Qs on tensors

Note that $\alpha \otimes \beta \in \mathcal{T}^{i+k}_{j+l}$

1) In the defn of tensor product is $\times$ multiplication? (Pushmeyes)

$\otimes$ is linear in each of the components by defn

in what sense is $\otimes$ bilinear, ~~it~~

in α, β!

QQ: how is a $(0,0)$-tensor defined?

QQ: should $\mathcal{T}(V) = \bigoplus_{q,j=0}$? or 1? ...ea and how are $\Lambda^0(V)$ & ~~Sym~~ & $Sym(\mathcal{T}_0^k(V))$ defined?

Note that for ~~$\gamma \in \mathcal{T}^k(V)$~~

$\mathcal{T}^k(V)$ should be $\mathcal{T}_0^k(V)$ right?

QQ: & need $\forall v_1, \ldots, v_k \in V$ right?

For $\gamma \in \mathcal{T}_0^k(V)$, $A\gamma \in \Lambda^k(V)$

as for all $v_1, \ldots, v_k \in V$, $\sigma \in S_k$

$A\gamma(v_{\sigma(1)}, \ldots, v_{\sigma(k)})$

$= \frac{1}{k!} \sum_{\sigma' \in S_k} \varepsilon_{\sigma'} \gamma(v_{\sigma'\sigma(1)}, \ldots, v_{\sigma'\sigma(k)})$

covers all in S_k

$= \varepsilon_\sigma \frac{1}{k!} \sum_{\sigma' \in S_k} \varepsilon_{\sigma'} \varepsilon_\sigma \gamma(v_{\sigma'\sigma(1)}, \ldots, v_{\sigma'\sigma(k)})$