Linearization of graphic toposes via Coxeter groups

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In an associative algebra over a field K of characteristic not 2, the idempotent elements a for which the inner derivation $[-, a]$ is also idempotent, form a monoid M satisfying the graphic identity $aba = ab$. In case K has three elements and M generates the algebra, then the category of K-vector spaces in the topos of M sets is a full exact subcategory of the vector spaces in the Boolean topos of G-sets, where G is a special Coxeter group which measures the non-commutativity of M.

References

[1] F. William Lawvere, *More on Graphic Toposes*, Cahiers de Topologie et Géométrie Différentielle Catégorique XXXII (1991), 5-10.