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Fan Zhou* (fanzhou@college.harvard.edu). *On Eventually Periodic Sets as Minimal Additive Complements*. Preliminary report.

For subsets C, W of \mathbb{Z} , C is said to be a minimal additive complement to W if $C + W = \{c + w : c \in C, w \in W\} = \mathbb{Z}$ and $C' + W \neq \mathbb{Z}$ for any proper subset $C' \subset C$. In their recent paper, Burcroff and Luntzara studied the conditions under which “eventually periodic sets”, which are of form $(m\mathbb{N} + A) \cup B \cup F$ (for finite A, B, F , where B is in the same congruence classes mod m as A and F is in different congruence classes than A), arose as minimal additive complements in \mathbb{Z} . In the present paper we shall study this question further. For example, we give, in the form of bounds on the period m , some sufficient conditions for an eventually periodic set to be a minimal additive complement; in particular we show that “all eventually periodic sets are eventually minimal additive complements”. Moreover, we generalize this to a framework in which “patterns” of points are projected down to \mathbb{Z} , and we show that all sets which arise this way are eventually minimal additive complements. We also introduce a formalism of formal power series, which serves purely as a bookkeeper in writing down proofs. (Received August 31, 2020)