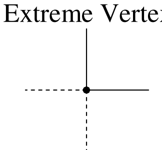
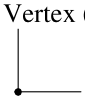
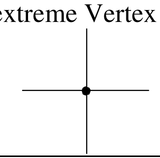
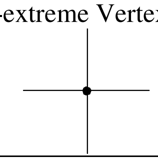
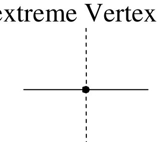
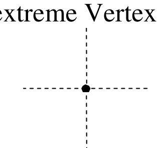
Appendix F
Characterization of Extreme Vertices According Their Incident Odd/Even Edges and Relating Them With Other Edges' Characterizations

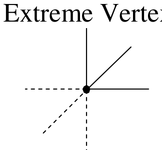
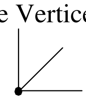
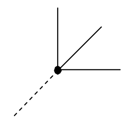
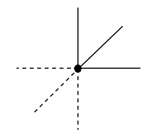
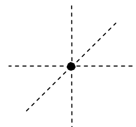
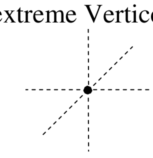
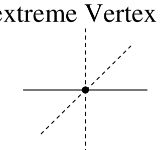
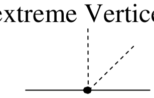
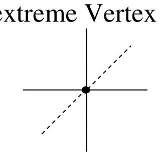
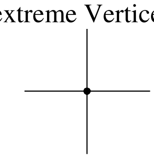
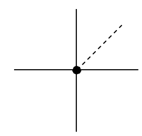
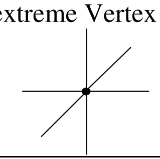
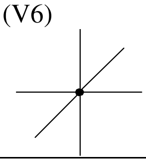
Property F.1: By **Property D.1** we have that an odd edge is equivalent to a manifold edge in the 1D-OPP's. By considering such equivalence we obtain the following relation between vertices described through odd edges and vertices described through manifold edges (these last vertices were previously identified in [Aguilera98]):

Vertices characterized by their incident odd edges (: Odd edge)	**Vertices characterized by their incident manifold edges (: Manifold edge)**
Extreme Vertex	Extreme Vertex
Non-extreme Vertex	Non-extreme Vertex

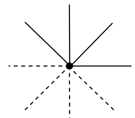
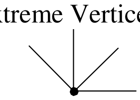
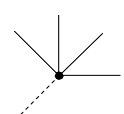
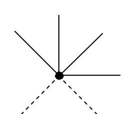
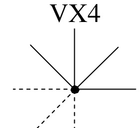
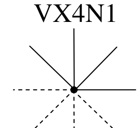
Property F.2: By **Property D.2** we have that an odd edge is equivalent to a manifold edge in the 2D-OPP's. Moreover, by the same property, an even edge is equivalent to a non-valid edge. By considering such equivalences we obtain the following relation between vertices described through odd/even edges and vertices described through manifold edges (these last vertices were previously identified in [Aguilera98]):

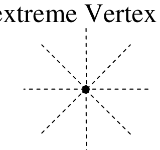
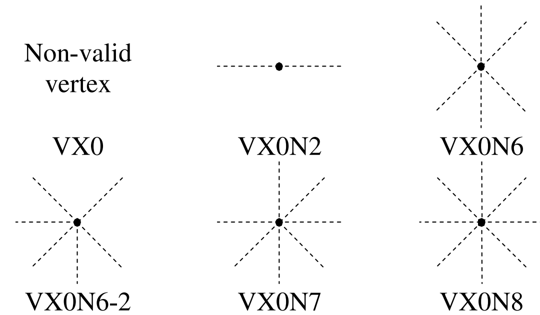
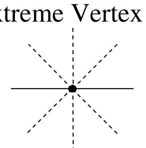
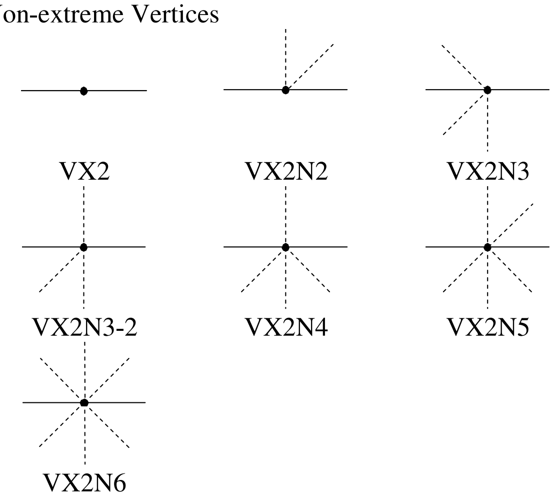
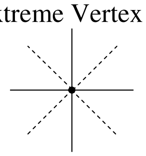
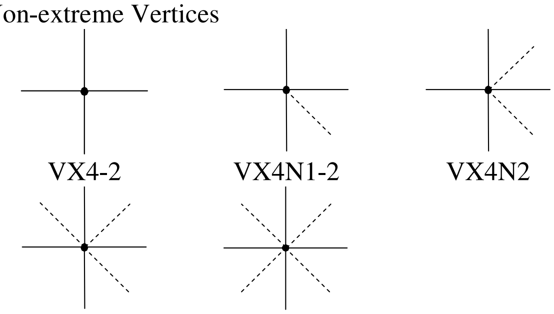
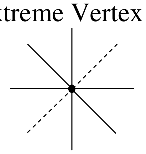
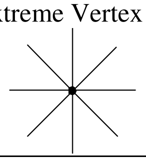
Vertices characterized by their incident odd/even edges (: Odd edge, : Even edge))	**Vertices characterized by their incident manifold edges (: Manifold edge)**
Extreme Vertex 	Extreme Vertex (V2) 
Non-extreme Vertex ($V_{2,2,0}$) 	Non-extreme Vertex (V4) 
Non-extreme Vertex ($V_{2,1,1}$) 	Non-extreme Vertex (Non-valid vertex)
Non-extreme Vertex ($V_{2,0,2}$) 	Non-extreme Vertex (Non-valid vertex)

Property F.3: By **Property D.3** we have that an odd edge is equivalent to a manifold edge in the 3D-OPP's. Moreover, by the same property, an even edge is equivalent to a non-manifold edge or a non-valid edge. By considering such equivalences we obtain the following relation between vertices described through odd/even edges and vertices described through manifold/non-manifold edges (these last vertices were previously identified in [Aguilera98]):

Vertices characterized by their incident odd/even edges (——— : Odd edge, ········· : Even edge)	**Vertices characterized by their incident manifold/non-manifold edges (——— : Manifold edge, ········· : Non-manifold edge)**
Extreme Vertex 	Extreme Vertices  V3  V4N1  V6N1
Non-extreme Vertex ($V_{3,0,3}$) 	Non-extreme Vertices  V6N2 Non-valid vertex
Non-extreme Vertex ($V_{3,1,2}$) 	Non-extreme Vertices  V4N2 Non-valid vertex
Non-extreme Vertex ($V_{3,2,1}$) 	Non-extreme Vertices  V4  V5N
Non-extreme Vertex ($V_{3,3,0}$) 	Non-extreme Vertex (V6) 

Property F.4: By **Property D.4** we have that an odd edge is equivalent to an extreme edge in the 4D-OPP's. Moreover, by the same property, an even edge is equivalent to a non-extreme edge or a non-valid edge. By considering such equivalences we obtain the following relation between vertices described through odd/even edges and vertices described through extreme/non-extreme edges (these last vertices were previously identified in [Pérez-Aguila03d]):

Vertices characterized by their incident odd/even edges (——— : Odd edge, ········· : Even edge)	**Vertices characterized by their incident extreme/non-extreme edges (——— : Extreme edge, ········· : Non-extreme edge)**
Extreme Vertex 	Extreme Vertices  VX4  VX4N1  VX4N2-2  VX4N3  VX4N4

Vertices characterized by their incident odd/even edges (——— : Odd edge, ------- : Even edge)	**Vertices characterized by their incident extreme/non-extreme edges (——— : Extreme edge, ------- : Non-extreme edge)**
Non-extreme Vertex ($V_{4,0,4}$) 	Non-extreme Vertices  Non-valid vertex; VX0; VX0N2; VX0N6; VX0N6-2; VX0N7; VX0N8
Non-extreme Vertex ($V_{4,1,3}$) 	Non-extreme Vertices  VX2; VX2N2; VX2N3; VX2N3-2; VX2N4; VX2N5; VX2N6
Non-extreme Vertex ($V_{4,2,2}$) 	Non-extreme Vertices  VX4-2; VX4N1-2; VX4N2; VX4N3-2; VX4N4-2
Non-extreme Vertex ($V_{4,3,1}$) 	Non-extreme Vertices  VX6N1; VX6N2
Non-extreme Vertex ($V_{4,4,0}$) 	Non-Extreme Vertex (VX8)