Trivial extensions of gentle algebras

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The class of special biserial algebras comprises many well-studied families of algebras such as gentle algebras, symmetric special biserial algebras and Brauer graph algebras. The latter two families coincide, and we give a new proof of this. Furthermore, to every gentle algebra A, we associate a graph $G(A)$ and we show that the trivial extension of A is isomorphic to the Brauer graph algebra with Brauer graph $G(A)$. In the other direction, given a Brauer graph algebra B, we show that any admissible cut gives a gentle algebra A and if B is multiplicity free, then the trivial extension of A is isomorphic to B. We finish with an application to Jacobian and surface algebras of unpunctured Riemann surfaces.

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