Iterative dynamics of endomorphism of a set

Definition. **Iterative dynamics of endomorphism of a set**

Let X be a set and

$$f : X \to X$$

be a map.

forward orbit	$\mathrm{orb}_f^+(x) := \{f^n(x) \mid n \in \mathbb{N}\}$

	if
$W \subseteq X$ is **wandering**	$\{T^{-n}W \mid n \geq 0\}$ are pairwise disjoint
$W \subseteq X$ is **recurring**	$\{T^{-n}W \mid n \geq 0\}$ are not pairwise disjoint $\iff$ $\exists x \in T^{-n}W \cap W$