The Schur functions in two variables are the holomorphic maps from the complex unit bidisk $D^2$ into the unit disk $D$. We characterize the differential behavior of a Schur function $\varphi$ at a boundary singularity $\tau \in T^2$ in terms of the structure of an associated contractive operator $Y$ on a Hilbert space $H$ arising from an Agler model. (Received September 15, 2016)