

Block Structured Mesh

BlockMesh.cs

Two 2nd rank tensors serve as storage for node variable values (node vars):

$\mathbf{u}_{\triangleright}$ with components $u_{\triangleright}^{\delta l}$	free node vars ,
$\mathbf{u}_{\triangleleft}$ with components $u_{\triangleleft}^{\delta l}$	constrained node vars .

For both tensors the first slot's dimension is N while the second slot's dimension is m . Components $u^{\delta l}$ are mutually exclusive across the two tensors - if the component $u^{5,4}$ appears in $\mathbf{u}_{\triangleright}$, it cannot appear in $\mathbf{u}_{\triangleleft}$ because a variable is either constrained or it isn't. The sum of the two tensors thus produces a tensor which holds all node vars:

$$\mathbf{u}_{\bowtie} = \mathbf{u}_{\triangleright} + \mathbf{u}_{\triangleleft} \qquad \text{all} = \text{free} + \text{constrained} .$$

A third 2nd rank tensor stores all forcing vector values:

$$\mathbf{f}_{\bowtie} \qquad \text{forcing vars} .$$

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