We describe the collection of associative non-commutative algebras $A(\Gamma)$ sometimes also known as splitting algebras. This class of algebras is important due to its relationship to factorizations of polynomials with non-commutative coefficients.

In 2008 a non-Koszul example of an algebra of this type was found. Recent results by Retakh, Serconek and Wilson have produced conditions for numerical Koszulity based upon the homological properties of the graph. We discuss a computer aided proof which gives the minimal example of a layered graph producing an $A(\Gamma)$ which fails to be Koszul. (Received September 22, 2011)