

# beta-better cheat sheet

[bb-calculus?]

April-26-12

8:49 AM

$$\begin{array}{c|c} w & - \\ \hline x & \alpha \\ y & \beta \\ \hline 1 & \gamma \\ \hline \cdot & \bar{\sigma} \end{array} \xrightarrow{tm_{xy}} \begin{array}{c|c} w & - \\ \hline z & \alpha + \beta \\ \hline 1 & \gamma \\ \hline \cdot & \bar{\sigma} \end{array}$$

$$\begin{array}{c|c|c} w & x & y & - \\ \hline - & \alpha & \beta & \gamma \\ \hline \cdot & \sigma_x & \sigma_y & \bar{\sigma} \end{array} \xrightarrow{hm_{xy}} \begin{array}{c|c|c} w & z & - \\ \hline - & \alpha + \sigma_x \beta & \gamma \\ \hline \cdot & \sigma_x \sigma_y & \bar{\sigma} \end{array}$$

$$\begin{array}{c|c|c} w & y & - \\ \hline x & \alpha & \beta \\ \hline 1 & \gamma & \delta \\ \hline \cdot & \sigma_y & \bar{\sigma} \end{array} \xrightarrow{swap_{xy}^{th}} \begin{array}{c|c|c} w+\alpha & y & - \\ \hline x & \sigma_y \alpha & \sigma_y \beta \\ \hline 1 & \gamma & (w+\alpha)\delta - \gamma\beta \\ \hline \cdot & \sigma_y & \bar{\sigma} \end{array}$$

$$R_{xy}^{\pm} = \frac{1}{x} \begin{array}{c|c} y & \\ \hline \frac{\pm 1}{\sigma_x} & \\ \hline \frac{\pm 1}{\sigma_x} & \end{array}$$

{n = 3;

b = B[w, Sum[σ<sub>j</sub> h[j], {j, n}], Sum[α<sub>10i+j</sub> t[i] h[j], {i, n}, {j, n}]],

b // dm[1, 2, 1]

} // ColumnForm

From 2012-04/bbCalculus.nb

$$\begin{pmatrix} w & h[1] & h[2] & h[3] \\ t[1] & a_{11} & a_{12} & a_{13} \\ t[2] & a_{21} & a_{22} & a_{23} \\ t[3] & a_{31} & a_{32} & a_{33} \\ 1+\Sigma/w & \sigma_1 & \sigma_2 & \sigma_3 \end{pmatrix}$$

$$\begin{pmatrix} w + \alpha_{12} & h[1] & h[3] \\ t[1] & \frac{(w+\alpha_{12}) a_{21} + a_{22} (-\alpha_{11} + w \sigma_1)}{w} + (\alpha_{11} + \alpha_{12} \sigma_1) \sigma_2 & \frac{(w+\alpha_{12}) a_{23} + a_{13} (-\alpha_{22} + w \sigma_2)}{w} \\ t[3] & \frac{(w+\alpha_{12}) a_{31} + a_{32} (-\alpha_{11} + w \sigma_1)}{w} & \frac{-\alpha_{13} a_{32} + (w+\alpha_{12}) a_{33}}{w} \\ 1+\Sigma/w & \sigma_1 \sigma_2 & \sigma_3 \end{pmatrix}$$

$$\begin{aligned} \frac{\alpha(w+\alpha)\delta - \gamma\beta}{w} - \gamma\beta &= \frac{\alpha(w+\alpha)\delta - (w+\alpha)\gamma\beta}{w} \\ &= \frac{w+\alpha}{w} (\alpha\delta - \gamma\beta) \end{aligned}$$