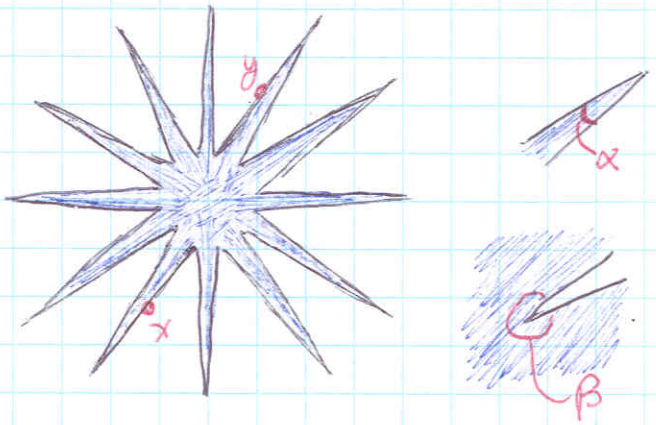
6.885
L13.3
Oct. 27, 2004

Exponential number of glueings

There is a polygon with n vertices & $2^{\Omega(n)}$ combinatorially distinct gluing trees

↳ label junctions with which vertices & edges are glued together
→ ignore edge lengths & where on each edge
→ check isomorphism of labeled graphs

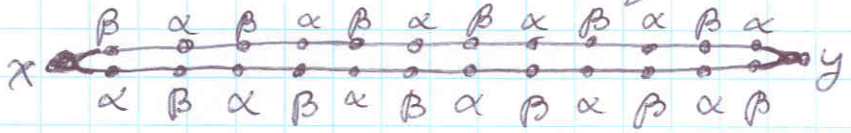
Proof:



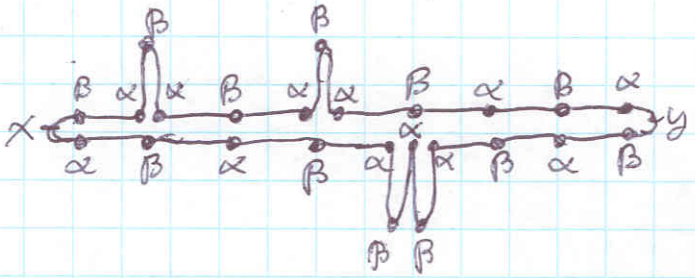
- can make $\alpha \to \varepsilon$ & $\beta \to 360° - \frac{360°}{n/2} - \varepsilon'$

- β bounded away from 360° ⇒ can glue up to $n/2$ α's into one β

- start with perimeter halving edge from midpoint x.



- zip $n/4$ β's on top & $n/4$ β's on bottom



- always a valid gluing (never 2 β's together)

$\approx 2^{n/4} \times 2^{n/4} = 2^{n/2}$ choices. □