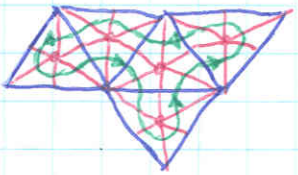
6.885
L8.2
Oct. 4, 2004

Pseudo-efficiency: [Demaine, Demaine, Mitchell 2000]
if allowed to start with arbitrary rectangle of paper, then area(paper) = $\Theta\varepsilon$ + surface area suffices

Proof: – construct Hamiltonian refinement of triangulation:

– cut into

– walk around spanning tree of original dual



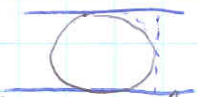
[Arkin, Held, Mitchell, Skiena 1996]

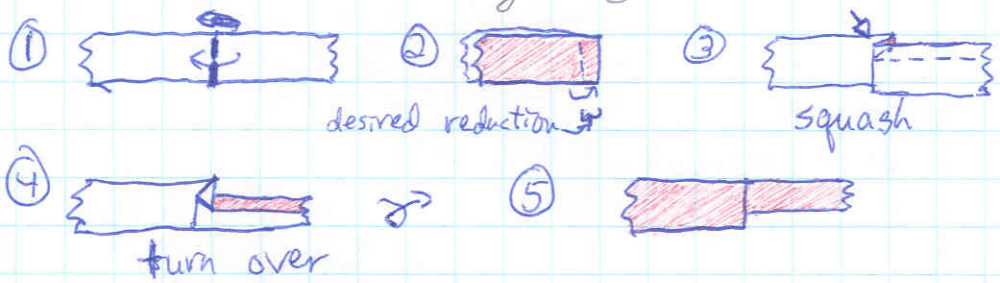
– now visit each triangle exactly once

– wastage from turn gadgets $\to 0$ as ε with strip width $\square$

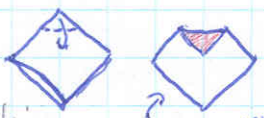
OPEN: prove a reasonable (pseudopoly?) upper bound? lower bounds?

Seam placement: [Demaine, Demaine, Mitchell 2000]

- Seam = visible crease or paper boundary on folded surface
- any seam pattern decomposing polygons into convex regions is possible:
  - use wide enough strip to cover each convex region
  - hide excess with hide gadget
  - use turn gadgets to reroute to next edge 
  - * dynamically resize strip width to width of next edge (before rerouting) & width of next region (after reaching edge)



– get correct vertical offset with 2 right-angle turn gadgets

OPEN: what seam patterns are possible?

– single seamless region $\Rightarrow$ convex (if paper is) by Kawasaki