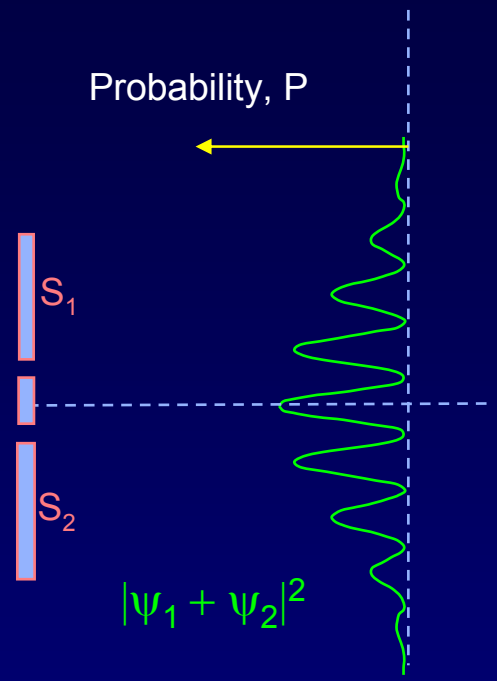
2-slits Revisited (6)



Now, open both slits. We see interference!

The probability amplitude is now $\psi_1 + \psi_2$, because you don't know which slit the photon went through.

P_{tot} = Probability density
= $|\psi_1 + \psi_2|^2$
= $|\psi_1|^2 + |\psi_2|^2$ + interference term

Add amplitudes not intensities.

$$P \neq P_1 + P_2$$

The interference term will depend on phase differences, just like the wave calculations we did before.