**Question** As v.s., \( t \text{der}_n = \bigodot_n \text{Lie}_n \), so as v.s.,

\[ U(\text{tder}_n) = FA^\otimes n . \] What is the induced "new" algebra structure on \( FA^\otimes n \), and who else cares about it?

**Answer** Write \( V = V_1 \otimes \ldots \otimes V_n \) & \( W = W_1 \otimes \ldots \otimes W_n \), then

\[ V \times W = (V_1 \otimes W_1) \otimes \ldots \otimes (V_n \otimes W_n), \] where (say)

\[ V_i^W = V_i / \; x_i \mapsto S(w_i) x_i w_i, \] & \( W_i = w_i \otimes w_i \)

Better

\[ V \times W = (V_1^w \otimes W_1^w) \otimes \ldots \otimes (V_n^w \otimes W_n^w) \]

Does this induce the right bracket on primitives?

\[ V \times W - W \times V = (V_1^w - W_1^w) \otimes \ldots \otimes (V_n^w - W_n^w) \ldots \]

\[ -1 \text{ same} \]

So something must break the symmetry, though I'm not sure how this would arise.

**Next**

\[ V \times W = (V_1^w \otimes W_1^w) \otimes \ldots \otimes (V_n^w \otimes W_n^w) \]

Yes, see next 1. Does this relate to the shuffle product as in Furusho?

2. What is the general principle for the
2. What is the general principle for the derivation of such formulae?