

AFFINGE GROUP SCHEMES 04

Examples.

$$\mathbb{G}_a = \text{Spec}(\mathbb{k}[X]): \Delta(X) = X \otimes 1 + 1 \otimes X \quad S(X) = -X$$

$$\mathbb{G}_m = \text{Spec} \mathbb{k}[X, 1/X]: \Delta(X) = X \otimes X \quad S(X) = 1/X.$$

$$\text{GL}_n = \text{Spec}(\mathbb{k}[\{X_{ij}; 1 \leq i, j \leq n\}, 1/\det])$$

$$\Delta(X_{ij}) = \sum_l X_{il} \otimes X_{lj}$$

$\text{GL}_n = \text{Spec}(A)$ contains the following closed subgroups

$$\text{SL}_n = \text{Spec}(A/I^{\text{SL}_n})$$

$$I^{\text{SL}_n} = (\det(X_{ij}) - 1)$$

$$O_n = \text{Spec}(A/I^{O_n})$$

$$I^{O_n} = (\{\sum_l X_{il}X_{jl} - \delta_{ij}; 1 \leq i, j \leq n\})$$

$$\text{Spec}(A/I^{O_{B,n}})$$

$$I^{O_{B,n}} = (\{\sum_{l,k} X_{li}B_{lk}X_{kj} - B_{ij}; 1 \leq i, j \leq n\})$$