

Solution to exercise 3.2.1.

Let us assume that the cardinality of A is n (where $n \in \mathbb{N}$). We may assign by e to each element a number from $n = \{0, \dots, n-1\}$, so that distinct elements get a distinct number. f is a *multiset* (with respect to A and e), when f is an n -tuple of natural numbers. For example, $\langle 0, \dots, 0 \rangle$ (i.e., the sequence of n 0's) is the empty multiset.

For example, if $A = \{a, b, c, d\}$, then $\langle 2, 3, 0, 7 \rangle$ — assuming that e is the alphabetic order — is the multiset $[b, b, b, d, d, d, a, d, d, a, d, d]$, which may be abbreviated as $[d^7, a^2, b^3]$. (The type of f is $f: n \rightarrow \mathbb{N}$.)