$$U(g) \otimes \mathbb{Q}[x] \longrightarrow \mathbb{Q}[x]$$

$\mathbb{Q}[x]$ is a Verma module of $U(g)$:

$$\mathbb{Q}[x] = U(g) / U(g)\langle y, a, b-t \rangle$$

$$\begin{tikzcd} & & \mathbb{H} \arrow[d] \\ U(g) \arrow[urr, bend left, "H"] \arrow[rr] & & \mathbb{Q}[x]^* \otimes \mathbb{Q}[x] \end{tikzcd}$$

The action

$$\mathbb{H}_1 \otimes \mathbb{Q}[x]_2 \longrightarrow \mathbb{Q}[x]$$

is

$$\sim e^{(\xi_1+\xi_2)x - \pi_1 \xi_2}$$

$$\begin{tikzcd} U(g) \otimes \mathbb{Q}[x] \arrow[d, "H"'] \arrow[d, shift left=8ex, "I"] \arrow[dr] & \\ \mathbb{H} \otimes \mathbb{Q}[x] \arrow[r] & \mathbb{Q}[x] \end{tikzcd}$$

$$\begin{aligned} End(\mathbb{Q}[x]) &\longrightarrow \mathbb{H} \\ \xi^i x^j &\longrightarrow \end{aligned}$$

$$e^{\beta p} e^{\tau x p} \sim e^{\tau x p} e^{\beta p} e^{\alpha \beta p}$$

$$G(H) = e^{\eta(tp - \epsilon x p^2)} e^{\beta(t + \epsilon x p)} e^{\alpha x p} e^{\xi x} /\!/ \sigma^{-1}$$

at $\epsilon = 0$ this is $\sigma^{-1}(e^{\eta t p} e^{\beta t} e^{\alpha x p} e^{\xi x}) =$

$$\sigma^{-1}(e^{\beta t} e^{\eta t p} e^{\alpha p x - \alpha} e^{\xi x}) = e^{\beta t - \alpha} e^{\eta t p} e^{(\alpha p + \xi) x}$$