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fix (transformation action)

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Defines	fixed set

Let A be a set, and $T : A \rightarrow A$ a transformation of that set. We say that $x \in A$ is *fixed* by T , or that T *fixes* x , whenever

$$T(x) = x.$$

The subset of fixed elements is called *the fixed set of T* , and is frequently denoted as A^T .

We say that a subset $B \subset A$ is fixed by T whenever all elements of B are fixed by T , i.e.

$$B \subset A^T.$$

If this is so, T restricts to the identity transformation on B .

The definition generalizes readily to a family of transformations with common domain

$$T_i : A \rightarrow A, \quad i \in I$$

In this case we say that a subset $B \subset A$ is fixed, if it is fixed by all the elements of the family, i.e. whenever

$$B \subset \bigcap_{i \in I} A^{T_i}.$$