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# DERIVATIONS OF QUOTIENTS OF VON NEUMANN ALGEBRAS

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There are two main classes of $C^*$-algebras which are known to have only inner derivations, von Neumann algebras and simple $C^*$-algebras with unit. For a third class, quotients of von Neumann algebras by norm closed two-sided ideals, the existence or non-existence of outer derivations is an open question. This talk will describe a proof that, provided the ideal satisfies two auxiliary conditions, the quotient of the von Neumann algebra has only inner derivations. The additional conditions are, first that the ideal should be an intersection of maximal two-sided ideals, second that the centre of the quotient algebra should satisfy a certain countable decomposability condition. They are satisfied, in particular, when the ideal is a countable intersection of maximal ones. I do not know whether the result remains true, when either (or both) of the auxiliary conditions is omitted. The method used provides some information in the absence of the second condition, but breaks down completely if the first auxiliary condition is not satisfied.

A detailed statement of these results, and full proofs, are given in a paper of the above title to be published in the Proceedings of the London Mathematical Society.