Notes

April 28, 2014

bijections
self-conjugate $\leftrightarrow$ distinct odd parts
odd-parts $\leftrightarrow$ distinct parts

homework

prove that when you conjugate two partitions it reverses the majorization order.
induction on size of partition? notational question. give yourself some notation.

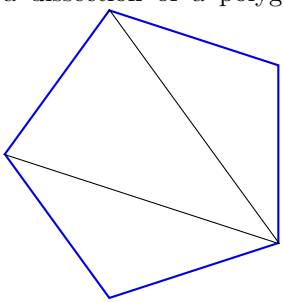
$$\lambda = \lambda_1 + \lambda_2 + \lambda_3 + \cdots + \lambda_k$$

$$\mu \leq \lambda \text{ so } \lambda_1 + \cdots + \lambda_i \geq \mu_1 + \cdots + \mu_i$$
$$\mu = \mu_1 + \mu_2 + \cdots + \mu_k$$

schröder paths: 8.5

definition

a dissection of a polygon is a partition of its interior into regions by inserting noncrossing diagonals.



question: how many dissections of triangle, square, pentagon? 1,3,11
question apply multiplication scheme like map to dissections to obtain bracketings

definition

a bracketing of $a_1 \ldots a_n$ is a multiplication scheme where parentheses can enclose any number of variables

theorem

bracketings of n variables are in bijections with dissections of an $n+1$-gon.

definition

a large schröder path is a path from $(0,0)$ to $(2n,0)$ with steps in the set which never go below the x-axis. note that dyck paths are schröder paths with no $(1,0)$ steps

question how many large schröder pths are there for n=1,2,3... $R_n = 2S_{n+1}$ where R_n is large and S_n is small.

question: what is a recurrance for R_n?

R_n start with (0)+start with (1). $R_n = R_{n+1} + \sum_{k=1}^{n} R_{k-1}R_{n-k}$. define $R_0 = 1$.