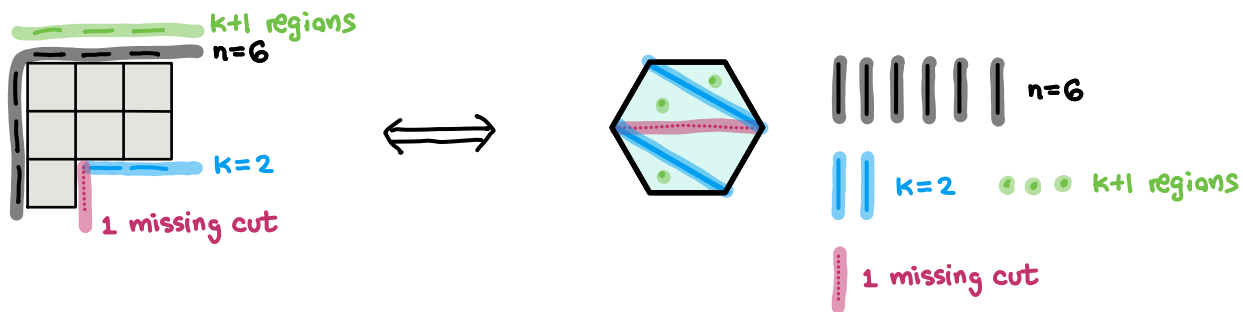
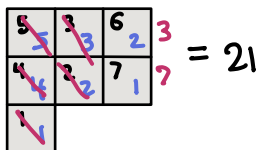


April 1 Stanley correspondence between polygon dissections and Young tableaux

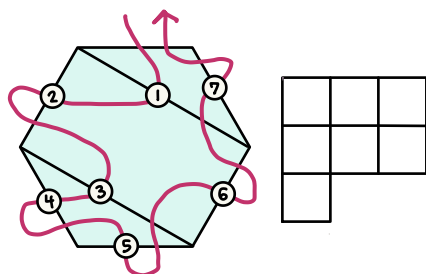


Formulas agree:



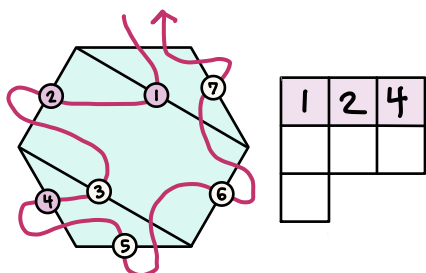
$$\frac{1}{k+1} \binom{n-3}{k} \binom{n+k-1}{k} = \frac{1}{3} \binom{3}{2} \binom{7}{2} = 21$$

polygon dissections \Rightarrow Young tableaux:



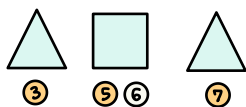
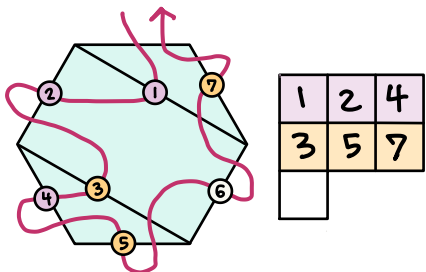
- ① ② ③ ④ ⑤ ⑥ ⑦

Enter and exit top side
Mark every other wall by depth-first search

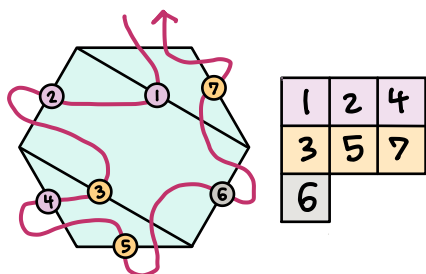


- ① ② ④

Select first exit from each chamber
This will become first row of Young tableau



Group remaining markers to record chamber sizes
Select group starts for second row

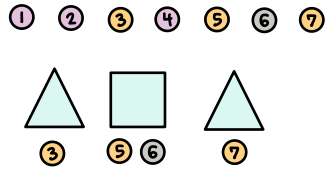


- ⑥

Use remaining markers for tail of Young tableau

Young tableaux \Rightarrow polygon dissections :

1	2	4
3	5	7
6		



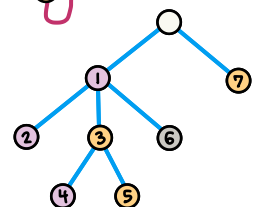
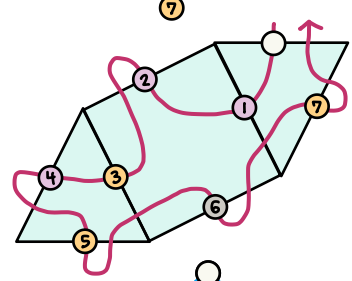
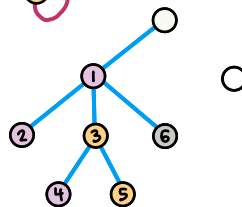
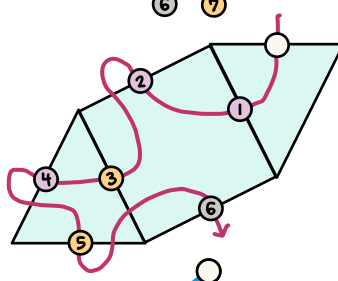
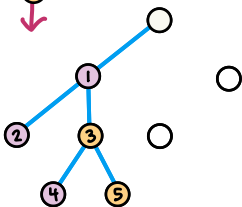
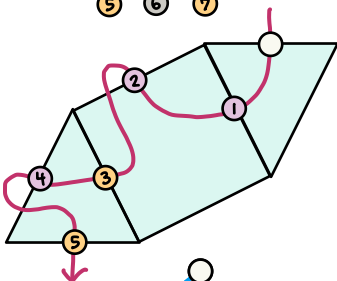
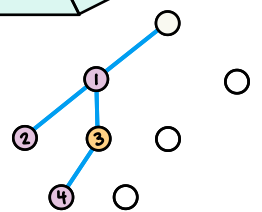
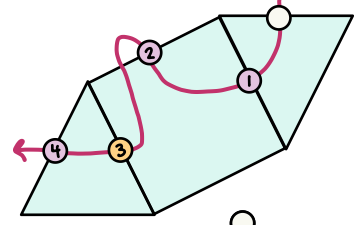
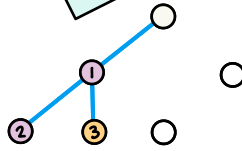
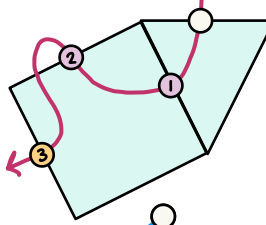
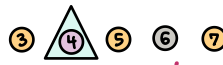
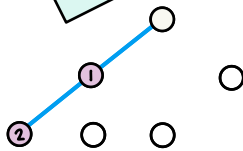
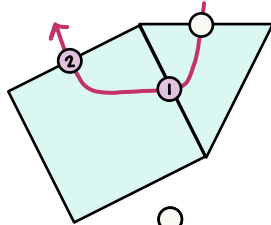
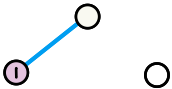
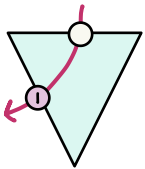
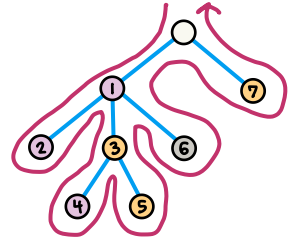
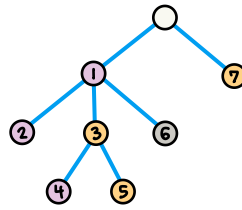
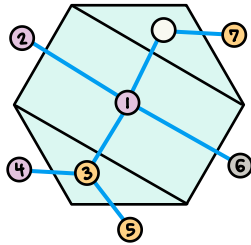
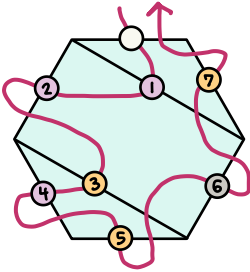
Read out numbers as markers

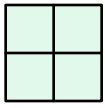
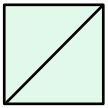
Recover chamber sizes



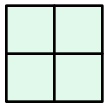
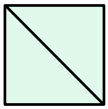
Move sizes to first exit markers

We can think of this as a dissection or a tree.

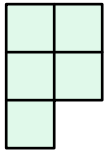
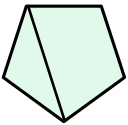
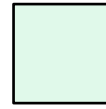




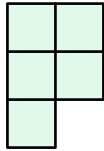
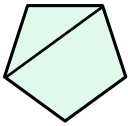
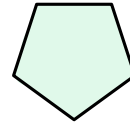
1	2
3	4



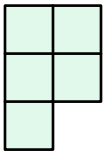
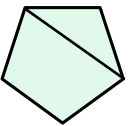
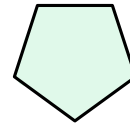
1	3
2	4



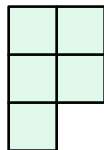
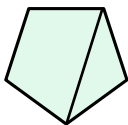
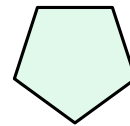
1	2
3	4
5	



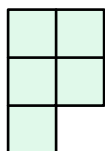
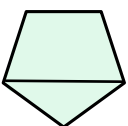
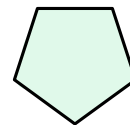
1	2
3	5
4	



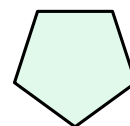
1	3
2	4
5	

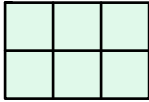
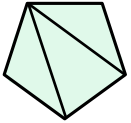


1	3
2	5
4	

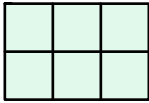
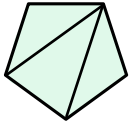
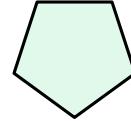


1	4
2	5
3	

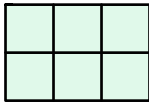
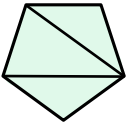
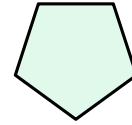




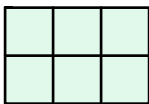
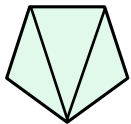
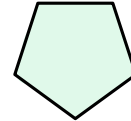
1	2	3
4	5	6



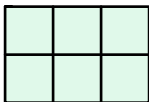
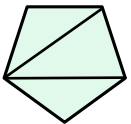
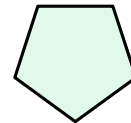
1	2	4
3	5	6



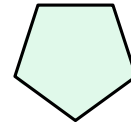
1	2	5
3	4	6



1	3	4
2	5	6



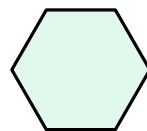
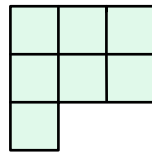
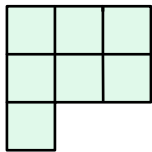
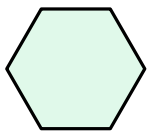
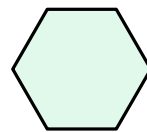
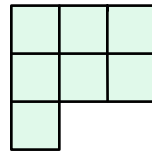
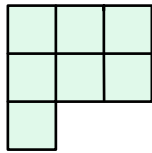
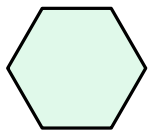
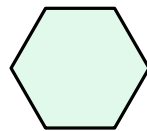
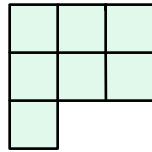
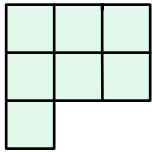
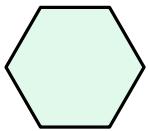
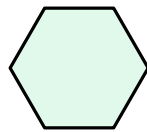
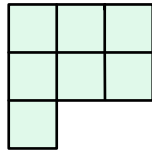
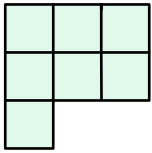
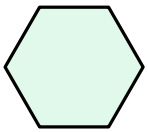
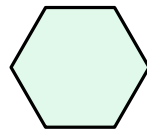
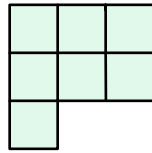
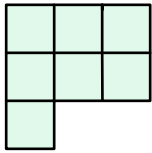
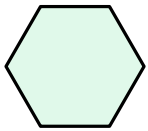
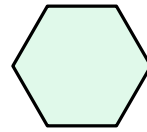
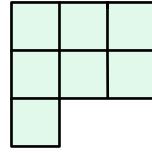
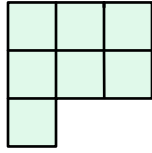
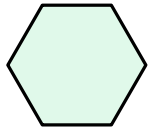
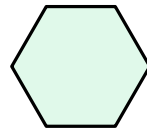
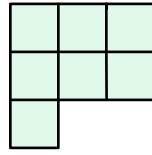
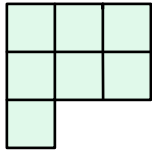
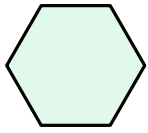
1	3	5
2	4	6



$n=6$

$k=2$

21 cases



$n=6$

$k=2$

21 cases

