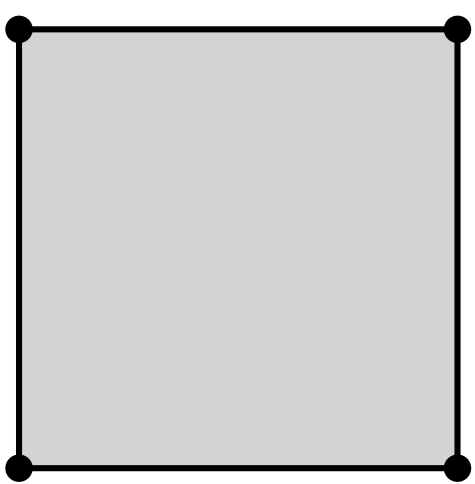
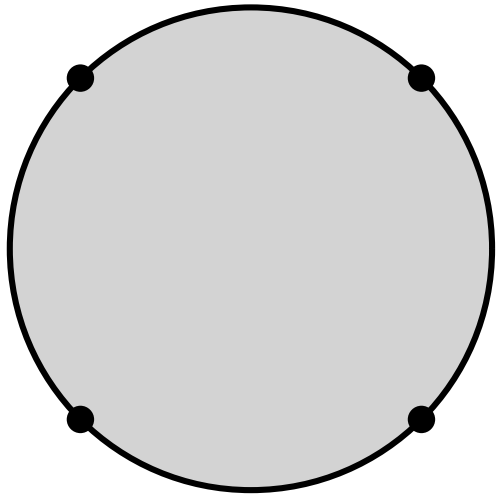
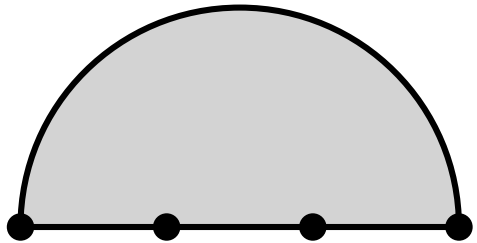
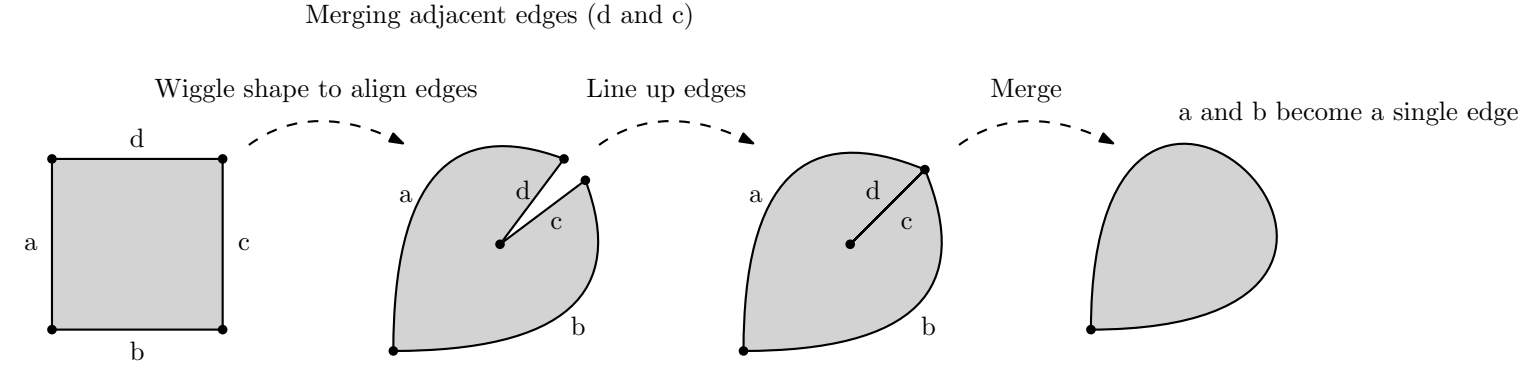
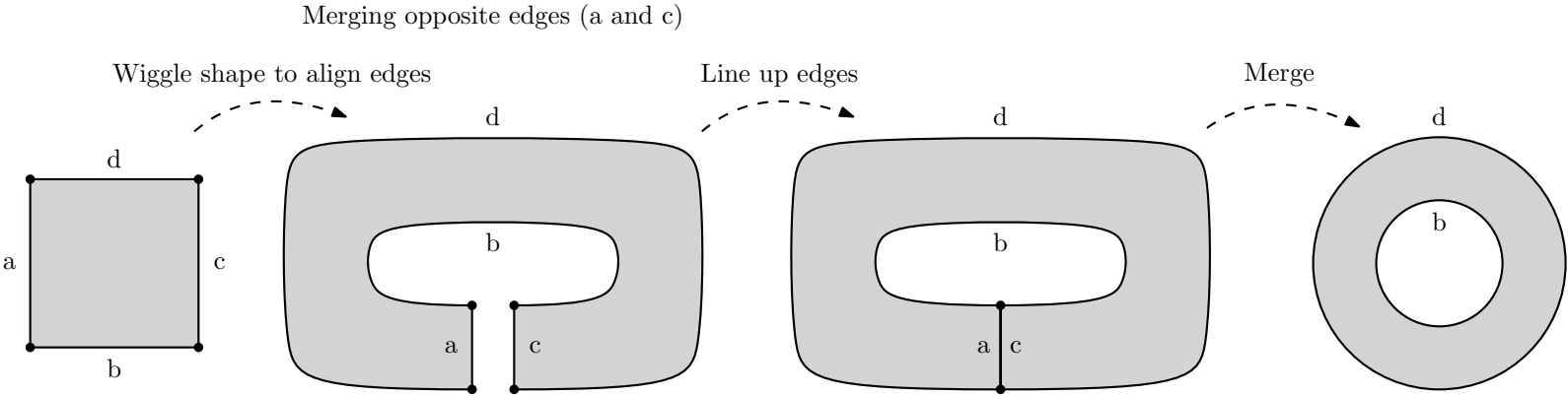
These are all ‘squares’

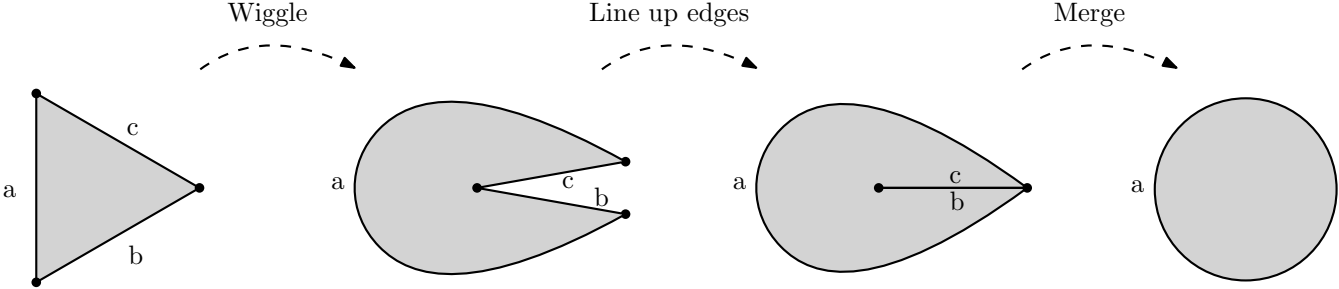




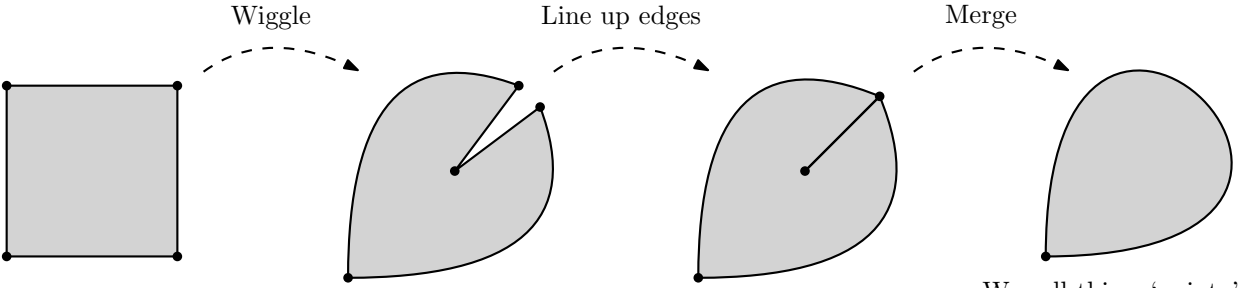



Merging adjacent edges (d and c)
Wiggle shape to align edges
Line up edges
Merge
a and b become a single edge
d
a
c
b
a
d
c
b
a
d
c
b


Merging opposite edges (a and c)
Wiggle shape to align edges
Line up edges
Merge
d
a
c
b
d
b
a
c
d
b
a
c
d
b

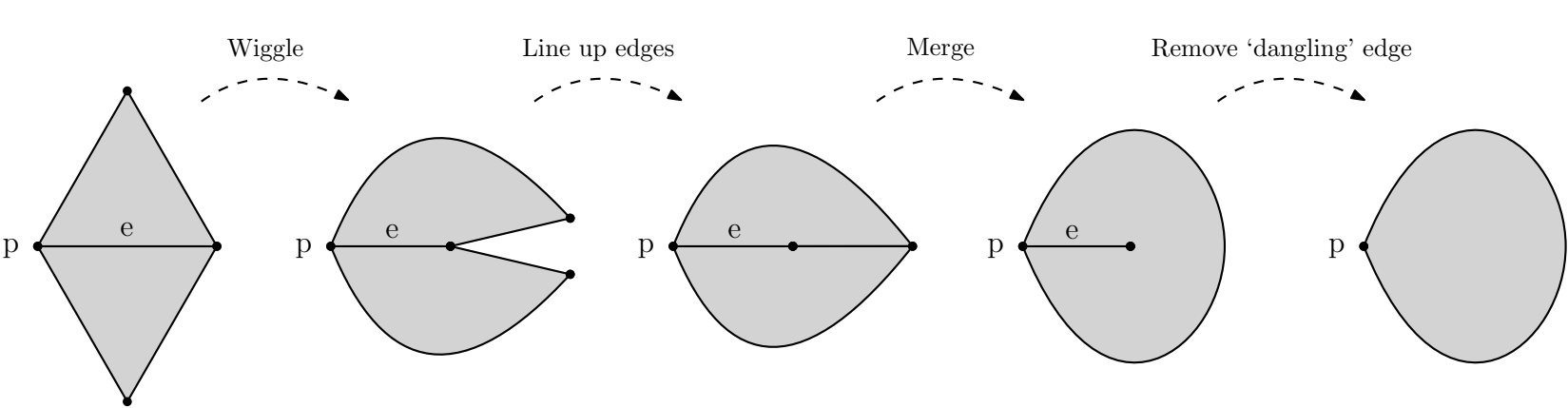

Wiggle
Line up edges
Merge
a
c
b
a
c
b
a
c
b
a

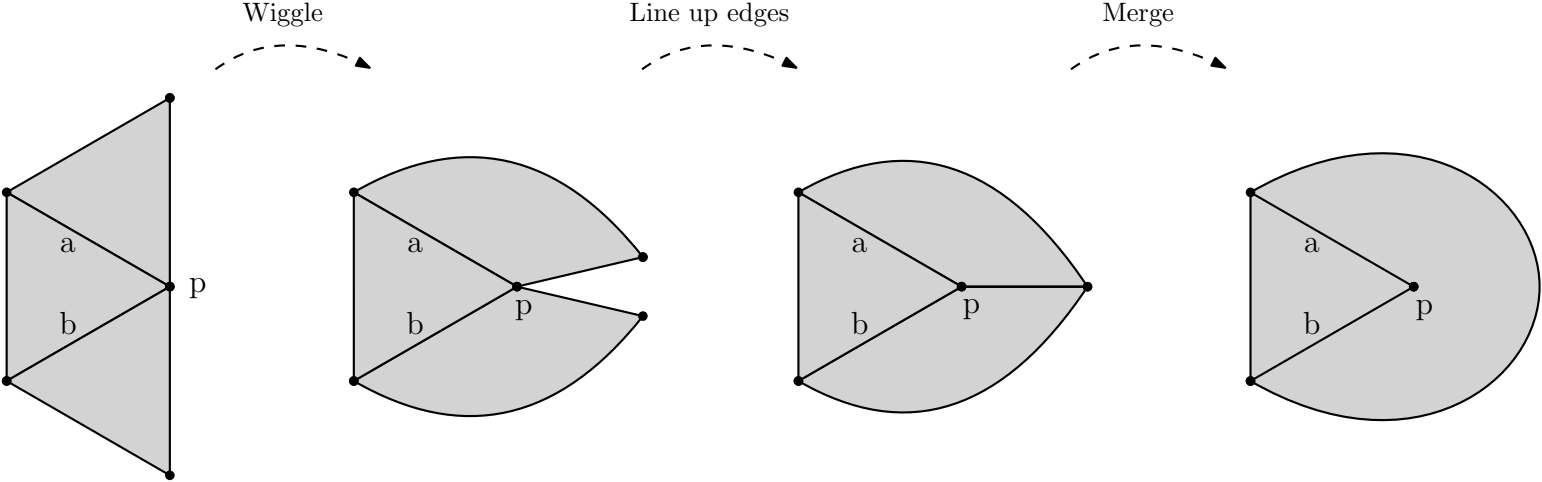
Edge case 1: a vertex connecting an edge to itself

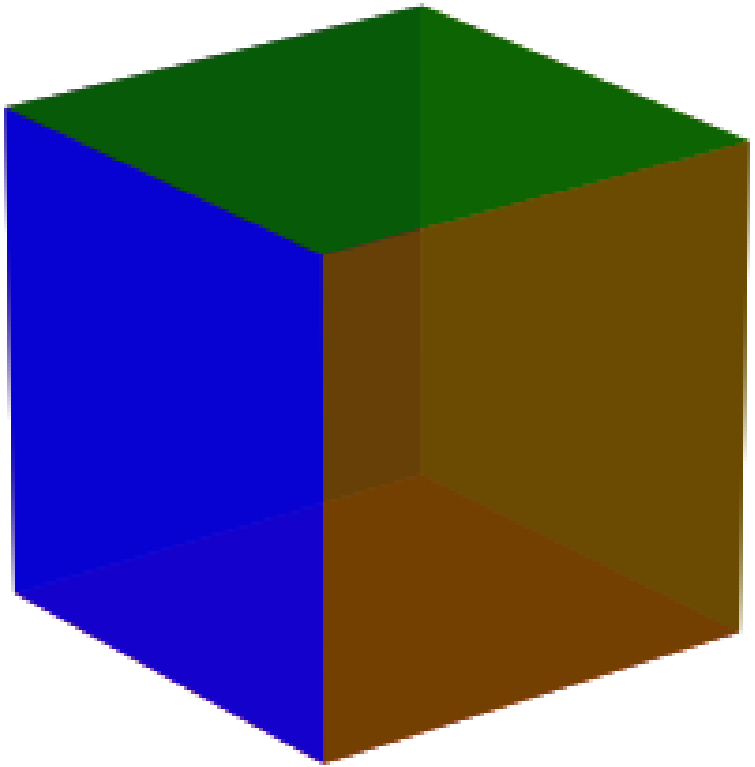


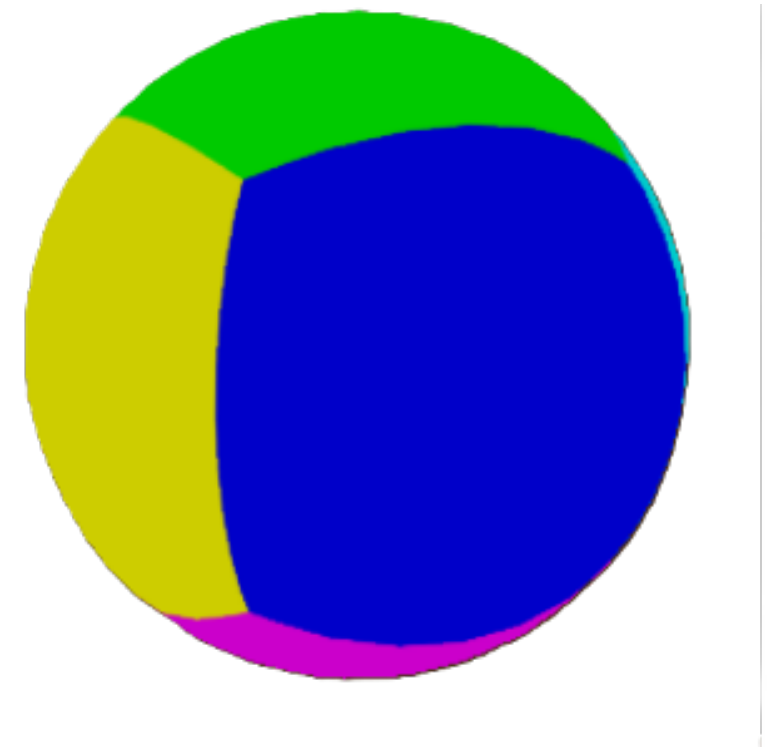
We call this a ‘pointy’ face

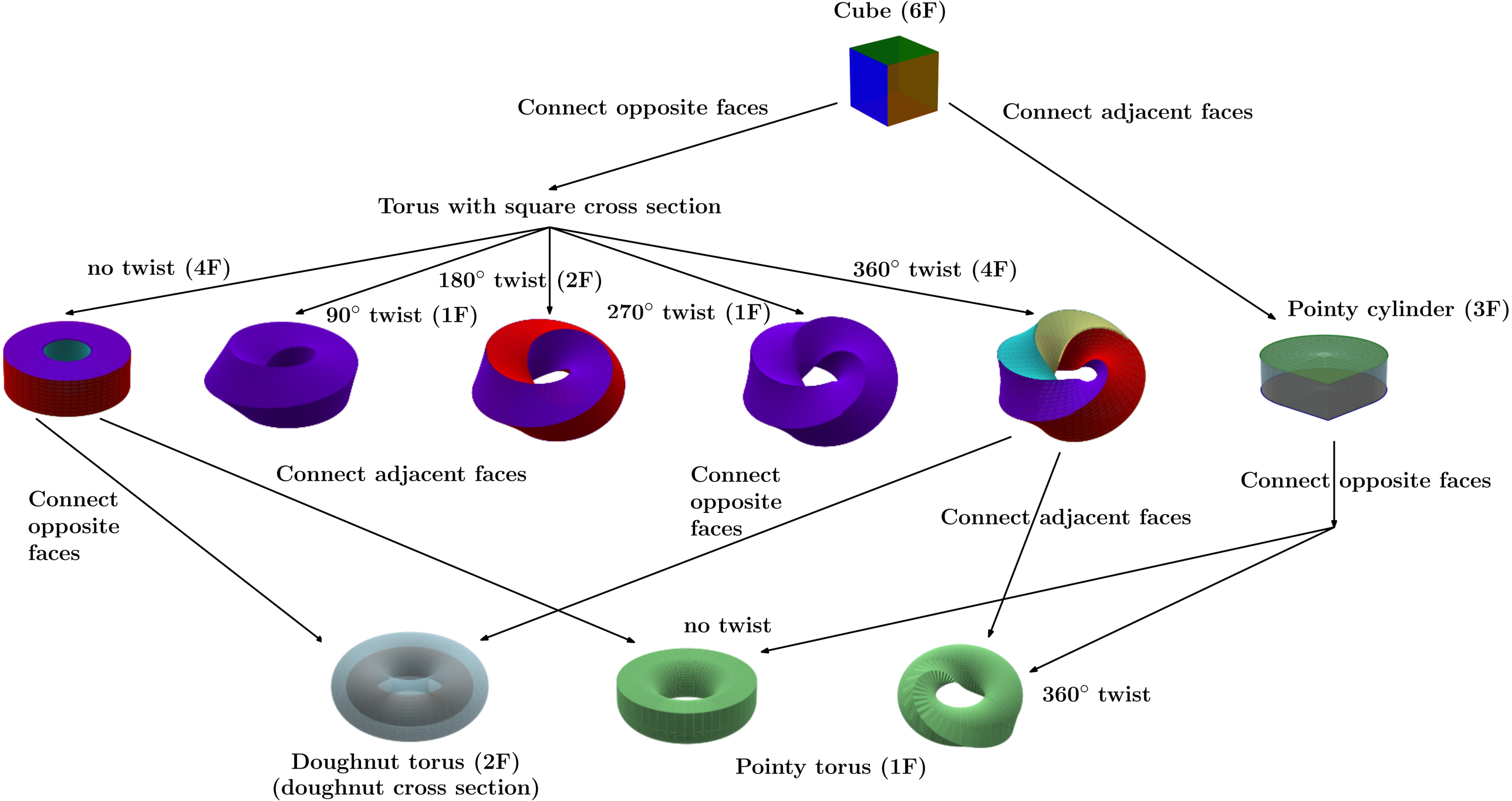
Edge case 2: edge ending inside a face after merge gets removed




Wiggle
Line up edges
Merge
a
b
p
a
b
p
a
b
p
a
b
p

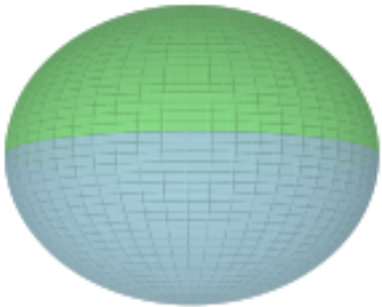





Cube (6F)
Connect opposite faces
Connect adjacent faces
Torus with square cross section
no twist (4F)
90° twist (1F)
180° twist (2F)
270° twist (1F)
360° twist (4F)
Pointy cylinder (3F)
Connect adjacent faces
Connect opposite faces
Connect opposite faces
Connect adjacent faces
Connect opposite faces
no twist
360° twist
Doughnut torus (2F)
(doughnut cross section)
Pointy torus (1F)

Tetrahedron (4F, 6E, 4V)

Connect adjacent faces



Edged sphere (2F, 1E, 0V)

1. Highlight faces to be merged

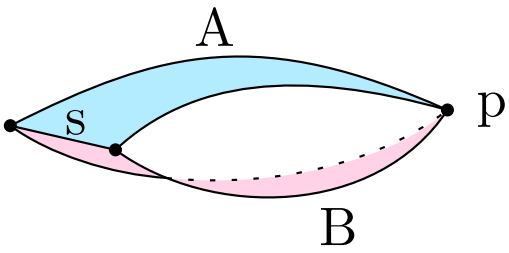
2. Line them up without changing the geometry

3. Put them against each other

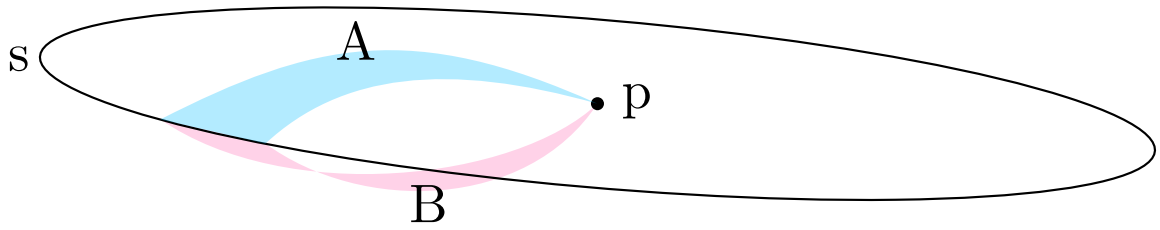
4. Remove them

5. Remove dangling edges

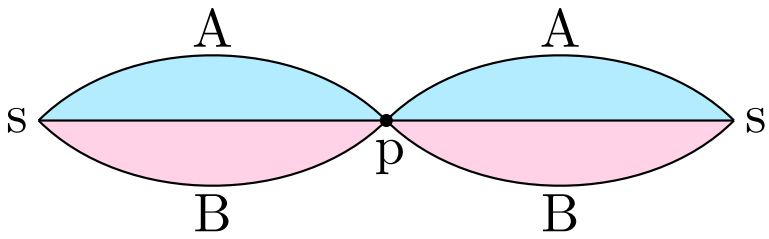
Starting shape



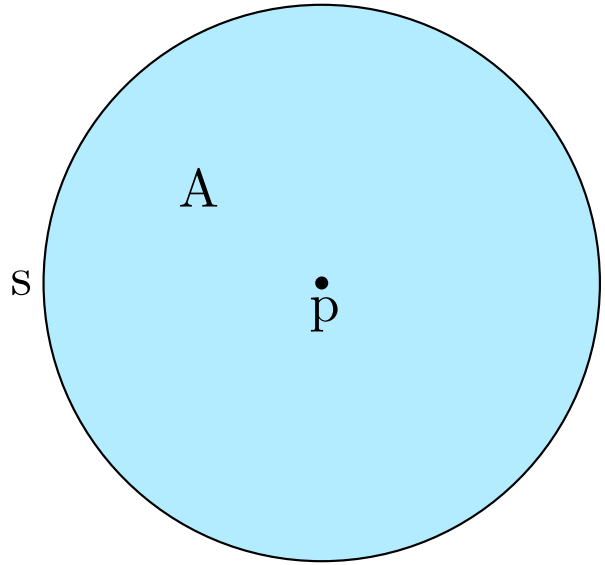
'Spin' the side faces until they touch and s forms a circle



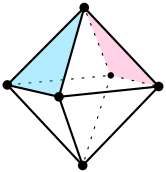
Cross section view



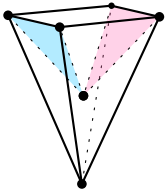
Top-down view

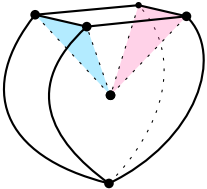


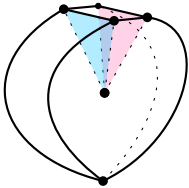
1. Highlight faces to be merged



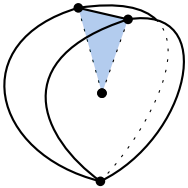
2. Line them up without changing the geometry







3. Put them against each other



4. Remove them