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weight (strings)

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Defines	Hamming weight

Let A be an alphabet, $a \in A$ a letter from A and $c \in A^*$ a string over a. Then the *a-weight* of c, denoted by $\mathrm{wt}_a(c)$, is the number of times a occurs in c.

If A is an abelian group, the *Hamming weight* $\mathrm{wt}(c)$ of c (no), often simply referred to as "weight", is the number of nonzero letters in c.

Examples

- Let $A = \{x, y, z\}$. In the string $c := yxxzyyzxyzzyx$, y occurs 5 times, so the y-weight $\mathrm{wt}_y(c) = 5$.

- Let $A = \mathbb{Z}_3 = \{0, 1, 2\}$ (an abelian group) and $c := 002001200$. Then $\mathrm{wt}_0(c) = 6$, $\mathrm{wt}_1(c) = 1$, $\mathrm{wt}_2(c) = 2$ and $\mathrm{wt}(c) = \mathrm{wt}_1(c) + \mathrm{wt}_2(c) = 3$.