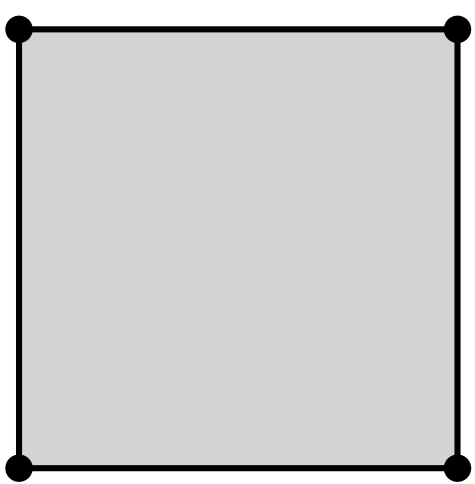
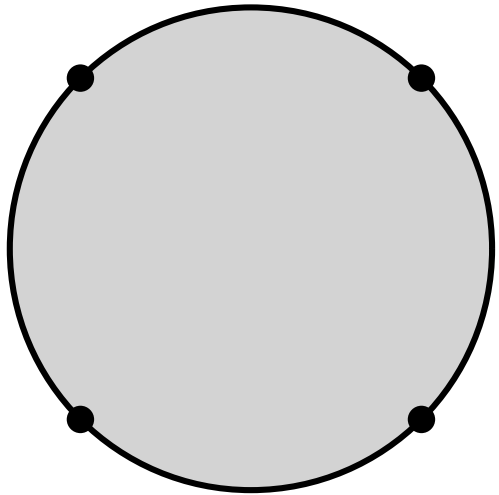
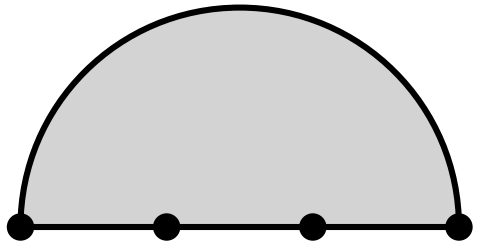
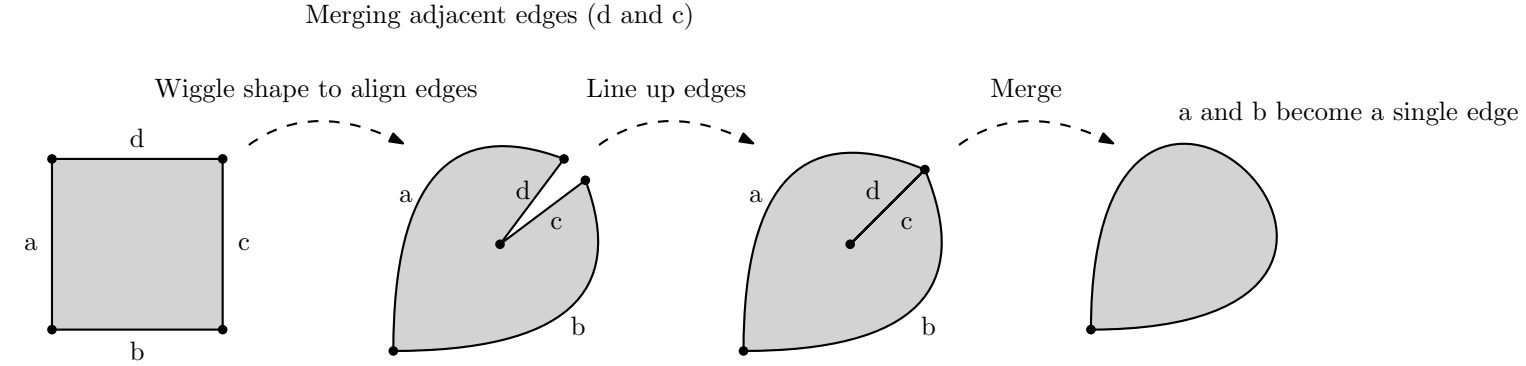
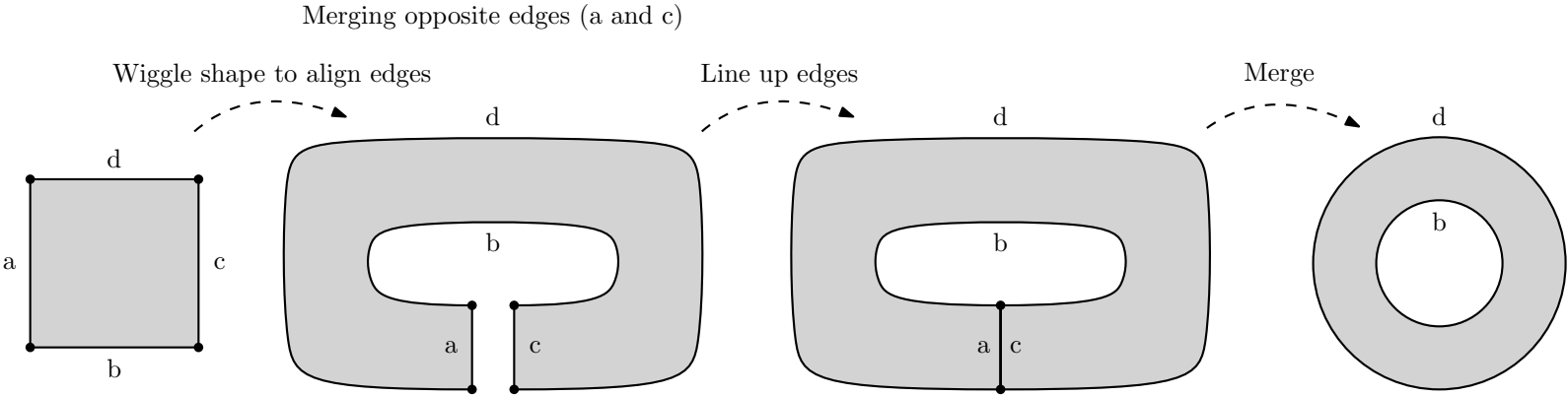
These are all ‘squares’

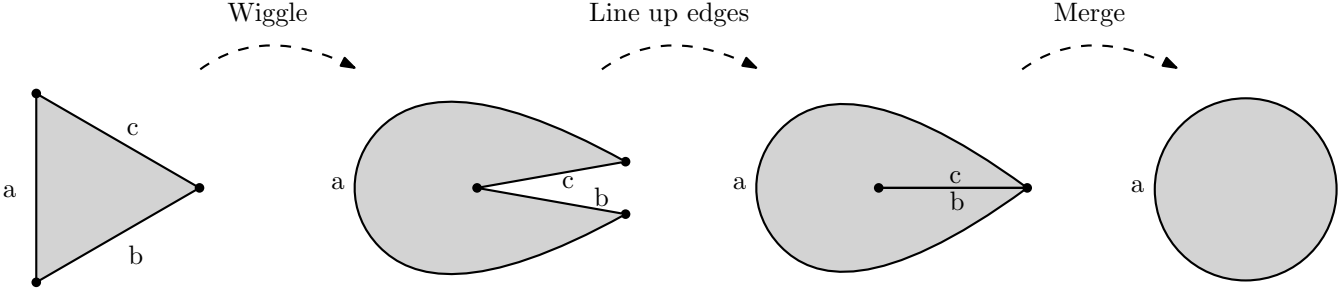




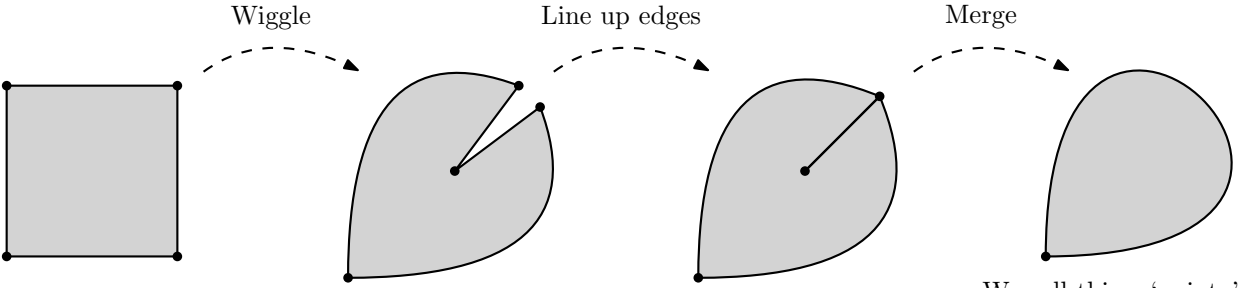



Merging adjacent edges (d and c)
Wiggle shape to align edges
Line up edges
Merge
a and b become a single edge
d
a
c
b
a
d
c
b
a
d
c
b


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

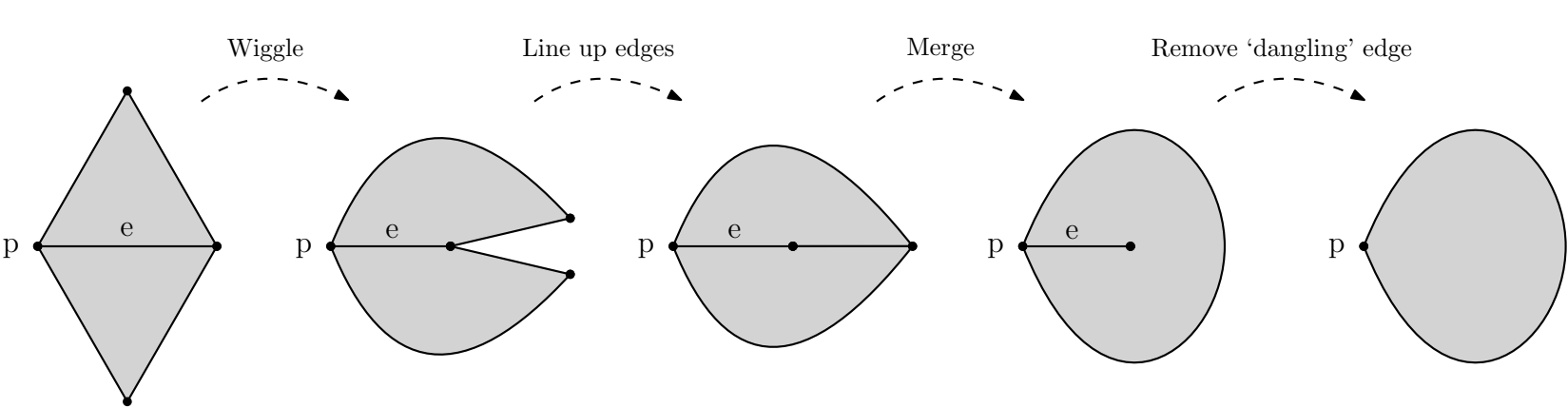

Wiggle
Line up edges
Merge
a
c
b
a
c
b
a
c
b
a

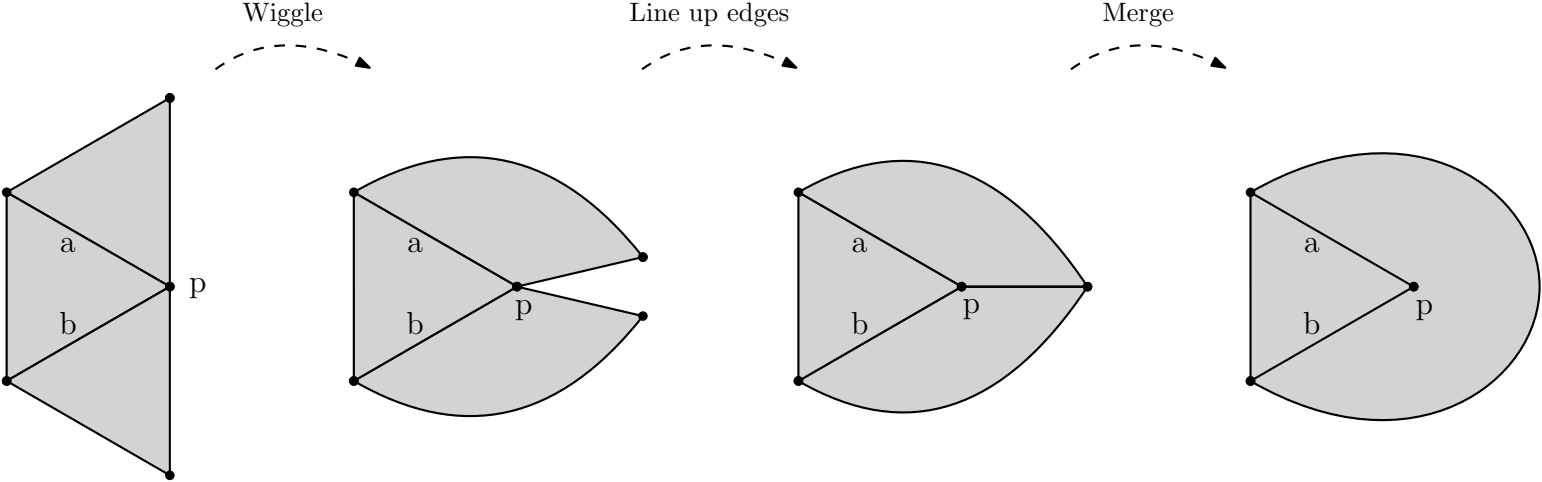
Edge case 1: a vertex connecting an edge to itself

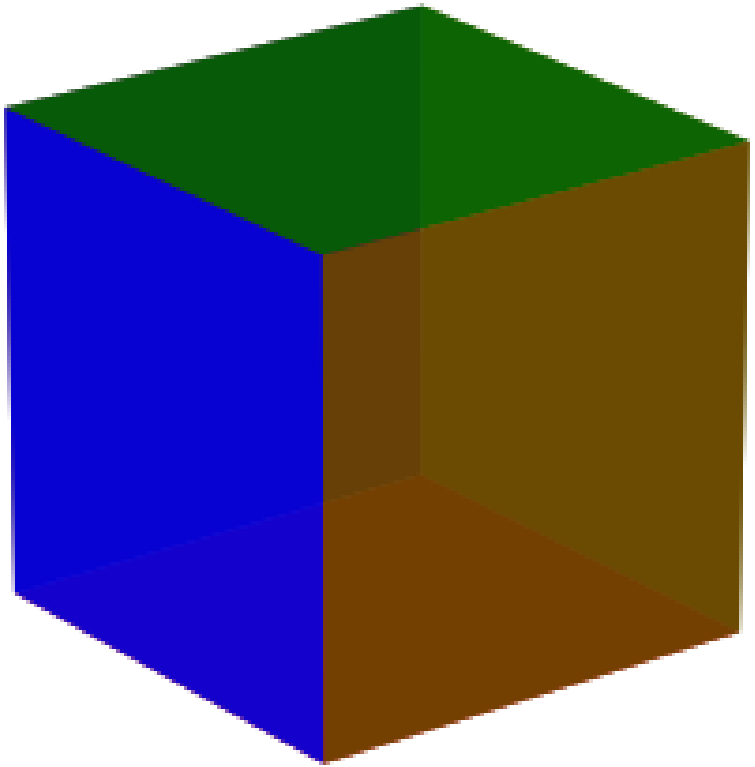


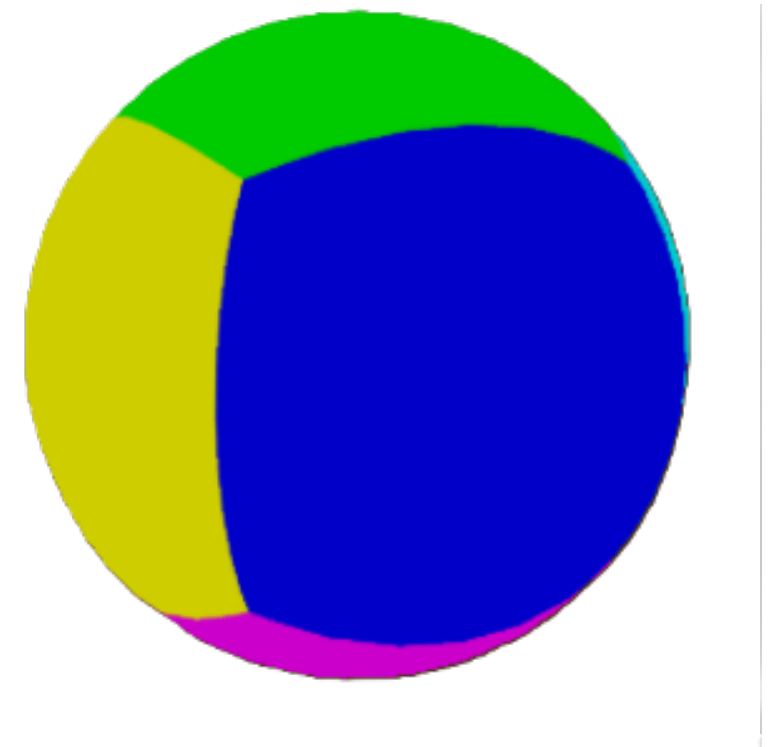
We call this a ‘pointy’ face

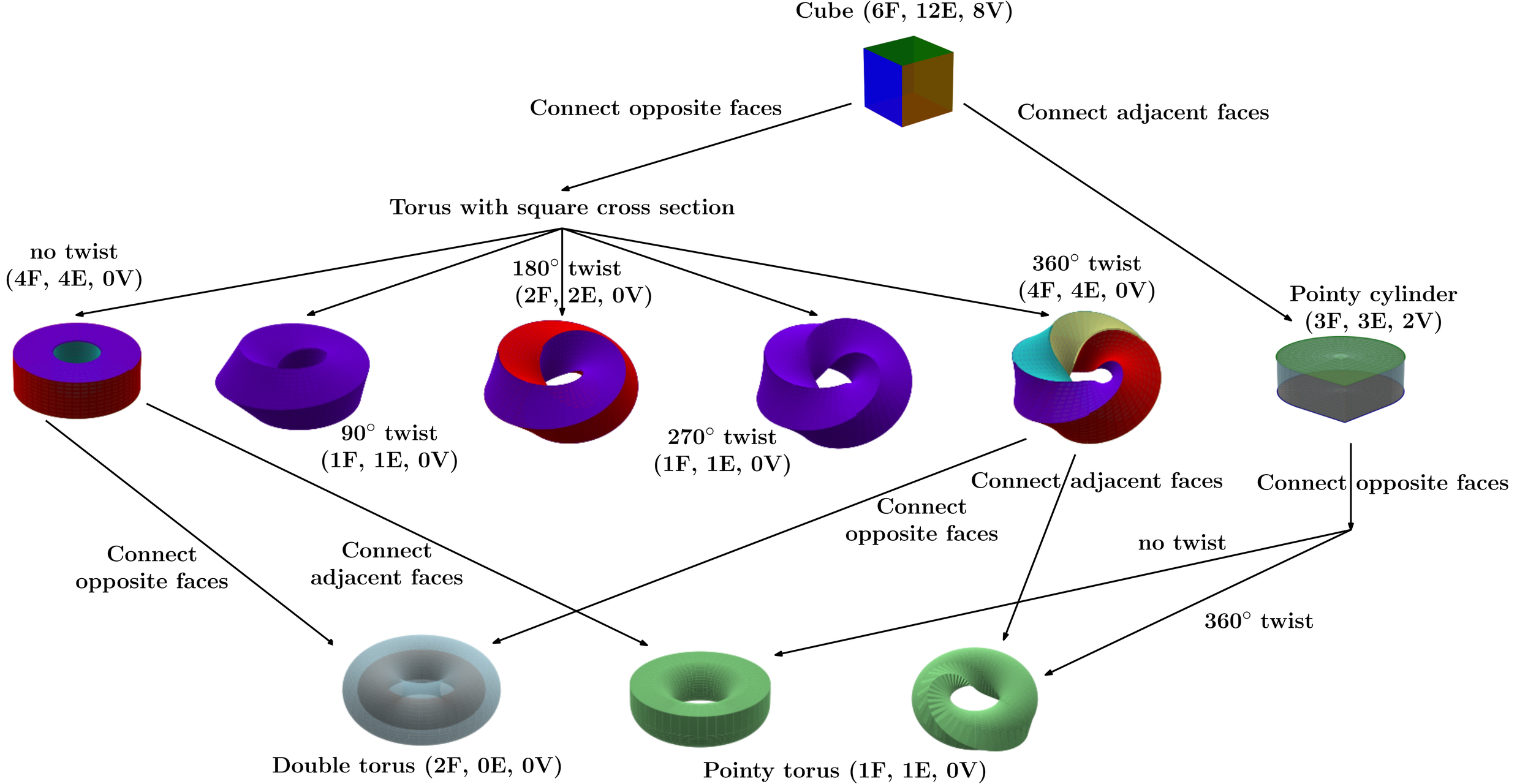
Edge case 2: edge ending inside a face after merge gets removed




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

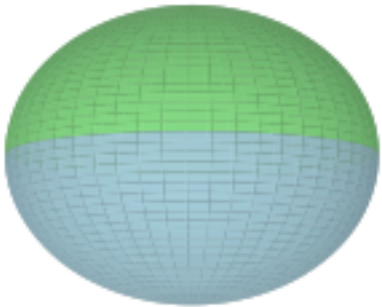





Cube (6F, 12E, 8V)
Connect opposite faces
Connect adjacent faces
Torus with square cross section
no twist
(4F, 4E, 0V)
180° twist
(2F, 2E, 0V)
360° twist
(4F, 4E, 0V)
Pointy cylinder
(3F, 3E, 2V)
90° twist
(1F, 1E, 0V)
270° twist
(1F, 1E, 0V)
Connect
opposite faces
Connect
adjacent faces
Connect
opposite faces
Connect adjacent faces
Connect opposite faces
no twist
360° twist
Double torus (2F, 0E, 0V)
Pointy torus (1F, 1E, 0V)

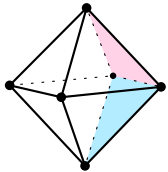
Tetrahedron (4F, 6E, 4V)

Connect adjacent faces

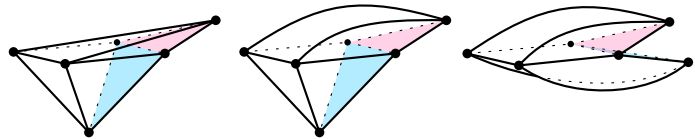


Edged sphere (2F, 1E, 0V)

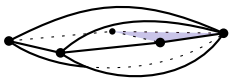
1. Highlighted faces to be merged



2. Wiggle



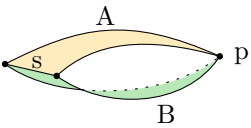
3. Line up faces



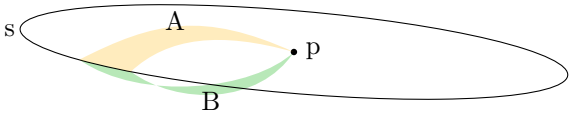
4. Merge

5. Remove dangling edges

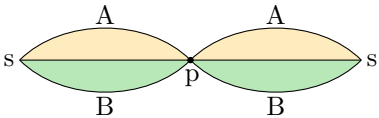
Starting shape



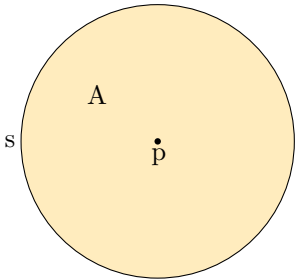
"Spin" an 'eye face' around p until it touches the other eye face and s forms a circle



Front view

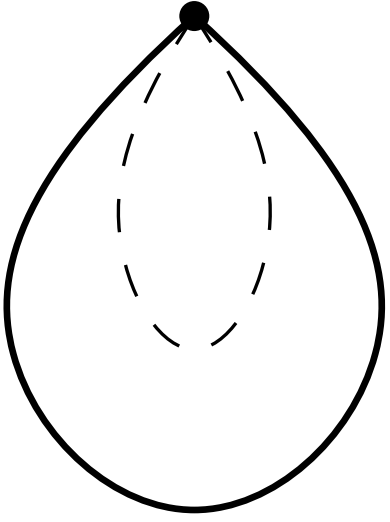


Top-down view

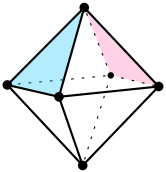


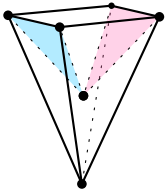
Outer face

Cross-section

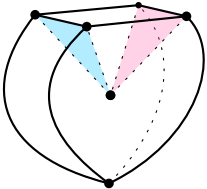


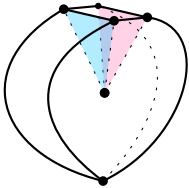
1. Highlight faces to be merged



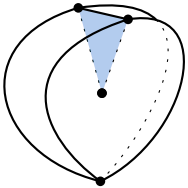


2. Wiggle

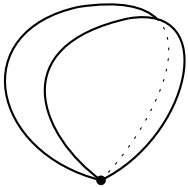




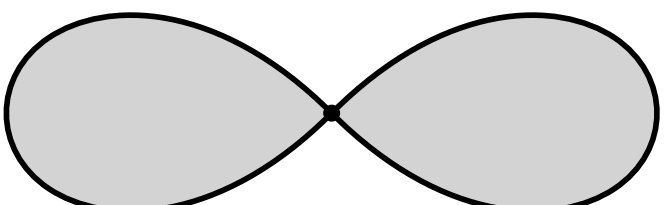
3. Line up faces



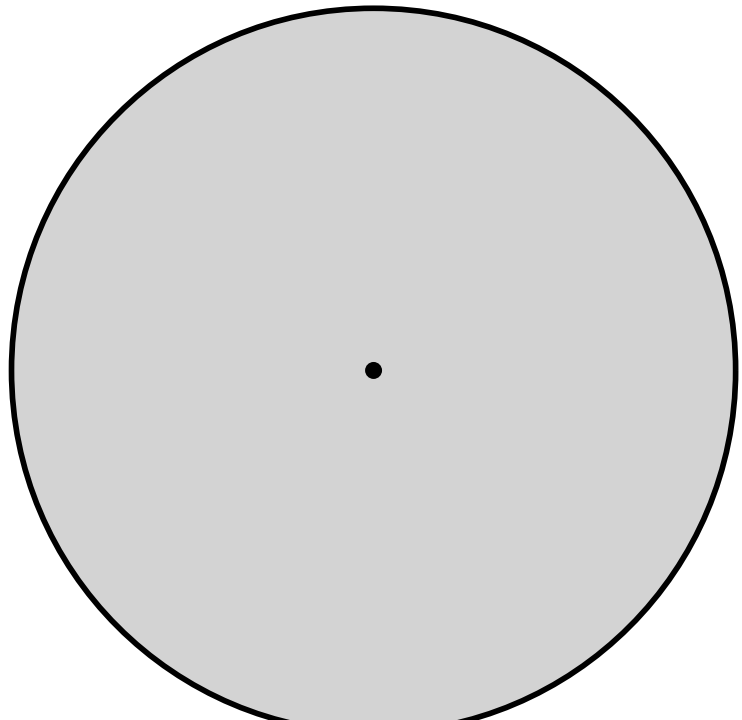
4. Merge



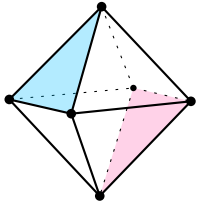
Front view



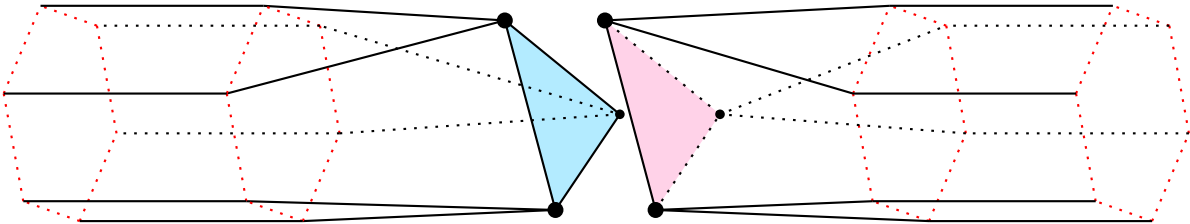
Top-down view



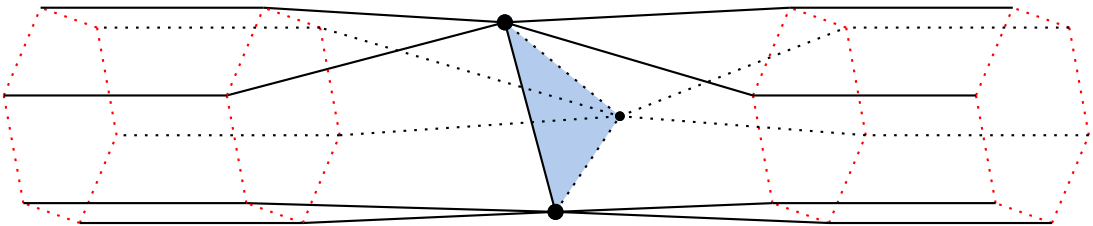
1. Highlight faces to be merged



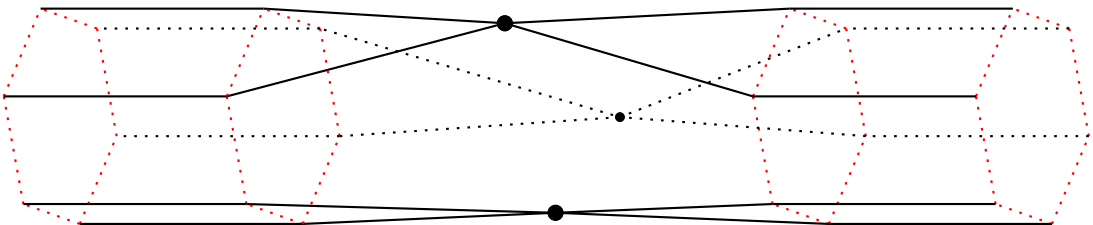
2. Wiggle



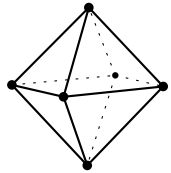
3. Line up faces



4. Merge



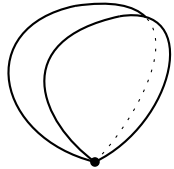
Octahedron (8F, 12E, 6V)



Dorito (4F, 5E, 3V)

Petal (3F, 2E, 1V)

Kind-of-hexagonal torus (3F, 6E, 3V)

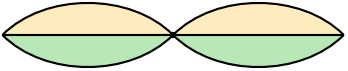


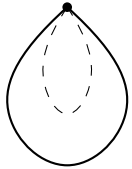
???

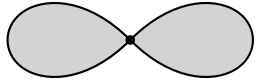
(2F, 1E, 1V)

(2F, 0E, 1V)

(1F, 0E, 1V)







Front view

Cross-section view

Front view