B-Side Operations, III

September-16-11
10:01 AM

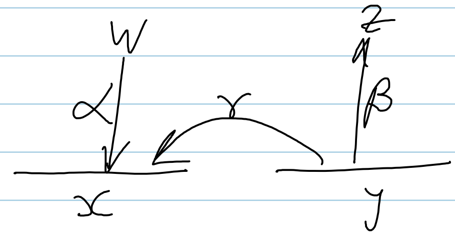
playground Program.nb:

```
In[35]:= b[ar[1, 2], ar[1, 3]]
         b[ar[1, 3], ar[2, 3]]  /. h → c // MatrixForm
         b[ar[1, 2], ar[2, 3]]   (3)

Out[35]//MatrixForm=
```

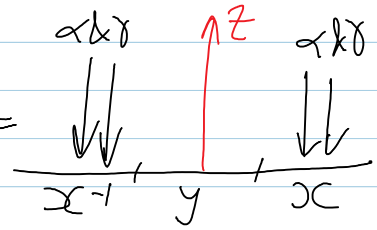
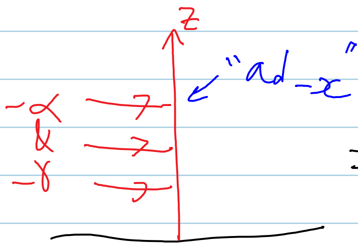
$$\begin{pmatrix} 0 \\ ar[2,3]\,c[1] - ar[1,3]\,c[2] \\ -ar[2,3]\,c[1] + ar[1,3]\,c[2] \end{pmatrix} \quad (3)$$

for heads, $[x,y] = c_x y - c_y x$



$$\mu = \alpha a_{wx} + \beta a_{yz} + \gamma a_{yx}$$

$E_y C_y^x(\mu) = \beta u_1 + \gamma u_2$ with:

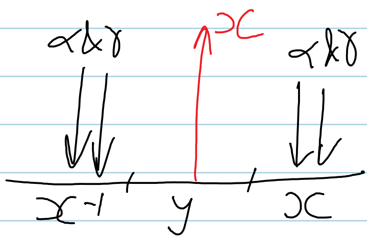
$u_1 =$  $=$  $=$

by (3) "$\mathrm{ad}_{-x}\, y = c_x y - c_y x$", so

$$= e^{\alpha c_w + \gamma c_y}$$  $$- c_y \frac{e^{\alpha c_w + \gamma c_y} - 1}{\alpha c_w + \gamma c_y}\left(\alpha a_{wz} + \gamma u_1\right)$$

$\Longrightarrow$ by 110922 Calculator.nb:

$$u_1 = \frac{\left(-1 + e^{\alpha c_w + \gamma c_y}\right)\alpha a_{wz} c_y + a_{yz}\left(\alpha c_w + \gamma c_y\right)}{e^{\alpha c_w + \gamma c_y}\,\alpha c_w + \gamma c_y} \;/.\; \alpha \to -\alpha,\ \gamma \to -\gamma$$

$u_2 =$  $$= c_y \cdot \frac{e^{\alpha c_w + \gamma c_y} - 1}{\alpha c_w + \gamma c_y} \cdot w + a_{yx}$$

The General Case, by reasonable extrapolation:

$$\mu = \alpha^w a_{wx} + \beta^z a_{yz} + \gamma a_{yx}$$

Einstein respected

$$E_y C_y^x(\mu) = \text{"}\beta u_1 + \gamma u_2\text{"}$$

$$= \beta^z \frac{\left(e^{\alpha^w c_w + \gamma c_y} - 1\right)\alpha^w a_{wz} c_y + a_{yz}\left(\alpha^w c_w + \gamma c_y\right)}{\alpha^w c_w + \gamma c_y \ldots}\ /$$

$$= \beta^z \frac{\left(e^{\alpha^w c_w + \gamma c_y} - 1\right)\alpha^w a_{wz} c_y + a_{yz}(\alpha^w c_w + \gamma c_y)}{e^{\alpha^w c_w + \gamma c_y}\,\alpha^w c_w + \gamma c_y}$$

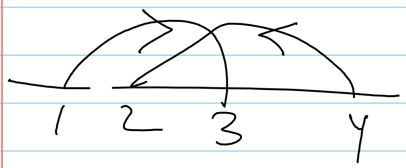
$$+ \gamma c_y \cdot \frac{e^{-\alpha^w c_w - \gamma c_y} - 1}{-\alpha^w c_w - \gamma c_y} \cdot w + \gamma a_{yx}$$

$\alpha \to -\alpha$

$\gamma \to -\gamma$

$$1234 = 1(23)4 = 1(23)4(23)^{-1}(23) = 14^{-(23)}(23)$$

$$1234 3^{-1} 3 = 124^{-3} 3 = 124^{-3} 2^{-1} 2 3$$



$$= 1(4^{-3})^{-2}(23)$$

Question. Is it legitimate to assume that α, β, γ are degree 0 scalars?