1.1. Nomenclature

Models

Ω_V	domain associated with the model V, $V = G, M$ where G signifies the geometric model and M signifies the mesh model
$\bar{\Omega}_V$	the closure of the domain associated with the model V, $V = G, M$

Topological entities

V_i^d	the ith entity of dimension d in model V. Shorthand for $V\{V^d\}_i$
$\partial(V_i^d)$	the entities on the boundary of V_i^d
$\bar{V}_i^d$	closure of topological entity defined as $V_i^d \cup \partial(V_i^d)$
$\sqsubset$	classification symbol used to indicate the association of one or more entities from the mesh, M, with an entity in the geometric model, G

Groups

$\{V^d\}$	unordered group of topological entities of dimension d in model V
$\lfloor V^d \rfloor$	ordered group of topological entities of dimension d in model V
$[V^d]$	cyclically ordered group of topological entities of dimension d in model V
$\langle V^d \rangle$	a group where the ordering is unspecified (ordering is one of: unordered, ordered or cyclically ordered)
φ_i	ith topological entity in group φ, where φ is any one of the groups above

Adjacency operations

$\varphi\langle V^d \rangle$	the set of entities of dimension d in model V that are adjacent to, or contained in φ. φ may be a single entity, V_i^d or $\langle V^d \rangle_i$, a group of entities, $\langle V^d \rangle$ (possibly a group resulting from another adjacency operation), or a model V
$\varphi\langle V_{\pm}^d \rangle$	an adjacency relation with directional use information associated with each entity. The $\pm$ indicates the directional use of each entity. A $+$ indicates use in the same direction as the entity definition, a $-$ indicates use in the opposite direction

Examples

$V\{V^d\}$	all of the entities of order d in model V
$V_i^{d_i}\{V^{d_j}\}$	the unordered group of topological entities of dimension d_j that are adjacent to the entity $V_i^{d_i}$ in model V
$V_k^{d_i}\{V^{d_j}\}_i$	the ith member of the unordered group of topological entities of dimension d_j that are adjacent to the entity $V_{k'}^{d_i}$ in model V

The adjacency notation is evaluated from left to right, for example:
$V_i^3\{V^0\}\{V^3\}_j$ is found by first finding $\varphi = V_i^3\{V^0\}$ and then the jth member of $\varphi\{V^3\}$