Drinfel'd Twists

February-21-10
9:04 PM

From Drinfel'd's Quasi-Hopf paper:

Suppose given a quasibialgebra $(A, \Delta, \varepsilon, \Phi)$ and an invertible element $F \in A \otimes A$ such that $F(x, 0) = 1 = F(0, y)$. Put

$$\tilde{\Delta}(a) = F\Delta(a)F^{-1}, \tag{1.11}$$

$$\tilde{\Phi}(x, y, z) = F(y, z)F(x, y * z)\Phi(x, y, z) \times F(x * y, z)^{-1}F(x, y)^{-1}, \tag{1.12}$$

where $*$ corresponds to Δ (and not to $\tilde{\Delta}$). Then $(A, \tilde{\Delta}, \varepsilon, \tilde{\Phi})$ is also a quasi-bialgebra. We say that $(A, \tilde{\Delta}, \varepsilon, \tilde{\Phi})$ is obtained from $(A, \Delta, \varepsilon, \Phi)$ by *twisting via the element* F. Twisting via F_1F_2 is equivalent to twisting first via F_2, then via F_1.

So "homomorphic expansions" is the wrong paradigm.

Which is the right one?