6.885
L13.4
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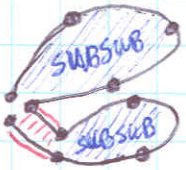
Edge-to-edge gluing: only glue whole edges to whole edges
i.e. each junction joins only vertices.

Generic case: if you edge unfold a generic polyhedron, there is a unique edge-to-edge gluing forced by edge lengths matching

Dynamic program [Lubiw & O'Rourke 1996]

- **subproblem** = chain of the polygon, assuming endpoints are glued together

- which edge does the (ccw) first edge of chain glue to?
- at most n choices:



- get two subsubproblems ~ but may be several foldings of each
- to avoid exponential enumeration:
  - each subproblem just reports a gluing with minimum total angle glued into start/end vertex of chain
  - if any gluing allows parent to preserve Aleksandrov, this will be it
  - try all possible gluings to first edge, recurse, check whether Aleksandrov holds, take best
  - if no Aleksandrov gluing of chain, return ∞ else the best angle
- $O(n^2)$ subproblems, $O(n)$ time per subproblem
  $\Rightarrow O(n^3)$ time