Quasi-Homomorphic Expansions

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Is there any "universal" intermediate between "homomorphic expansions" and "expansions"?

$$G \longrightarrow \mathrm{proj}\,G$$

$$\begin{tikzcd} K(\Gamma_1) \arrow[r, "Z_1"] \arrow[d, "u"] & \mathcal{A}(\Gamma_1) \arrow[d, "u"] \\ K(\Gamma_2) \arrow[r, "Z_2"] & \mathcal{A}(\Gamma_2) \arrow[loop right, "\nu_u"] \end{tikzcd}$$

Are there examples in which a qhE does not exist?

Given a quasi-homomorphic expansion Z, is there always a "central extension" of the source algebraic structure on which Z becomes an ordinary expansion?

Is there a qhE for r/g-tangles?

Can we construct a qhE for the braid group, without using high-tech?

For braids, qhE would mean:

$$Z(B_1 B_2) = \nu\left(Z(B_1)\cdot Z(B_2)\right)$$

Taking $B_1 = I$, we get

$$Z(B) = \nu\left(Z(I)\cdot Z(B)\right)$$

$$\nu^{-1}(Z(B)) = Z(I)\cdot Z(B)$$

$$\nu^{-1}(D) = Z(I)\cdot D$$

$$\nu(D) = Z(I)^{-1}\cdot D.$$

Likewise with $B_2 = I$ we get

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$$\nu(D) = D\, z(I)^{-1}$$

$\Rightarrow$ $z(I)$ must be central, and

$$\nu(D) = z(I)^{-1} \cdot D = D \cdot z(I)^{-1}$$

$\Rightarrow$ Constructing a qhE doesn't seem easier than constructing a homomorphic expansion.