0]	$\hat{x}_1 = \xi_1$	$x_1 = \xi_1$	$\xi_1 = x_1$	$\xi_1 = x_1$		$\begin{bmatrix} 1-\xi_1 \end{bmatrix}$	Γ1 — (<i>ξ</i> 1	$[1-\eta_2+\eta_3]$
	$\hat{z}_1 - 1 \le \hat{z}_2 \le 0$	$\begin{vmatrix} 0 \\ -1 \end{vmatrix} \begin{vmatrix} 0 \\ 0 \end{vmatrix} \begin{vmatrix} 1 \\ 0 \end{vmatrix}$		$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & -1 & 0 \end{bmatrix}$	$\hat{x}_2 = \xi_2 - \eta_2$	$x_2 = \xi_2 - \eta_2$	$\xi_2 = x_1 x_2$	$\xi_2 = x_2$	u =	$ \xi_1 - \xi_2 + \eta_2 $		$\xi_1 - \xi_2$
9/10	$\hat{z}_1 - 1 \le \hat{z}_3 \hat{z}$	$egin{array}{ c c c c c c c c c c c c c c c c c c c$	302	0 0 1 -1 0 0	$\hat{x}_3 = \xi_3 - \eta_1$	$x_3 = \xi_3 - \eta_1$	$\xi_3 = x_1 x_2 x_3$	$\xi_3 = x_3$		$\begin{bmatrix} \xi_3 - \eta_1 \end{bmatrix}$		$-\eta_2 + \eta_3$
9/10	$0 \le \hat{x}_3 \le 1 - \hat{z}_1 + \hat{z}_3$		302	$\begin{bmatrix} 0 & 0 & 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & 0 & 1 & -1 \end{bmatrix}$	$\hat{z}_1 = \eta_2 - \eta_3$	$y_1 = \xi_1 - \eta_2 + \eta_3$	$\eta_1 = x_1 x_2 x_3 y_1$	$\eta_1 = x_4$		$\left[1 - (\xi_1 - \eta_2 + \eta_3)\right]$	[1-	*
	$\hat{x}_3 - \hat{z}_3 + \hat{z}_2 \le \hat{x}_2 \le 1 - \hat{z}_1 + \hat{z}_2$			$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & 0 & -1 & 1 & -1 \end{bmatrix}$	$\hat{z}_2 = -\eta_3$	$y_2 = \xi_2 - \eta_2 + \eta_3$	$\eta_2 = x_1 x_2 x_3 y_1 y_2$	$\eta_2 = x_4 y_1$	v =	$\xi_1 - \xi_2$	$v = \begin{cases} \xi_1 - \xi_2 \end{cases}$	
	$\hat{x}_2 - \hat{z}_2 + \hat{z}_1 \le \hat{x}_1 \le 1$				$\hat{z}_3 = -\eta_1 + \eta_2 - \eta_3$	$y_3 = \xi_3 - \eta_2 - \eta_3$	$\eta_3 = x_1 x_2 x_3 y_1 y_2 y_3$	$\eta_3 = x_4 y_2$		$\begin{bmatrix} \xi_3 - \eta_2 + \eta_3 \end{bmatrix}$	[ξ ₃ –	$\cdot \eta_1$