

Problem Set 10

Due: Tuesday, April 22, 2025 at 10am

Problem 10.1 [Repeating Facet Paths]. Find a triangulated polyhedron (which has a facet path for vertex unfolding) for which *every facet path* visits at least one vertex twice (or more).

(Such examples are why we define “facet path” to allow vertices to repeat, just not twice in a row.)

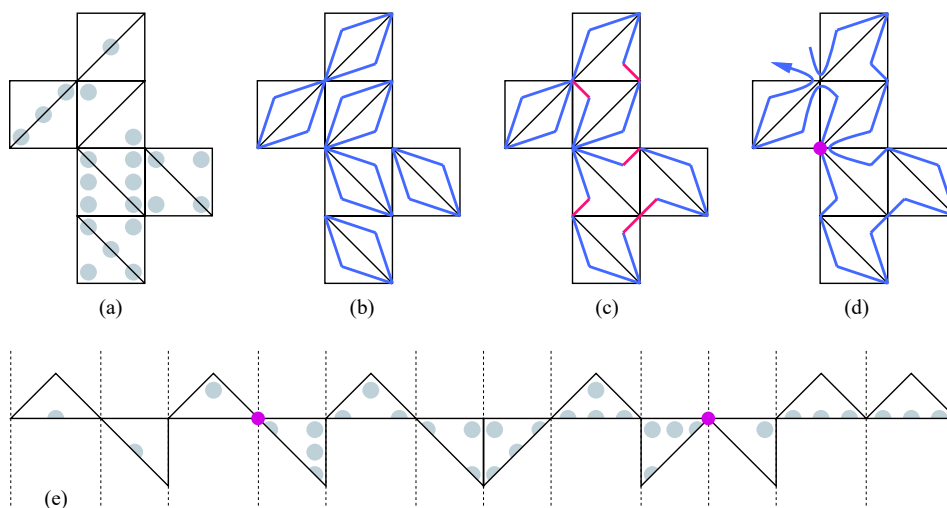


Figure 1: An example of a facet path (constructed in Lecture 17) that repeats a vertex (magenta). (You need to show that *all* facet paths repeat a vertex, for some triangulated polyhedron.) Based on Figure 4 of “Vertex-Unfoldings of Simplicial Manifolds” by Demaine, Eppstein, Erickson, Hart, O’Rourke (2003).