

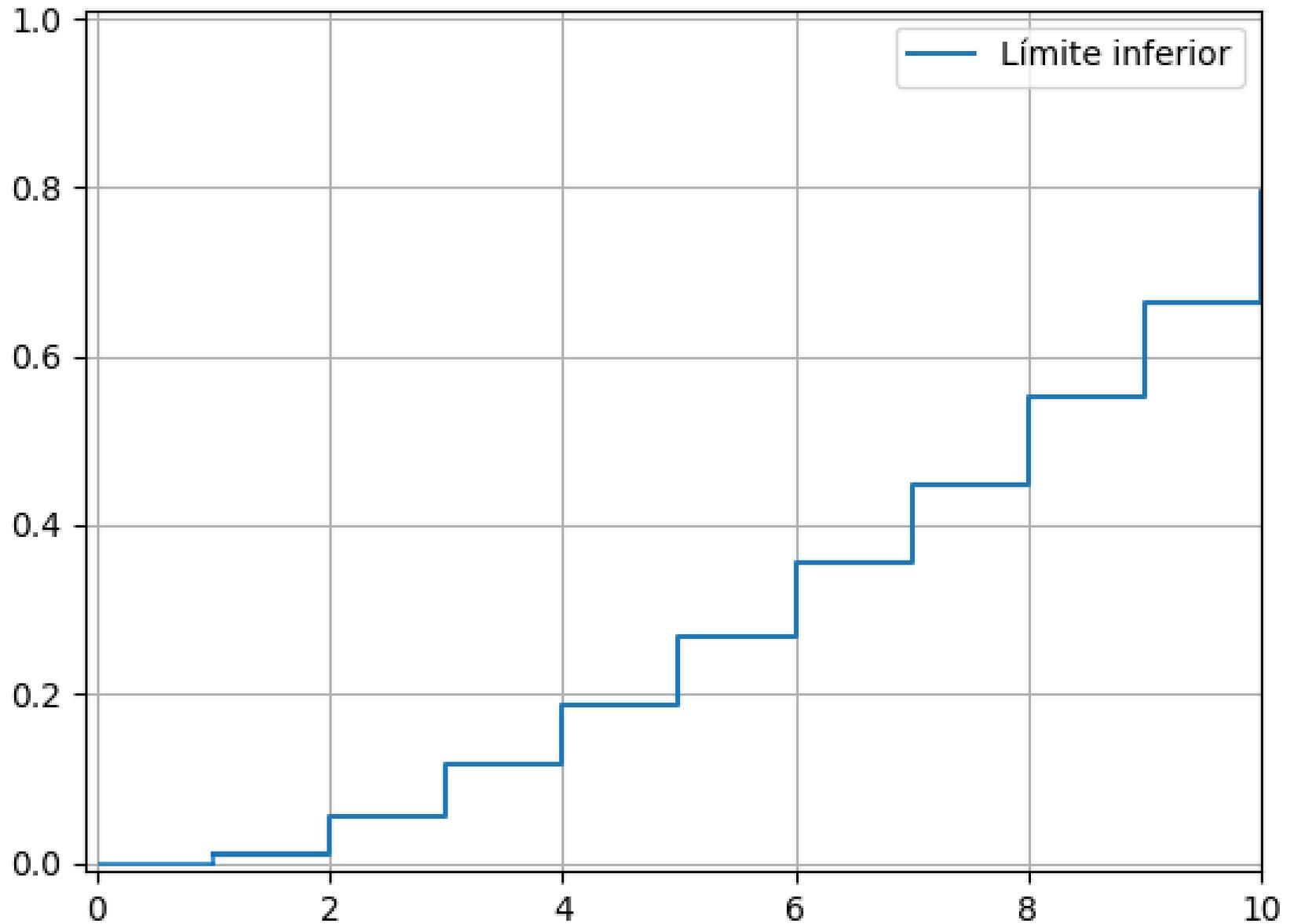
Construcción de un cinturón de confianza frecuentista

Métodos Estadísticos en Física Experimental FCEyN - UBA

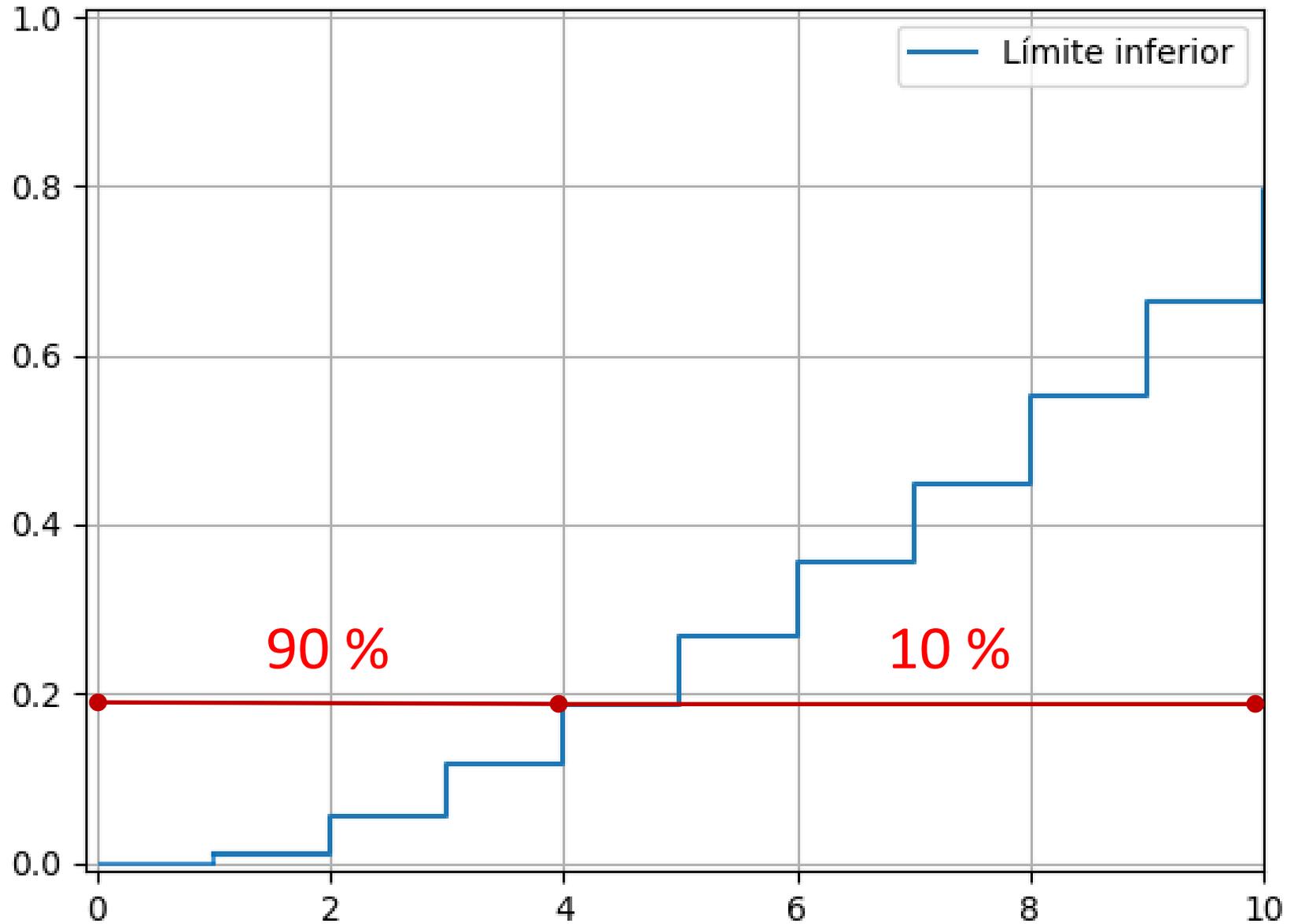
Darío Rodrigues – dariorodriguesfm@gmail.com

Cinturón de confianza para
determinar una cota **inferior**
(90% CL) para una variable aleatoria
binomial ($n=10$)

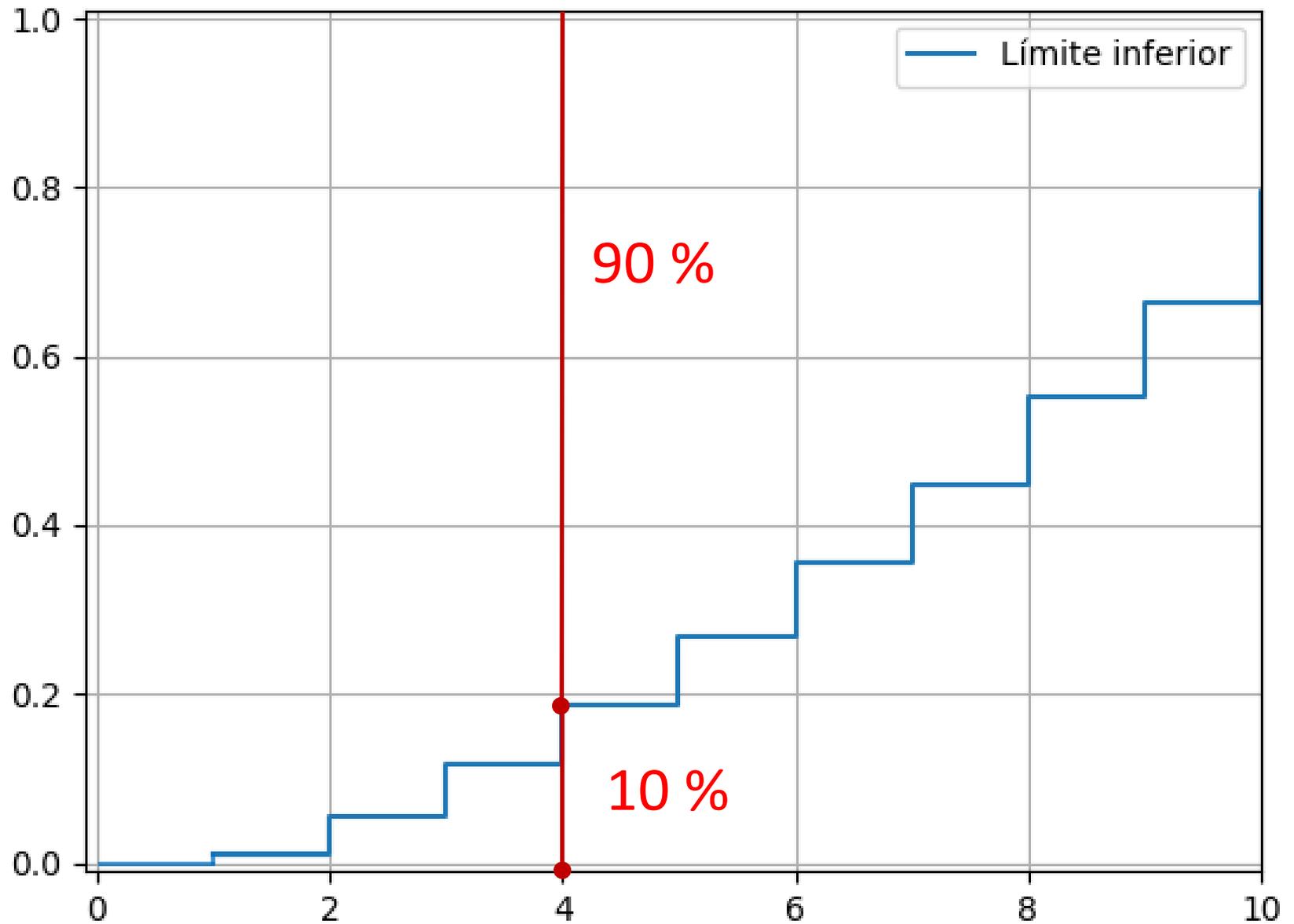
Cinturón de confianza



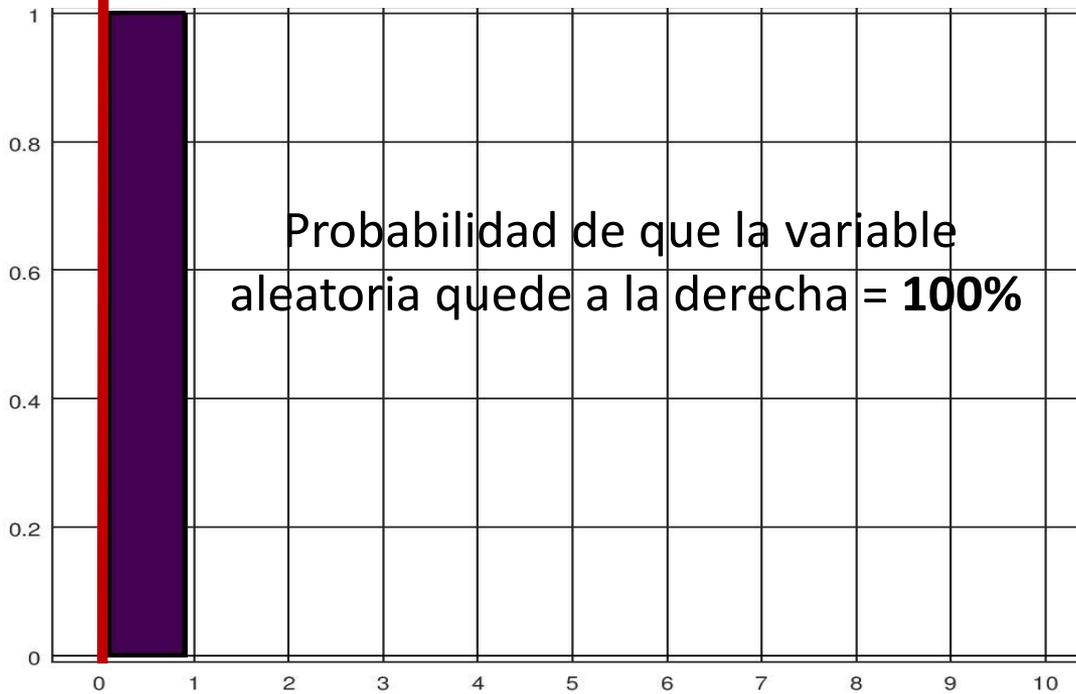
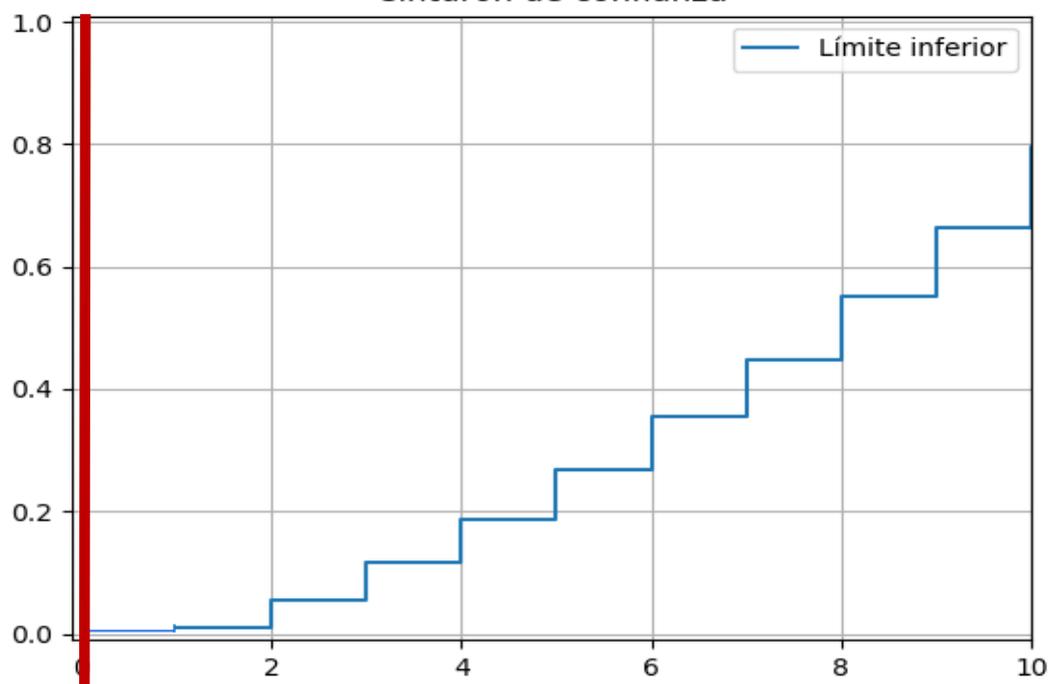
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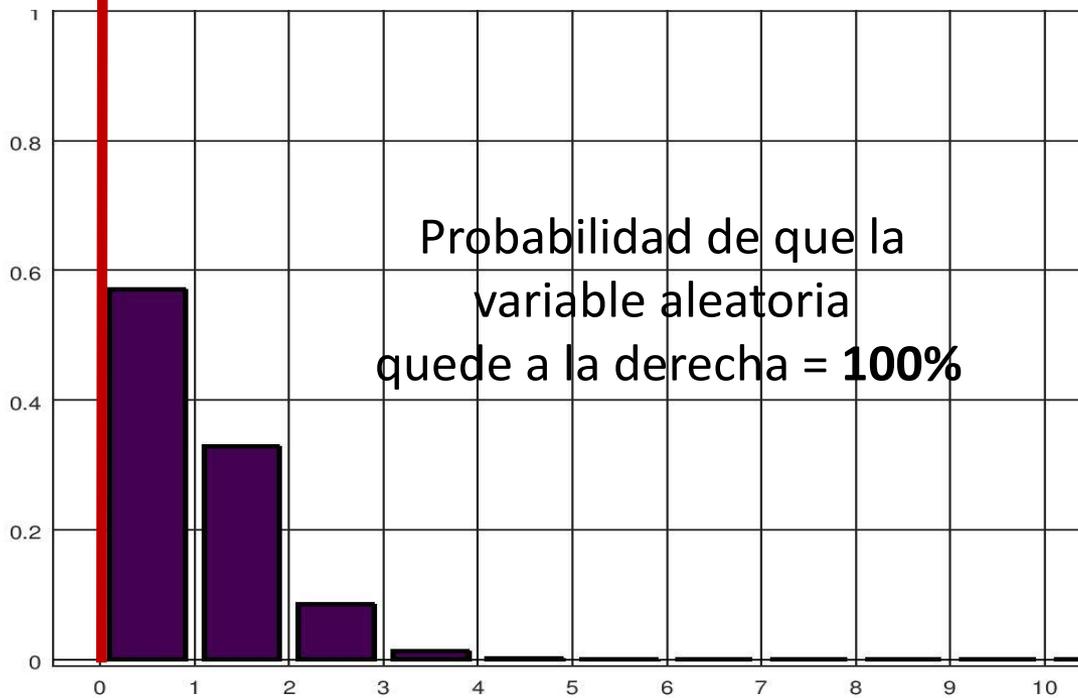
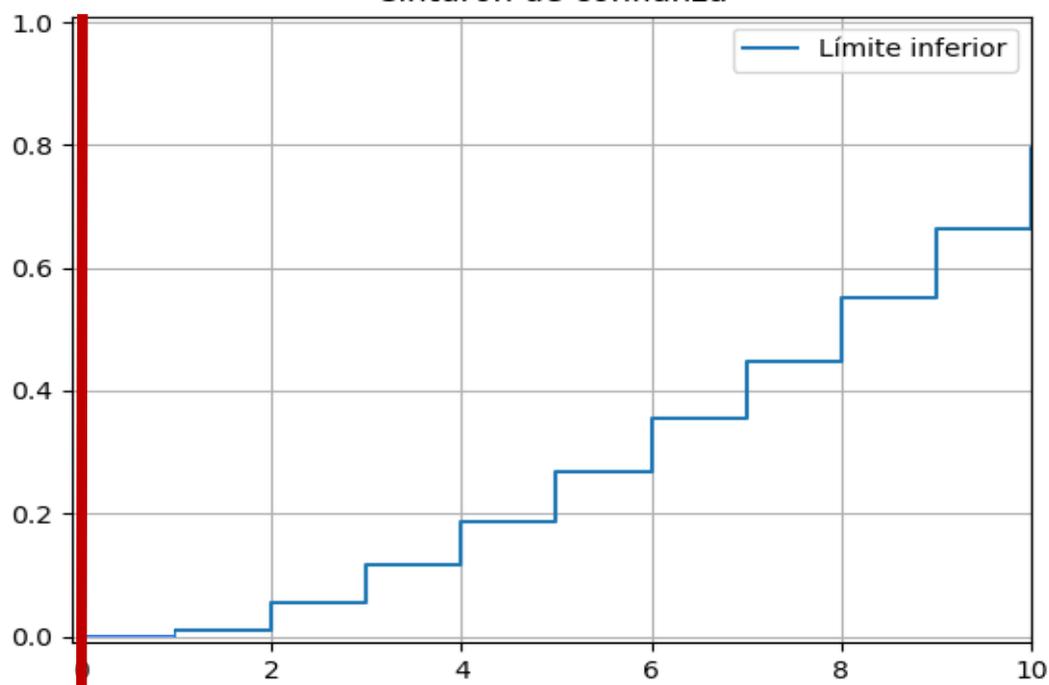
Cinturón de confianza



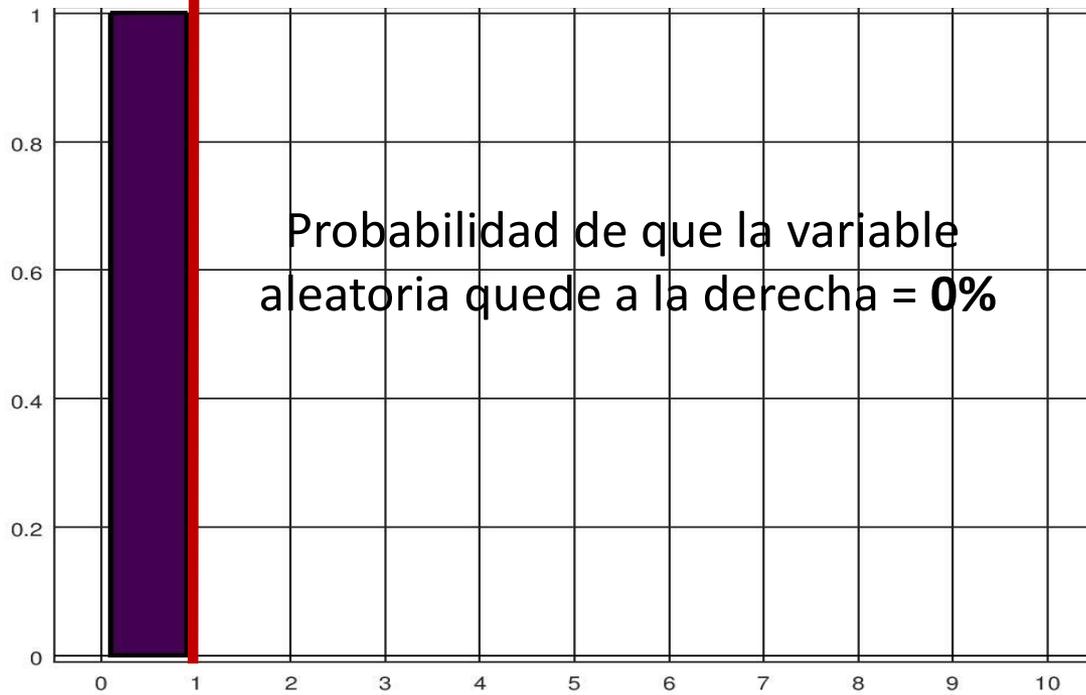
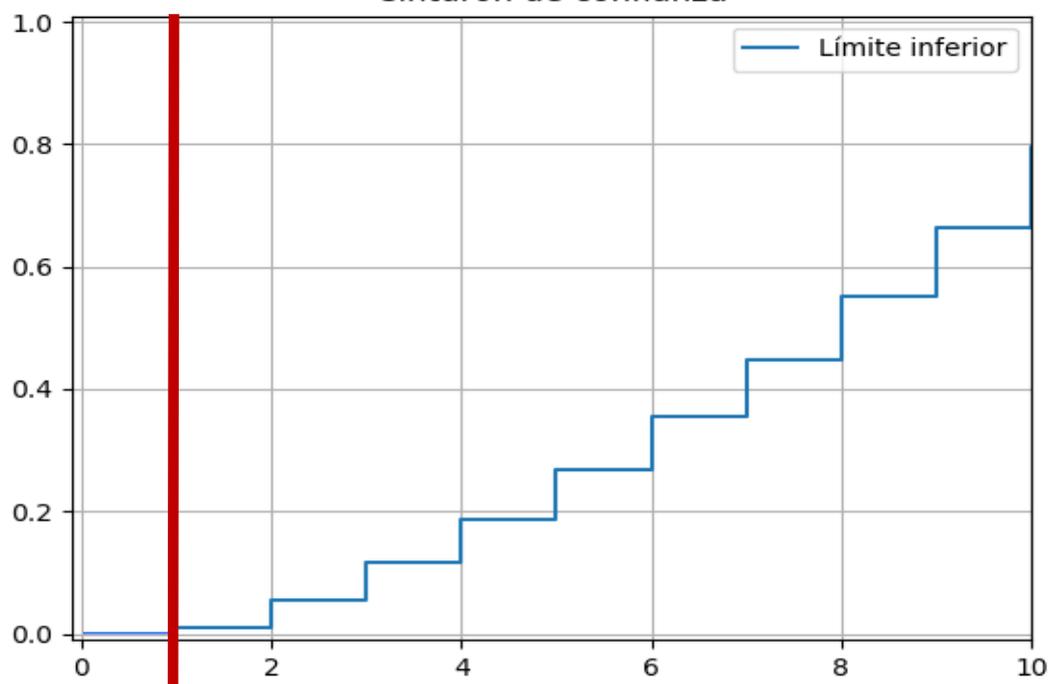
$p=0$

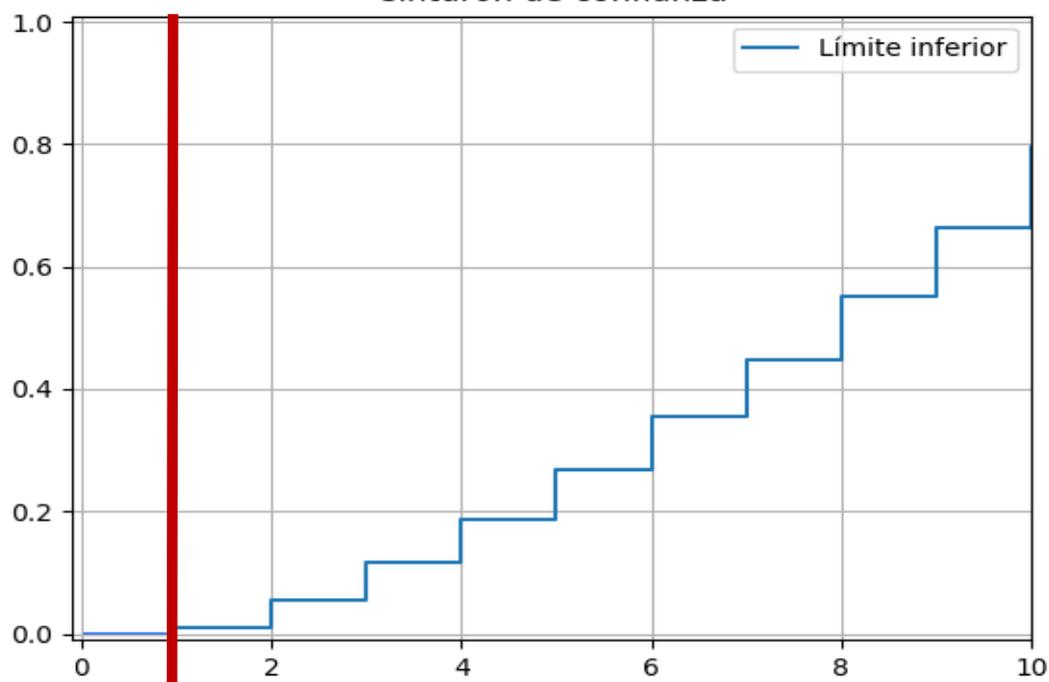


$p=0.0545$

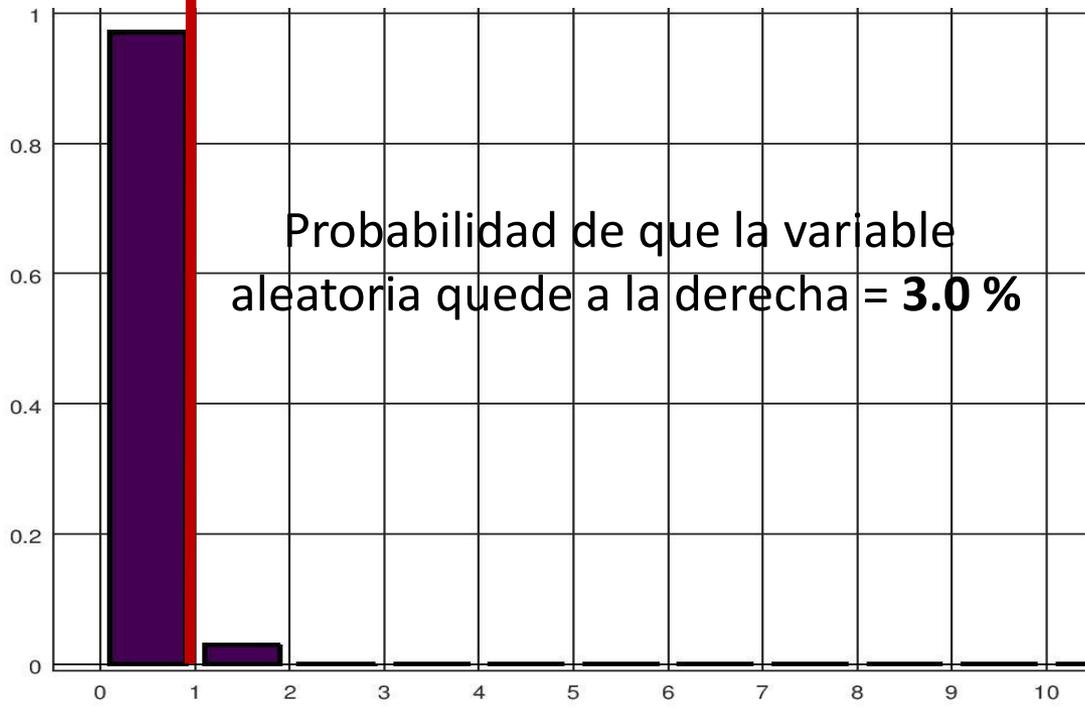


$p=0$

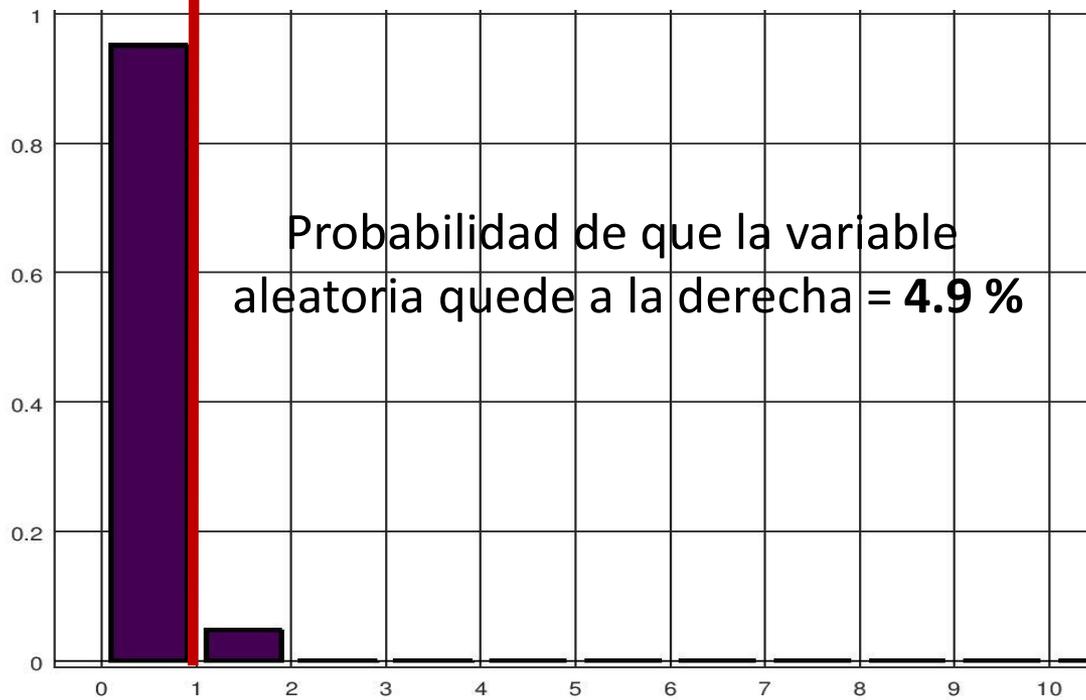
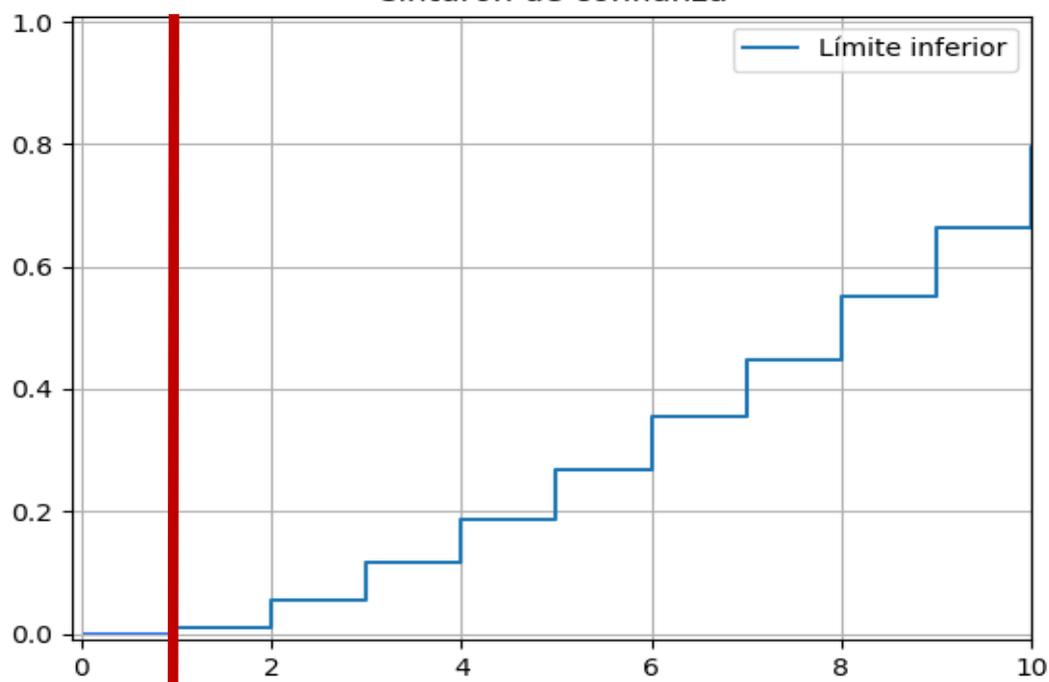




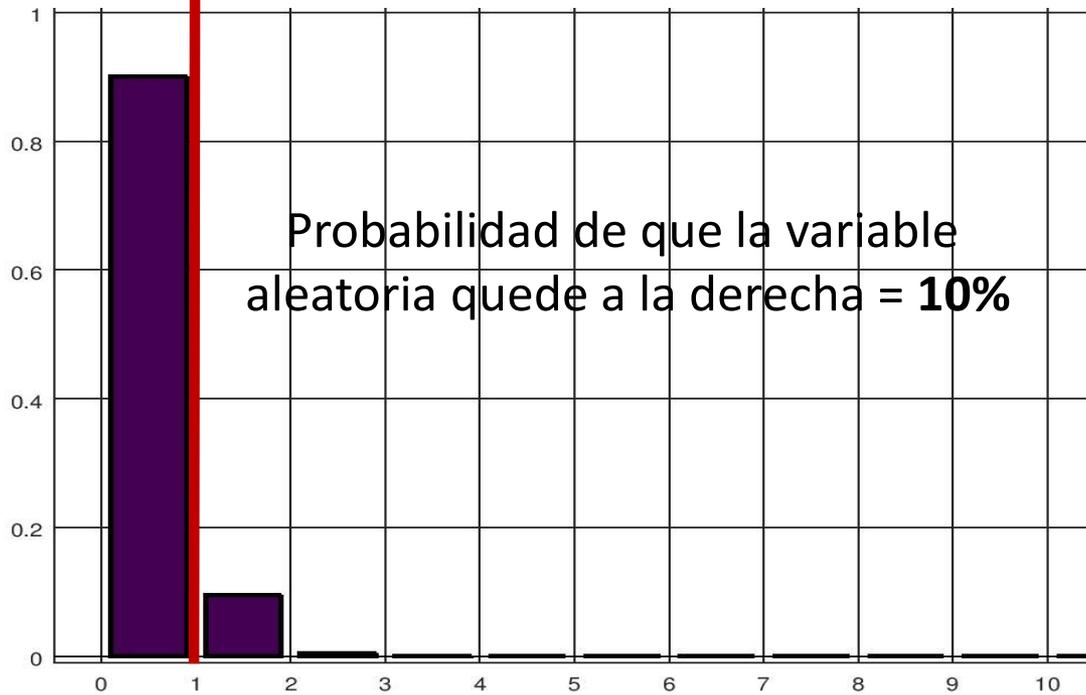
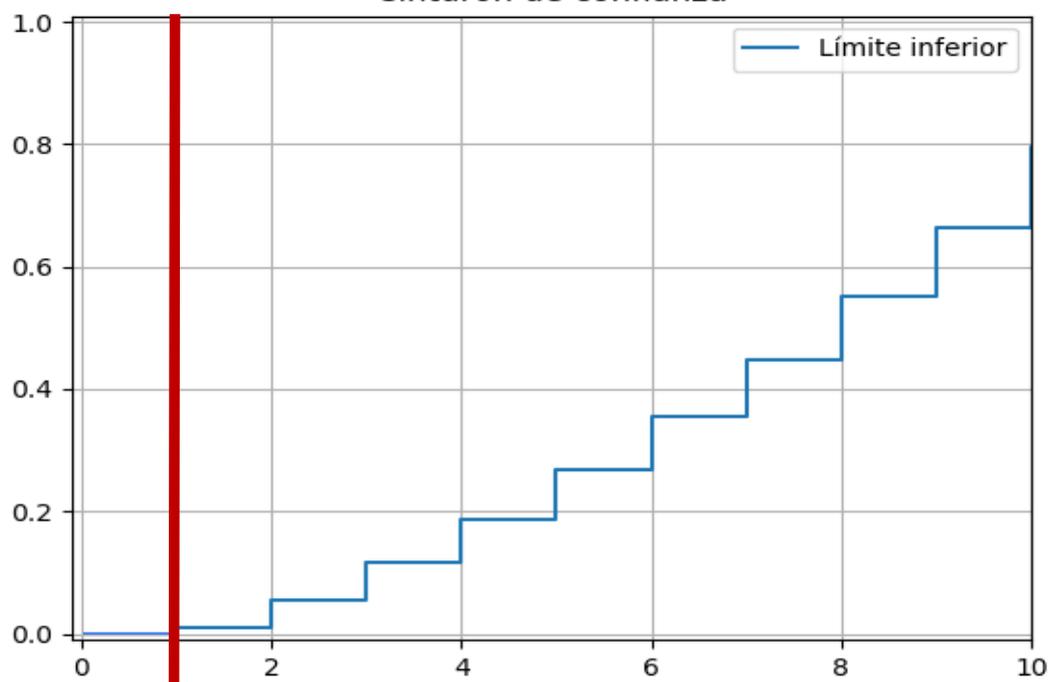
$p=0.0030$



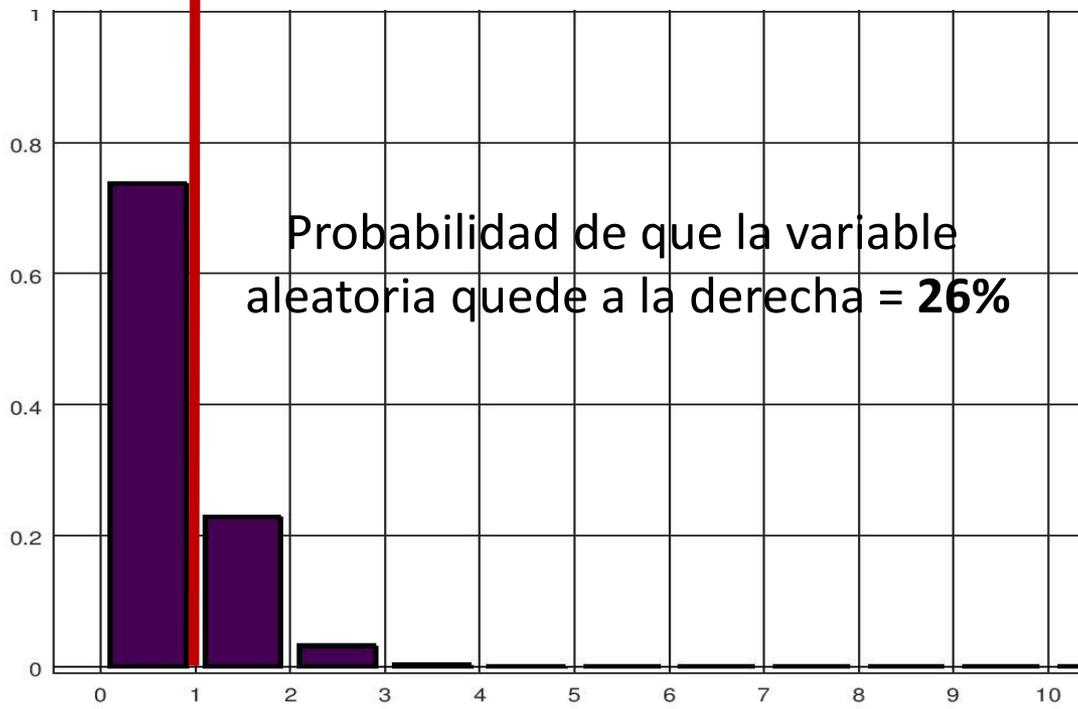
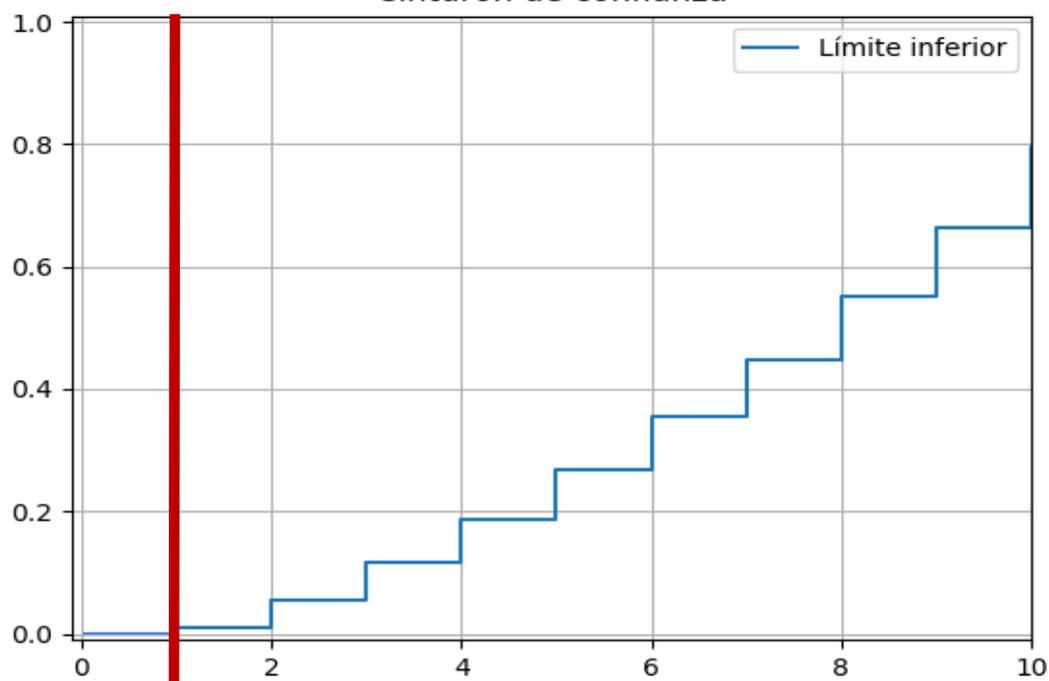
$p=0.0050$



$p=0.0105$

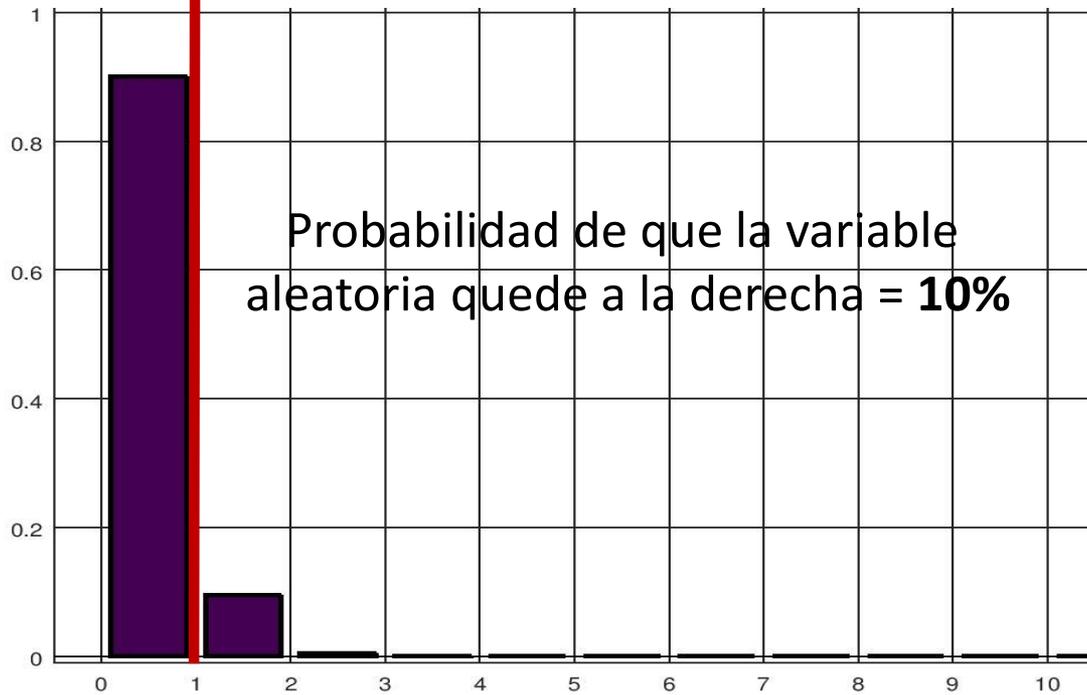
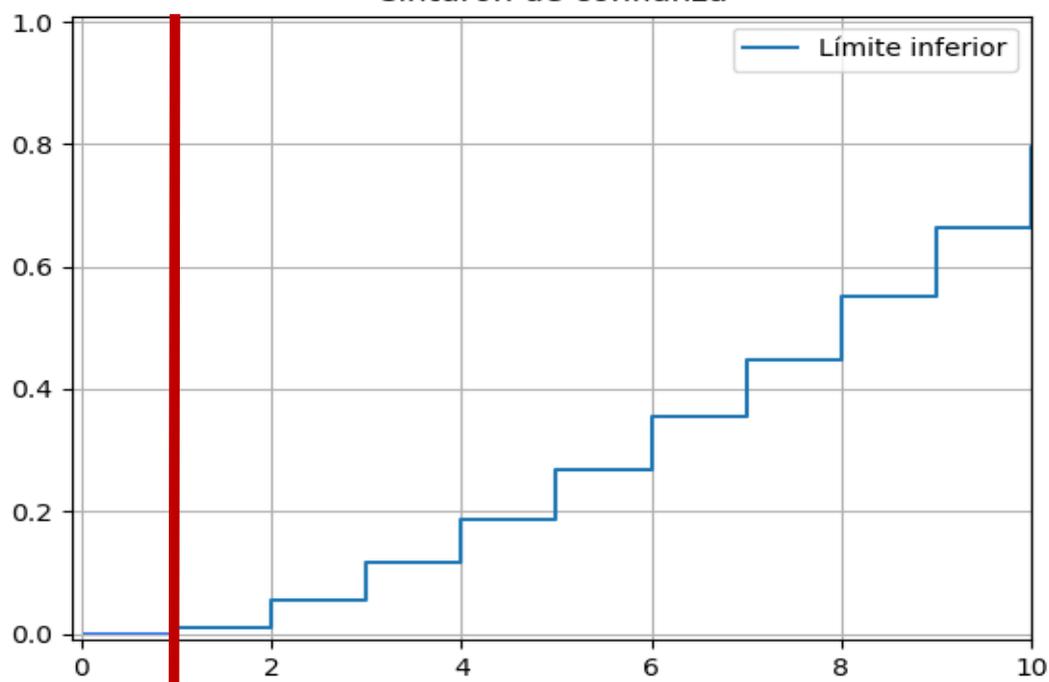


$p=0.0300$



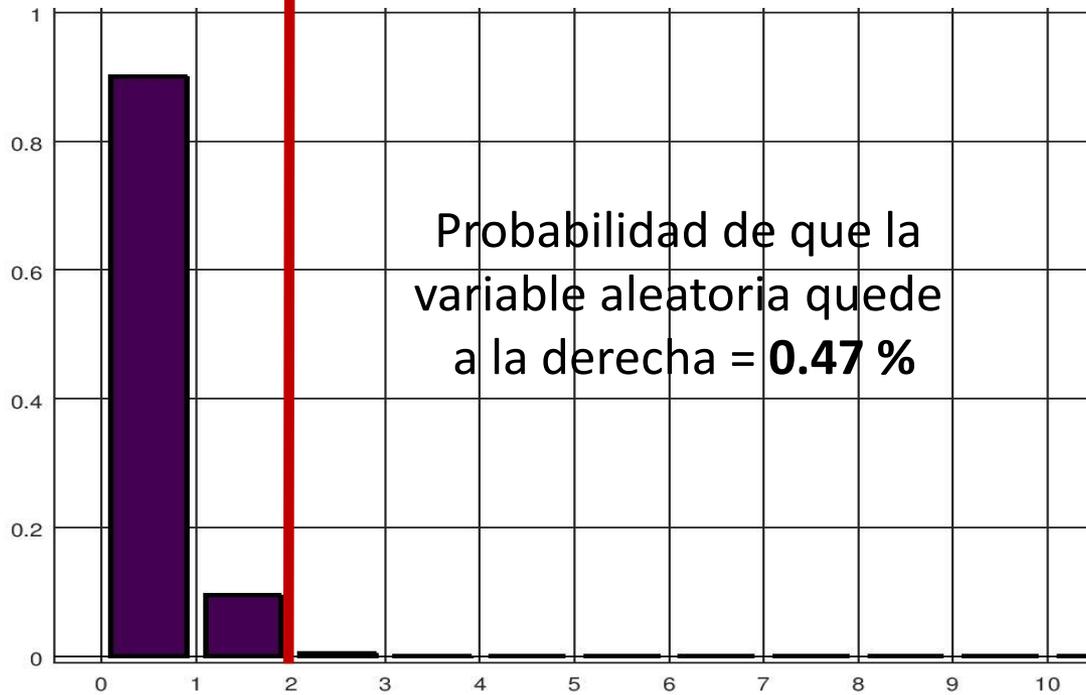
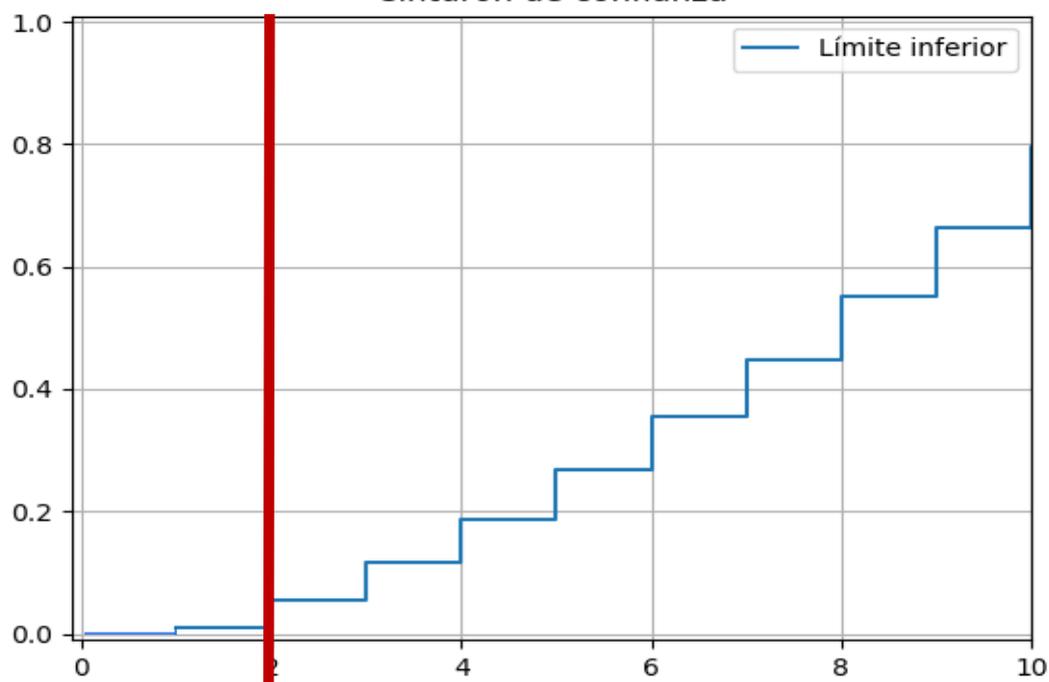
26 % a la derecha implica 74 % a la izquierda y por lo tanto se pierde el 90 % de CL requerido

$p=0.0105$



entonces ...

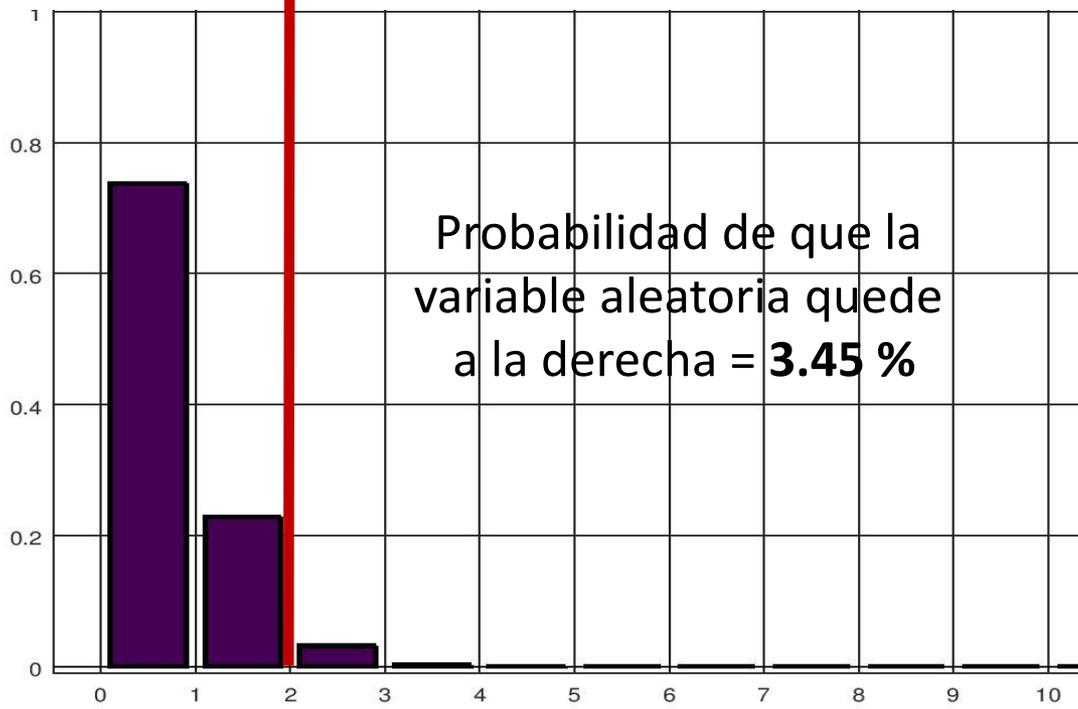
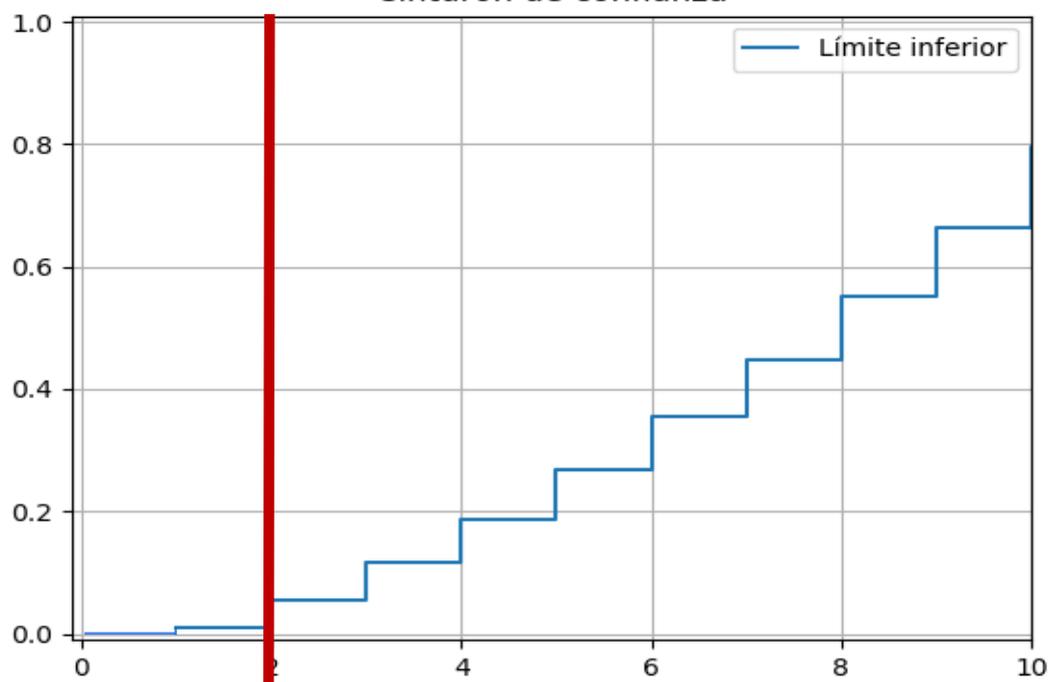
$p=0.0105$



Probabilidad de que la variable aleatoria quede a la derecha = **0.47 %**

Es hora de 'comprar' un escalón 'vendiendo' probabilidad

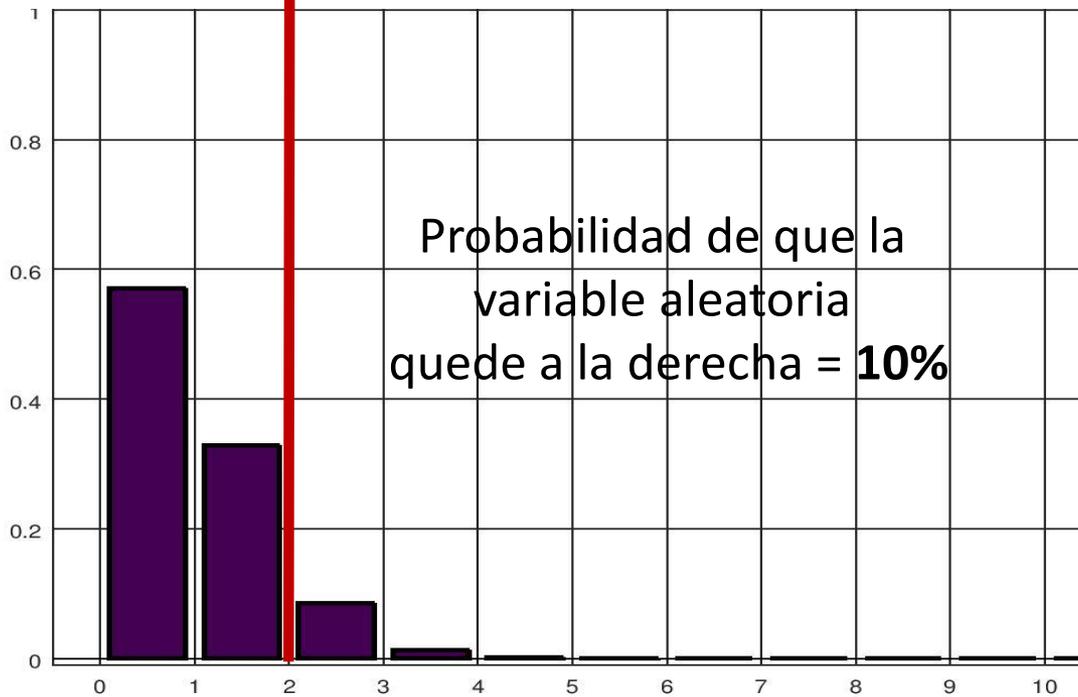
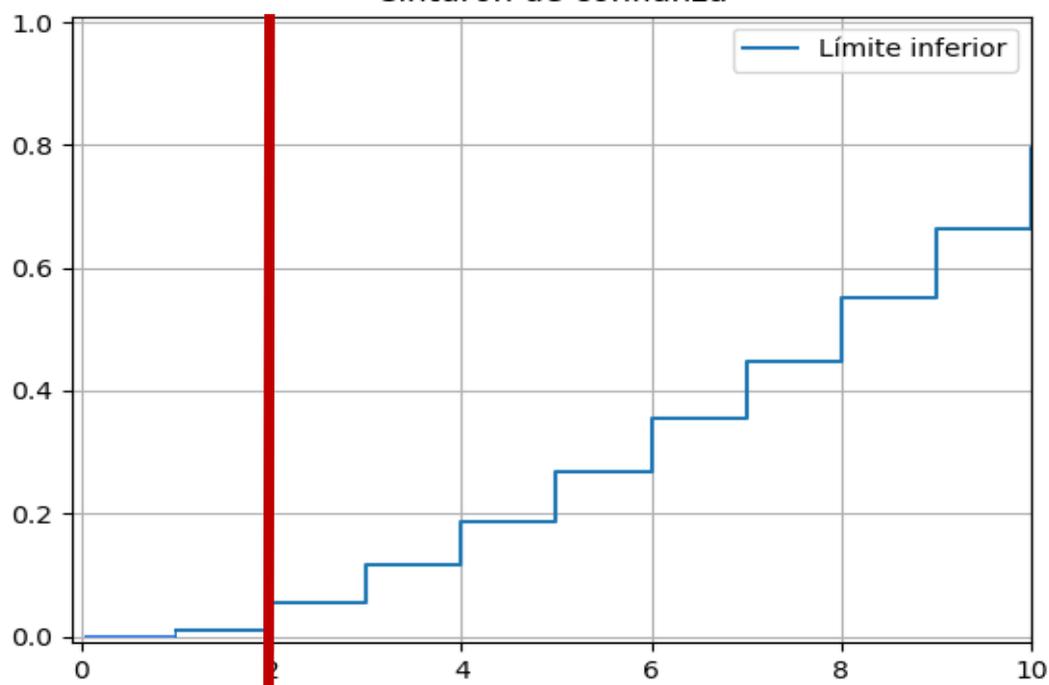
$p=0.0300$



Probabilidad de que la variable aleatoria quede a la derecha = **3.45 %**

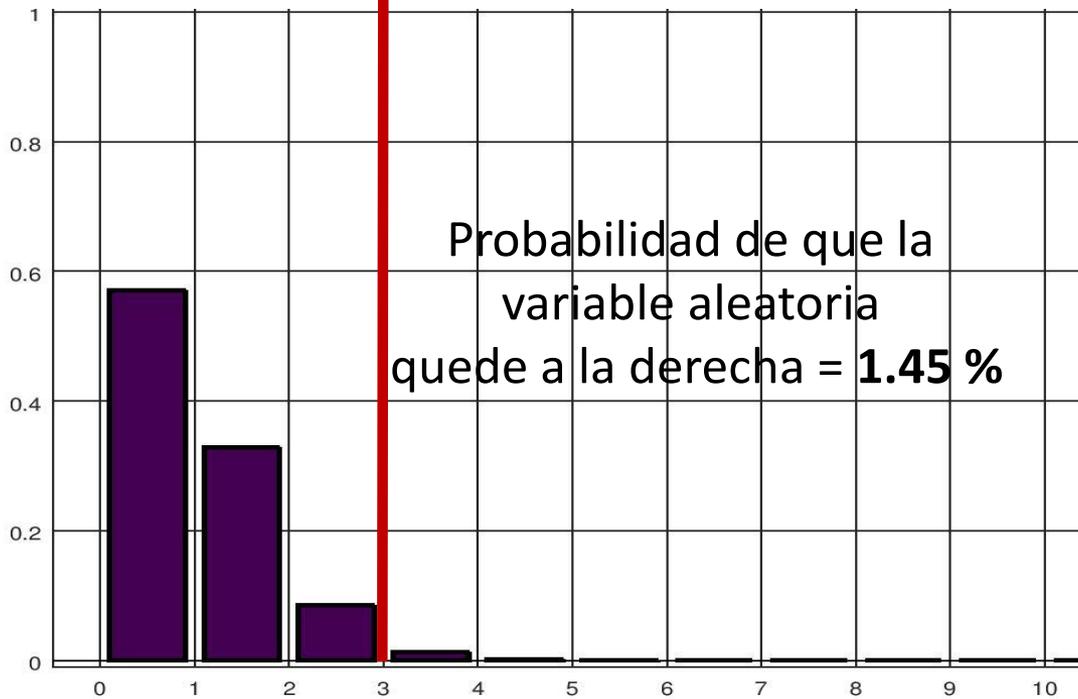
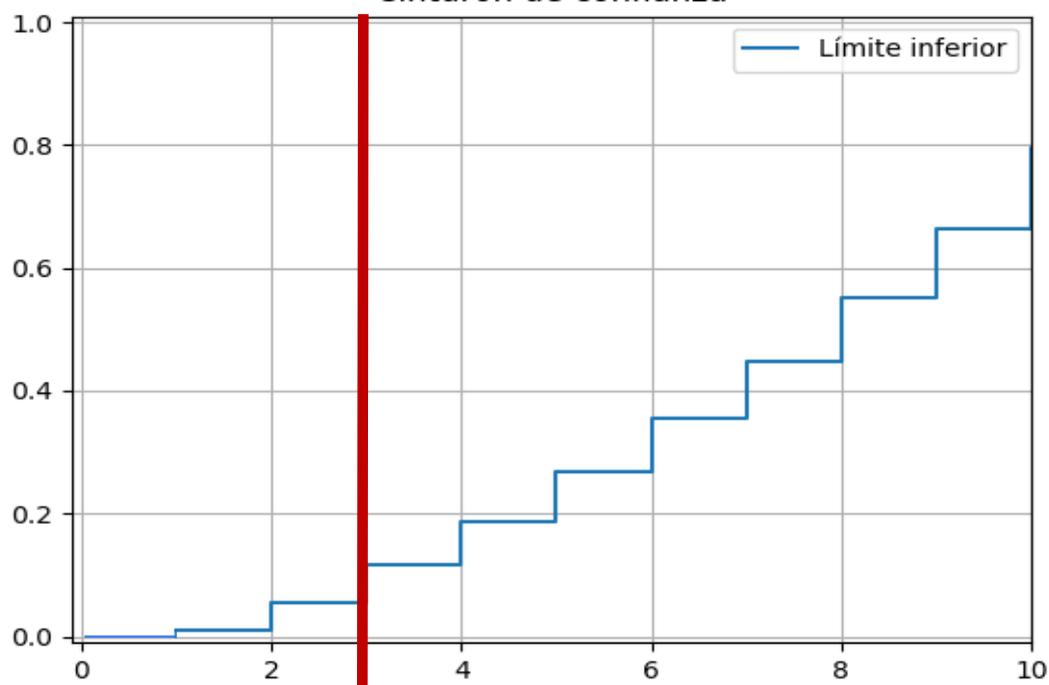
Sube p pero no me alcanza para 'comprar' otro escalón

$p=0.0545$



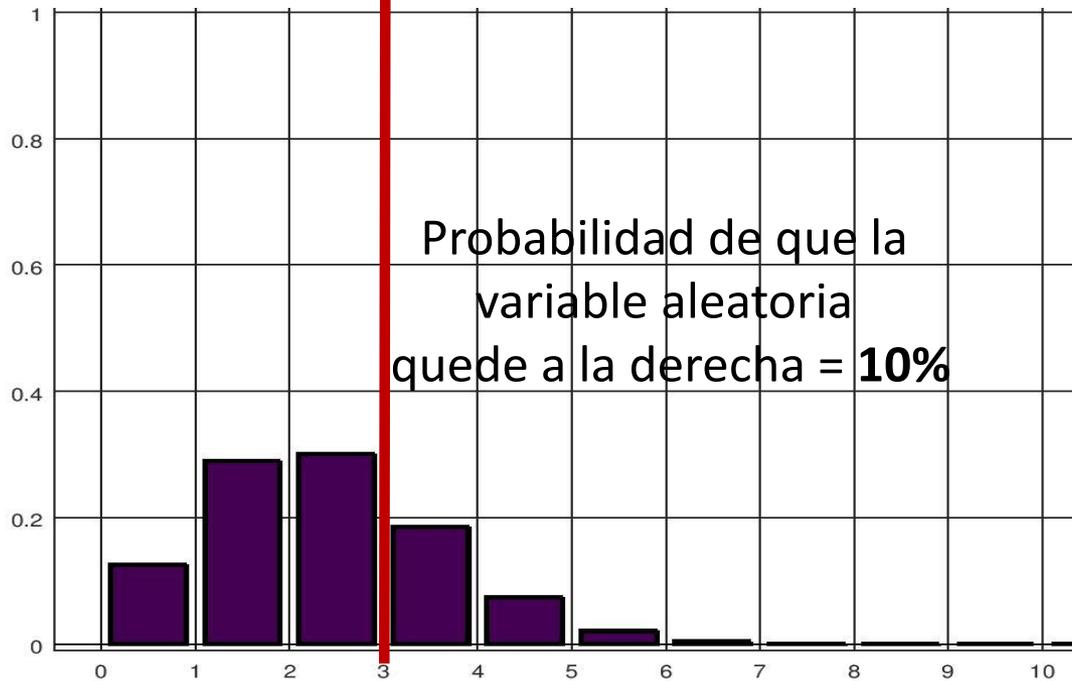
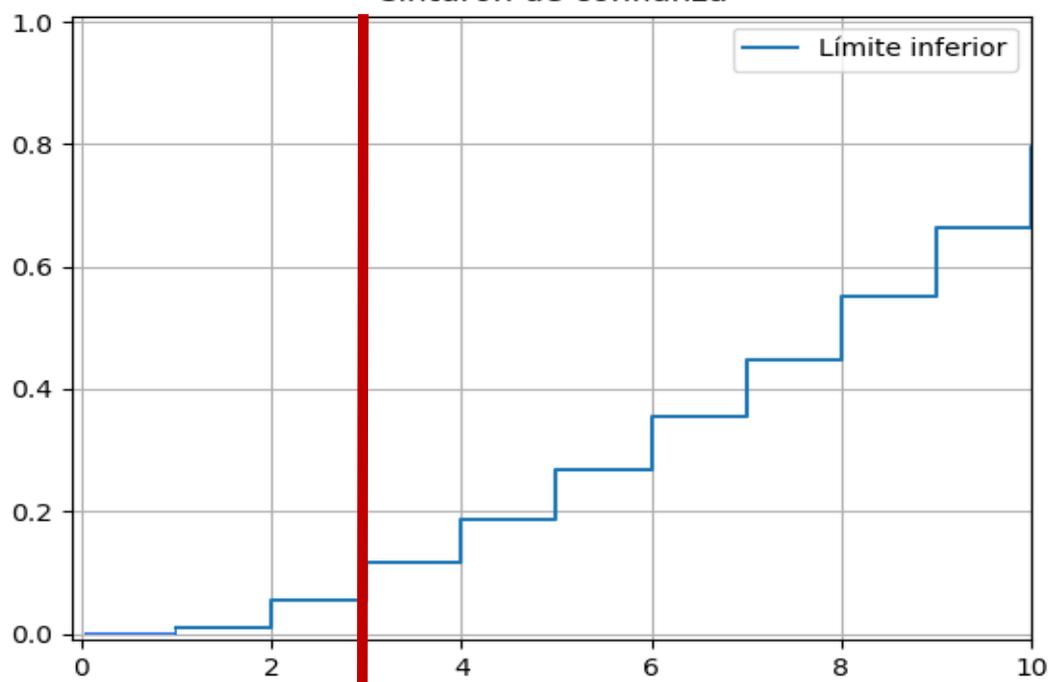
Ahora si!

$p=0.0545$

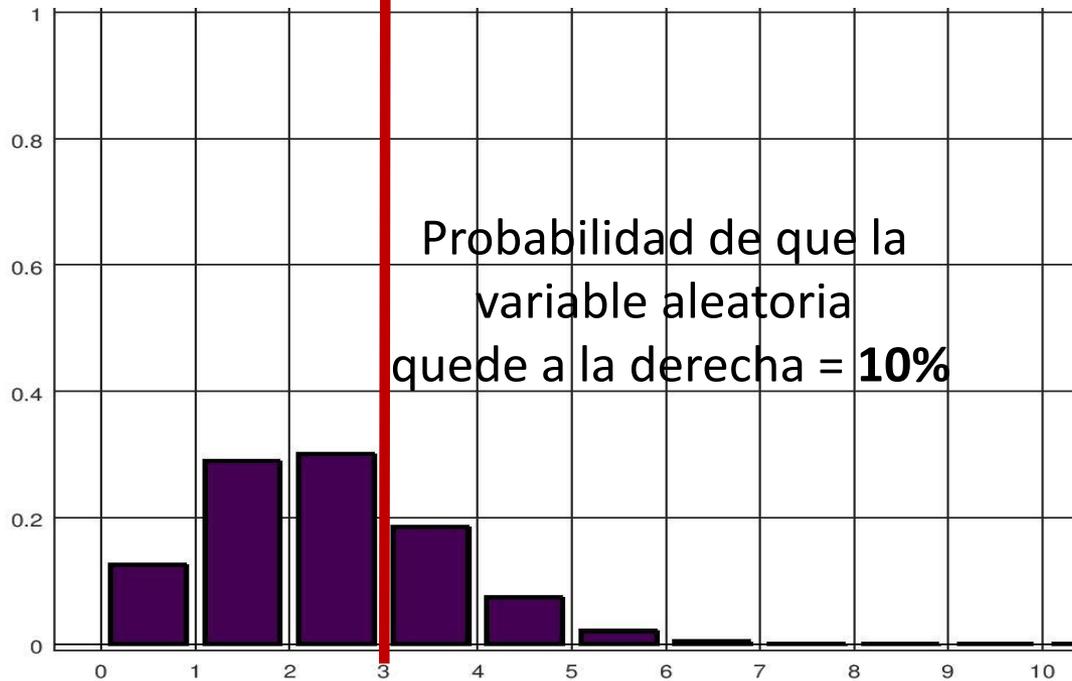
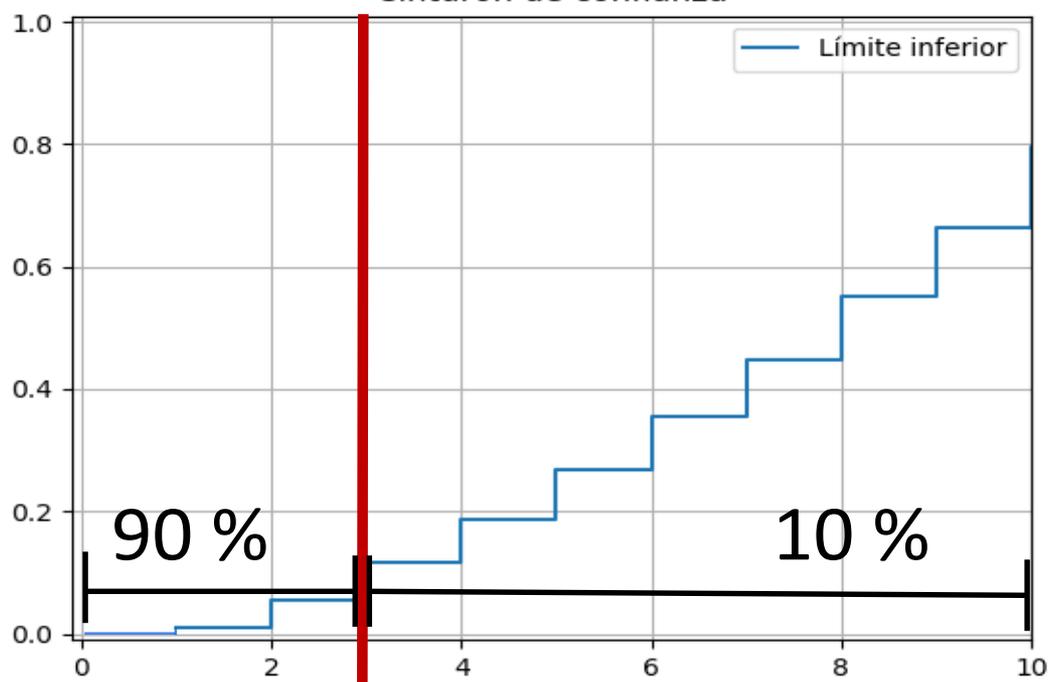


‘Compro’
otro escalón
‘vendiendo’
probabilidad

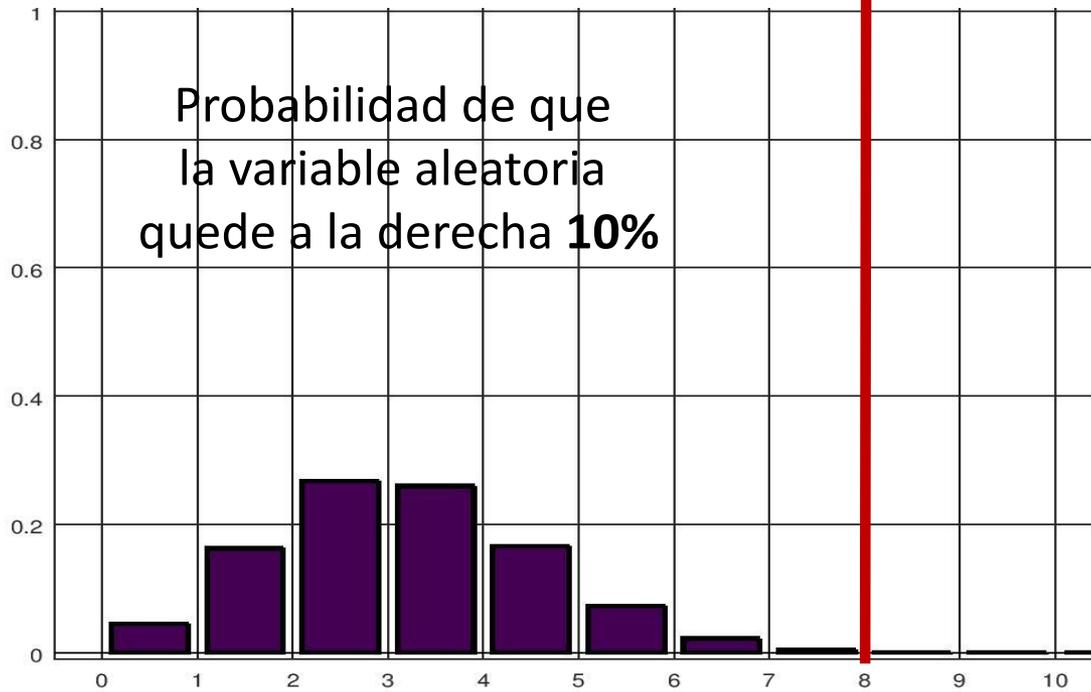
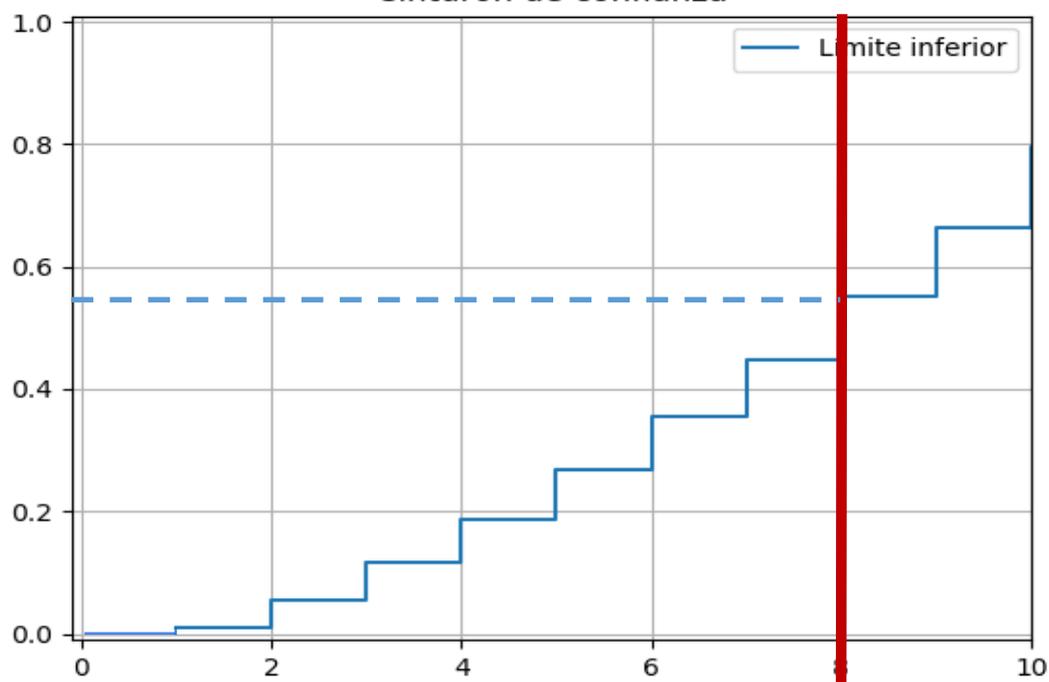
$p=0.1158$



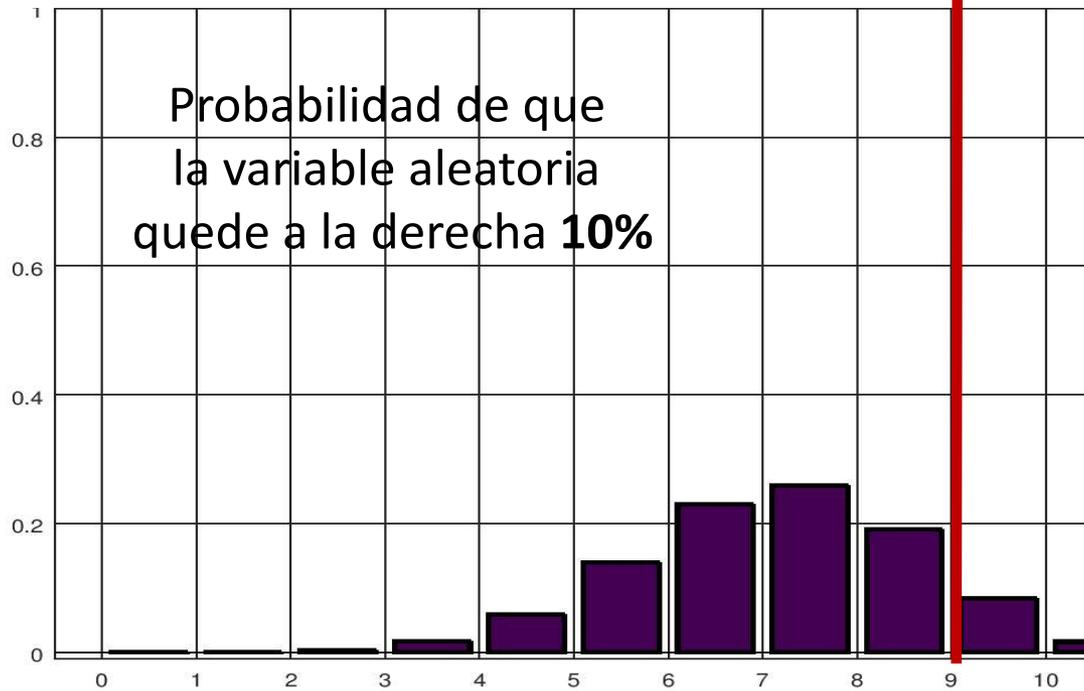
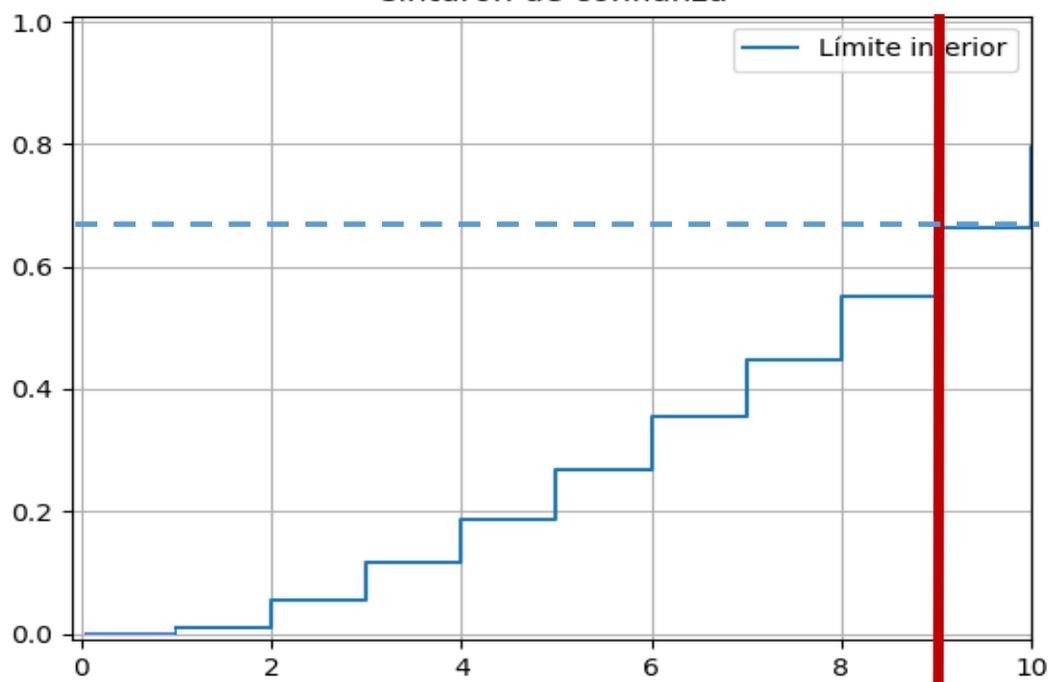
$p=0.1158$



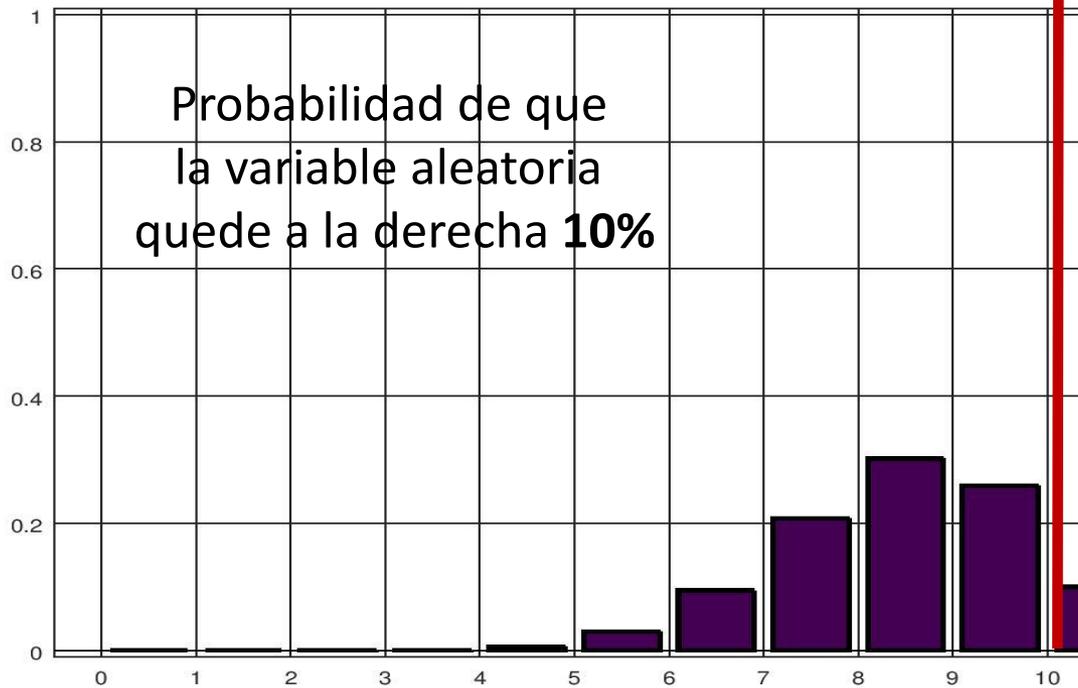
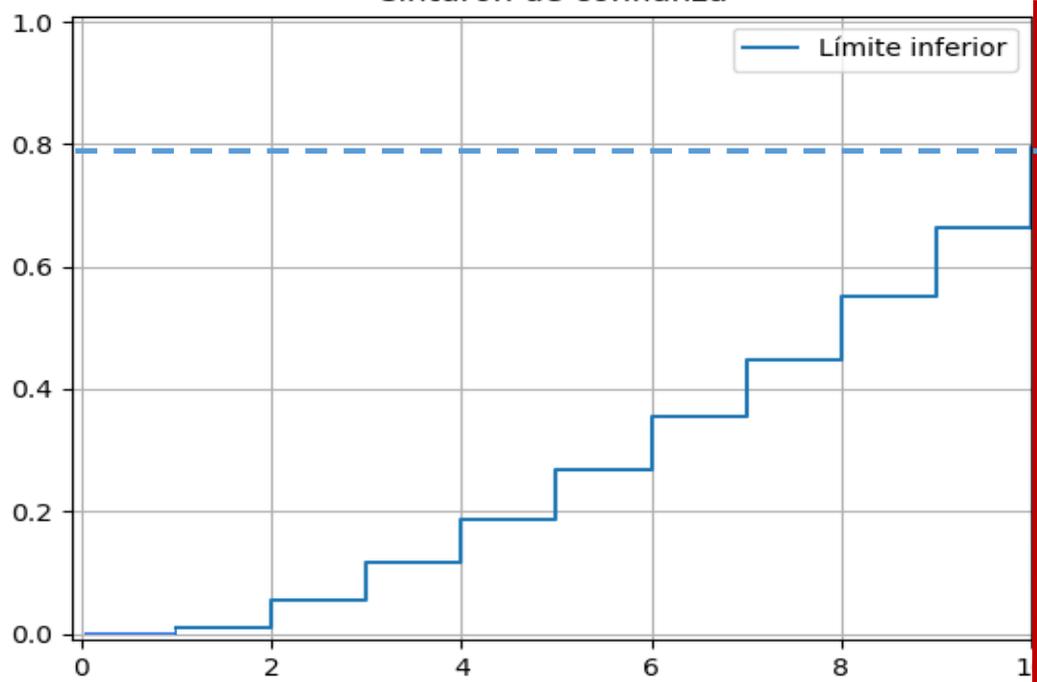
$p=0.5504$



$p=0.6632$

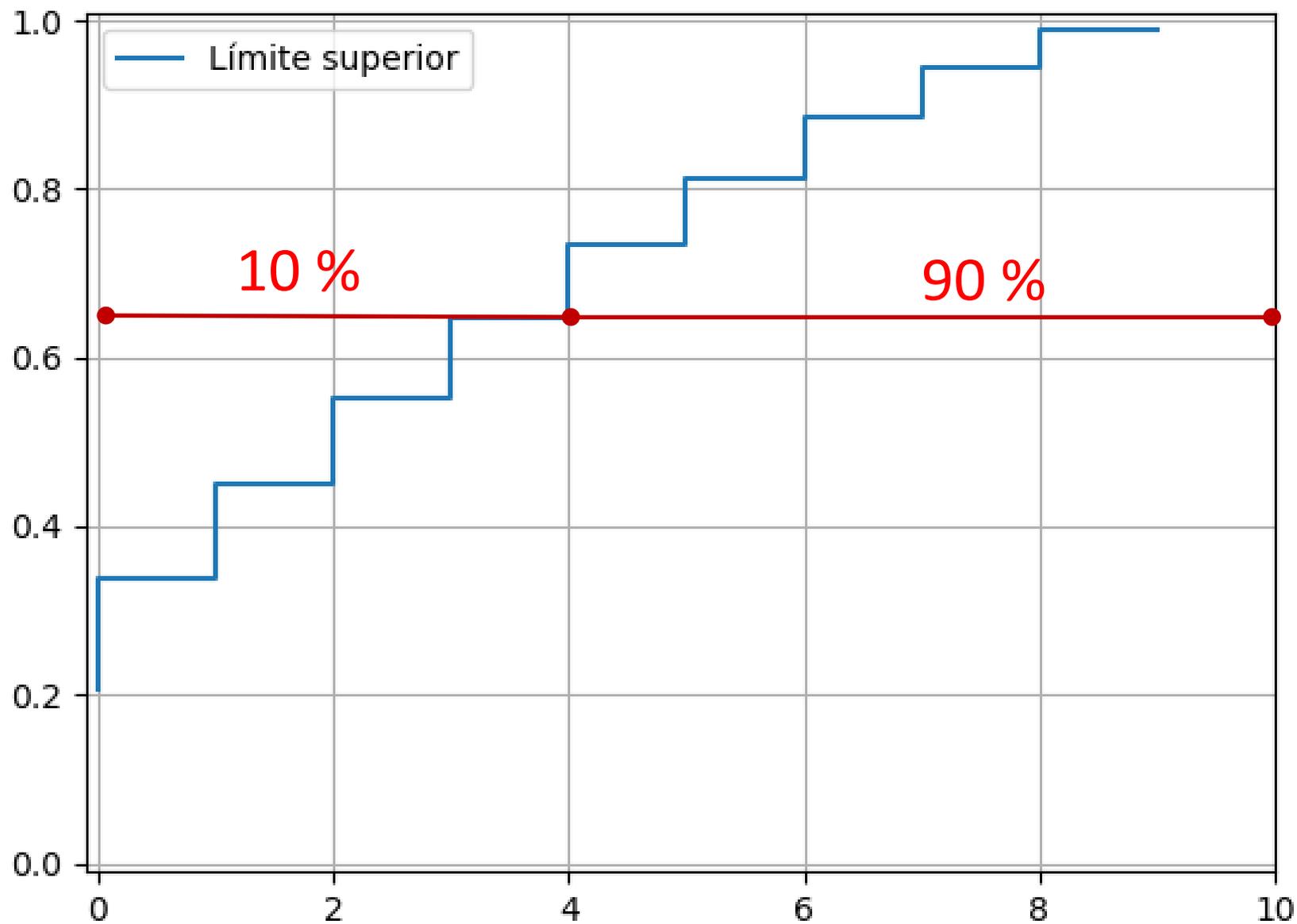


$p=0.7943$

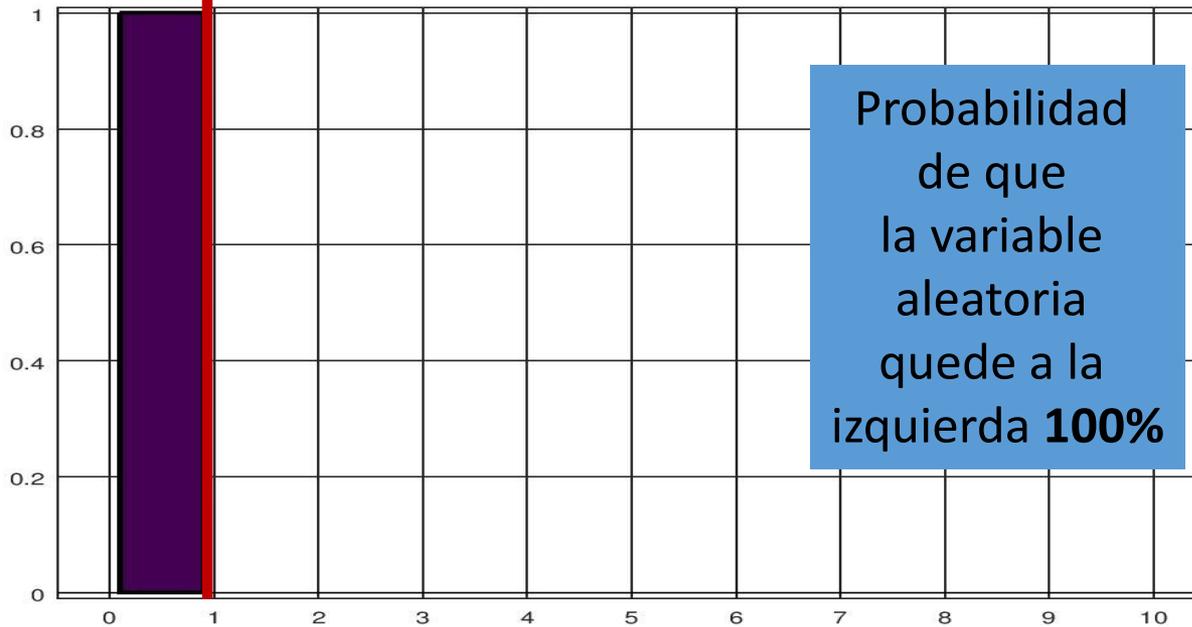
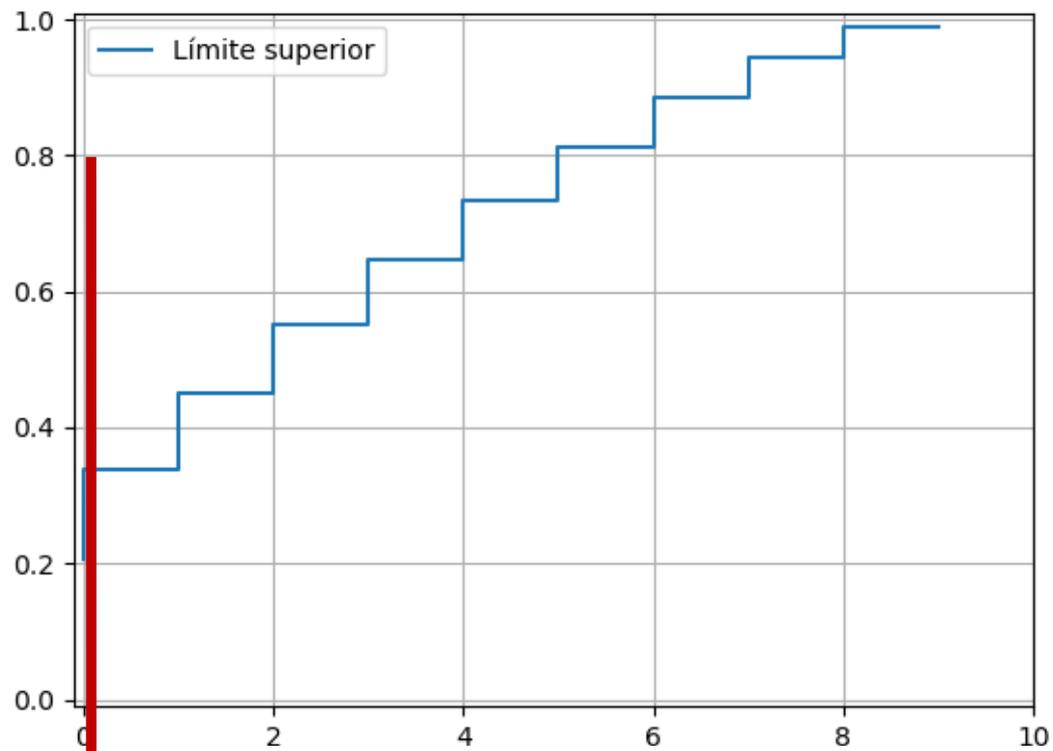


Cinturón de confianza para
determinar una cota **superior**
(90% CL) para una variable aleatoria
binomial ($n=10$)

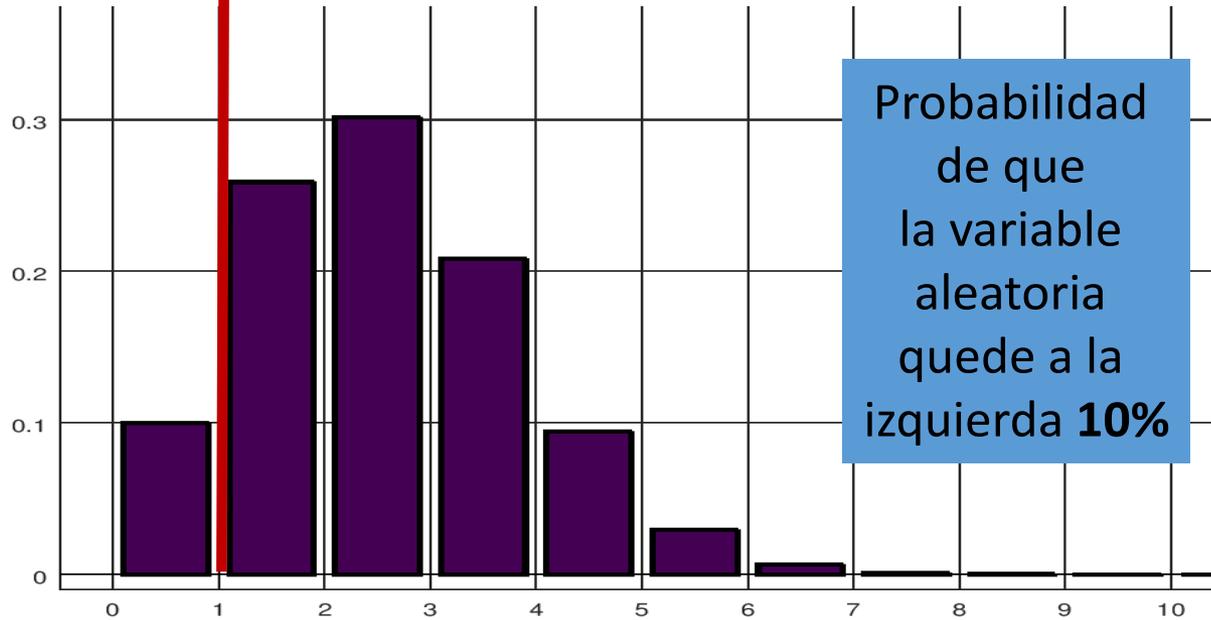
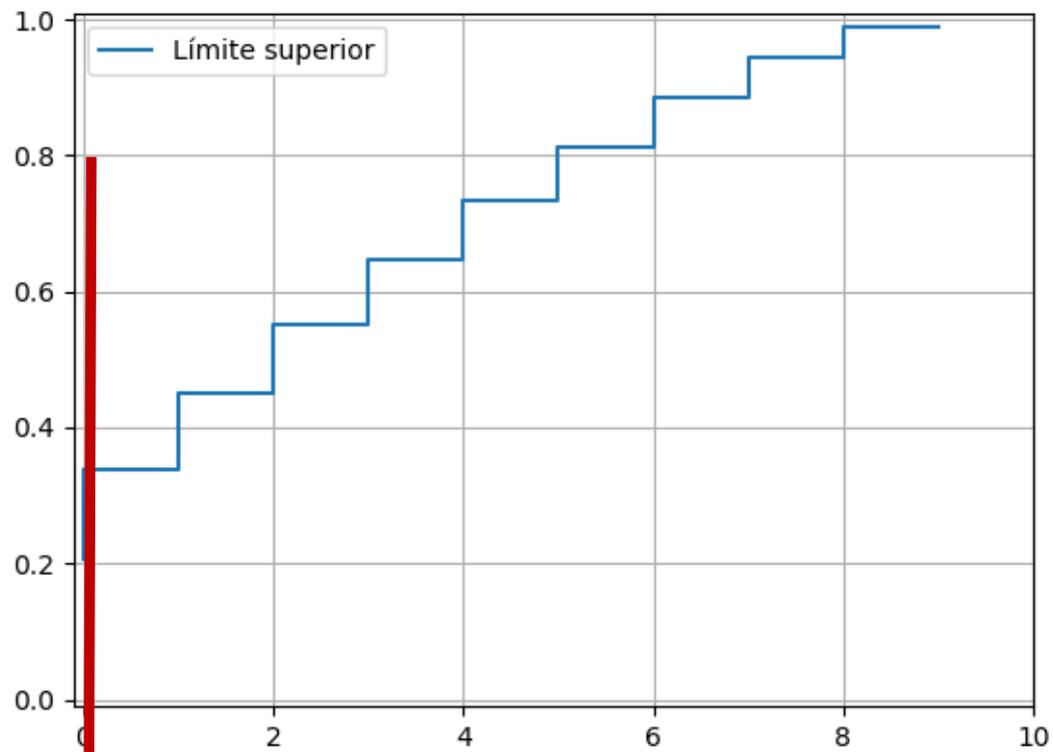
Cinturón de confianza



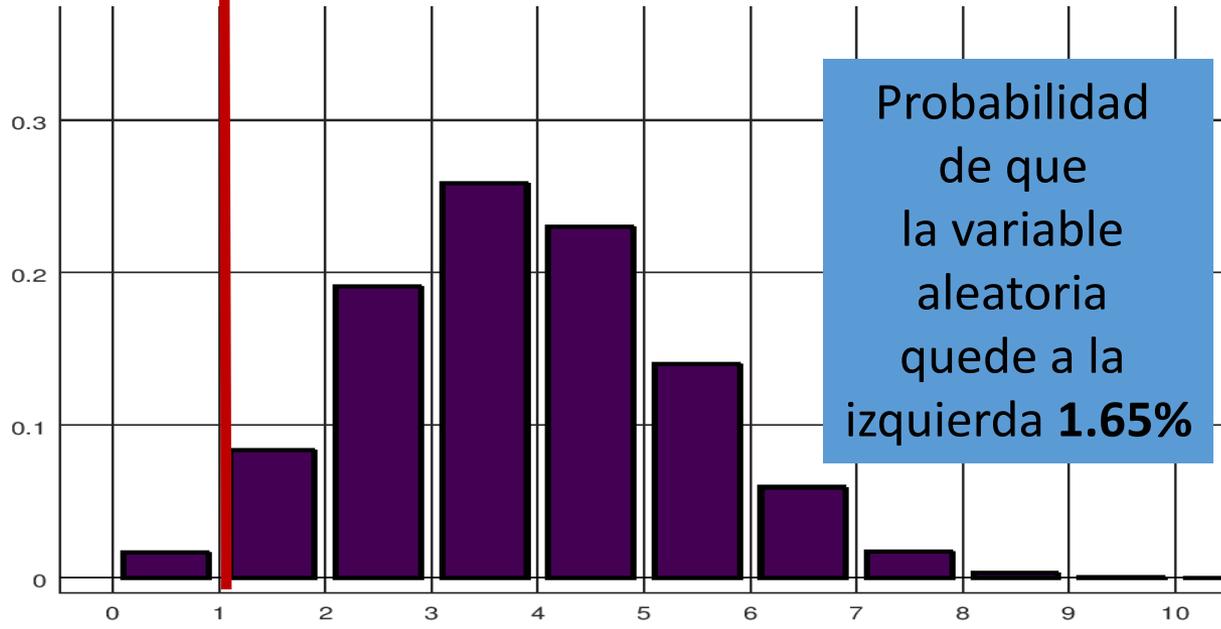
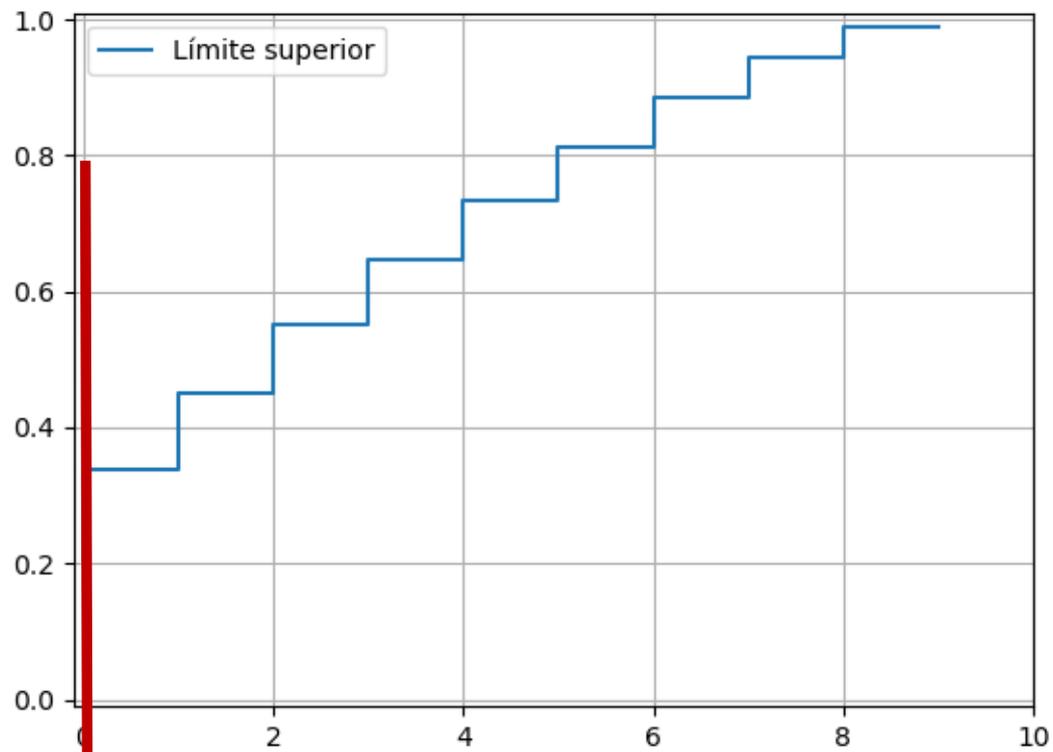
$p=0$



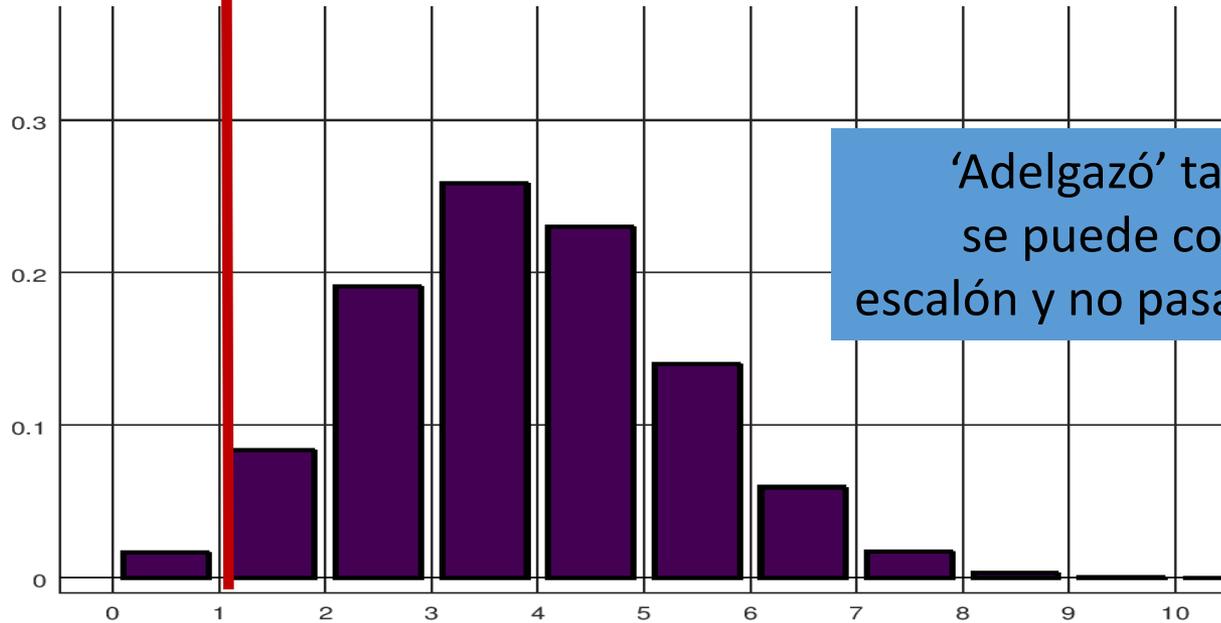
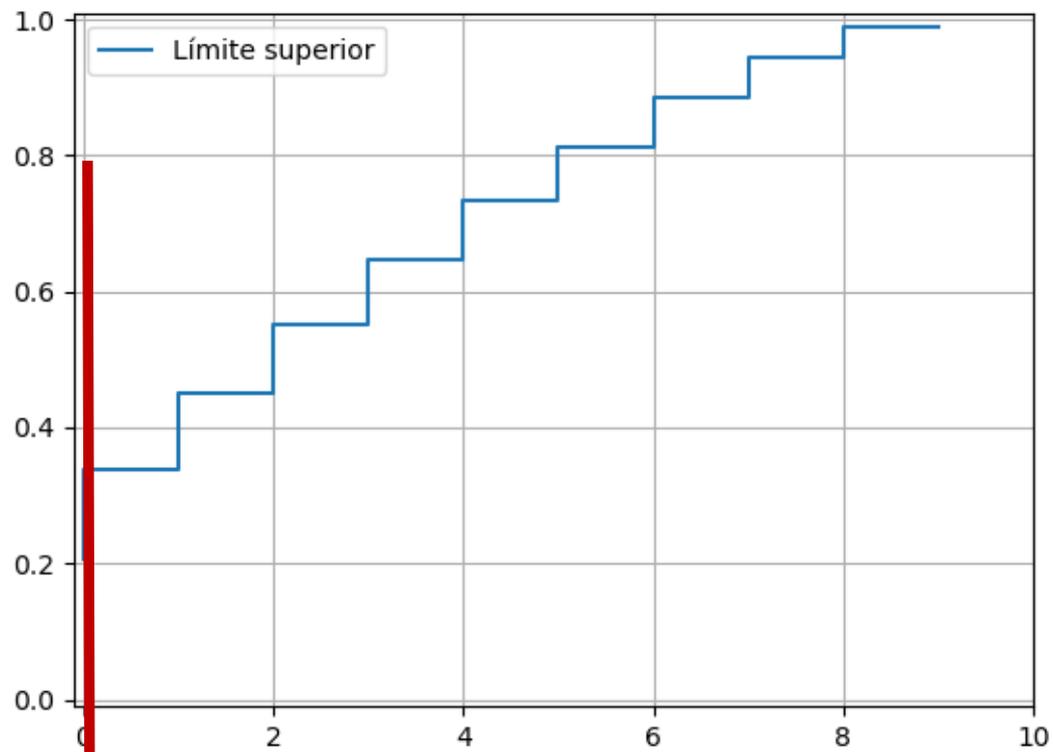
$p=0.2057$



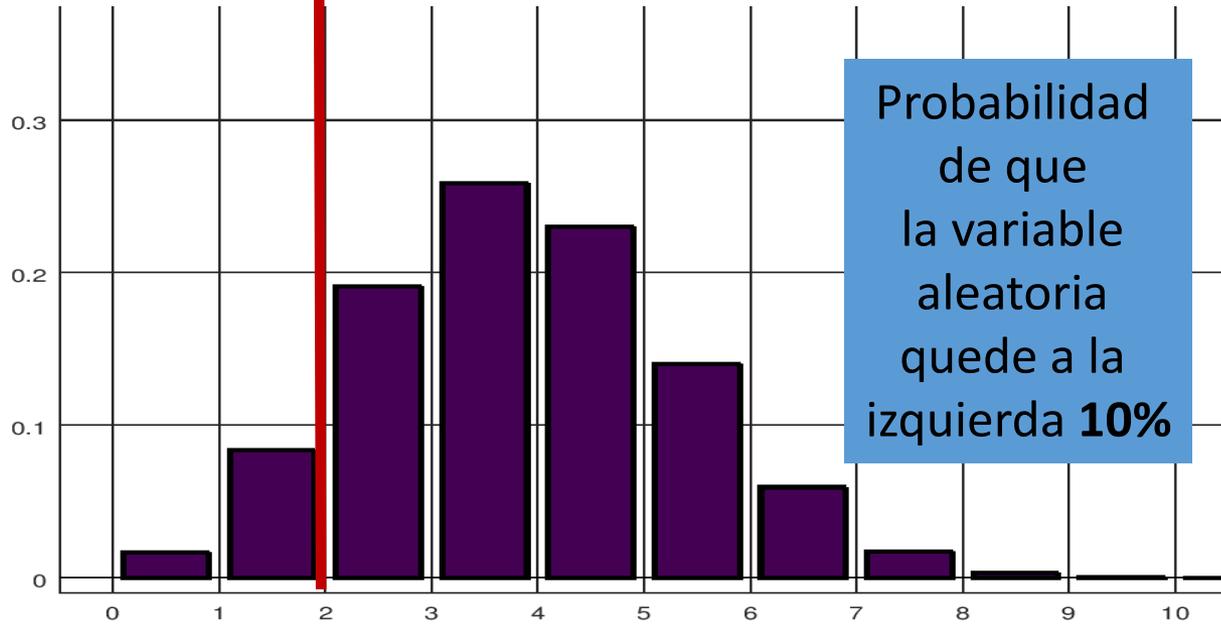
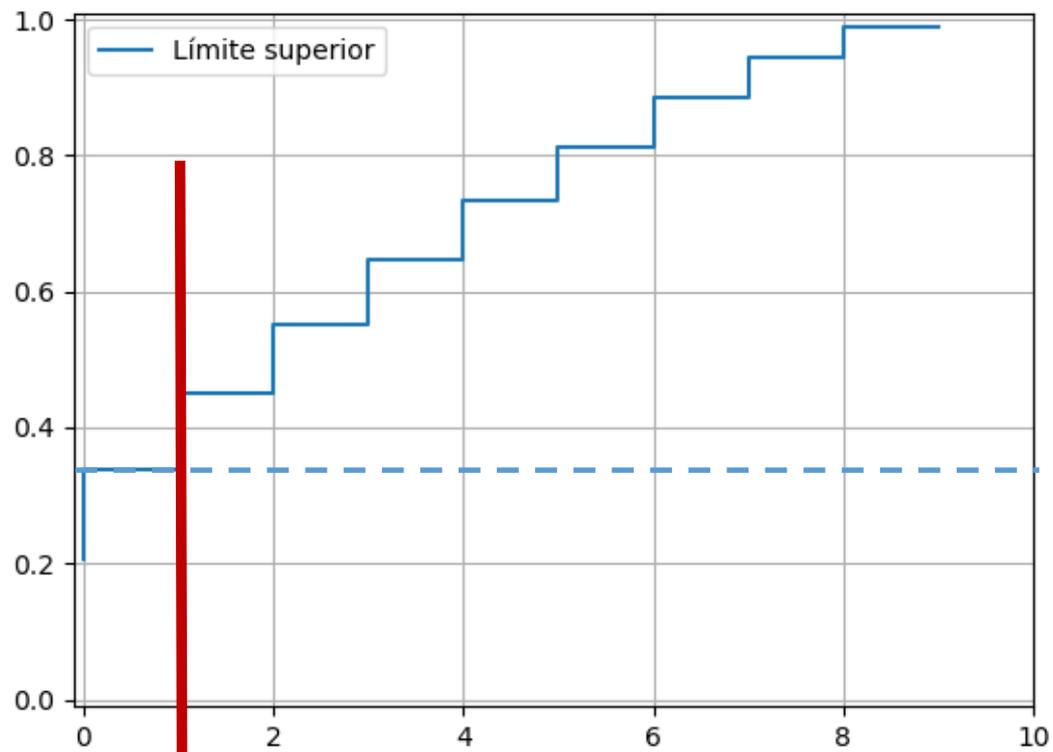
$p=0.3368$

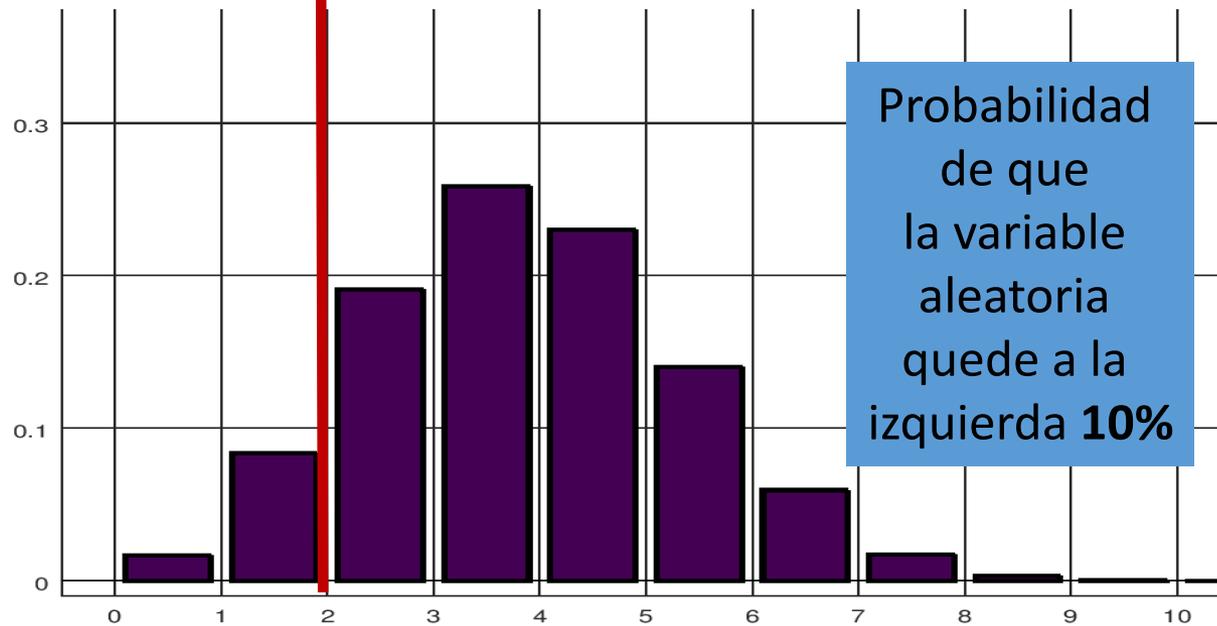
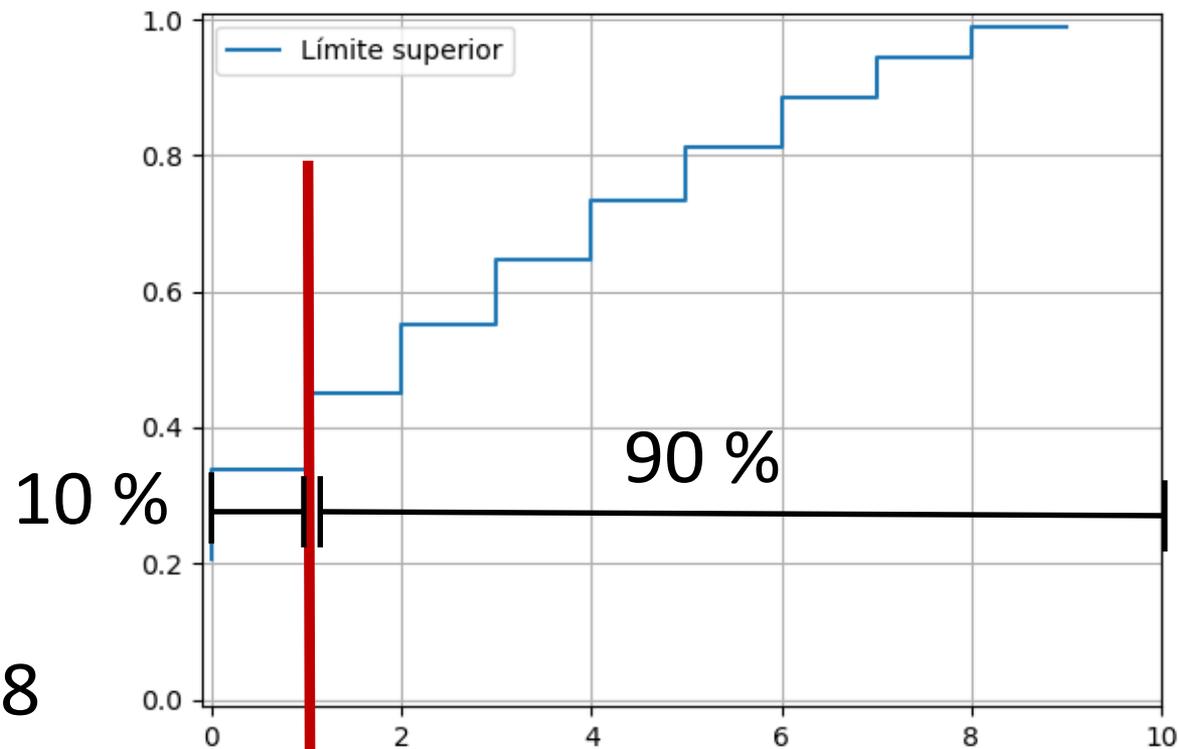


$p=0.3368$

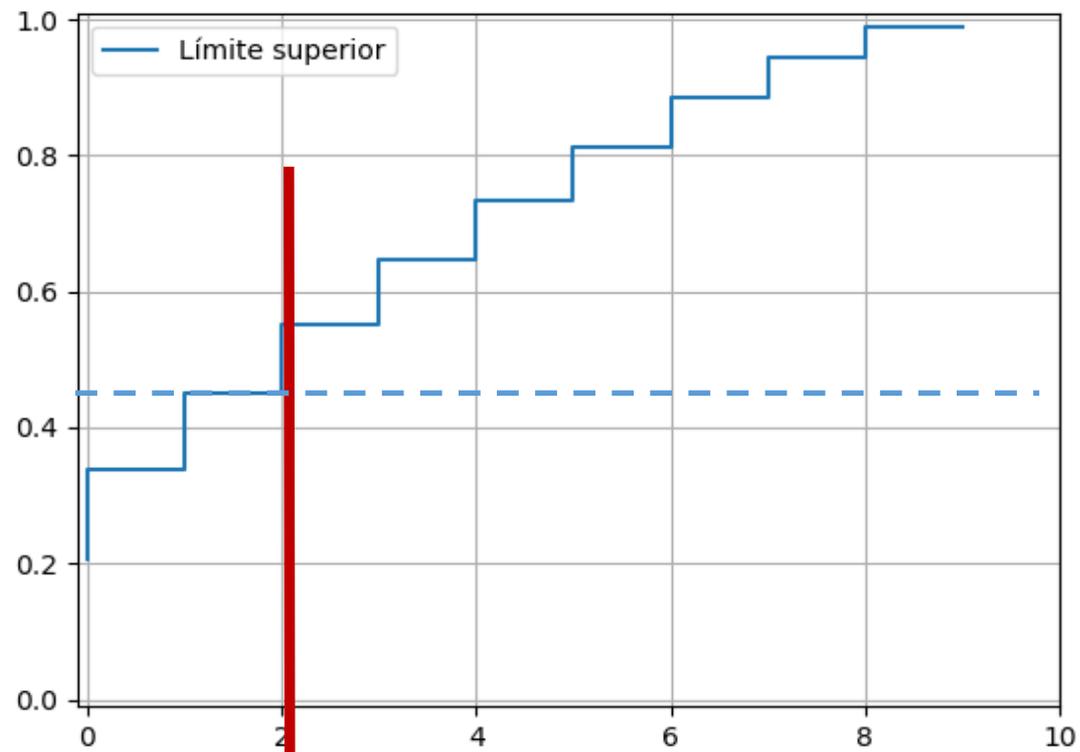


$p=0.3368$

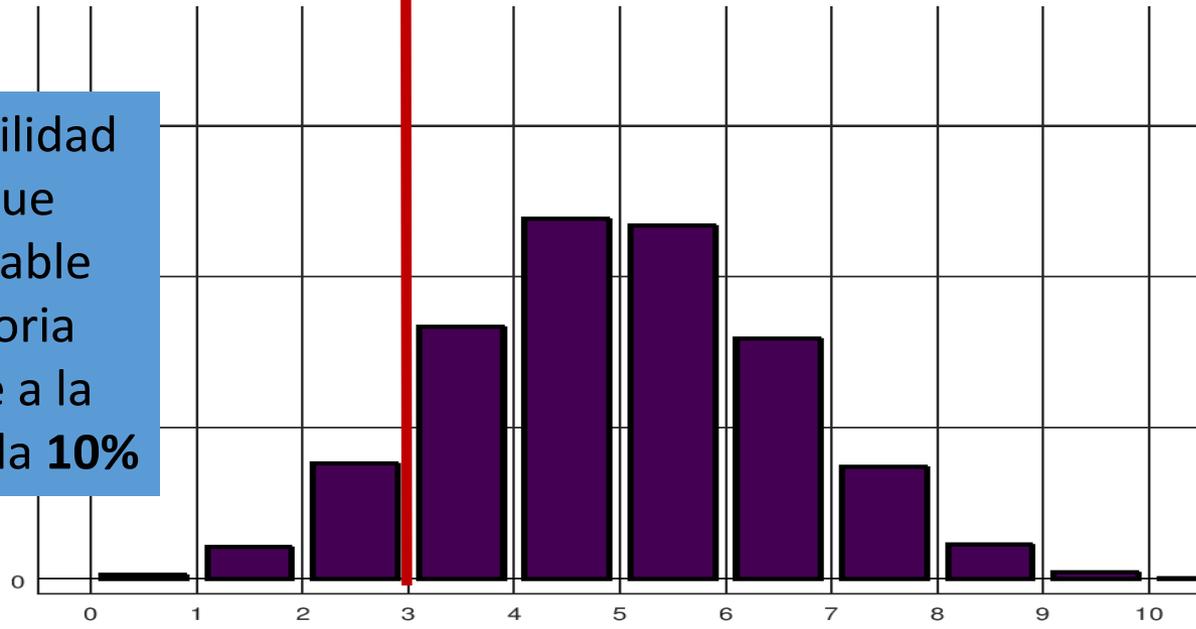




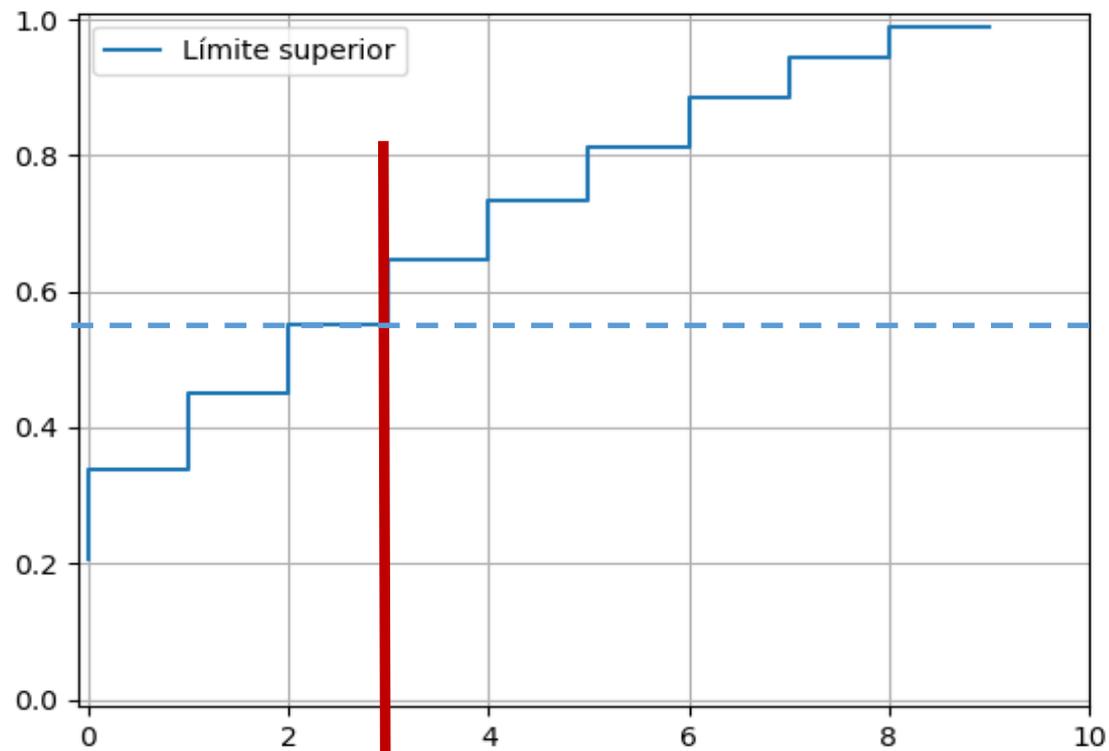
$p=0.4496$



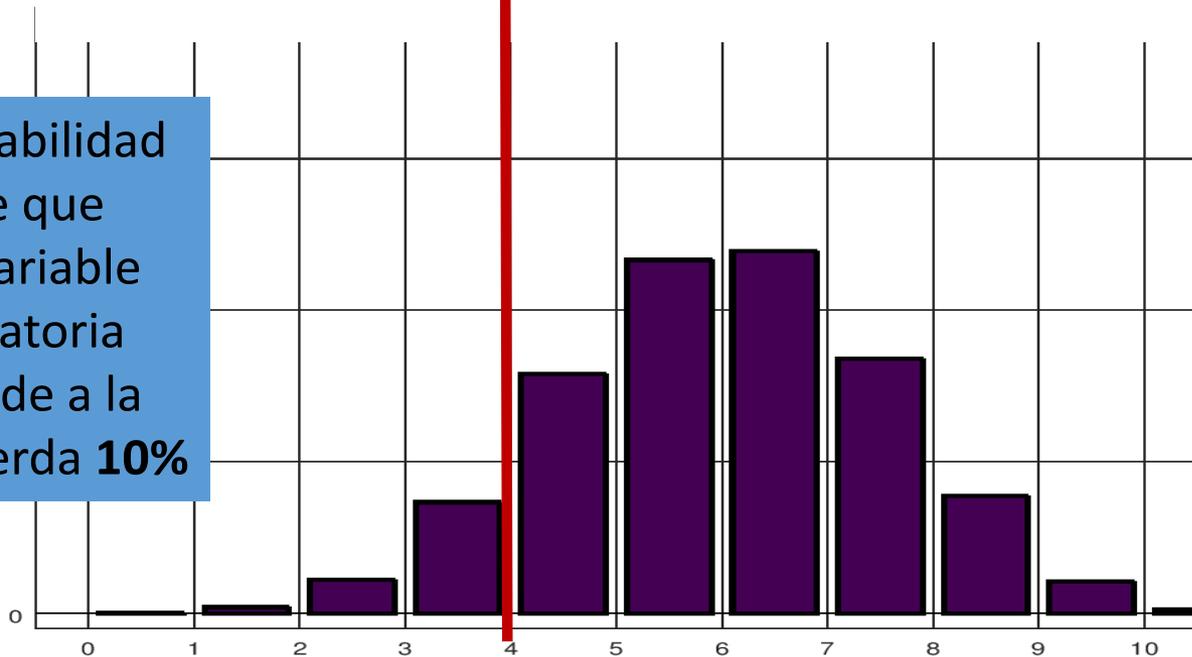
Probabilidad de que la variable aleatoria quede a la izquierda **10%**



$p=0.5517$

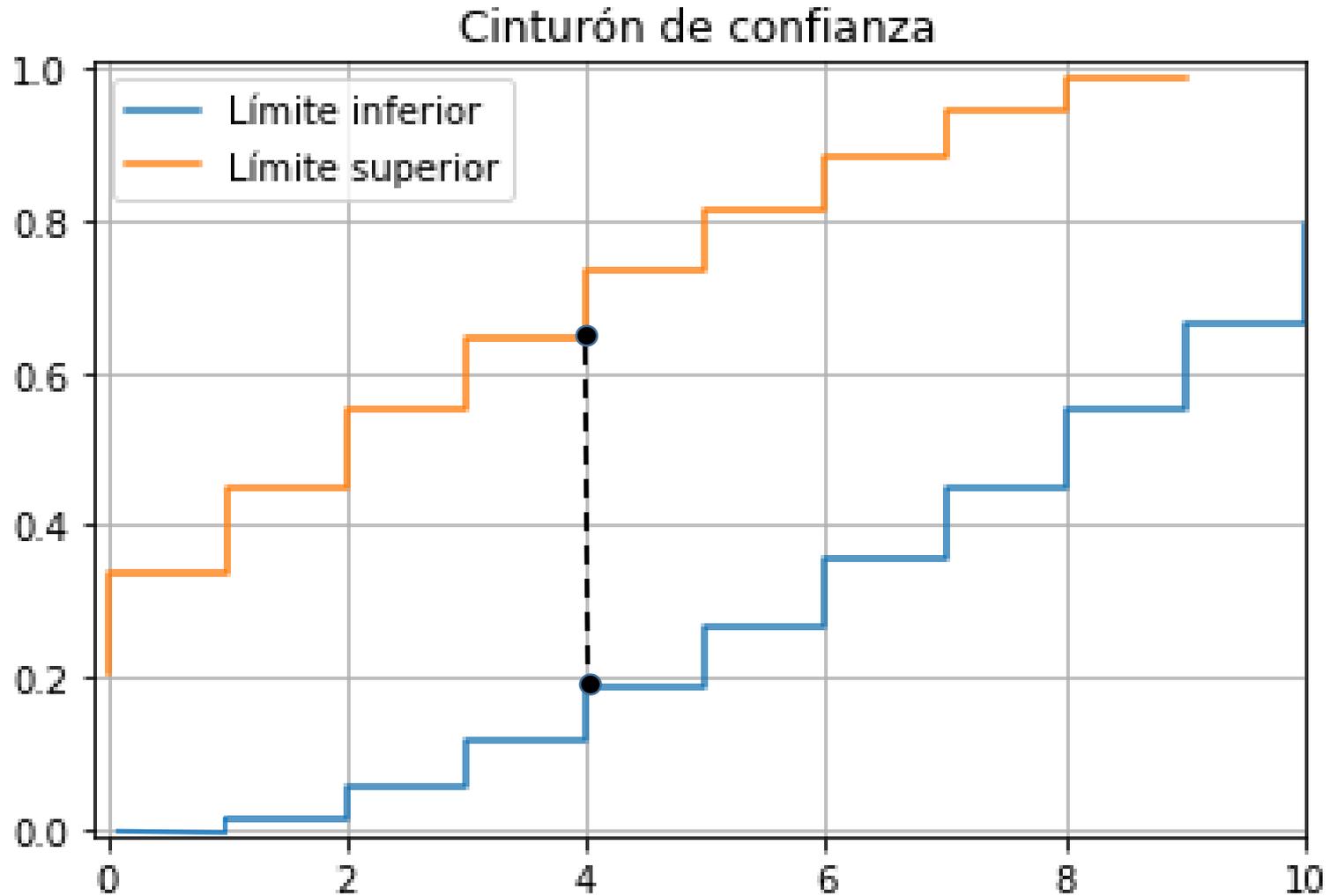


Probabilidad de que la variable aleatoria quede a la izquierda **10%**



Cinturones de confianza centrados
para una variable aleatoria binomial
($n=10$)

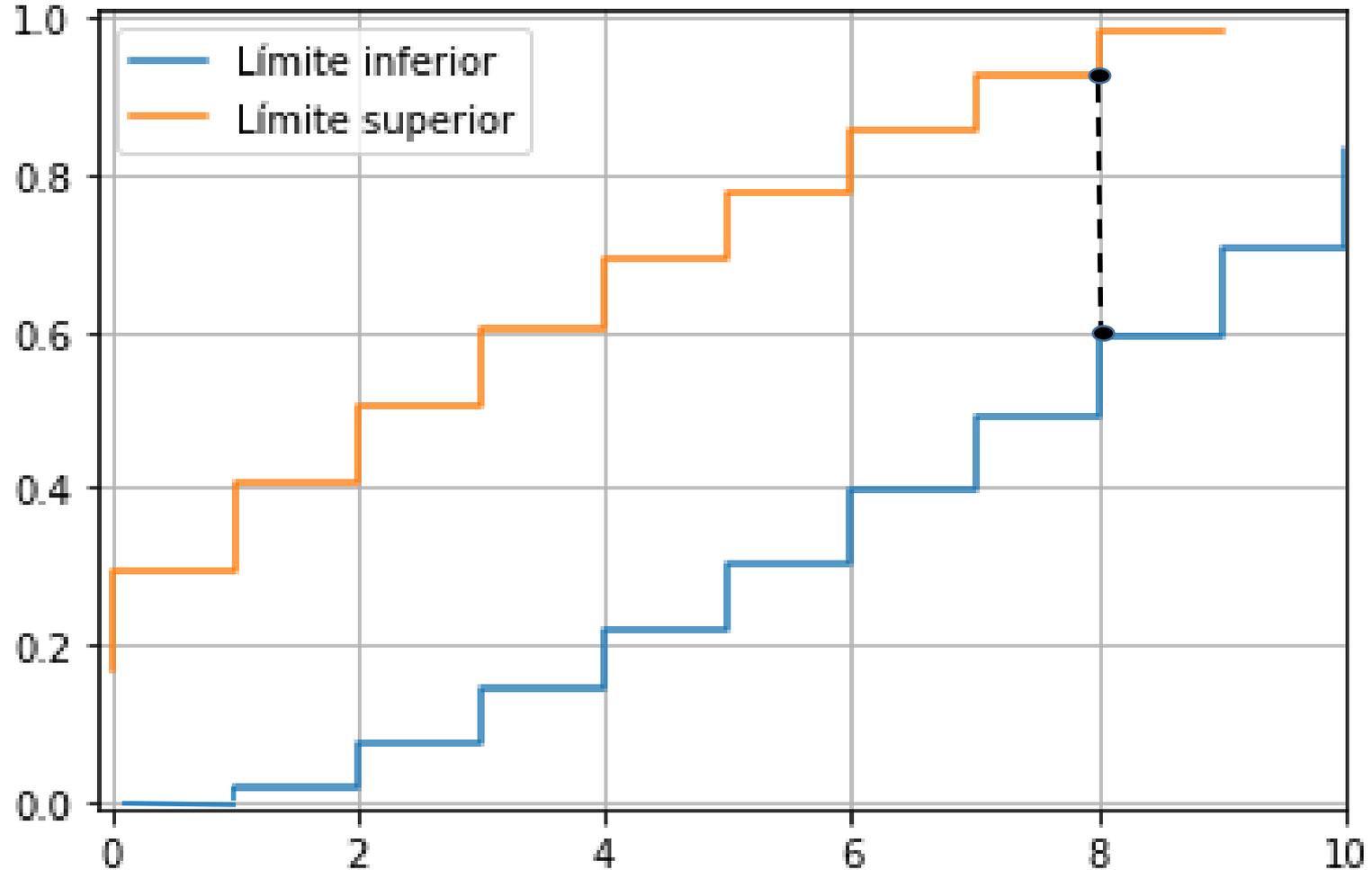
Centrado con 80% CL



Intervalo central para p con 80 % de CL cuando el estadístico observado resultó ser 4

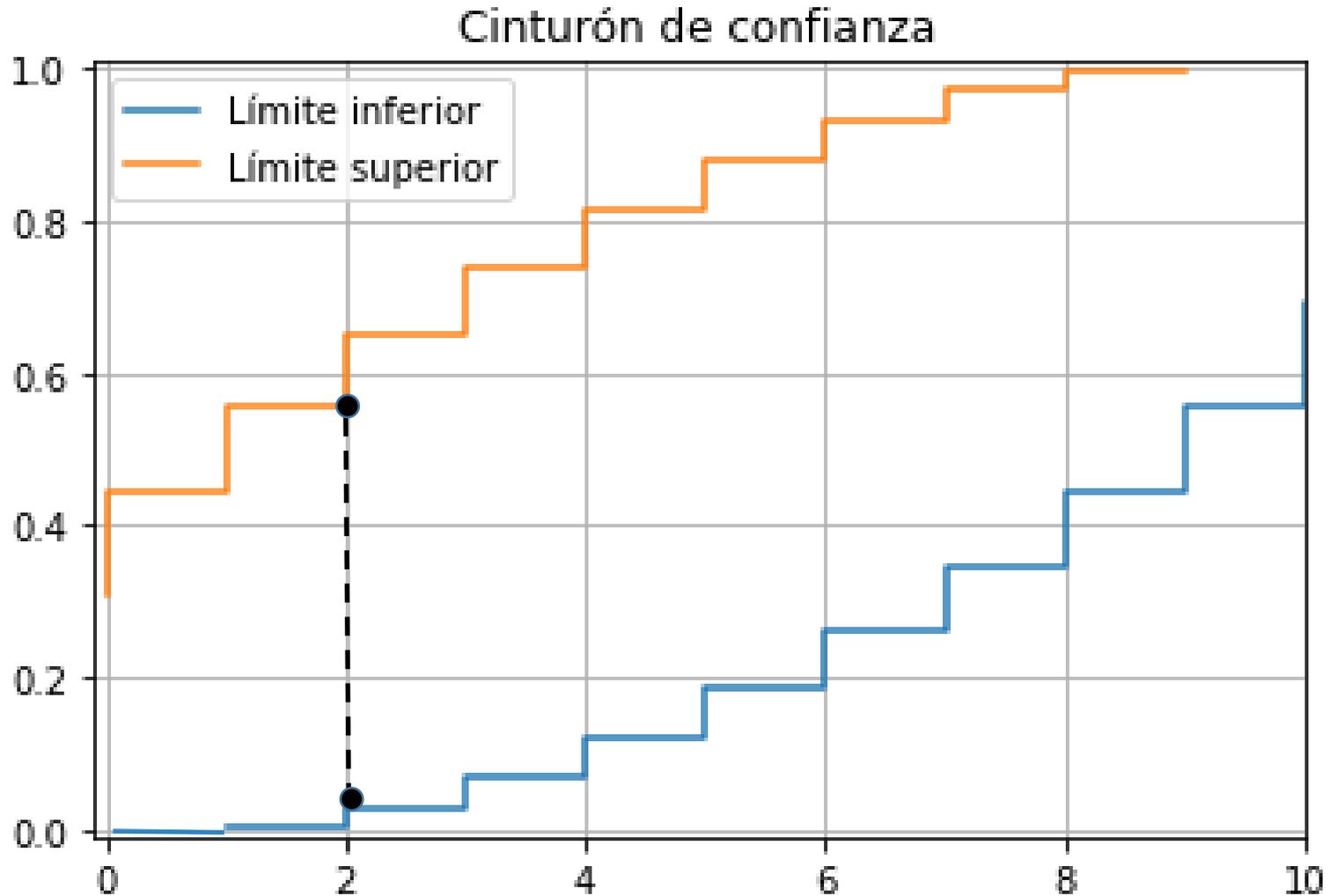
Centrado con 68% CL

Cinturón de confianza



Intervalo central para p con 68 % de CL cuando el estadístico observado resultó ser 8

Centrado con 95% CL



Intervalo central para p con 95 % de CL cuando el estadístico observado resultó ser 2