

$$\gamma \in X \blacktriangleleft \mathbb{C} \Rightarrow \int_{dx}^{0|t} e^{-x} x \gamma = \sum_j^{\mathbb{N}} \overline{0\gamma_j - e^{-t}\gamma_j}$$

$$\text{LHS} = - \int_{dx}^{0|t} \frac{d e^{-x}}{dx} x \gamma = \left(-e^{-x} x \gamma \right)_0^t + \int_{dx}^{0|t} e^{-x} x \gamma$$

$$\frac{\text{ind}}{\text{deg}} 0\gamma - e^{-t} t \gamma + \sum_i^{\mathbb{N}} \overline{0\gamma_i - e^{-t}\gamma_i} \Big|_{j=i+1} = 0\gamma - e^{-t} t \gamma + \sum_j^{\mathbb{N}^*} \overline{0\gamma_j - e^{-t}\gamma_j} = \text{RHS}$$

$$\gamma \in X \blacktriangleleft \mathbb{C} \Rightarrow \overline{\sum_j^{\mathbb{N}} 0\gamma_j - e^{-t}\gamma_j} \leq t \overline{\gamma}$$

$$\overline{x} \leq t \Rightarrow \overline{x} \gamma = \overline{x^k} \overline{\gamma} \leq \overline{x^k} \overline{\gamma} \leq t^k \overline{\gamma} = t \overline{\gamma}$$

$$\text{LHS} = \overline{\int_{dx}^{0|t} e^{-x} x \gamma} \leq \int_{dx}^{0|t} e^{-x} \overline{x} \gamma \leq t \overline{\int_{dx}^{0|t} \gamma} \leq \text{RHS}$$

$$x \gamma = x^{p-} \prod_{\ell} \overline{x - \ell}^p$$

$$p! \prec \underset{j-}{k}\gamma$$

$$x\gamma_k = x^{p-} \prod_{\ell \neq k}^d \overbrace{x-\ell}^p \in X \blacktriangle \mathbb{Z}$$

$$\begin{aligned} \underset{j-}{x}\gamma &= \overbrace{j}^x \overbrace{x-k}^p x\gamma_k \stackrel{\text{Leib}}{=} \sum_i^{0|j} \begin{bmatrix} j \\ i \end{bmatrix} \overbrace{i}^x \overbrace{x-k}^p \underset{j-i-}{x}\gamma_k = \sum_i^{0|j \wedge p-} \begin{bmatrix} j \\ i \end{bmatrix} \overbrace{i}^x \overbrace{x-k}^{p-i} \underset{j-i-}{x}\gamma_k \\ \Rightarrow \underset{j-}{k}\gamma &= \begin{cases} 0 & j < p \\ \begin{bmatrix} j \\ p \end{bmatrix} p! \underset{j-p-}{x}\gamma_k & j \geq p \end{cases} \end{aligned}$$

$$\begin{cases} j \neq p- & \Rightarrow p! \prec \underset{j-}{0}\gamma \\ d < p & \Rightarrow p! \prec \underset{j-}{0}\gamma \succ (p-)! \end{cases}$$

$$x\gamma_0 = \prod_{\ell}^d \overbrace{x-\ell}^p \in X \blacktriangle \mathbb{Z}$$

$$\begin{aligned} \underset{j-}{x}\gamma &= \overbrace{j}^x \overbrace{x^{p-}} x\gamma_0 \stackrel{\text{Leib}}{=} \sum_i^{0|j} \begin{bmatrix} j \\ i \end{bmatrix} \overbrace{i}^x \overbrace{x^{p-}} \underset{j-i-}{x}\gamma_0 = \sum_i^{0|j \wedge p-} \begin{bmatrix} j \\ i \end{bmatrix} \overbrace{i}^x \overbrace{x^{p-1-i}} \underset{j-i-}{x}\gamma_0 \\ \Rightarrow \underset{j-}{0}\gamma &= \begin{cases} 0 & j < p- \\ (p-)! (-1)^{dp} \widehat{d!}^p & j = p- \\ \begin{bmatrix} j \\ p- \end{bmatrix} (p-)! \underset{j-p+1-}{x}\gamma_0 & j \geq p \end{cases} \end{aligned}$$

$$j \geq p \Rightarrow \underset{j-p+1-}{0}\gamma_0 = \underset{j-p-}{0x}\gamma_0 = \frac{\sum_k^{0|d} \overbrace{x-k}^p \prod_{\ell \neq k}^p \overbrace{x-\ell}^p}{j-p} = p \frac{\sum_k^{0|d} \overbrace{x-k}^{p-} \prod_{\ell \neq k}^p \overbrace{x-\ell}^p}{j-p} \succ p$$