Holomorphic variations of minimal disks with boundary on a Lagrangian surface

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Abstract. Let $L$ be an oriented Lagrangian submanifold in an $n$-dimensional Kähler manifold $M$. Let $u: D \to M$ be a minimal immersion from a disk $D$ with $u(\partial D) \subset L$ such that $u(D)$ meets $L$ orthogonally along $u(\partial D)$. Then the real dimension of the space of admissible holomorphic variations is at least $n + \mu(E, F)$, where $\mu(E, F)$ is a boundary Maslov index; the minimal disk is holomorphic if there exist $n$ admissible holomorphic variations that are linearly independent over $\mathbb{R}$ at some point $p \in \partial D$; if $M = \mathbb{C}P^n$ and $u$ intersects $L$ positively, then $u$ is holomorphic if it is stable, and its Morse index is at least $n + \mu(E, F)$ if $u$ is unstable.