Connected Fundamental Transversals and Fundamental Transversal Domains

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In graph theory, a transversal, given a partition of vertices and edges, will consist of one vertex and one edge from each orbit of a group of automorphisms. A *complex* of a polyhedron **C(P)** is the collection of the vertex points of the polyhedron, line segment edges and polygonal faces of the polyhedron. A face fundamental transversal (FFT) on the faces of **C(P)** is a set T such that: T has exactly one face from each orbit of faces, and the subgraph of **C(P)** induced by T is connected under H (adjacency relations). Given a face fundamental transversal on the **C(P)**, two edges are called coradjacent if they share a common face. To obtain its edge fundamental transversal (EFT), we require that every edge we gather to be incident to two faces in different orbits in the face fundamental transversal. Furthermore, we find the vertex fundamental transversal (VFT) will be contained in the boundary of the EFT. In this talk, we will briefly explain and show examples of the FFT, EFT, & VFT. In the latter part of the talk, we will present an outline of a new partial result for what we call a fundamental transversal domain – which is a connected union of the face, edge, and vertex fundamental transversals of **C(P).**

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