planetmath.org

Math for the people, by the people.

acyclic graph

Canonical name	AcyclicGraph
Date of creation	2013-03-22 12:30:39
Last modified on	2013-03-22 12:30:39
Owner	Logan (6)
Last modified by	Logan (6)
Numerical id	8
Author	Logan (6)
Entry type	Definition
Classification	msc 05C38
Synonym	acyclic
Synonym	DAG
Related topic	Graph
Related topic	Cycle
Related topic	BetheLattice
Defines	directed acyclic graph

Any graph that contains no cycles is an *acyclic graph.* A directed acyclic graph is often called a DAG for short.

For example, the following graph and digraph are acyclic.

$$
\begin{array}{ccc}
 & A & \\
B & & C
\end{array}
\qquad\qquad
\begin{array}{ccc}
 & A & \\
B & \longrightarrow & C
\end{array}
$$
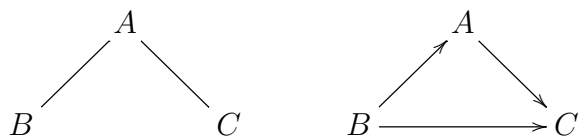
In contrast, the following graph and digraph are *not* acyclic, because each contains a cycle.

$$
\begin{array}{ccc}
 & A & \\
B & \text{------} & C
\end{array}
\qquad\qquad
\begin{array}{ccc}
 & A & \\
B & \longleftarrow & C
\end{array}
$$