

$$\begin{aligned}
\mathbf{LHS} \ni f &= \left\{ \coprod_p X^p \otimes Y^{n-p} \rightarrow Z^n \right\}_{n \in \mathbb{Z}} \\
&\cong \left\{ X^p \otimes Y^{n-p} \rightarrow Z^n \right\}_{p, n \in \mathbb{Z}} \\
&\cong \left\{ X^p \rightarrow (Y^{n-p}, Z^n) \right\}_{p, n \in \mathbb{Z}} \\
&\cong \left\{ X^p \rightarrow \prod_n (Y^{n-p}, Z^n) \right\}_{p \in \mathbb{Z}} = g \in \mathbf{RHS}.
\end{aligned}$$