Definition (Semigroup covariant action (preliminary version)). A *semigroup **covariant** action* of a semigroup S on a set A is a map

$$\text{Covact} : S \times A \to A$$

such that, for all $a \in A$,

$$\text{Covact}(y, \text{Covact}(x, a)) = \text{Covact}(x \mathbin{\fatsemi_S} y, a).$$