5.13. Because f and g are both non-decreasing, $\{f(x)-f(y)\}\{g(x)-g(y)\} \geq 0$ for all $x, y \in \mathbf{R}$. The latter is also product-measurable. Because $\{f(x)-f(y)\}\{g(x)-g(y)\} = f(x)g(x)-f(y)g(x)-f(x)g(y)+g(x)g(y) \geq 0$, we can integrate $[\mu(dx) \times \mu(dy)]$ to finish.