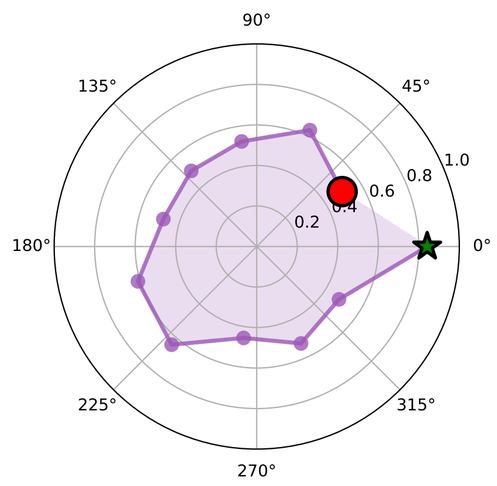
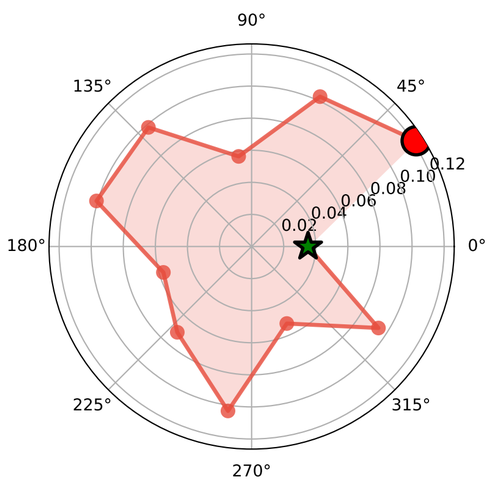
Polar Analysis & Circular Statistics
Evidence for Phase-Locked Circular Dynamics

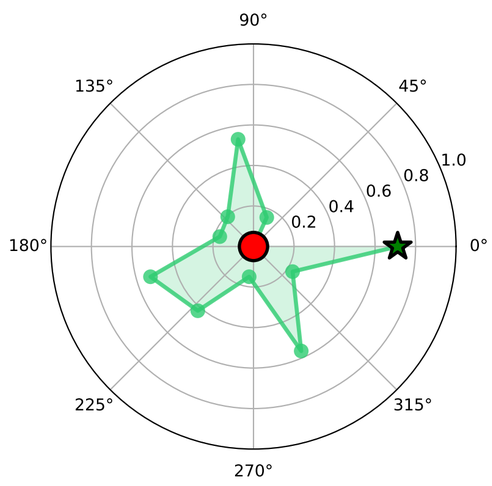
(A) Stability Polar Plot
Radial = Stability, Angular = Cycle



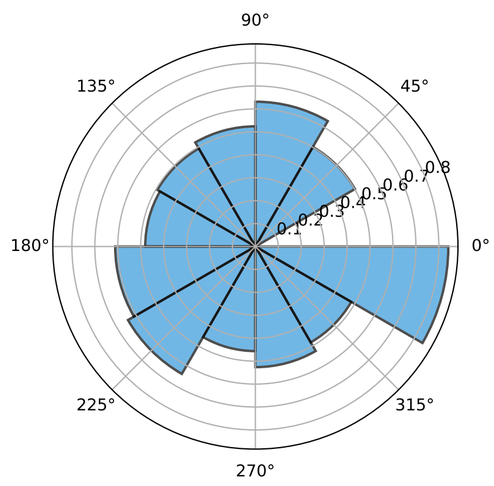
(B) Variance Polar Plot
Radial = Variance, Angular = Cycle



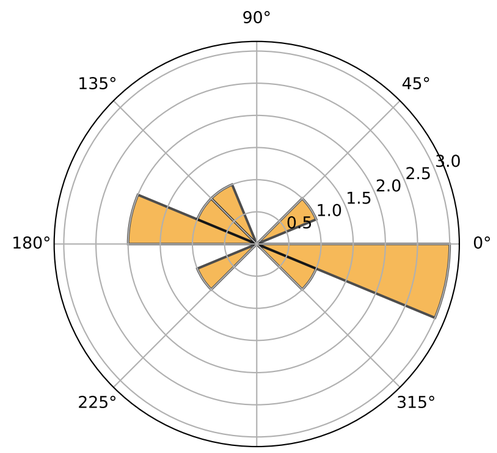
(C) Phase Coherence Polar
Radial = Coherence, Angular = Cycle



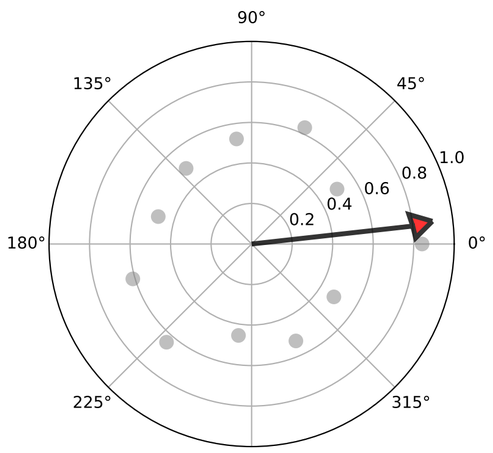
(D) Stability Histogram
Binned by Cycle Phase



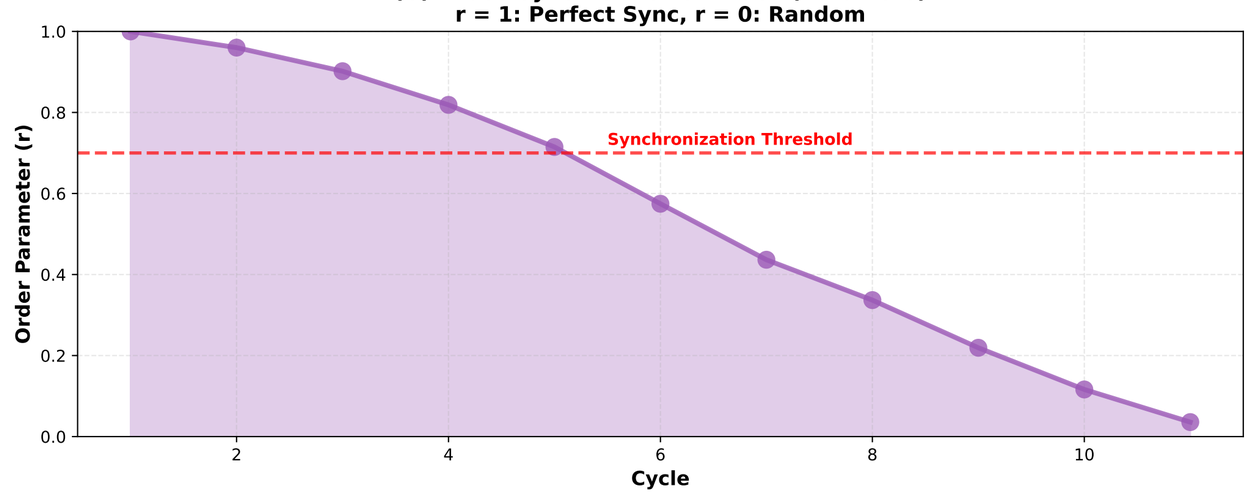
(E) Rose Diagram
Direction of Movement



(F) Circular Mean & Variance
Red Arrow = Mean Direction



(G) Phase Synchronization Index (Kuramoto)
r = 1: Perfect Sync, r = 0: Random

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CIRCULAR STATISTICS:

BASIC METRICS:
Sample size: 11
Circular mean: 0.1114 rad (6.4°)
Circular variance: 0.9642
Circular std dev: 2.5811 rad (147.9°)

CONCENTRATION:
Mean resultant length (R): 0.0358
Interpretation: Low

UNIFORMITY TEST (Rayleigh):
Test statistic (z): 0.0141
p-value: 0.986032
Result: Cannot reject

SYNCHRONIZATION:
Final order parameter: 0.0358
Status: NO
Cycles to sync: 1
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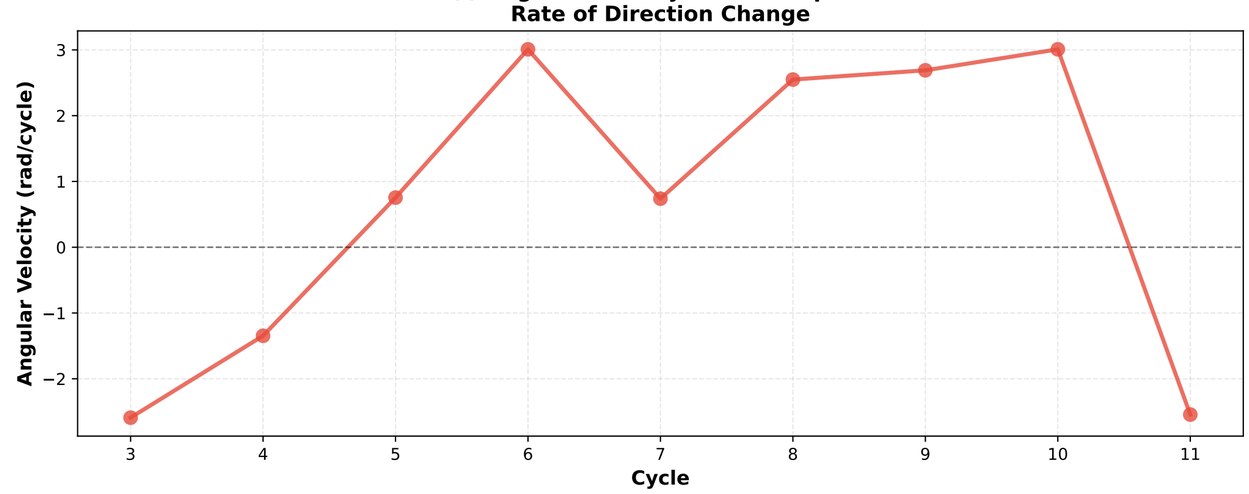
(I) Angular Velocity in Phase Space
Rate of Direction Change



(J) Phase Space Vector Field
Flow Dynamics in Polar Coordinates