

$$\begin{array}{ccc}
\mathbb{R}\mathbb{Z}_{\infty}^{\mathbb{Z}} \mathbb{C} & \xleftarrow[\neq_A]{\#} & \mathbb{C}\mathbb{Z}_{\infty}^{\mathbb{Z}} \mathbb{C} \\
\downarrow \overline{(\cdot)} & & \downarrow \overline{(\cdot)} \\
\mathbb{C}\mathbb{Z}_{\infty}^{\mathbb{Z}} \mathbb{C} & \xleftarrow{I} & \mathfrak{U} | \mathbb{C}\mathbb{Z}_{\infty}^{\mathbb{Z}} \mathbb{C}
\end{array}$$

$$\overline{\#} F = \overline{F} I$$

$$\overline{F} \in \mathfrak{U} | \mathbb{C}\mathbb{Z}_{\infty}^{\mathbb{Z}} \mathbb{C}$$

$$I \in \mathbb{C}\mathbb{Z}_{\infty}^{\mathbb{Z}} \mathbb{C}$$

$$\overline{H}^* \mathbb{C}\mathbb{Z}_w^{-\nu} = {}^w \overline{H} \mathbb{C}\mathbb{Z}_w^{-\nu}$$

$$\begin{aligned}
\overline{H}^* \mathbb{C}\mathbb{Z}_w^{-\nu} &= \overline{\overline{H}^* \mathbb{C}\mathbb{Z}_w^{-\nu}} = \overline{\overline{H}^* \mathbb{C}\mathbb{Z}_z^{-\nu}} \star \mathbb{C}\mathbb{Z}_w^{-\nu} \\
&= \overline{H \cdot \mathbb{C}\mathbb{Z}_z^{-\nu}} \star \mathbb{C}\mathbb{Z}_w^{-\nu} = \mathbb{C}\mathbb{Z}_w^{-\nu} \star \overline{H \cdot \mathbb{C}\mathbb{Z}_z^{-\nu}} = \overline{H \cdot \mathbb{C}\mathbb{Z}_z^{-\nu}} = {}^w \overline{H} \mathbb{C}\mathbb{Z}_z^{-\nu} = {}^w \overline{H} \mathbb{C}\mathbb{Z}_w^{-\nu}
\end{aligned}$$

$$\overline{H}^* \overline{x} = {}^x \overline{H} \overline{x}$$

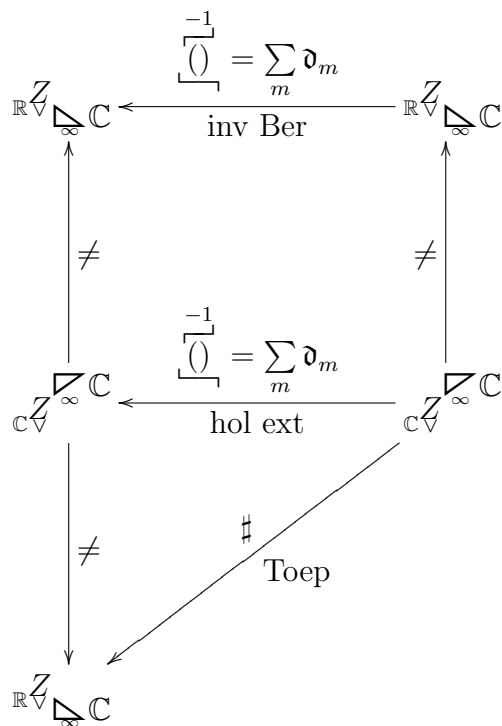
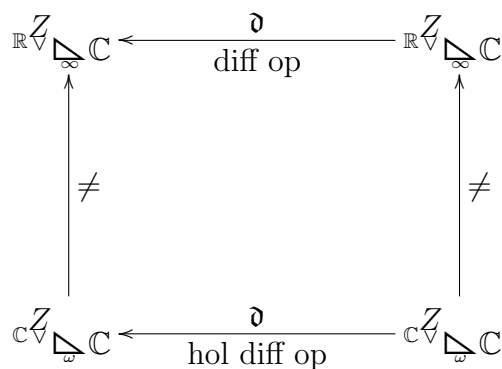
$$\overline{x} = \mathbb{C}\mathbb{Z}_x^{-\nu} / {}^x I$$

$$\overline{H}^* \overline{f} = \overline{\neq H \cdot f}$$

$$\text{LHS} = \overline{H}^* \overline{x} \int_{\mu_x^0}^{\mathbb{R}\mathbb{Z}} {}^x f = \overline{H}^* \overline{x} \int_{\mu_x^0}^{\mathbb{R}\mathbb{Z}} {}^x f = {}^x \overline{H} \overline{x} \int_{\mu_x^0}^{\mathbb{R}\mathbb{Z}} {}^x f = \overline{x} \int_{\mu_x^0}^{\mathbb{R}\mathbb{Z}} {}^x \overline{H} {}^x f = \text{RHS}$$

$$\# \overline{HF} \neq \overline{H} \# F$$

$$\overline{\#HF} = \overline{HF} I \stackrel{\text{Toep}}{=} \overline{H^*F} I = \overline{H^*F} I = \overline{H^*F} \stackrel{\text{Cor}}{=} \neq \overline{H} \# F$$



$$\bigwedge_{f \in \mathbb{R}\mathbb{Z}_{\infty}^{\omega}\mathbb{C}} \overline{f} \underset{\text{asympt}}{=} \sum_m \mathfrak{d}_m f \Rightarrow \bigwedge_{F \in \mathbb{C}\mathbb{Z}_{\infty}^{\omega}\mathbb{C}} \#F \neq \sum_m \mathfrak{d}_F$$

$$H \in \mathbb{C}\mathbb{Z}_{\infty}^{\omega}\mathbb{C} \neq \mathfrak{d}_F \Rightarrow \mathfrak{d} \neq H \Rightarrow \neq \sum_m \mathfrak{d}_m H = \sum_m \mathfrak{d}_m \neq H = \overline{()^{-1}} \neq H$$

$$\overline{\sum_m \mathfrak{d}_m H} = \overline{()^{-1}} \neq H \neq H = \overline{H \cdot I}$$

$$\xrightarrow{\text{inj}} \overline{\sum_m \mathfrak{d}_m H} = H \cdot I = \overline{H} I = \overline{\#H} \Rightarrow \#H \neq \sum_m \mathfrak{d}_F$$

$$F \in \mathbb{C}\mathbb{Z}_{\infty}^{\omega}\mathbb{C} \xrightarrow{\text{OE}} \begin{cases} \forall \dot{H} \in \mathbb{C}\mathbb{Z}_{\infty}^{\omega}\mathbb{C} \\ F = \overline{H} \dot{H} \end{cases}$$

$$\#F = \#\overline{H} \dot{H} \neq \overline{H} \cdot \#\dot{H} \neq \overline{H} \cdot \neq \sum_m \mathfrak{d}_F \neq \overline{H} \sum_m \mathfrak{d}_F \neq \sum_m \mathfrak{d}_m \overline{H} \dot{H} \neq \sum_m \mathfrak{d}_F$$