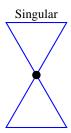
Observations on Meshes

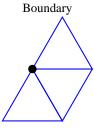
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1 Motivation

Manifold meshes are important for many purposes including physical simulation.







1.1 Triangle Meshes

How to classify a vertex based on the number of incident faces and edges.

Interior Vertex: numEdges = numFaces

Boundary Vertex: numEdges = numFaces + 1 or numEdgesOpen = 2

Otherwise vertex is singular.

1.2 Tetrahedral Meshes

There are analogous formulas for tetrahedral meshes.

Interior Vertex: numFaces = 2 * numTets

Boundary Vertex: numFaces = 2 * numTets + 1

Otherwise vertex is singular.

2 References

- [Gueziec et. al] Converting Sets of Polygons to Manifold Surfaces by Cutting and Stitching
 - (http://mesh.brown.edu/taubin/pdfs/gueziec-etal-vis98.pdf