The Alexander circuit algebra morphism

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8:44 AM

$$A: \quad wT \longrightarrow \mathcal{H}$$

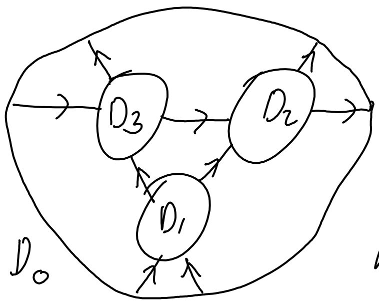
Alexander, w-Tangles, a balanced directed circuit algebra

half-densities, also a <u>balanced</u> circuit algebra.

Same number of inputs and outputs for my element.

$$\mathcal{H}(D) := \Lambda^{1/2}(V^{io}) \otimes \Lambda^{top}(V^{o})$$

<u>claim</u> To any diagram of the form



we can associate a distinguished element of

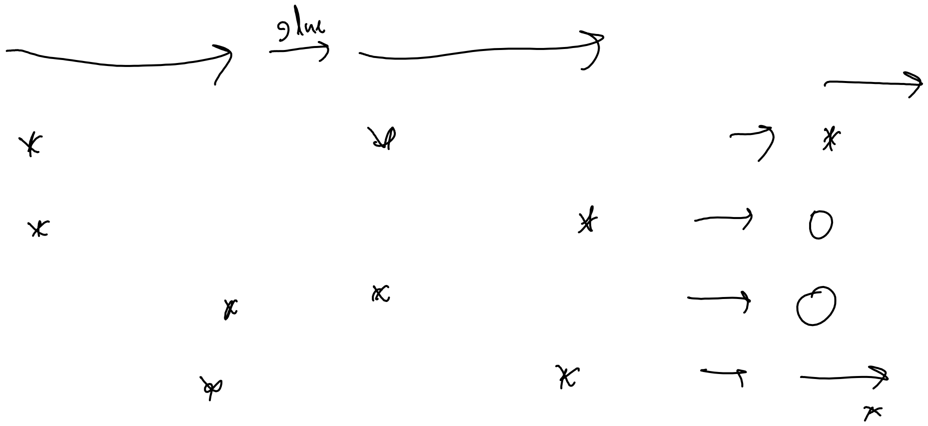
$$\mathcal{H}(D_0) \otimes \bigotimes_{k=1}^{3} \mathcal{H}(D_k)^* = \Lambda^{1/2}(V_0^{io}) \otimes \Lambda^{top}(V_0^{o}) \otimes \bigotimes_{k=1}^{3} \Lambda^{1/2}(V_k^{io*}) \otimes \Lambda^{top}(V_k^{o*})$$

<u>Key</u>: $\overset{x}{\longrightarrow}\overset{y}{} \;\longmapsto\; (y - x^*) \otimes x^*$

This brings a memory, and I'm not sure what of.

<u>composition</u>: $\longrightarrow \cdot \longrightarrow$

$$(x_1 - y_1)(y_2 - z_2) = x_1y_2 - y_1y_2 + y_1z_2 - x_1z_2$$

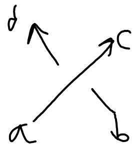


Is there a version of this that would appropriately include the polynomial coefficient rings?

Ans: $\mathcal{A}$ should be considered as fibered over the circuit algebra of equivalence relations. Above every equivalence relation is

$$\Lambda^{1/2}(V^{io}) \otimes \Lambda^{top}(V^{o}) \otimes \left(\text{polynomials in variables corresponding to equiv. classes}\right)$$

According to BBS/Archibald-080730-204035



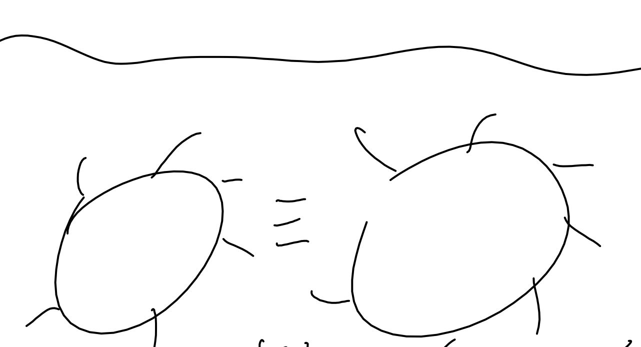
$$\longmapsto \begin{array}{l} t_b\, a\wedge b + 1\, c\wedge d \\ - t_b\, a\wedge d + 1\, b\wedge c \\ + 0\, a\wedge c + (t_a - 1)\, b\wedge d \end{array} \qquad \underbrace{\begin{array}{l} 1\, a\wedge b + t_a\, c\wedge d \\ + 1\, b\wedge c - t_a\, a\wedge d \\ (t_b - 1)\, a\wedge c \end{array}}_{\text{according to 080806 program}}$$

Fox calculus:

$$\frac{\partial}{\partial a_i} a_j = \delta_{ij} \qquad \frac{\partial}{\partial a_i} 1 = 0$$

$$\frac{\partial}{\partial a_i}(uv) = \frac{\partial}{\partial a_i} u + u \frac{\partial}{\partial a_i} v$$

$$0 = \frac{\partial}{\partial a}(aa^{-1}) = 1 + a\frac{\partial}{\partial a}a^{-1} \Rightarrow \frac{\partial}{\partial a}a^{-1} = -a^{-1}$$



$\frac{m}{2} + \frac{n}{2} - p$

in

$m + n - 2p$

$$\det_n \begin{pmatrix} | & | \\ c_1 & c_2 \\ | & | \\ \hline 1 & -1 \end{pmatrix} = \pm \det_{n-1} \begin{pmatrix} | & | \\ c_1+c_2 & \hat{c}_2 \\ | & | \end{pmatrix}$$

<u>Question</u> How do the Saito ends enter this formalism? Also – how they enter the w-formalism?

<u>Dream</u> There ought to be some "dual" of the saito end.