$$\therefore \operatorname{Tor}_{A_k}(R,R) = H(B \otimes_{A_k} R)$$

$$= B \otimes_{A_k} R = \Gamma(t) \otimes E(w)$$

as algebras.

Let $R = \mathbb{Z}$: then $\Delta(t) = t \otimes 1 + 1 \otimes t$,

$$t^i = i!\,\gamma_i \implies$$

$$\Delta(\gamma_i) = \frac{1}{i!}\left[\Delta(t)\right]^i = \frac{1}{i!}\sum_{\alpha+\beta=i} \frac{i!}{\alpha!\,\beta!}\, t^\alpha \otimes t^\beta$$

$$= \sum_{\alpha+\beta=i} \gamma_\alpha \otimes \gamma_\beta$$

$$\therefore \operatorname{Tor}_{A_k}(R,R) = \Gamma(t) \otimes E(w)$$

as Hopf algebras if $R = \mathbb{Z}$.

But $\mathbb{Z}$ is the universal case via:

$$\operatorname{Tor}_{A_k}(R,R) = \operatorname{Tor}_{A_k}(\mathbb{Z},\mathbb{Z}) \otimes R.$$