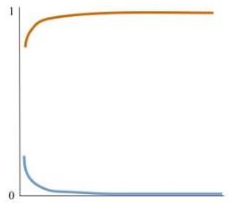
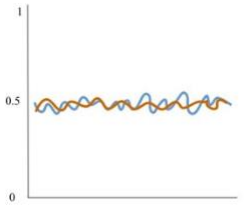
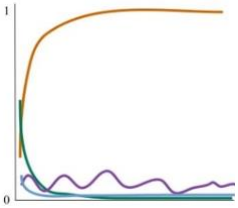
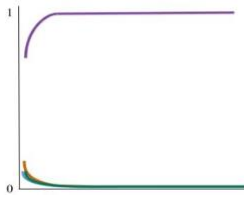
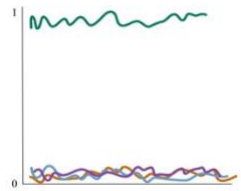
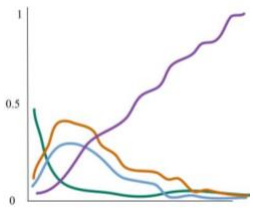
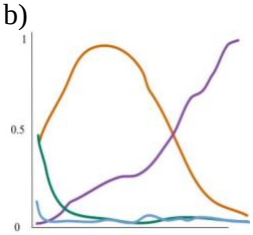
Method	CDDR Diagnostic Colors	Description	CDDR Diagnostic Plot and Interpretation: Schematic examples of the diagnostic, with the x-axis representing subsample sizes less than or equal to N, and the y-axis representing casual outcome rates. Interpretation assumes a consistent direction, acyclicity, i.i.d data, and no unobserved confounding.
LiNGAM with HSIC	orange	Rate of detecting $X \rightarrow Y$.	 • As subsample size increases, CDDR quickly approaches 1 (orange line), while the rate of detecting the other direction quickly approaches 0 (blue line). Strong evidence in favor of non-Gaussianity holding.
	blue	Rate of detecting $Y \rightarrow X$.	 • Rates for determining both directions around 0.5 across subsample sizes (orange and blue lines). Strong evidence of non-Gaussianity assumption violations. Cannot conclude directionality. • Cannot say much about linearity assumption violations.
Test-based Approach with HSIC	orange	Rate of detecting $X \rightarrow Y$.	 • As subsample size increases, CDDR quickly approaches 1 (orange line), while the other outcome rates quickly approach 0 (blue, purple, and green lines). Strong evidence of no assumption violations and direction being $X \rightarrow Y$.
	blue	Rate of detecting $Y \rightarrow X$.	 • As subsample size increases, the rate of rejecting both directions quickly approaches 1 (purple line), while the other outcome rates quickly approach 0 (orange, blue, and green lines). Strong evidence of linearity assumption violations. Cannot conclude directionality.
	purple	Rate of rejecting in both directions. Indicates linearity assumption violation.	 • Across subsample sizes, the rate of failing to reject both directions is around 1 (green line), while the other outcome rates is around 0 (orange, blue, and purple lines). Strong evidence of non-Gaussianity assumption violations. Cannot conclude directionality.
	green	Rate of failing to reject in both directions. Indicates small sample size or non-Gaussianity assumption violation.	a)  • Other patterns may indicate evidence of moderate assumption violations, but further information is needed to draw conclusions about the directionality. Factors to consider include the magnitude and duration of the CDDR, as well as the sample sizes for which the direction is favored. b)  • For example, for both a) and b), we have some evidence of linearity assumption violations but for a) we cannot say much about the casual direction, whereas b) provides a stronger case for the direction $X \rightarrow Y$