

$$\Gamma \leftarrow \frac{\Gamma}{\text{lin}} \Gamma \ni \Gamma$$

$$\min \Gamma \binom{k+1}{\mathbb{K}} = 0 \Rightarrow \Gamma \binom{0}{\mathbb{K}} \dots \Gamma \binom{k}{\mathbb{K}} \text{ free } \mathbb{K}$$

$$\nexists \bigvee_{\substack{0 \leq j \leq k \\ \alpha_0 \dots \alpha_k \neq 0}} \Gamma \binom{0}{\mathbb{K}} \alpha_0 + \dots + \Gamma \binom{k}{\mathbb{K}} \alpha_k = 0 \Rightarrow \bigvee_{0 \leq j \leq k} \alpha_0 = \dots = \alpha_{j-1} = 0 \neq \alpha_j \Rightarrow \Gamma \binom{j}{\mathbb{K}} \alpha_j + \dots + \Gamma \binom{k}{\mathbb{K}} \alpha_k = 0$$

$$\Rightarrow 0 = \Gamma \binom{k-j}{\mathbb{K}} \left( \Gamma \binom{j}{\mathbb{K}} \alpha_j + \dots + \Gamma \binom{k}{\mathbb{K}} \alpha_k \right) = \Gamma \binom{k}{\mathbb{K}} \alpha_j + \underbrace{\Gamma \binom{k+1}{\mathbb{K}}}_{=0} \alpha_{j+1} + \dots + \underbrace{\Gamma \binom{2k-j}{\mathbb{K}}}_{=0} \alpha_k = \underbrace{\Gamma \binom{k}{\mathbb{K}}}_{\neq 0} \alpha_j \nexists$$

$$\langle \Gamma \binom{\mathbb{N}}{\mathbb{K}} \rangle \leftarrow \frac{F}{\text{lin}} \langle \Gamma \binom{\mathbb{N}}{\mathbb{K}} \rangle$$

$$F \Gamma \binom{k}{\mathbb{K}} = \lambda \Gamma \binom{k}{\mathbb{K}} + \Gamma \binom{k}{\mathbb{K}} \Rightarrow \text{tr } F = \lambda(k+1)$$

$$\mathbb{F} \subset \mathbb{F} \otimes \mathbb{F} \quad \text{ideal}$$

$$\mathbb{F} \xrightarrow[\text{lin}]{1} \mathbb{K} \Rightarrow \mathbb{F} \otimes \mathbb{F} \xrightarrow{1} \mathbb{F} \otimes \mathbb{F} \xrightarrow{1} \mathbb{F} \otimes \mathbb{F}$$

$$\mathbb{F} \otimes \mathbb{F} \xrightarrow{1} \mathbb{F} \otimes \mathbb{F}$$

$$\mathbb{F} \in \mathbb{F}$$

$$\mathbb{F} \otimes \mathbb{F}^{\otimes k} \in \mathbb{F} \otimes \mathbb{F}^{\otimes k} + \langle \mathbb{F}^{\otimes k} \rangle$$

$$k=0: \mathbb{F} \otimes \mathbb{F} = \mathbb{F} \otimes \mathbb{F} + 0$$

$$0 \leq k \mapsto k+1: \mathbb{F} \otimes \mathbb{F}^{\otimes k+1} - \mathbb{F} \otimes \mathbb{F}^{\otimes k} = \mathbb{F} \otimes \mathbb{F}^{\otimes k} \otimes \mathbb{F} - \mathbb{F} \otimes \mathbb{F}^{\otimes k+1}$$

$$\equiv \mathbb{F} \otimes \mathbb{F}^{\otimes k} + \langle \mathbb{F}^{\otimes k} \rangle$$

$$= \mathbb{F} \otimes \mathbb{F}^{\otimes k} \otimes \mathbb{F} - \mathbb{F} \otimes \mathbb{F}^{\otimes k+1} + \mathbb{F} \otimes \mathbb{F}^{\otimes k} \otimes \mathbb{F}$$

$$\equiv \mathbb{F} \otimes \mathbb{F}^{\otimes k} + \langle \mathbb{F}^{\otimes k} \rangle + \langle \mathbb{F}^{\otimes k} \rangle \subset \langle \mathbb{F}^{\otimes k} \rangle$$

$$\langle \mathbb{F}^{\otimes \mathbb{N}} \rangle \xleftarrow{\mathbb{F} \otimes} \langle \mathbb{F}^{\otimes \mathbb{N}} \rangle$$

$$\text{tr}_{\langle \mathbb{F}^{\otimes \mathbb{N}} \rangle} \mathbb{F} \otimes = \mathbb{F} \otimes \dim \langle \mathbb{F}^{\otimes \mathbb{N}} \rangle$$

$$\mathbb{F} \otimes \mathbb{F} = 0$$

$$\langle \mathbb{F}^{\otimes \mathbb{N}} \rangle \xleftarrow{\mathbb{F} \otimes} \langle \mathbb{F}^{\otimes \mathbb{N}} \rangle$$

$$\dim \langle \mathbb{F}^{\otimes \mathbb{N}} \rangle \mathbb{F} \otimes \mathbb{F} = \text{tr}_{\langle \mathbb{F}^{\otimes \mathbb{N}} \rangle} \mathbb{F} \otimes \mathbb{F} = \text{tr}_{\langle \mathbb{F}^{\otimes \mathbb{N}} \rangle} \mathbb{F} \otimes \mathbb{F} = 0$$

$$\mathbb{F} \otimes \mathbb{F} = \mathbb{F} \otimes \mathbb{F} + \langle \mathbb{F}^{\otimes \mathbb{N}} \rangle = \mathbb{F} \otimes \mathbb{F} + \langle \mathbb{F}^{\otimes \mathbb{N}} \rangle = \mathbb{F} \otimes \mathbb{F} \Rightarrow \mathbb{F} \otimes \mathbb{F} = \mathbb{F} \otimes \mathbb{F} + \langle \mathbb{F}^{\otimes \mathbb{N}} \rangle$$

$$\mathfrak{b} \not\propto_{\text{solv}} \mathfrak{J} \Rightarrow \bigvee_{\substack{\mathfrak{b} \xrightarrow[\text{lin}]{\mathfrak{q}} \mathbb{K}}} \mathfrak{b} \not\propto_1 \mathfrak{J} \neq 0$$

$$\text{Ind } d = \dim \mathfrak{b} \geq 0$$

$$0 \leq d - 1 \mapsto d: \quad \dim \mathfrak{b} = \mathfrak{L}c \text{ solv} \Rightarrow \mathfrak{b} \not\propto \mathfrak{b} \not\subseteq \mathfrak{F} \Rightarrow 0 \neq \mathfrak{b} \not\propto \mathfrak{b} \not\propto \mathfrak{b} \text{ abel}$$

$$\mathfrak{F} \xrightarrow[\text{lin}]{\text{codim } 1} \mathfrak{b} \not\propto \mathfrak{b} \not\propto \mathfrak{b} \Rightarrow \mathfrak{F} = \pi^{-1} \mathfrak{F} \xrightarrow[\text{ideal}]{\text{codim } 1} \mathfrak{b}$$

$$\Rightarrow \bigvee_{\substack{\mathfrak{F} \xrightarrow[\text{lin}]{\mathfrak{1}} \mathbb{K}}} \mathfrak{F} \not\propto_1 \mathfrak{J} \neq 0$$

$$\mathfrak{b} \in \mathfrak{b} \not\propto \mathfrak{F} \not\propto \mathfrak{b} \not\propto \mathfrak{b} \not\propto \mathfrak{J} \subset \mathfrak{F} \not\propto_1 \mathfrak{J} \xrightarrow{\text{alg abg}} \bigvee 0 \neq \mathfrak{J} \in \mathfrak{F} \not\propto_1 \mathfrak{J}$$

$$\mathfrak{b} \not\propto \mathfrak{J} = \mathfrak{J} \lambda$$

$$\mathfrak{b} \mathbb{K} + \mathfrak{F} = \mathfrak{F} \xrightarrow[\text{lin}]{\mathfrak{q}} \mathbb{K}$$

$$\mathfrak{b} \alpha + \mathfrak{b} \mathfrak{q} = \lambda \alpha + \mathfrak{b} \mathfrak{q}$$

$$\mathfrak{b} \alpha + \mathfrak{b} \not\propto \mathfrak{J} = \mathfrak{b} \not\propto \mathfrak{J} \alpha + \mathfrak{b} \not\propto \mathfrak{J} = \mathfrak{J} \lambda \alpha + \mathfrak{b} \mathfrak{q} = \mathfrak{J} \lambda \alpha + \mathfrak{b} \mathfrak{q} = \mathfrak{J} \mathfrak{b} \alpha + \mathfrak{b} \mathfrak{q}$$