# Some examples of $A_\infty$-bialgebras

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Let $p$ be an odd prime. When $n \geq 3$, we show that each tensor factor of form $E \otimes \Gamma$ in $H_* (\mathbb{Z}, n; \mathbb{Z}_p)$ is an $A_\infty$-infinity bialgebra with non-trivial structure. We give explicit formulas for the structure maps and the quadratic relations among them. Thus $E \otimes \Gamma$ is a naturally occurring example of an $A_\infty$-bialgebra whose internal structure is well-understood.