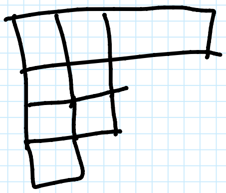
Param

Sunday, November 20, 2022 5:01 PM

$(5,2,2,1) < (5,4,3,2)$



, □ ✓

, 1 $\quad (5,4) < (5,4,3,2)$

___ top is same < ___ ?

$Dp(U) = p'(U) + p(U)D$

$(U^2 + U)(\lambda) =$

$U^2(\lambda) + U(\lambda)$

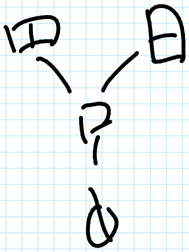
$U \circ (U(\lambda))$

$D^n(\lambda) = f^\lambda \phi$

$\lambda \mapsto [\lambda]$

Young lattice ⇝ infinite-dim v.s

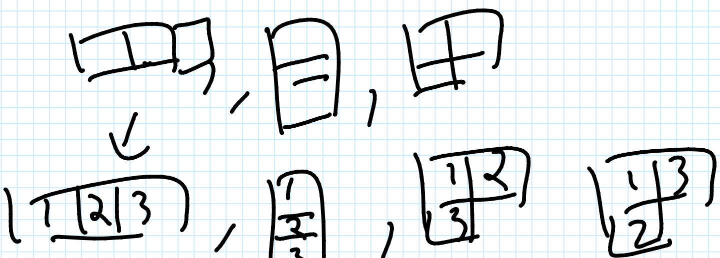
w/ basis $W = \bigoplus_{\substack{\lambda \vdash n \\ n \geq 0}} [\lambda]$, U, D are linear operators on W



If $\lambda \vdash n$, $D^n[\lambda] = c[\phi]$, in fact $c = f^\lambda \in \mathbb{Z}$

, $T(\vec{v}) = c \cancel{X}$ $\quad = \sum_{f^\lambda} [\phi]$

Ex; n=3



$1^2 + 1^2 + 2^2 = 6 = 3!$

linear operator

$T_1(\vec{0}) = \vec{0}$

$T_1, T_2, T_1(\vec{v}) = 0$

T_1, T_2 commute, $T_2 T_1(\vec{v}) = T_1 T_2(\vec{v}) = 0$

$D(\phi) \cancel{X}$ $\quad \underbrace{??}$ w/ $DU - UD = 1$

manually compute that your expression

$D^n U^n(\phi) = D^{n-1}(D U^n(\phi))$

manually compute

$D\,U^n(\emptyset) = D \dots (D\,U(\dots))$

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rank of a pair (a,b) = $rk(a) + rk(b)$

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skip Lemma 3.1.11, and replace ℓ in DP3 cover $\trianglelefteq$ ℓ, $\boxed{\ell \in \{0,1\}}$

λ, μ over a

(1) $|\mu| = |\lambda| = |a| + 1$ b/c λ, μ covers a

if $a = \lambda \wedge \mu$, then $\ell \leq 1$

$\Rightarrow$ a is unique < actual partition $\ell = 1$; $\emptyset$ $\ell = 0$

Lem: λ, μ covers a $\Rightarrow a = \lambda \wedge \mu$

Pf: WTS a is the greatest lower bound of λ and μ (def)

Lem Young poset is a lattice

Cor meet (intersection) and joins (union) are unique

$a < \lambda$, $a < \mu$, so a is a lower bound.

- If a is not greatest, then let a' be greatest

λ, μ, a, a'

$a \lessdot \lambda \Rightarrow |\lambda| = |a| + 1$

$\Rightarrow \underbrace{a < a' < \lambda}_{\text{length } 2}$

$glb(x,y) < x, y$ if $x \neq y$

- Don't erase lemma/eq that you will later use

$D([\lambda]) = \sum_{\mu \lessdot \lambda} [\mu]$ sum of basis vectors

$\mu \lessdot \lambda$

$\mu \lessdot \lambda$
means λ covers μ

$\mu \lessdot \lambda$
cover $\lessdot$ $\prec$ $<$

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