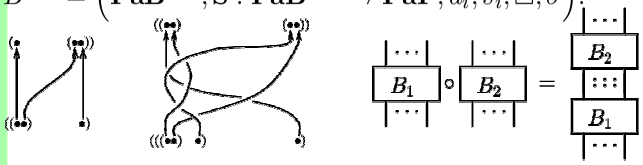
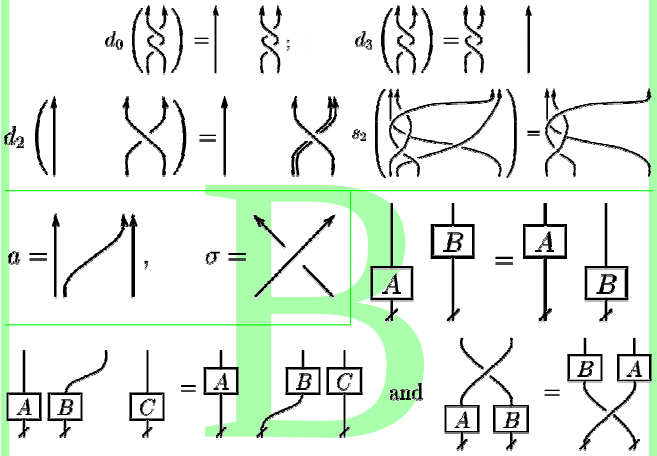
The Main Course

$B^{(m)} = \left(\mathbf{PaB}^{(m)}, \mathbf{S} : \mathbf{PaB}^{(m)} \to \mathbf{PaP}, d_i, s_i, \square, \sigma\right)$:



same-skeleton linear combinations allowed

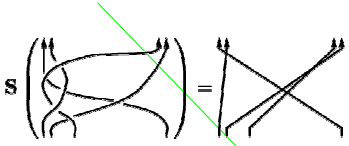


$$d_4\Phi \cdot d_2\Phi \cdot d_0\Phi = d_1\Phi \cdot d_3\Phi$$

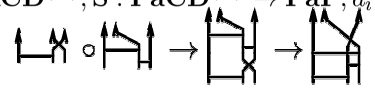
$$d_1 \exp\left(\pm\frac{1}{2}t^{12}\right) = \Phi \cdot \exp\left(\pm\frac{1}{2}t^{23}\right) \cdot (\Phi^{-1})^{132} \cdot \exp\left(\pm\frac{1}{2}t^{13}\right) \cdot \Phi^{312}$$

$$s_1\Phi = s_2\Phi = s_3\Phi = 1$$

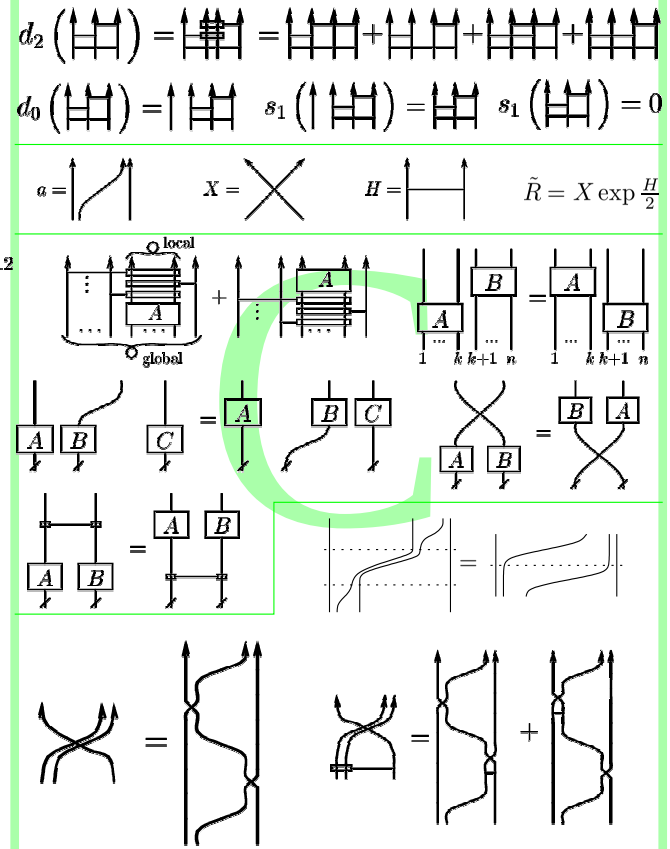
$$\square\Phi = \Phi \otimes \Phi$$



$C^{(m)} = \left(\mathbf{PaCD}^{(m)}, \mathbf{S} : \mathbf{PaCD}^{(m)} \to \mathbf{PaP}, d_i, s_i, \square, \tilde{R}\right)$:



same-skeleton linear combinations allowed



$$d_4\Gamma \cdot d_2\Gamma \cdot d_0\Gamma = d_1\Gamma \cdot d_3\Gamma$$

$$1 = \Gamma \cdot (\Gamma^{-1})^{132} \cdot \Gamma^{312}$$

$$d_1 t^{12} = \Gamma \cdot \left(t^{23} \cdot (\Gamma^{-1})^{132} + (\Gamma^{-1})^{132} \cdot t^{13}\right) \cdot \Gamma^{312}$$

$$e^{\epsilon(t^{13}+t^{23})} = \Gamma \cdot e^{\epsilon t^{23}} \cdot (\Gamma^{-1})^{132} \cdot e^{\epsilon t^{13}} \cdot \Gamma^{312}$$

PaP

I have a nifty Free Lie calculator. Wanna play?

Braids and the Grothendieck–Teichmuller Group, II