What's j?

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First div:

p for primitive.

$$\begin{tikzcd} 0 \arrow[r] & \mathfrak{tr}_n \arrow[r, "i"] & A_n^{wp} \arrow[r, shift right] & \mathfrak{tder}_n \arrow[l, shift right, "t"'] \arrow[l, bend left, "b"] \arrow[r] & 0 \end{tikzcd}$$

D

$$\operatorname{div} D := i^{-1}(t-b)D$$

div must also be

$$\operatorname{div} D = D + SWD$$

where S is the antipode and W is the Wen.

Proposition 5.1. *There is a unique map $j : \mathrm{TAut}_n \to \mathfrak{tr}_n$ which satisfies the group cocycle condition*

$$j(gh) = j(g) + g \cdot j(h), \tag{18}$$

and has the property

$$\frac{d}{ds} j(\exp(su))|_{s=0} = \operatorname{div}(u). \tag{19}$$

From [Alek-Tor]

$$j : U(\mathfrak{tder}_n) \longrightarrow \mathfrak{tr}_n$$

j must also be related to

the "external" coproduct.

$$j(D) \sim m \circ (SW \otimes I) \circ \Delta D$$

For group-like D's this is the same as

$$j(D) \sim SW(D) \cdot D$$

There's also the E-K inspired

$$U(\mathfrak{g}) \xrightarrow{\sim} U(\mathfrak{g}_+) \otimes U(\mathfrak{g}_-) \xrightarrow{\sim}$$

$$\mathcal{U}(\mathfrak{g}_-)\otimes\mathcal{U}(\mathfrak{g}_+)\xrightarrow{\sim}\mathcal{U}(\mathfrak{g}).$$

There's also "apply the $\mathcal{U}$ functor to the split sequence defining div".
(non-obvious, $\mathcal{U}$ is not exact)

$\mathcal{U}$: universal enveloping algebra.

The j equation in [AT] is $j(F)\in\operatorname{im}\tilde{\delta}$.
This seems to be

$$j(F)=F(\delta a)\overset{?}{=}F^{-1}(\delta a)\cdot F$$