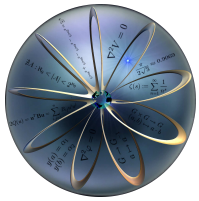

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convolution

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Let Σ be an alphabet, $\#$ a symbol not in Σ.

Let $x_1x_2\ldots x_{|x|}, y_1y_2\ldots y_{|y|}, z_1z_2\ldots z_{|z|}, \ldots$ be n words over Σ^*. Let l denote the maximum length.

The *convolution* of these words is

$$(x_1, y_1, \ldots)(x_2, y_2, \ldots)\ldots(x_l, y_l, \ldots)$$

where for any $i > |w|$, the w_i is $\#$. This is a new word in $((\Sigma \cup \{\#\})^n)^*$.

The convolution of $x, y, z, \ldots$ is sometimes denoted $\mathrm{conv}(x, y, z, \ldots)$, or $x \star y \star z \star \ldots$

Example

The convolution of $and, fish, be$ is

$$(a, f, b)(n, i, e)(d, s, \#)(\#, h, \#)$$

Notes

This definition bears no to the notion of `http://planetmath.org/Convolution`convolution of functions.