Proof by contradiction

Assume that there exists Elias codewords m and n where $m \neq n$ and m and is a prefix of n.

Since n is an Elias codeword, it must consist of some non-zero number of length components, followed by the minimal binary code.
If m is a prefix of n, it must terminate at either:

a. In the middle of some length component
b. At the end of some length component
c. In the middle of the minimal binary code

Case a and b:
If m ends without the minimal binary code, then by definition it cannot be an Elias codeword.

Case c:
If m is an Elias codeword, then it must have some last length component mL_1 (the length component for the minimal binary code). Similarly, n has the last length component nL_1. In case c, $mL_1 = nL_1$ as m is a prefix of n up till the minimal binary code which occurs later in the codeword.
So, m's minimal binary code must have the same length as n's minimal binary code. This cannot be possible since m and n are identical up till their L_1 components. If m is a prefix of n, then it has the same length of length components but different length minimal binary codes. This is impossible as L_1 = len(minimal binary code) for all Elias codewords.

Thus, in all cases, this assumption leads to a contradiction. Using proof by contraction, no Elias codeword m can be a prefix of another Elias codeword n for $m \neq n$.