

Single Elliptic Geometry

(Smart)

(Klein Disk)

[\neq Klein-Beltrami model]

Want: lines intersect in just one point

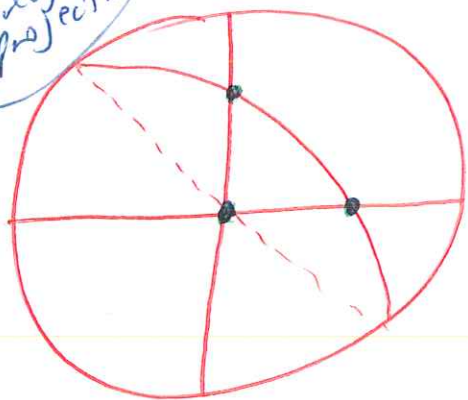
Idea: Identify antipodal points of sphere

(Klein)
Model:

points = ① points inside unit circle
② pairs of antipodal pts on boundary

lines = ① diameters
② arcs of circles which go through "ends" of diameters

Stereographic
projection

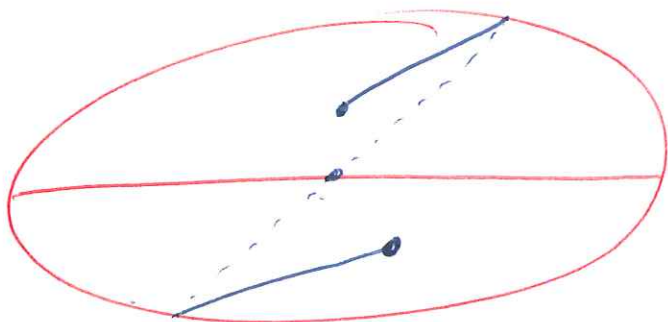


\Rightarrow angle sum $> 180^\circ$

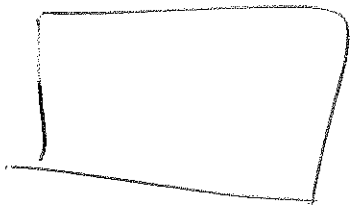
angles = Euclidean angles

\Rightarrow all ^{pairs of} n lines intersect in exactly one point ✓

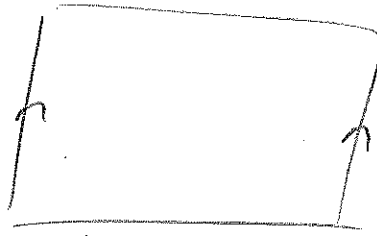
BUT: NO plane separation



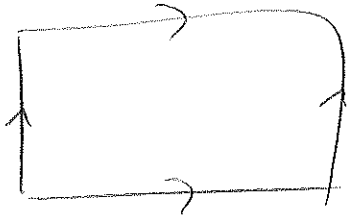
show
Möbius
strip



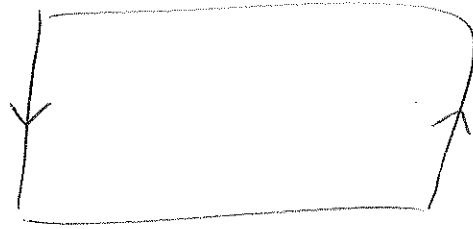
plane



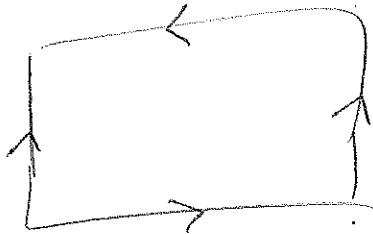
cylinder



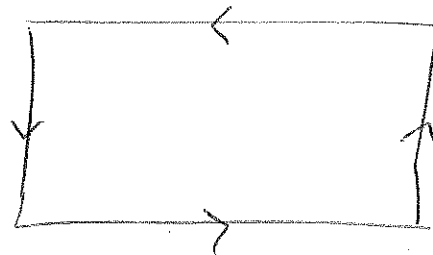
torus



Möbius strip



Klein bottle



single elliptic geometry