

**Definition** (Generating subsets). Let  $S = \langle \mathbf{S}, \circ \rangle$  be a semigroup, and let  $\mathbf{A} \subseteq S$  be a subset. We say that  $S$  is *generated* by  $\mathbf{A}$  if every element of  $S$  can be expressed as a finite multiplication of elements of  $\mathbf{A}$ .