

McGraw-Hill DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS

Third Edition

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e fungus *Aspergillus*

catalyzes the hydro-
reverse dehydration

Fumariaceae [BOT] A family of dicotyledonous plants in the order Papaverales having four or six stamens, irregular flowers, and no latex system.

fumaric acid [ORG CHEM] $\text{C}_4\text{H}_4\text{O}_4$. A dicarboxylic organic acid produced commercially by synthesis and fermentation; the trans isomer of maleic acid; colorless crystals, melting point 287°C ; used to make resins, paints, varnishes, and inks, in foods, as a mordant, and as a chemical intermediate. Also known as boletic acid.

fumarole [GEOL] A hole, usually found in volcanic areas, from which vapors or gases escape.

fumble [IND ENG] An unintentional sensory-motor error that may be unavoidable.

fume hood [CHEM] A fume-collection device over an enclosed shelf or table, so that experiments involving poisonous or unpleasant fumes or gases may be conducted away from the experimental area.

fumes [CHEM] Particulate matter consisting of the solid particles generated by condensation from the gaseous state, generally after volatilization from melted substances, and often accompanied by a chemical reaction, such as oxidation.

fumigant [CHEM] A chemical compound which acts in the gaseous state to destroy insects and their larvae and other pests; examples are dichlorethyl ether, *p*-dichlorobenzene, and ethylene oxide.

fumigating [ENG] The use of a chemical compound in a gaseous state to kill insects, nematodes, arachnids, rodents, weeds, and fungi in confined or inaccessible locations; also used to control weeds, nematodes, and insects in the field.

fuming nitric acid [INORG CHEM] Concentrated nitric acid containing dissolved nitrogen dioxide; may be prepared by adding formaldehyde to concentrated nitric acid.

fuming sulfuric acid [INORG CHEM] Concentrated sulfuric acid containing dissolved sulfur trioxide. Also known as oleum.

fumulus [METEOROL] A very thin cloud veil at any level, so delicate that it may be almost invisible.

fungal See sthene.

Funariales [BOT] An order of mosses; plants are usually annual, are terrestrial, and have stems that are erect, short, simple, or sparingly branched.

function [COMPUT SCI] In FORTRAN, a subroutine of a particular kind which returns a computational value whenever it is called. [MATH] A mathematical rule between two sets which assigns to each member of the first, exactly one member of the second.

functional [COMPUT SCI] In a linear programming problem involving a set of variables x_j , $j = 1, 2, \dots, n$, a function of the form $c_1x_1 + c_2x_2 + \dots + c_nx_n$ (where the c_j are constants) which one wishes to optimize (maximize or minimize, depending on the problem) subject to a set of restrictions. [MATH] A function from a vector space into its scalar field.

functional analysis [MATH] A branch of analysis which studies the properties of mappings of classes of functions from one topological vector space to another.

functional bombing [ORD] The bombing of a specially selected class of key targets, such as dams or marshaling yards, within an industrial complex or transportation system, as opposed to the bombing of an entire system.

functional constraint [MATH] A mathematical equation which must be satisfied by the independent parameters in an optimization problem, representing some physical principle which governs the relationship among these parameters.

functional decomposition [CONT SYS] The partitioning of a large-scale control system into a nested set of generic control functions, namely the regulatory or direct control function, the optimizing control function, the adaptive control function, and the self-organizing function.

functional design [COMPUT SCI] A level of the design process in which subtasks are specified and the relationships among them defined, so that the total collection of subsystems performs the entire task of the system.

functional diagram [COMPUT SCI] A diagram that indicates the functions of the principal parts of a total system and also shows the important relationships and interactions among these parts.

functional electrical stimulation [MED] Therapeutic application of controlled amounts of electric current to muscles to make them contract in a nearly normal manner.

functional forms analysis chart See form process chart.

functional generator See function generator.

functional group [ORG CHEM] An atom or group of atoms, acting as a unit, that has replaced a hydrogen atom in a hydrocarbon molecule and whose presence imparts characteristic properties to this molecule; frequently represented as R—.

functional interleaving [COMPUT SCI] Alternating the parts of a number of sequences in a cyclic fashion, such as a number of accesses to memory followed by an access to a data channel.

functionality [CHEM] Ability of a compound to form covalent bonds; compounds may be mono-, di-, tri-, or polyfunctional, that is, one, two, three, or many functional groups may participate in a reaction.

functional multiplier See function multiplier.

functional paralysis See hysterical paralysis.

functional requirement [COMPUT SCI] The documentation which accompanies a program and states in detail what is to be performed by the system.

functional residual capacity [PHYSIO] The volume of gas which remains within the lungs at expiratory standstill.

functional specifications [COMPUT SCI] The documentation for the design of an information system, including the data base; the human and machine procedures; and the inputs, outputs, and processes for each data entry, query, update, and report program in the system.

functional switching circuit [ELECTR] One of a relatively small number of types of circuits which implements a Boolean function and constitutes a basic building block of a switching system; examples are the AND, OR, NOT, NAND, and NOR circuits.

functional unit [COMPUT SCI] The part of the computer required to perform an elementary process such as an addition or a pulse generation.

function code [COMPUT SCI] Special code which appears on a medium such as a paper tape and which controls machine functions such as a carriage return.

function-evaluation routine [COMPUT SCI] A canned routine such as a log function or a sine function.

function generator [ELECTR] Also known as functional generator. 1. An analog computer device that indicates the value of a given function as the independent variable is increased. 2. A signal generator that delivers a choice of a number of different waveforms, with provisions for varying the frequency over a wide range.

function hole See designation punch.

function key [COMPUT SCI] A special key on a keyboard to control a mechanical function, initiate a specific computer operation, or transmit a signal that would otherwise require multiple key strokes.

function multiplier [ELECTR] An analog computer device that takes in the changing values of two functions and puts out the changing value of their product as the independent variable is changed. Also known as functional multiplier.

function switch [ELECTR] A network having a number of inputs and outputs so connected that input signals expressed in a certain code will produce output signals that are a function of the input information but in a different code.

function table [COMPUT SCI] 1. Sets of computer information arranged so an entry in one set selects one or more entries in the other sets. 2. A computer device that converts multiple inputs into a single output or encodes a single input into multiple outputs. [MATH] A table that lists the values of a function for various values of the variable.

function unit [COMPUT SCI] In computer systems, a device which can store a functional relationship and release it continuously or in increments.

functor [COMPUT SCI] See logic element. [MATH] A function between categories which associates objects with objects and morphisms with morphisms.

fundamental [PHYS] The lowest frequency component of a complex wave. Also known as first harmonic; fundamental component.

fundamental affine connection [MATH] An affine connection whose coefficients arise from the covariant and contravariant metric tensors of a space.

fundamental circle See primary great circle.

fundamental complex [GEOL] An agglomeration of metamorphic rocks underlying sedimentary or unmetamorphosed rocks; specifically, an agglomeration of Archean rocks supporting a geological column.

fundamental component See fundamental.