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$$\sum_{n=0}^{\infty} h_n t^n = \prod_{j=1}^{\infty} \frac{1}{1-x_j t} \quad " H(t)$$

"choose $x_i t$ and 1 everywhere else

"choose x_i's but with repetition"

$(1 + x_1 t + x_1^2 t^2 + \dots)(1 + x_2 t + x_2^2 t^2 + \dots) \dots ($

$1 + x_1 t + x_1^2 t^2$

$1 + x_2 t + x_2^2 t^2$

what is the coefficient of t?

$\Rightarrow \langle t^k \rangle p(t) =$ coefficient in t^k in $p(t)$

$\Rightarrow \langle t \rangle H(t) = x_1 + x_2 + x_3 + \dots = h_1$

$\langle t^2 \rangle H(t) = x_1^2 + x_2^2 + \dots + \underbrace{x_1 x_2 + x_1 x_3 + \dots} = h_2$

Prop 2.3 (i) If $\lambda >_{lex} \mu$, then $M_{\lambda\mu}(p,m) = 0$

(ii) $M_{\lambda,\lambda}(p,m) > 0$

$\lambda = (\lambda_1, \lambda_2, \dots)$

Pf: (i) $p_\lambda = \sum_{\mu \vdash |\lambda|} M_{\lambda\mu}(p,m) m_\mu$

$\lambda = (2,1) =$

$\mu = (1^3) =$

$\rightarrow (x_1^2 + x_2^2 + \dots)(x_1 + x_2 + \dots) = Q_\lambda(X_\infty)$

WTS $\langle x^\mu \rangle Q_\lambda(X_\infty) = 0$ if $\lambda >_{lex} \mu$

$\parallel$

$\langle x_1 x_2 x_3 \rangle$

$p_\lambda = (\ )(\ ) \quad \lambda_\ell > \mu_\ell$

$\Rightarrow \lambda =$

$\mu =$

$\dots (x_1^{\lambda_\ell} + x_2^{\lambda_\ell} + \dots) \dots$

$(x_1^2 + x_2^2 + \dots)(x_1$

x_1

$\dots \underbrace{x_\ell^{\mu_\ell}} \dots$

$|\mu| = |\lambda|$

$x_i^3 x_j$ or x_i^4

only get monomials $x_1^2 x_2$ or x_1^3

$(x_1^3 + x_2^3 + \dots)(x_1 + x_2 + \dots)$

$x_1^4 \quad x_1^3 x_2 \quad x_i^4$ or $x_i^3 x_j \ \ j \neq i$

x_1^4 $\quad x_1 x_2$ $\quad x_1 \ldots$

$$(\underbrace{x_1}^{\lambda_1} + x_2^{\lambda_1} \ldots) \ldots (x_1^{\lambda_2} \quad)$$

Constructing F_m

- At each point either tack on a different x_i from x_1
- or you add to x_1 $\Leftarrow \Rightarrow$ $\mu > \lambda$
- Repeat same analysis for x_2

(ii) - If you choose different x_i everytime $\Leftrightarrow$ $\mu = \lambda$