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Dominic Lanphier* (dominic.lanphier@wku.edu), Mathematics Department, 1906 College Heights Blvd, Western Kentucky University, Bowling Green, KY 42101. *Arithmeticity of Rankin-Selberg kernels.*

Special values of the Rankin-Selberg convolution L-functions of two different weight cusp forms are well-known. These expressions lead to a nice closed form for the harmonic average of such values, where the average is taken over a basis of the space of cusp forms containing the higher-weight cusp form. We interpret the harmonic average as a linear operator between spaces of cusp forms and obtain a closed expression for the harmonic average of the values over lower-weight cusp forms. As a consequence we obtain new values for certain Dirichlet series. (Received September 24, 2012)