Wednesday-9 AKT on 140312: The construction of a UFTI, hidden faces

February-25-14 11:11 AM

Most of the goal today is to remove most of the "wishful thinking" hypothesis.

$$\begin{array}{ccccc}
\text{trivalent graphs} \to & \bar{\mathcal{D}}'_n & \xrightarrow{d} & \mathcal{D}'_n & \leftarrow \text{one-quadrivalent graphs.} \\
& \downarrow I_n & & \downarrow I_n & \\
& \mathcal{A}'(\Gamma) & \xrightarrow{d} & \mathcal{A}'(\Gamma) &
\end{array}$$

$\cong \mathcal{A}$ (postpone)

$\cong \mathcal{D}/\mathrm{im}\, d^*$

$$Z_0 = \sum_n I_n^* : \{\text{knots}\} \longrightarrow \widehat{\bigoplus_{n\geq 0}} [H^0(\bar{\mathcal{D}}_n)]^* \qquad \langle D, \bar{D}' \rangle = |\mathrm{Aut}(D)|\,\delta_{DD'}$$

on board

new

$$= \sum_{D\in\mathcal{D}} \frac{D}{|\mathrm{Aut}(D)|} I(D)(\gamma) = \sum_{D\in\mathcal{D}} \frac{D}{|\mathrm{Aut}\, D|} \int_{C_D^\gamma} \Phi_D^* \omega^{E_i(D)} \in \mathcal{A} = \mathcal{D}/\begin{smallmatrix}STU\\ IHX\end{smallmatrix}$$

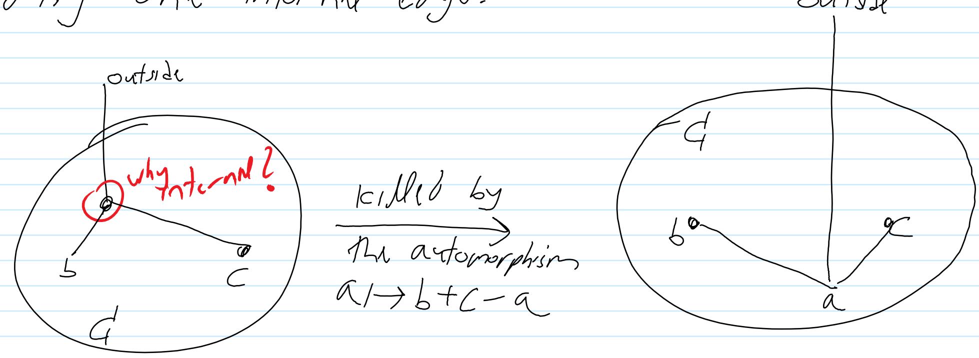
(Indeed, $\langle Z_0(\gamma), \bar{D}' \rangle \overset{?}{=} I_n(\bar{D}')(\gamma)$) $\quad$ ($n = \deg \bar{D}'$)

prop If invariant, Z_0 is a UFTI.

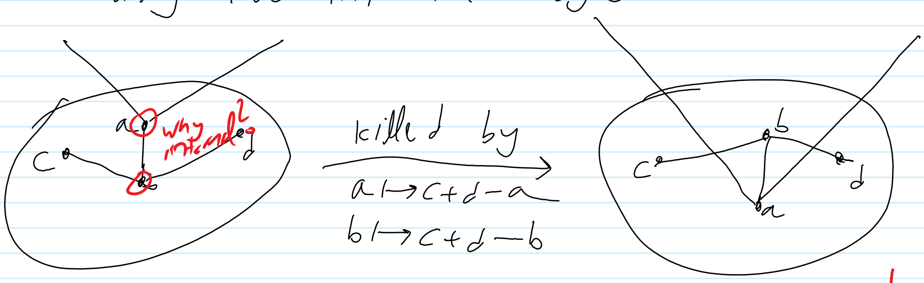
Post Mortem: I should have started with what was called "Fact 1" on the following Wednesday.

The Hidden Faces: [need only consider connected clusters of size ≥ 3; C, C^c]

1. G has a vertex a connected to the outside via only one internal edge:



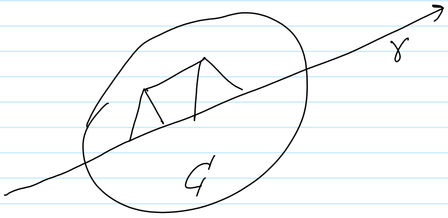
2. G has a vertex a connected to the outside via exactly two internal edges:



done

$\Rightarrow$ The only hidden faces that remain are the (line)

$\Rightarrow$ The only hidden faces that remain are the lines "anomalous faces"



Probably next week:

$P\mathcal{D} := \Big\{$

: trivalent, connected
: after removal of skel, all else the same $\Big\} \ni D$

$$C_D^{ano} \longrightarrow X \xrightarrow{\Phi_D} (S^2)^{E_i}$$
$$X \xrightarrow{\pi_l} S^2$$

The skeleton points in some S^2 direction l, Then take

$C_D^l \big/$ translations & rotations along l

$\dim = 3|V_i| + |V_s| - 2$

Claim $3|V_i| + |V_s| = 2|E_i|$

$\pi_{l*}\Phi^* W^{E_i}$ is a 2-form on S^2 . . . .