## **Graph Terminology Overview**

## Algorithms & Datastructures

## 19.11.2021

walk Weg A series of connected vertices. trail kantendisjunkter Weg A walk without repeated edges. path Pfad A walk without repeated vertices. cycle   Kreis A path where $v_0 = v_{end}$ holds.   circuit, tour kantendisjunkter Zyklus A trail where $v_0 = v_{end}$ holds.   closed walk Zyklus A walk where $v_0 = v_{end}$ holds.   incident inzident connected (vertex & edge) adjacent adjazent neighboring (vertex & vertex) reachable $u$ erreicht $v$ $\exists$ walk from $u$ to $v$ connected zusammenhängend $G$ has one connected component undirected ungerichtet all edges go both ways acyclic azyklisch no cycles in $G$ degree Grad # of edges incident to $v$ indegree Eingangsgrad # of incoming edges incident to $v$ outdegree Ausgangsgrad # of outgoing edges incident to $v$ tree Baum connected graph without cycles leaf Blatt vertex with degree 1 forest Wald graph where every ZHK is a tree connected component Zusammenhangskomponente parts of a graph that are connected neighborhood Nachbarschaft subgraph of all vertices adjacent to $v$ bridge, cut edge Brücke If $e$ removed, $G$ no longer connected antiquation point, out vertex $V$ Artikulation length $V$ articulation point, and vertex $V$ Artikulation length $V$ articulation point $V$ articulation length $V$ are length $V$ and $V$ articulation length $V$ articulation length $V$ articulation length $V$ articulation length $V$ are length $V$ and			
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neighborhood Nachbarschaft subgraph of all vertices adjacent to $v$ bridge, cut edge Brücke If $e$ removed, $G$ no longer connected	forest	Wald	graph where every ZHK is a tree
bridge, cut edge Brücke If $e$ removed, $G$ no longer connected	connected component	Zusammenhangskomponente	parts of a graph that are connected
	neighborhood	Nachbarschaft	subgraph of all vertices adjacent to $\boldsymbol{v}$
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articulation point, cut vertex Artikulationskiloten ii v removed, G no longer connected	articulation point, cut vertex	Artikulationsknoten	If $v$ removed, $G$ no longer connected

 $<sup>^1</sup>$ In some literature a cycle is also more generally equivalent to a circuit.  $^2$ This is not formally correct, since a path cannot have repeating vertices.