

21/03
W3D4

הרצאה

הכנסת

הרצאה F

הרצאה A

F

F

$a, b \in A$, $t \in F$

$$t \cdot (ab) = (t \cdot a)b = a \cdot (t \cdot b)$$

הרצאה

F

F

F

F

F

M

$$f = \sum_{\alpha \in I} a_{\alpha} \otimes e_{\alpha}$$

$a_{\alpha} = 0$, $a_{\alpha} \in A$

$f: I \rightarrow A$

$$f(\alpha) = a_{\alpha}$$

$$f: I \rightarrow A$$

$\alpha \in I$

$\cdot F$ $\rightarrow$ M $\rightarrow$ N
 $(X_{\alpha\beta}^E)$ $\rightarrow$ $Q_{\alpha\beta}$ $\rightarrow$ $Q_{\alpha\beta}$ $\rightarrow$ $Q_{\alpha\beta}$

$$(e_{\alpha} e_{\beta}) \cdot e_r = Q_{\alpha\beta} (e_{\beta} \cdot e_r)$$

$$\left(\sum_{\delta \in I} X_{\alpha\beta}^{\delta} e_{\delta} \right) \cdot e_r = e_{\alpha} \cdot \left(\sum_{\delta \in I} X_{\beta r}^{\delta} e_{\delta} \right)$$

$$\sum_{\delta \in I} X_{\alpha\beta}^{\delta} \sum_{\epsilon \in I} X_{\delta r}^{\epsilon} e_{\epsilon} = \sum_{\delta \in I} X_{\beta r}^{\delta} \sum_{\epsilon \in I} X_{\alpha\delta}^{\epsilon} e_{\epsilon}$$

$$\sum_{\epsilon \in I} \left(\sum_{\delta \in I} X_{\alpha\beta}^{\delta} X_{\delta r}^{\epsilon} \right) e_{\epsilon} = \sum_{\epsilon \in I} \left(\sum_{\delta \in I} X_{\beta r}^{\delta} X_{\alpha\delta}^{\epsilon} \right) e_{\epsilon}$$

$$\sum_{\delta \in I} X_{\alpha\beta}^{\delta} X_{\delta r}^{\epsilon} = \sum_{\delta \in I} X_{\beta r}^{\delta} X_{\alpha\delta}^{\epsilon}$$

$\alpha, \beta, r, \epsilon \in I$

- (2.17) $\otimes$ is bilinear

2.18) $a \otimes b \in M$ $a \in A, b \in B$

2.19) $\Gamma_\alpha \in F$, $b = \sum \Gamma_\alpha e_\alpha$

$$a \otimes b := \sum \Gamma_\alpha a \otimes e_\alpha$$

3.10) F is a field, $(a, b) \mapsto a \otimes b$ is a bilinear map
 $A \times B \rightarrow M$

$$(a_1 \otimes b_1) \cdot (a_2 \otimes b_2) = (a_1 a_2) \otimes (b_1 b_2)$$