$$\begin{bmatrix} \mathbb{D}_n^v] \circledcirc \left[\mathbb{Z}_m \oplus \mathbb{Z}_2^c \right] \\ & \swarrow \\ & \longleftarrow \\ \mathbb{1}, [\mathbb{Z}_d], [\mathbb{Z}_2^{b_i-}] & [\mathbb{1}], [\mathbb{Z}_d] \end{bmatrix}$$