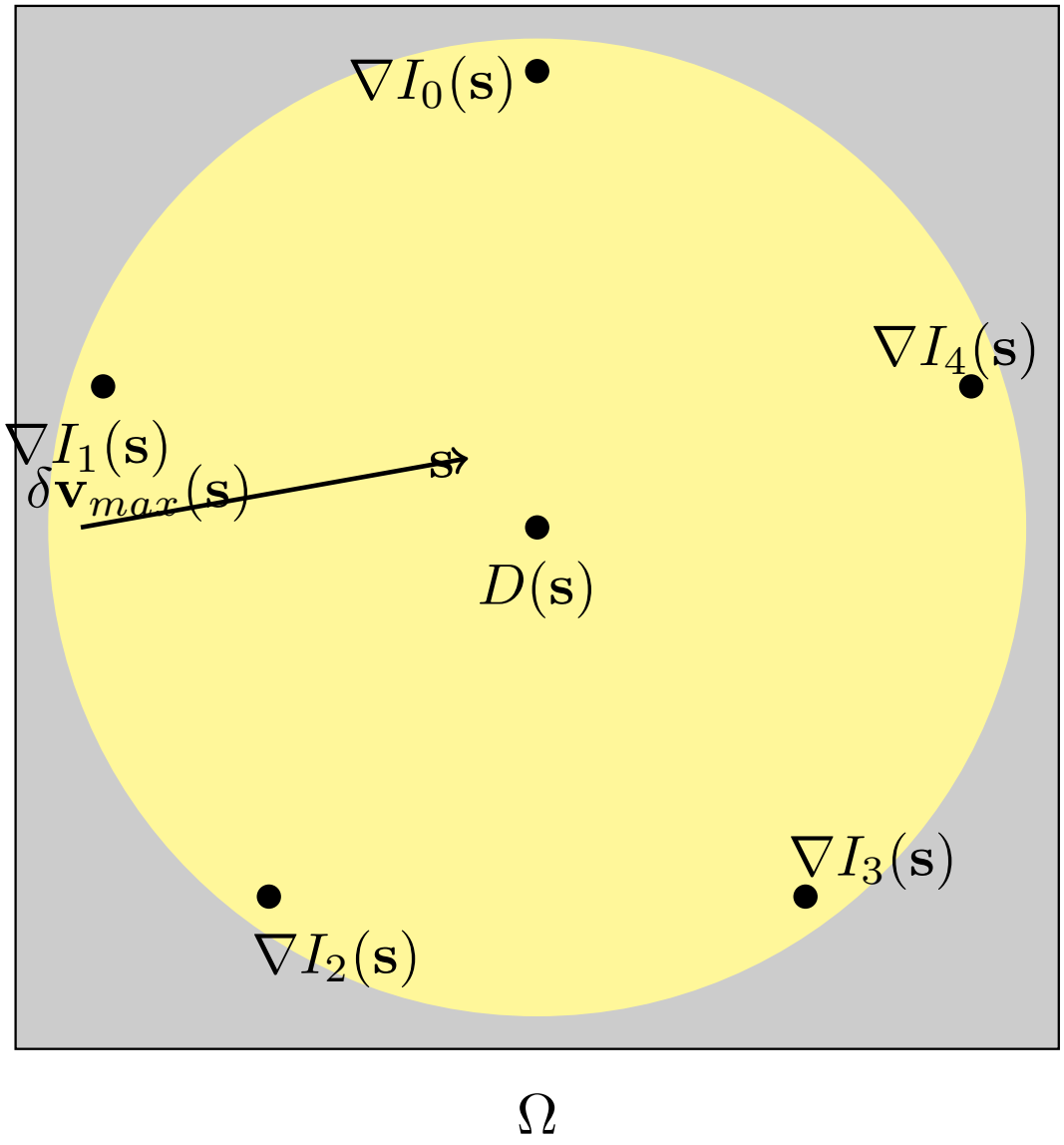

Figure 1: A diagram of the region $D(\mathbf{s})$ in the image domain Ω. The individual gradients $\nabla I_i(\mathbf{s})$ represent observations of the underlying gradient of the image surface $\nabla I(\mathbf{s})$. For the local linearization to hold between I_0 and I_2, the gradient must be constant along the dotted line connecting these points. To check the validity of the linearization, consider gradients $\nabla I_0(\mathbf{s})$, $\nabla I_1(\mathbf{s})$, and $\nabla I_2(\mathbf{s})$. If any of these gradients differ, the linearization is invalid.