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DICTIONARY OF
COMPUTING

SIXTH EDITION



A Dictionary of
Computing

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Entries include

Active X • A
binary code •
cache • com
computational
Computer M
database • D
(DES) • des
electronic pul
Ethernet • F
format • Fre
device interfa
holographic
inkjet printer
jackknife •
kerning • K
display • lin
mechatronic
information
• OCR • F
QuickTime
• scanner •
toolbar • T
videoconfer
• World W

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text problem.

A *function from
t to another having
eaking, that least
rved. A function

if, for every *directed

subset X of S , f maps the least upper bound
of X to the least upper bound of the *image
of X under f . Continuous functions are
significant in *denotational semantics since
they correspond to the requirement that a
computational process produces arbitrarily
close approximations to the final output,
given arbitrarily close approximations to the
total input.

A continuous function $f(x)$ has no breaks
or instantaneous changes in value. In the
hierarchy of mathematical functions the
smoothest are those, such as $\sin x$, $\cos x$,
that can be differentiated any number of
times, always producing a continuous func-
tion.

continuous inkjet printer See INKJET
PRINTER.

continuous signal, system See DISCRETE
AND CONTINUOUS SYSTEMS.

continuous simulation See SIMULATION.

continuous stationery See STATIONERY.

continuous-tone image An image, such
as a photograph, where the gray levels in the
image are continuous and not discrete.

contradiction See TAUTOLOGY.

contrapositive of a conditional, $P \rightarrow Q$.
The statement

$$\neg Q \rightarrow \neg P$$

where $\neg$ denotes negation. The contraposi-
tive of a conditional is therefore equivalent
to the original conditional. See also
CONVERSE, INVERSE.

control bus A *bus that is dedicated to the
passing of control signals.

control character A character that when
typed at a keyboard or sent to a peripheral
device is treated as a signal to control oper-
ating functions. See also CHARACTER SET,
ASCII.

control circuitry Electric circuits within a
computer or peripheral that regulate its op-
eration.

Control Data Corporation See CDC.

control design The design of a *control
unit. Control units may be designed using
*random logic or *microprogramming. Mi-
croprogramming was well suited to the con-
trol of the complex sequences of register
transfers required by CISC instruction sets.

RISC processors with their emphasis on the
rapid execution of simple instruction sets
usually employ random logic control to opti-
mize performance.

control flow The sequence of execution
of statements in a program.

control-flow graph A *directed graph
representing the sequence of execution in a
program unit, in which nodes represent
branching points or subprogram calls in a
program, and arcs represent linear se-
quences of code. From the control-flow
graph an analysis can show

the structure of the program,
starts and ends of program segments,
unreachable code and dynamic halts,
branches from within loops,
entry and exit points for loops,
paths through the program.

See also STATIC ANALYSIS.

control key See KEYBOARD, CONTROL CHAR-
ACTER.

controlled sharing Making used re-
sources available to more than one using re-
source through an *access control
mechanism.

controller A subsystem that governs the
functions of attached devices but generally
does not change the meaning of the data
that may pass through it. The attached de-
vices are usually peripherals or communica-
tion channels. One of the functions of the
controller may involve processing the data
stream in order to format it for transmission
or recording.

control line A conductor in a multiwire
interface that conveys a control signal.

control memory Another name for
microprogram store.

control points Points used in the specifi-
cation of curves to define the general re-
quired shape.

control record A record that contains
control totals derived by summing values
from other records in a file. The totals may or
may not have some sensible meaning. Their
purpose is to check that none of the preced-
ing records has been lost or altered in some
way. See also HASH TOTAL.

control sequence A string of characters
used to control the operation of a peripheral