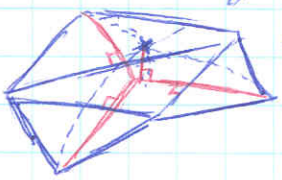
6.885
L14.4
Nov. 1, 2004

Case studies:

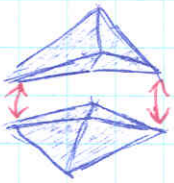
Latin cross:

- 5 edge-to-edge glueings
- 85 general glueings
  = 42 × 2 + 1
  ↳ symmetry
- 23 different polyhedra
  - cube
  - 2 flat quads
  - 7 tetrahedra
  - 3 pentahedra
  - 4 hexahedra
  - 6 octahedra

Reconstructing a tetrahedron:

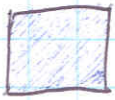


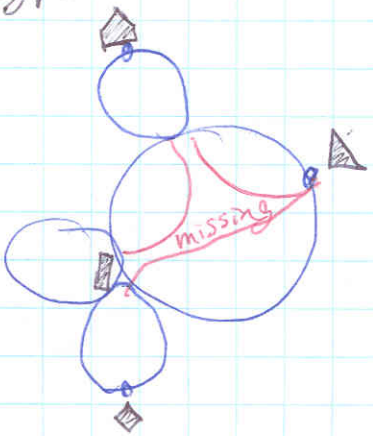
Reconstructing an octahedron:



two hexahedra
each = 2 tetra
search for matching dihedrals

Square:



- for any convex polygon, ≤ 4 leaves in glueing tree
  & ≤ n+2 vertices in any glueing
- for regular n-gon, & perimeter halving: 2 types of flat polyhedra ≥ ½ vertices (one type if n is odd)
  & continuum of "pita polyhedra", n+2 vertices
- Square: continua of 5 combinatorial types:
  - tetrahedra
  - 2 pentahedra
  - hexahedra
  - octahedra

  & 4 flat polyhedra:
  - right
  - square
  - 1 × ½
  - pentagon