1. The sequences $(R_k^+)_{k\in\mathbb{Z}^+}$, $(R_k^-)_{k\in\mathbb{Z}^-}$

D ... connected, **locally finite**

D loop at each vertex $\Rightarrow$ R_1^+ universal

Every vertex contained in a directed closed walk of length 2. $\Rightarrow$ $R^+ = R_2^+ = R_2^- = R^-$

If D in addition contains a closed walk of odd length $\Rightarrow$

$\Rightarrow$ R_2^+ is universal

No closed walk of odd length $\Rightarrow$

$\Rightarrow$ R_2^+ (R_2^-) has two equivalence classes

$R^+ = R_k^+$ for some k if and only if $R_{k+1}^+ = R_k^+$