let $w_1 \in W(X)$ be a reducible word of length less than 2.
w_1 reducible $\implies \exists w_2 \in W(X)$ s.t $w_1 \searrow w_2 \implies \exists w_2 \in W(X)$ s.t $w_2 \nearrow w_1$
By definition of an elementary expansion we have that:
$w_2 = u_1 u_2 ... u_k$ and $w_1 = v_1 v_2 ... v_{k+2}$ for some $u_1, u_2, ... u_k, v_1, v_2, ... v_{k+2} \in X \cup X^{-1}$ and $k \in \mathbb{N}_0$
As the length of w_1 is less than 2 we have: $k + 2 < 2 \implies k < 0 \implies k \notin \mathbb{N}_0$ this is a contradiction $\square$