

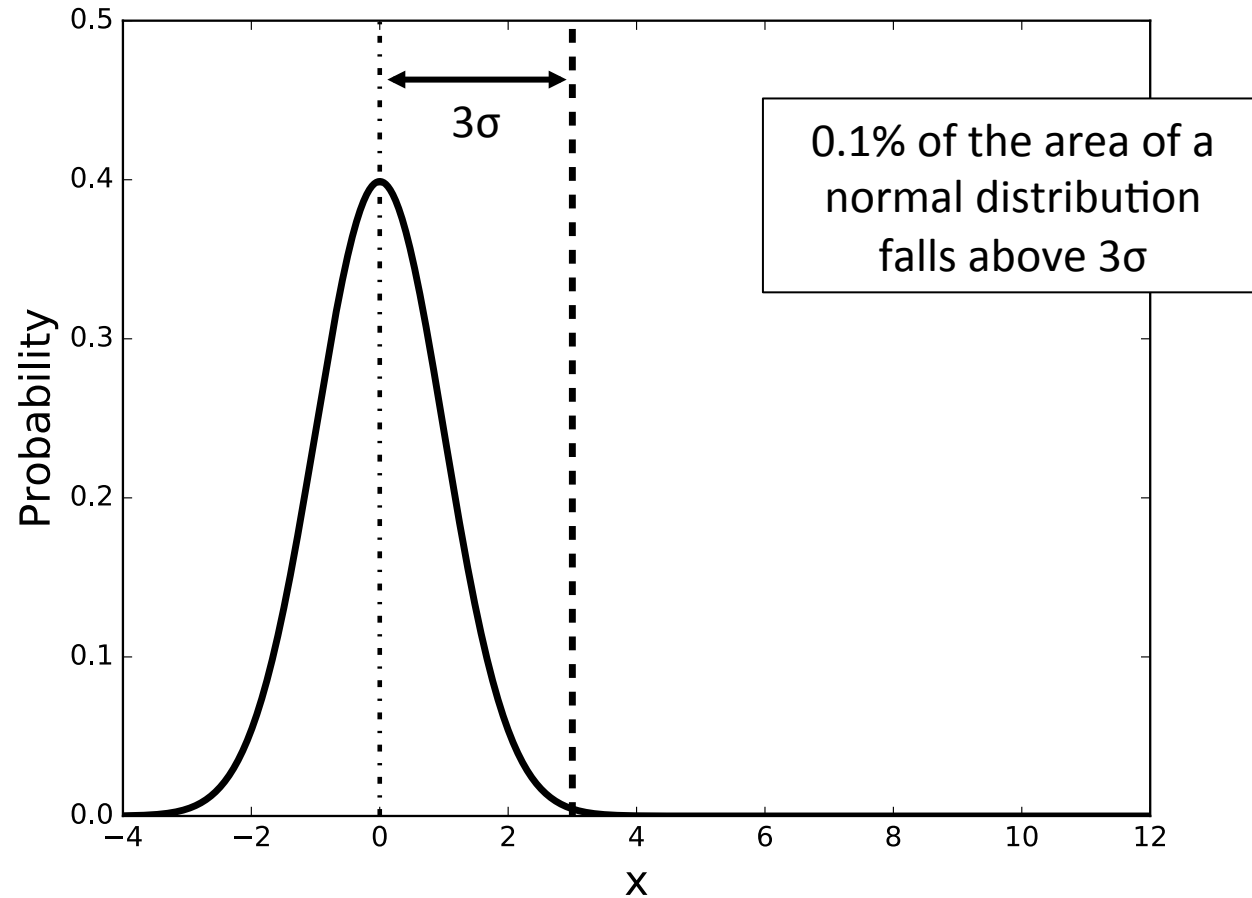
Signal Detection Review

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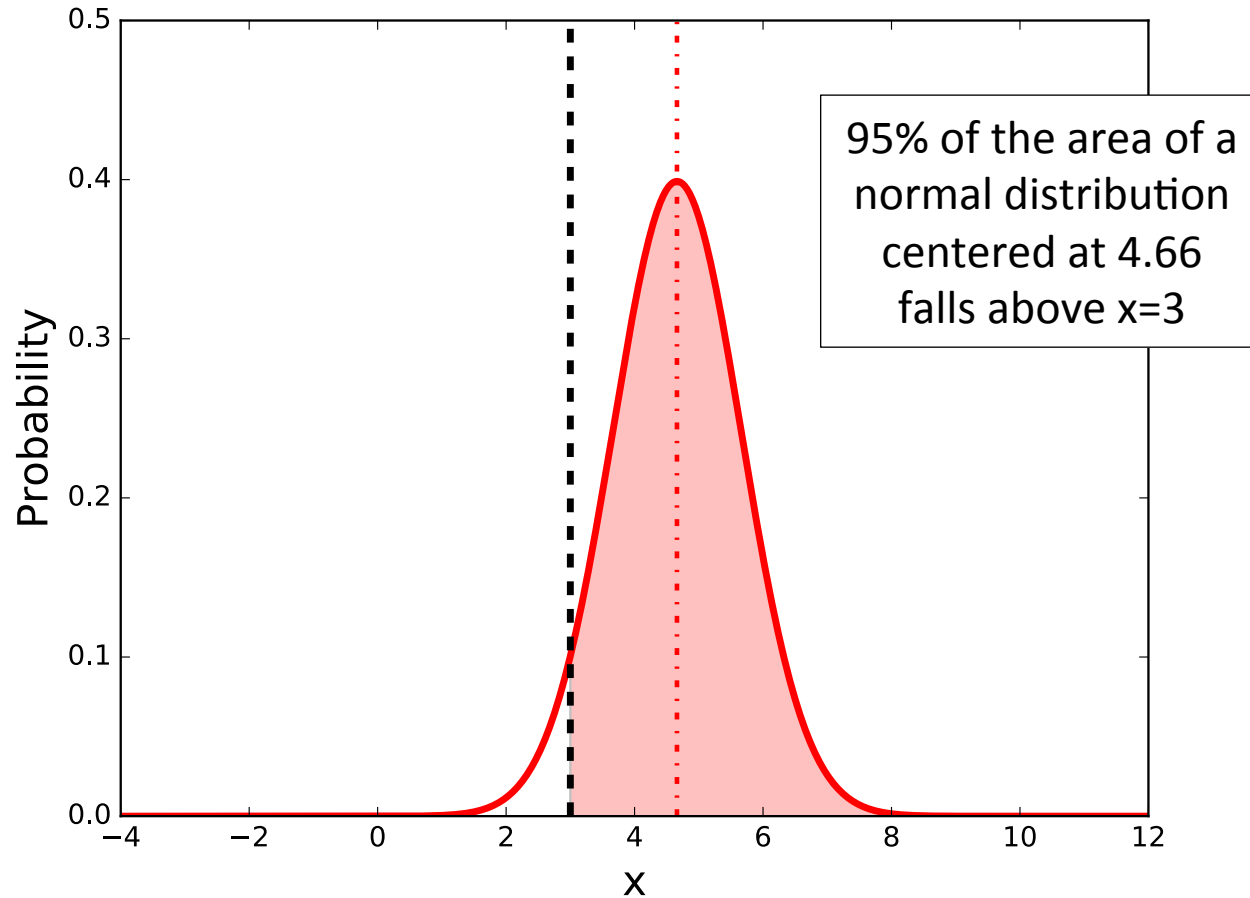
Signal Detection Theory: A Review

	H_1 : Signal Present	H_0 : Signal Absent
Detection	True Positive	False Positive
Null Result	False Negative	True Negative
	$TPF = TP/(TP+FN)$	$FPF = FP/(FP+TN)$

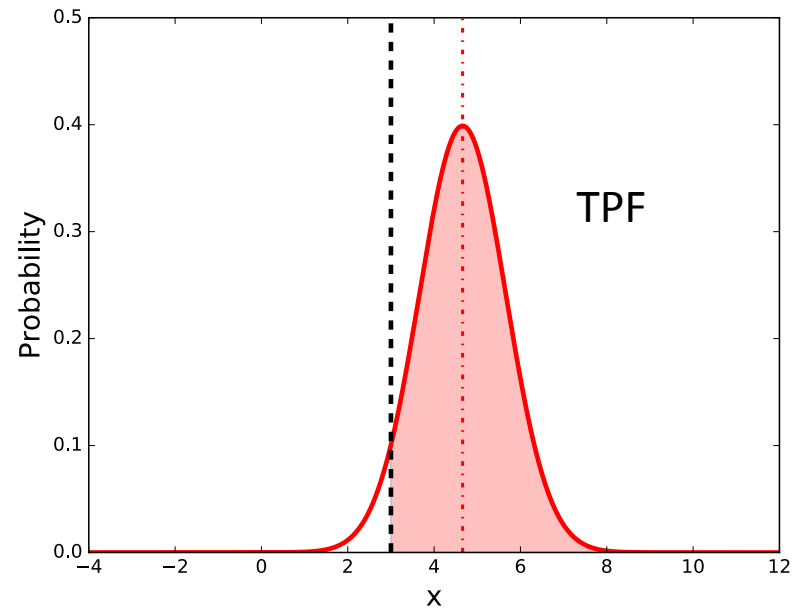
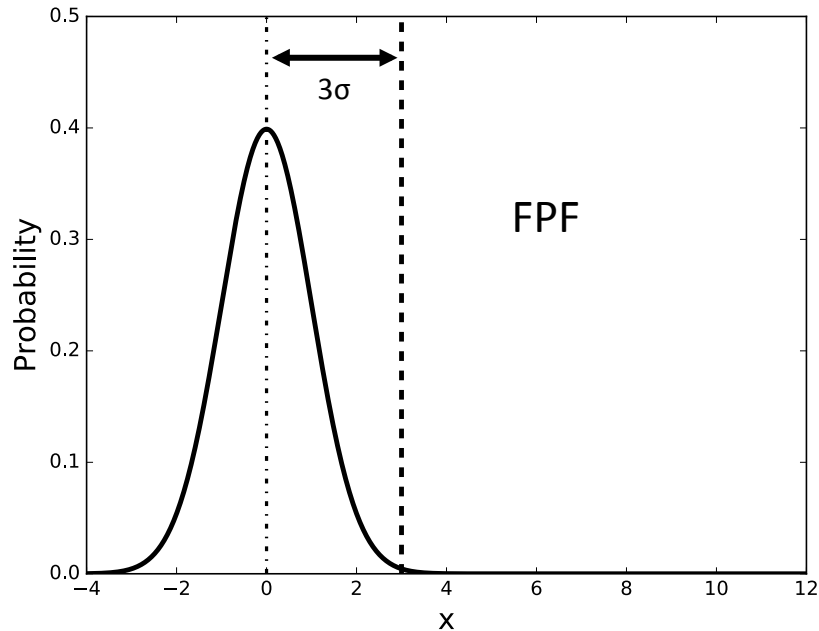
False Positive Fraction

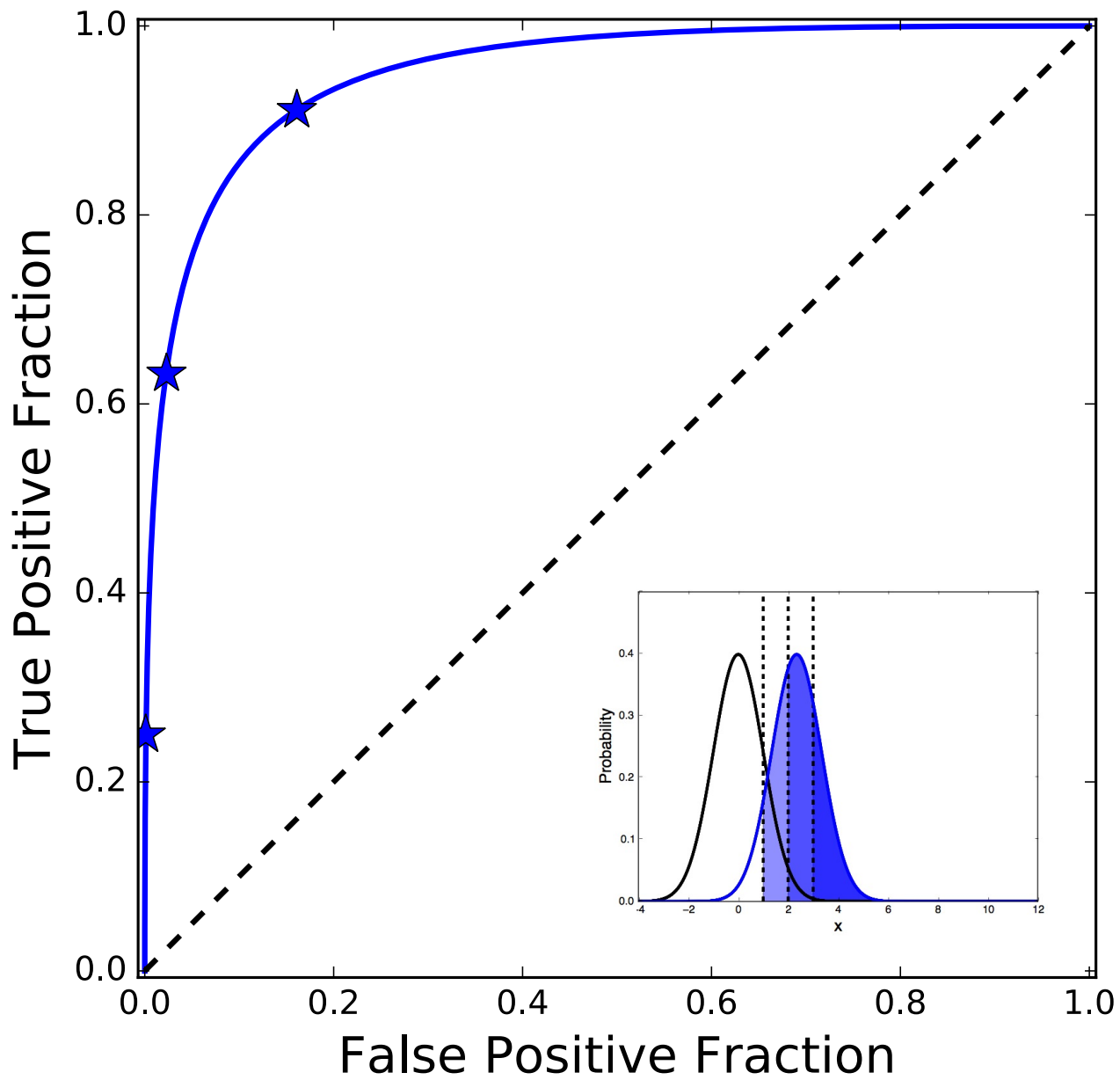


True Positive Fraction



The FPF and TPF are not related!





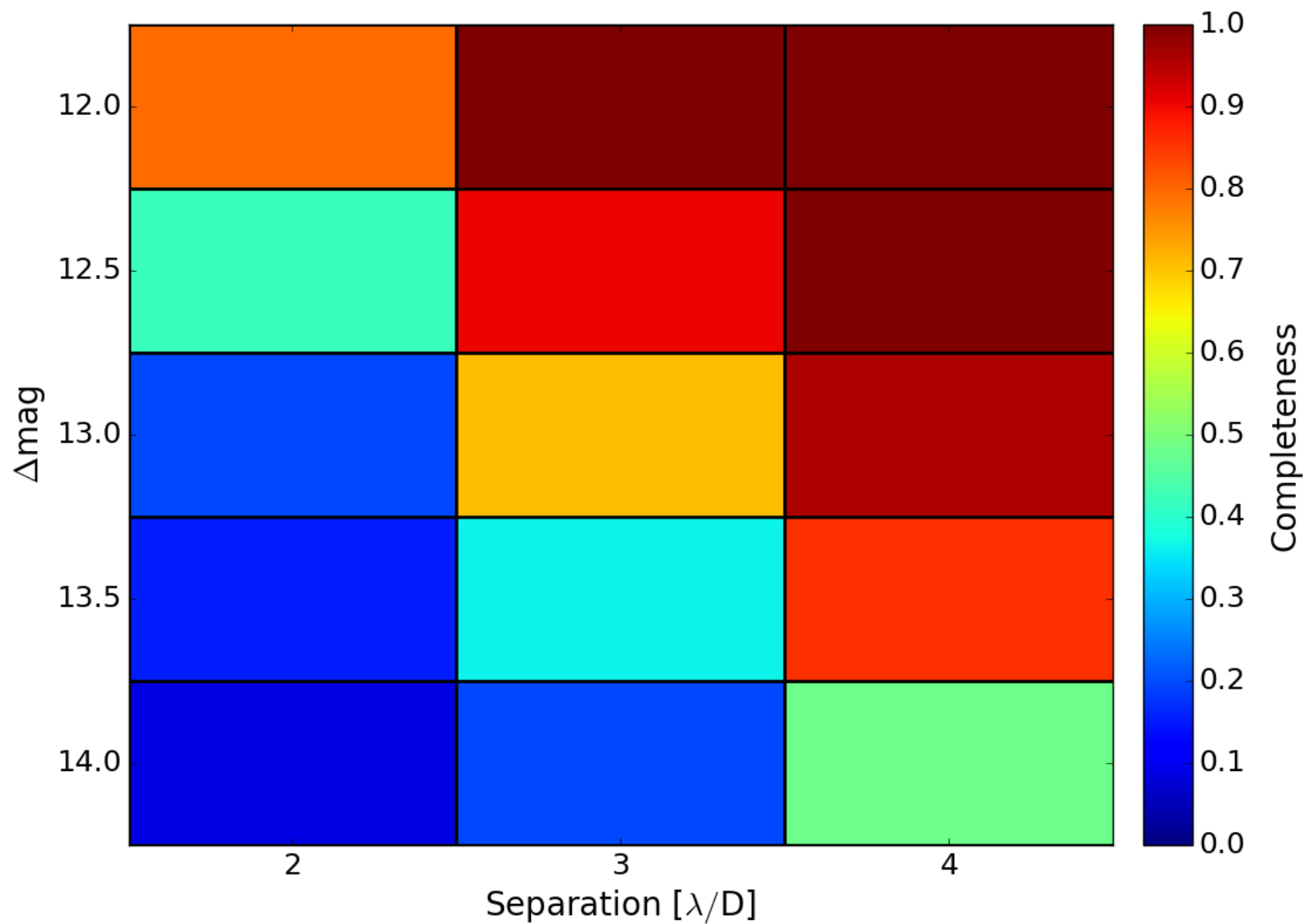
The signal detection
criterion, where $\sigma=3$
corresponds to FPF = 0.001
if the noise is Gaussian

The standard deviation of
the resolution element
aperture sums at a given
separation

$$\text{Contrast} = \frac{\sigma \times \text{Noise}}{\text{Throughput} \times \text{Star Photometry}}$$

The attenuation of an injected
planet's flux due to post-
processing routines

Aperture photometry of the
unocculted star



FPF:



0.01