

Statistical Behavior of the Eigenvalues of Random Matrices—Figures
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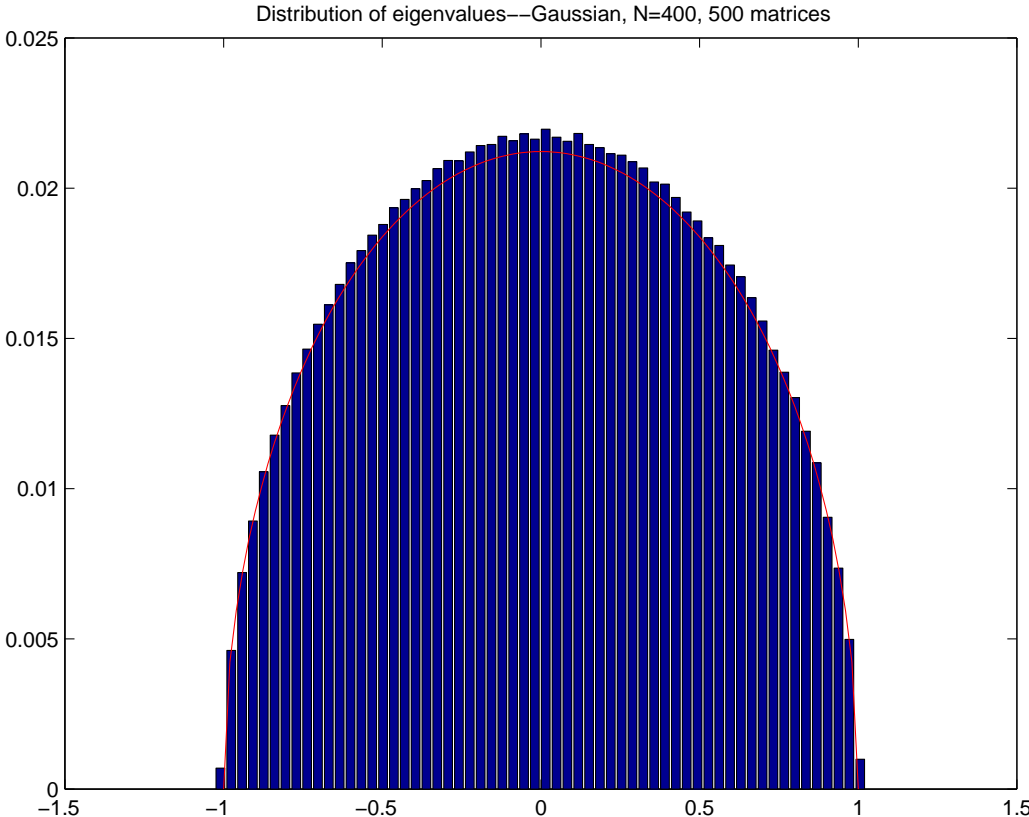


Figure 1: Gaussian Orthogonal Ensemble (distribution of eigenvalues). The semicircle rule is drawn in red.

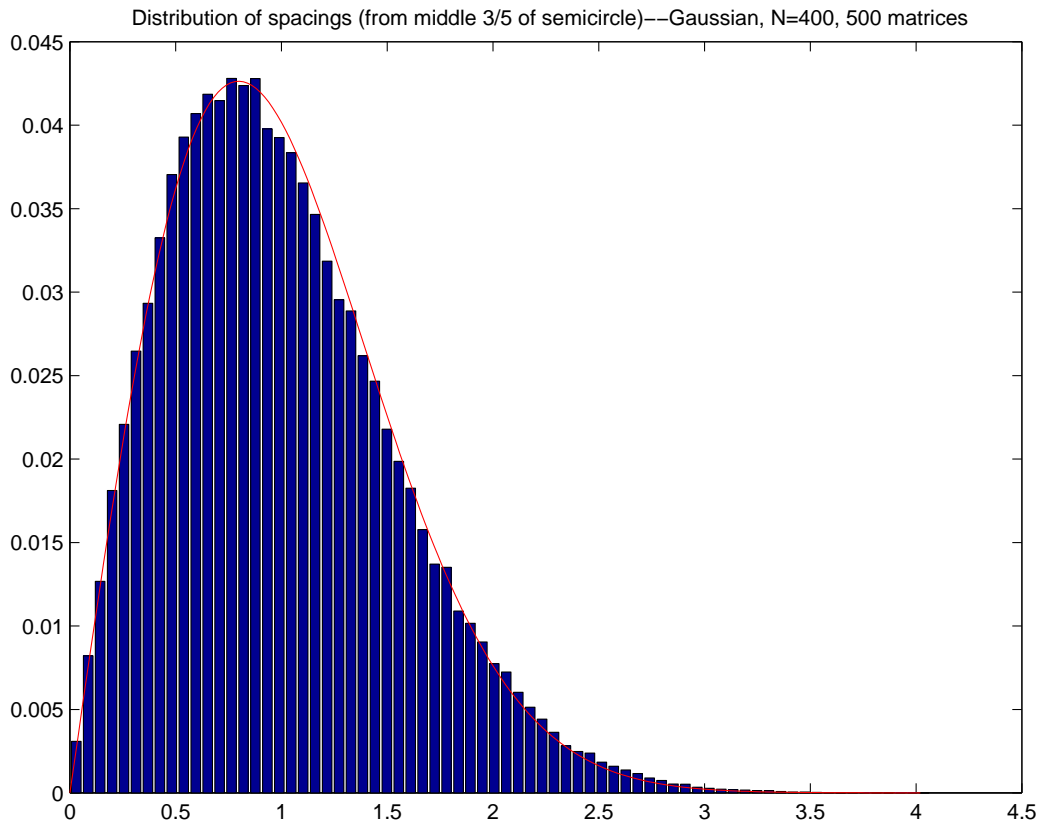


Figure 2: Gaussian Orthogonal Ensemble (distribution of spacings). The Wigner surmise is drawn in red.

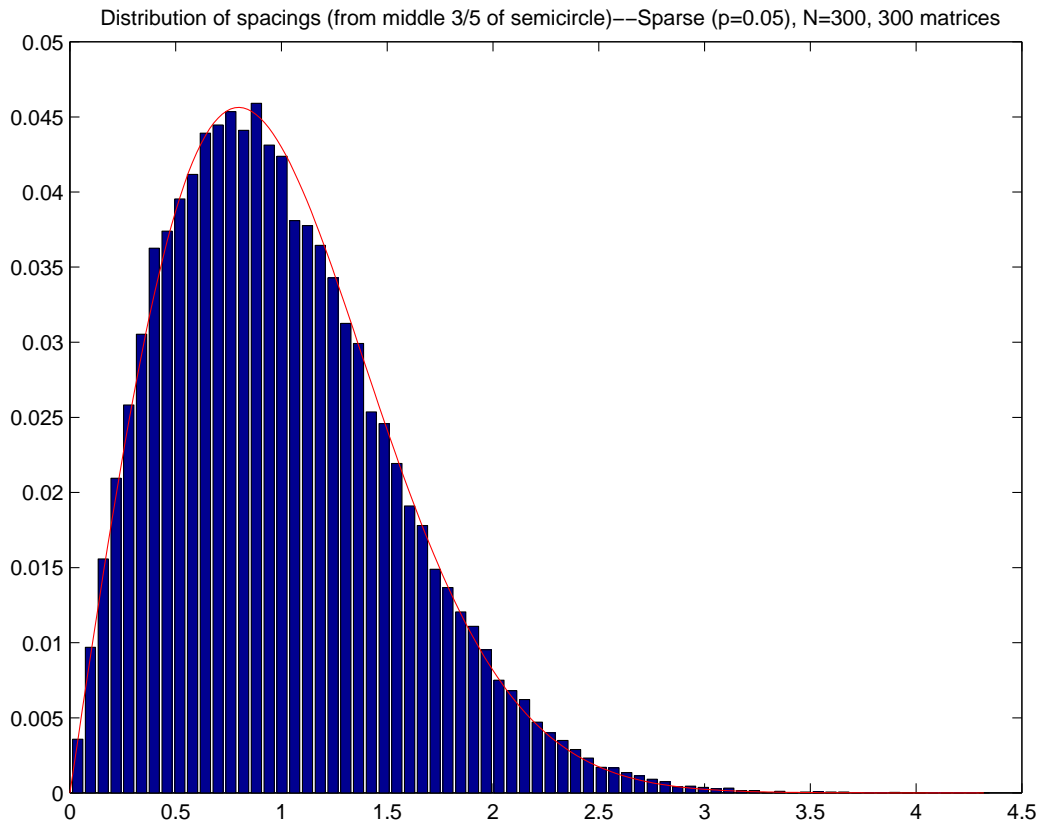


Figure 3: Sparse matrices with $p=0.05$ (distribution of spacings). The Wigner surmise is drawn in red.

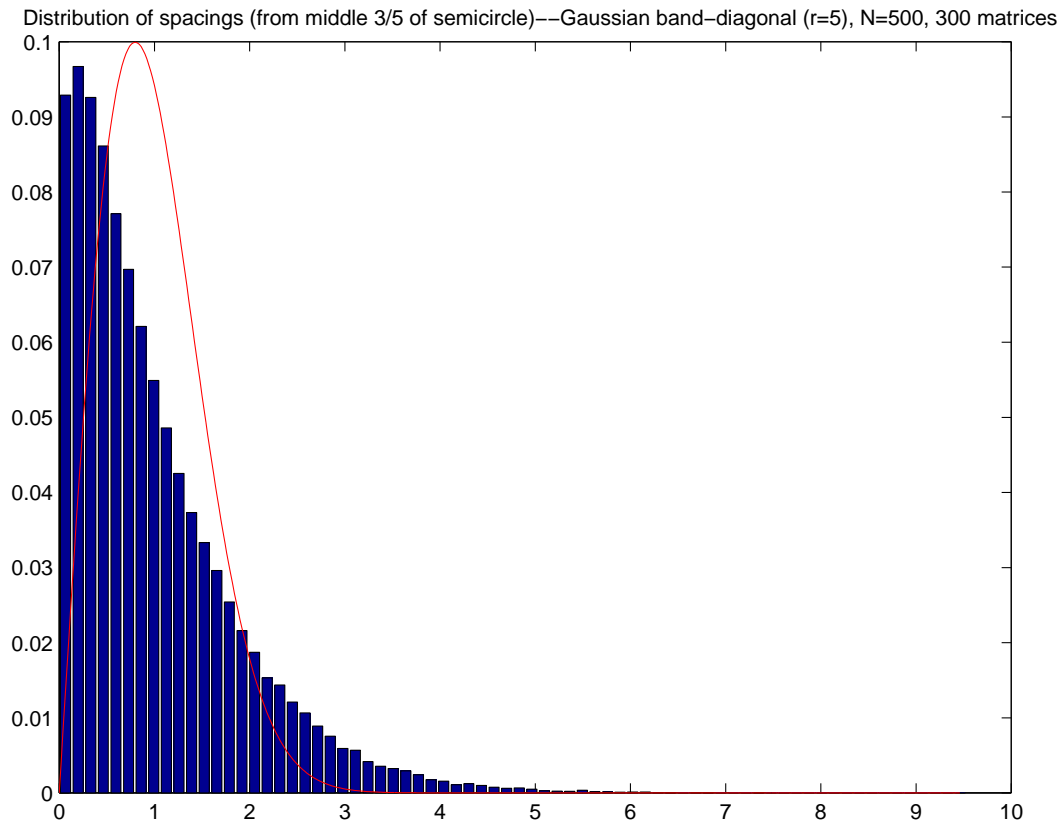


Figure 4: Gaussian band-diagonal matrices with $r=5$ (distribution of spacings). The Wigner surmise is drawn in red. The band is narrow, and the eigenvalue spacings follow the Poisson distribution $\rho(s) = \exp(-s)$.

Distribution of spacings (from middle 3/5 of semicircle)--Gaussian band-diagonal ($r=10$), $N=500$, 300 matrices

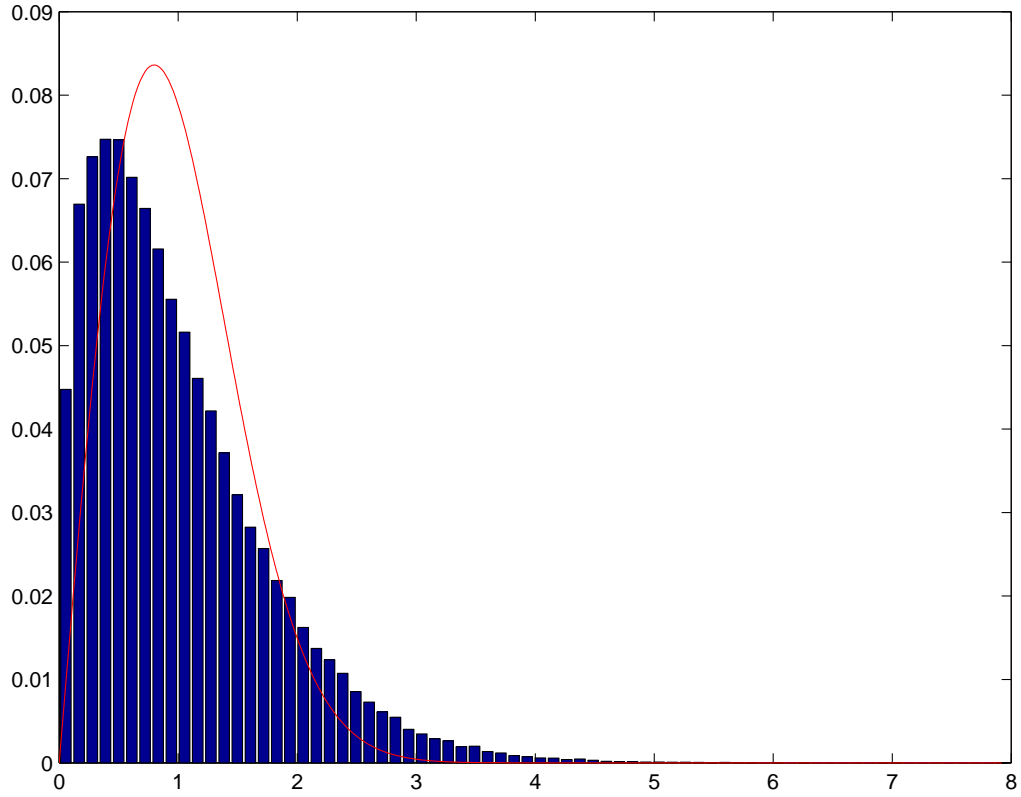


Figure 5: Gaussian band-diagonal matrices with $r=10$ (distribution of spacings). The Wigner surmise is drawn in red. As the band widens, the eigenvalue spacings change from the Poisson distribution to the Wigner surmise.

Distribution of spacings (from middle 3/5 of semicircle)--Gaussian band-diagonal ($r=15$), $N=500$, 300 matrices

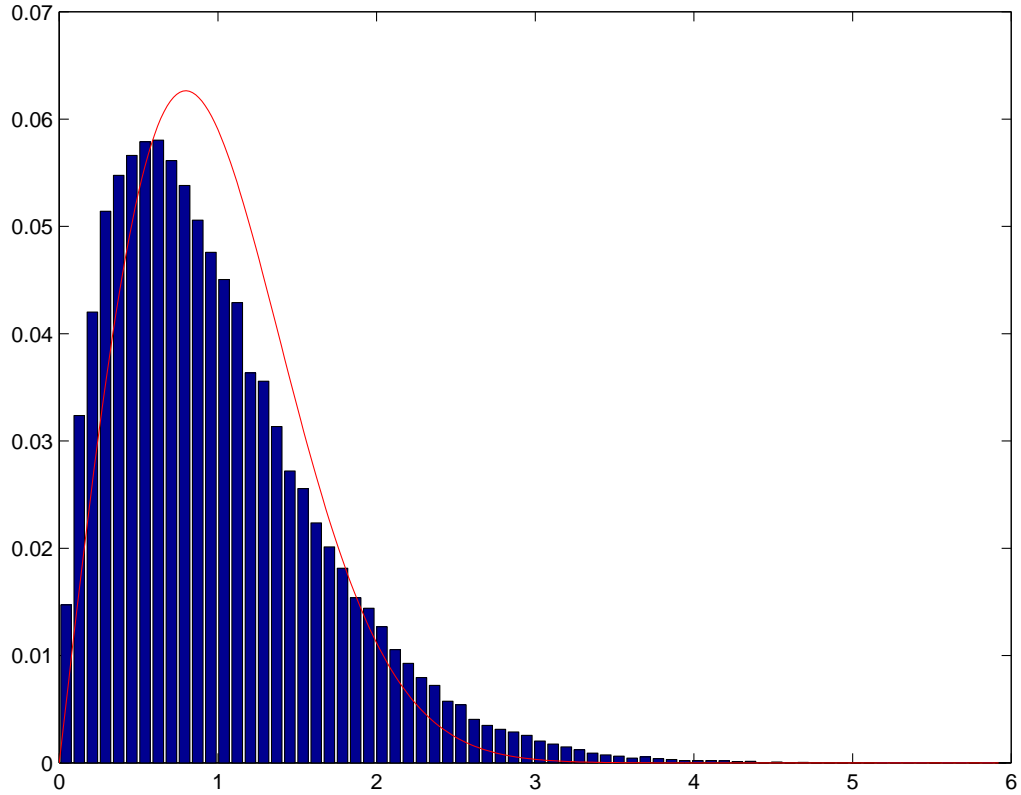


Figure 6: Gaussian band-diagonal matrices with $r=15$ (distribution of spacings). The Wigner surmise is drawn in red. As the band widens, the eigenvalue spacings change from the Poisson distribution to the Wigner surmise.

Distribution of spacings (from middle 3/5 of semicircle)--Gaussian band-diagonal ($r=20$), $N=500$, 300 matrices

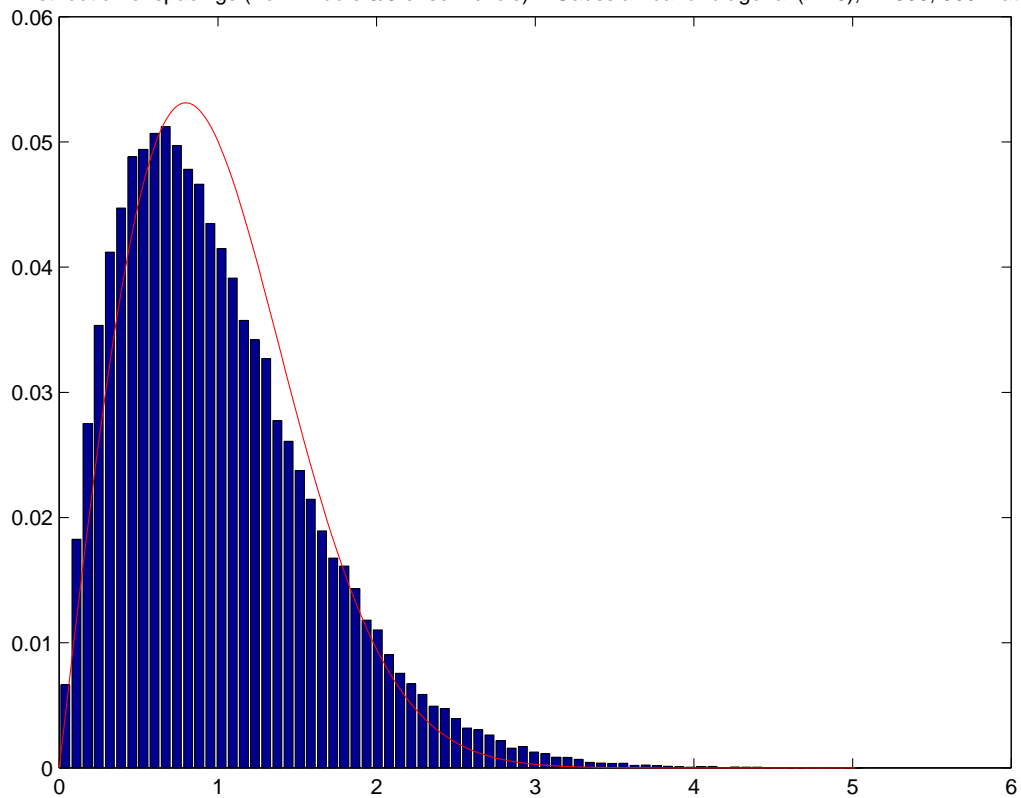


Figure 7: Gaussian band-diagonal matrices with $r=20$ (distribution of spacings). The Wigner surmise is drawn in red. As the band widens, the eigenvalue spacings change from the Poisson distribution to the Wigner surmise.

Distribution of spacings (from middle 3/5 of semicircle)--Gaussian band-diagonal ($r=25$), $N=500$, 300 matrices

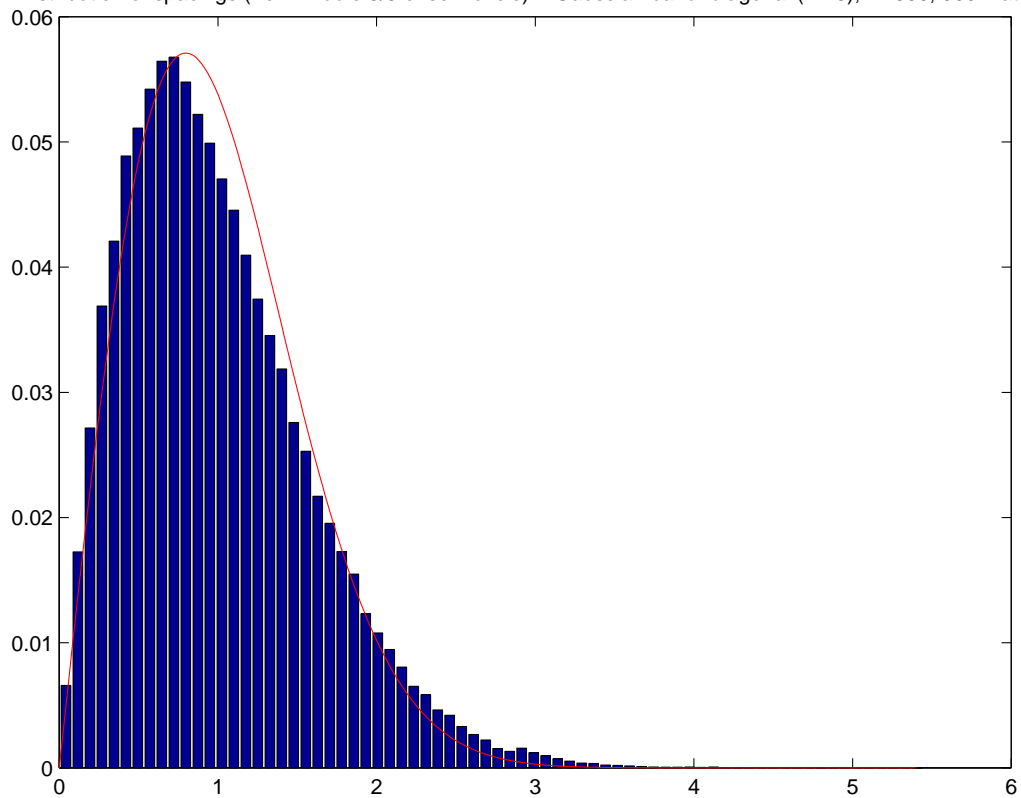


Figure 8: Gaussian band-diagonal matrices with $r=25$ (distribution of spacings). The Wigner surmise is drawn in red. The band has widened, and the eigenvalue spacings are now close to the Wigner surmise.

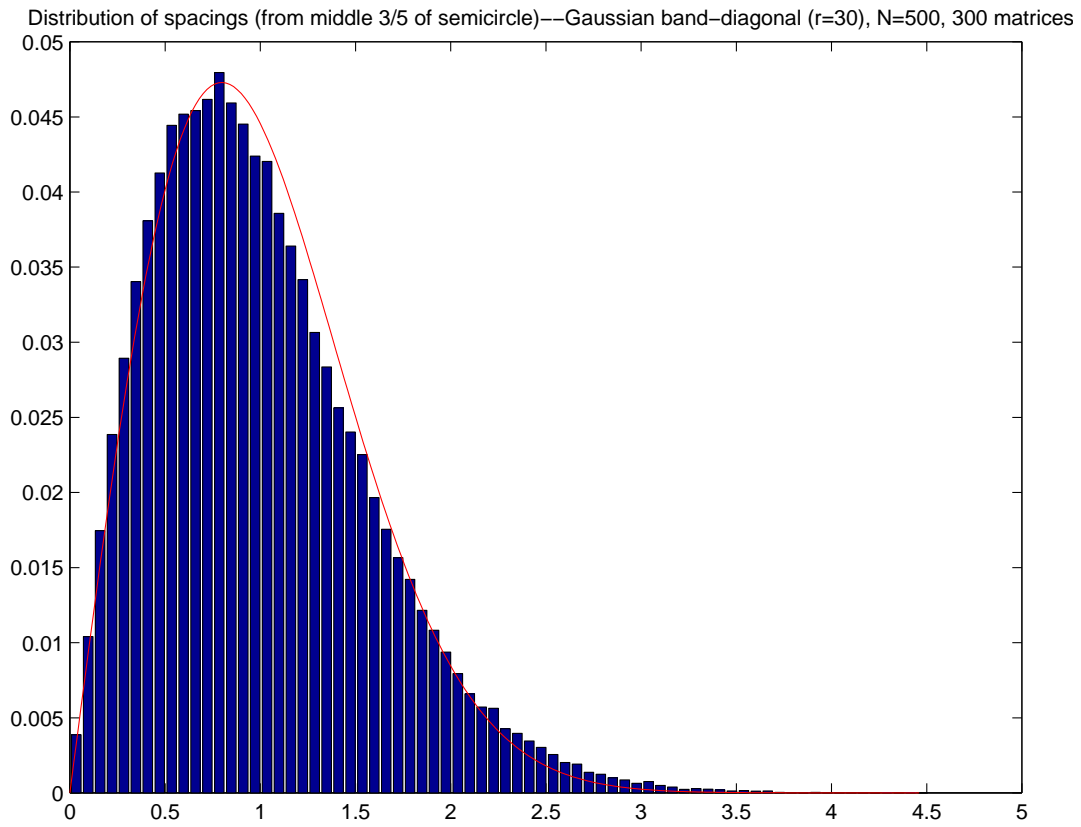


Figure 9: Gaussian band-diagonal matrices with $r=30$ (distribution of spacings). The Wigner surmise is drawn in red. The band has widened, and the eigenvalue spacings are now close to the Wigner surmise.