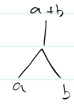
$Vec(\mathbb{Z}/q)$: $0, 1, \dots, p-1$

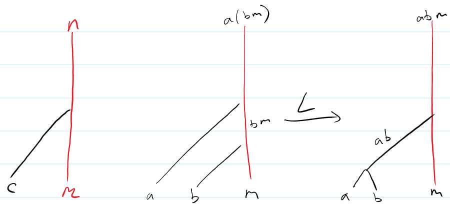


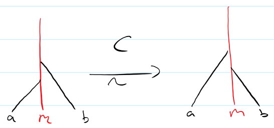
Fusion cat $\mathcal{C}$.

Left module $\mathcal{M}$

$\mathcal{C} \times \mathcal{M} \longrightarrow \mathcal{M}$

$c \triangleright m \longrightarrow n \in \mathcal{M}$





$\mathbb{Z}_2 \times \mathbb{Z}_2$: 6 bimods

T $\{0\}$

L $\mathbb{Z}_2 \simeq \langle(1,0)\rangle$

R $\mathbb{Z}_2 \simeq \langle(0,1)\rangle$

I_1 $\mathbb{Z}_2 \simeq \langle(1,1)\rangle$

F_q $\mathbb{Z}_2 \times \mathbb{Z}_2$: $\omega_p(g,h) = (-1)^{g_1 h_2}$

$\omega_1 \sim$ Pauli projective rep of $\mathbb{Z}_2 \times \mathbb{Z}_2$

For $Vec(\mathbb{Z}_p)$

the only extra groups

are $I_n : \langle(\pm n, 1)\rangle$

$Vec(G) \curvearrowright M \curvearrowleft Vec(H)$

$M \leq G \times H$

$\omega \in H^2(M, U(1))$

$V_g V_h = \omega_1(g,h) V_{g+h}$

$(0,0) \mapsto 1$

$(1,0) \mapsto X$

$(0,1) \mapsto Z$

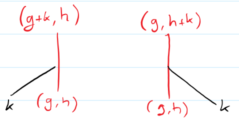
$(1,1) \mapsto XZ$

$(X_k, F_{q_{30}})$

Dih_{p-1}

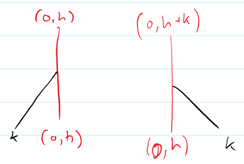
T : $\{0\}$

p^2 simples (g,h)

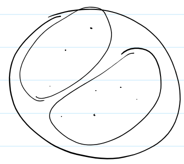


L : $H = \langle(1,0)\rangle$

p objects labelled by $\bar{h} = (0,h)$



Cset $H \leq G$

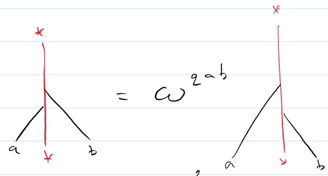


gH $\forall g \in G$

$G = \mathbb{Z}_2 \times \mathbb{Z}_2$

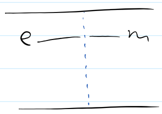
$H = (1,0) = \mathbb{Z}_2 \times \{0\}$

F_q : $\mathbb{Z}_p \times \mathbb{Z}_p$

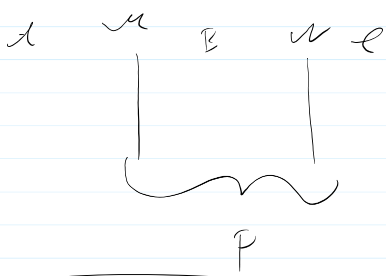


F_0 :][

F_1

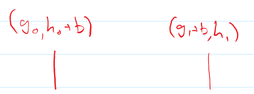


${}_{\mathcal{A}}\mathcal{M}_{\mathcal{B}} \otimes_{\mathcal{B}} {}_{\mathcal{B}}\mathcal{N}_{\mathcal{C}} = \bigoplus_{Q} {}_{\mathcal{A}}Q_{\mathcal{C}}$



$T \otimes_{Vec(\mathbb{Z}_2)} T$

$((g_0, h_0), (g_1, h_1)) \overset{b}{\rightleftharpoons} ((g_0, h_0 + b), (g_1 + b, h_1))$

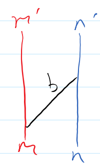


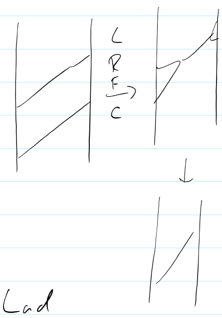
Iso classes of simples are labelled by

Ladder category for $\mathcal{M} \otimes_{\mathcal{B}} \mathcal{N}$

objects (m, n)

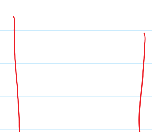
morphisms



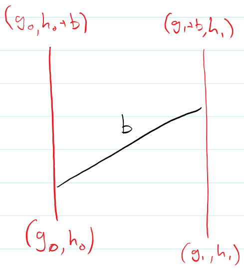


object of Lad idempotent on the object

Reps of Lad $\simeq \mathcal{M} \otimes_{\mathcal{B}} \mathcal{N}$



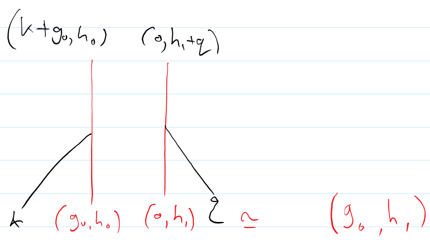
$((g_0, h_0), (0, h_1))$



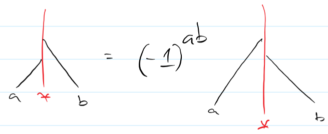
Iso classes of simples are labelled by

$$((g_0,h_0),(0,h_1))$$

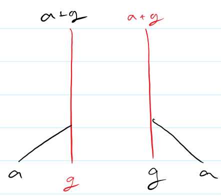
$$((g_0,h_0),(0,h_1))$$



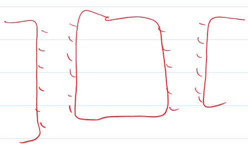
$F_1 \underset{\mathbb{Z}_2}{\otimes} F_1$.

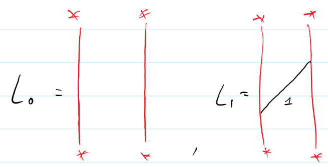


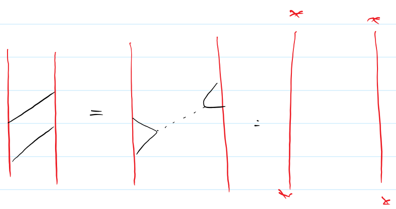
I_{-1}:



$T \cdot T = pT$







$M_2(\mathbb{C})$: $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$

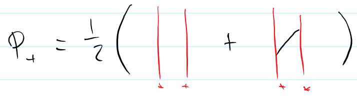
$P_+ \begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix}$

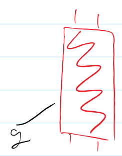
$P_- \begin{pmatrix} 0 & 0 \\ 0 & 1 \end{pmatrix}$

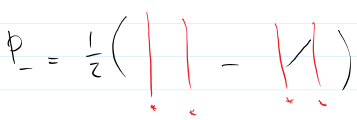
$L_0 \circ L_i = L_i = L_i \circ L_0$

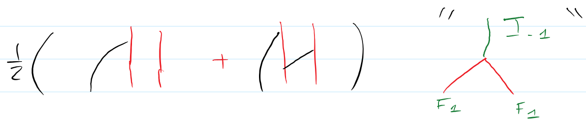
$L_1 \circ L_1 = L_0$

$L_{ad} \simeq \mathbb{C} \oplus \mathbb{C}$







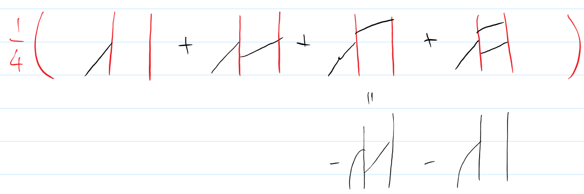


$1 \triangleright P_+$

Morphism in Kar are morphisms in L_{ad} $f: i \to j$

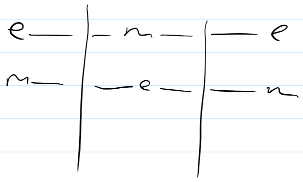
$if = f = fj$

$1 \triangleright P_\pm = P_\mp$



$$F_1 \underset{\mathbb{Z}_2}{\otimes} F_1 \simeq I_{-1}$$

1806.01279



I_{-1}
I_{-2}
F_1
F_2

	I_{-1}	I_{-2}	F_1	F_2
I_{-1}	I_{-1}			
I_{-2}		I_{-1}	F_2	F_1
F_1		F_2	I_{-1}	I_{-2}
F_2		F_1	I_{-1}	I_{-1}

$$B = (I_{-1} + I_{-2}) + \sqrt{5}\,(F_1 + F_2)$$