On the structure of minimal zero-sum sequences of maximal length in $C_n \oplus C_n$

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It is well known that minimal zero-sum sequences in $C_n \oplus C_n$ have length at most $2n - 1$. It was conjectured that in each such sequence of maximal length there is one element which appears $n - 1$ times. This is now proved in the case that the support of the sequence has only 3 elements.

If $n = p$ is a prime number it is known that the support of such a sequence has at most $p + 1$ elements, and examples are known with supports of maximally p elements. Using Hamming codes, it is proved that indeed the support has at most p elements.

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