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Frobenius objects in general cartesian bicategories

In recent joint work, Bob Walters and the speaker have shown that maps (left adjoint arrows) between Frobenius objects in a cartesian bicategory $\mathbf{B}$ are precisely comonoid homomorphisms and, for A Frobenius and any T in $\mathbf{B}$, $\mathrm{map}(\mathbf{B})(T, A)$ is a groupoid.

In this talk, the context of the second result will be thoroughly explained and a proof given. As a corollary, it follows that a Frobenius object in the bicategory of categories and profunctors is a groupoid. This last result was first proved about 20 years ago by Aurelio Carboni and the speaker, independently. However it is only recently that general cartesian bicategories have been defined so as to be able to contemplate the present theorem.