Summary of Results

In all cases four methods are used to generate base forecasts. Either base forecasts are drawn from an independent distribution or non-independent distribution (all DGPs actually have dependence). Also base forecasts are Gaussian or use bootstrapping (the DGPs may be Gaussian or non-Gaussian)

Gaussian and Stationary DGP

The DGP has Gaussian residuals and all series are forced to be stationary.

ARIMA model

Recall that the true DGP is ARIMA

BaseDependence	BaseDistribution	Base	BottomUp	BTTH	JPP	MinTSam	MinTShr	OLS	ScoreOpt	WLS
independent	bootstrap	11.3772	12.0094	22.3624	17.8855	11.2147	11.2079	11.1753	10.9363	11.1137
independent	gaussian	11.3673	12.0002	22.3904	17.8788	11.2021	11.1951	11.1615	10.8925	11.0990
joint	bootstrap	11.0950	11.6372	22.4344	17.8336	10.9132	10.9052	10.8675	10.8628	10.8302

Summary of Nemenyi tests is below

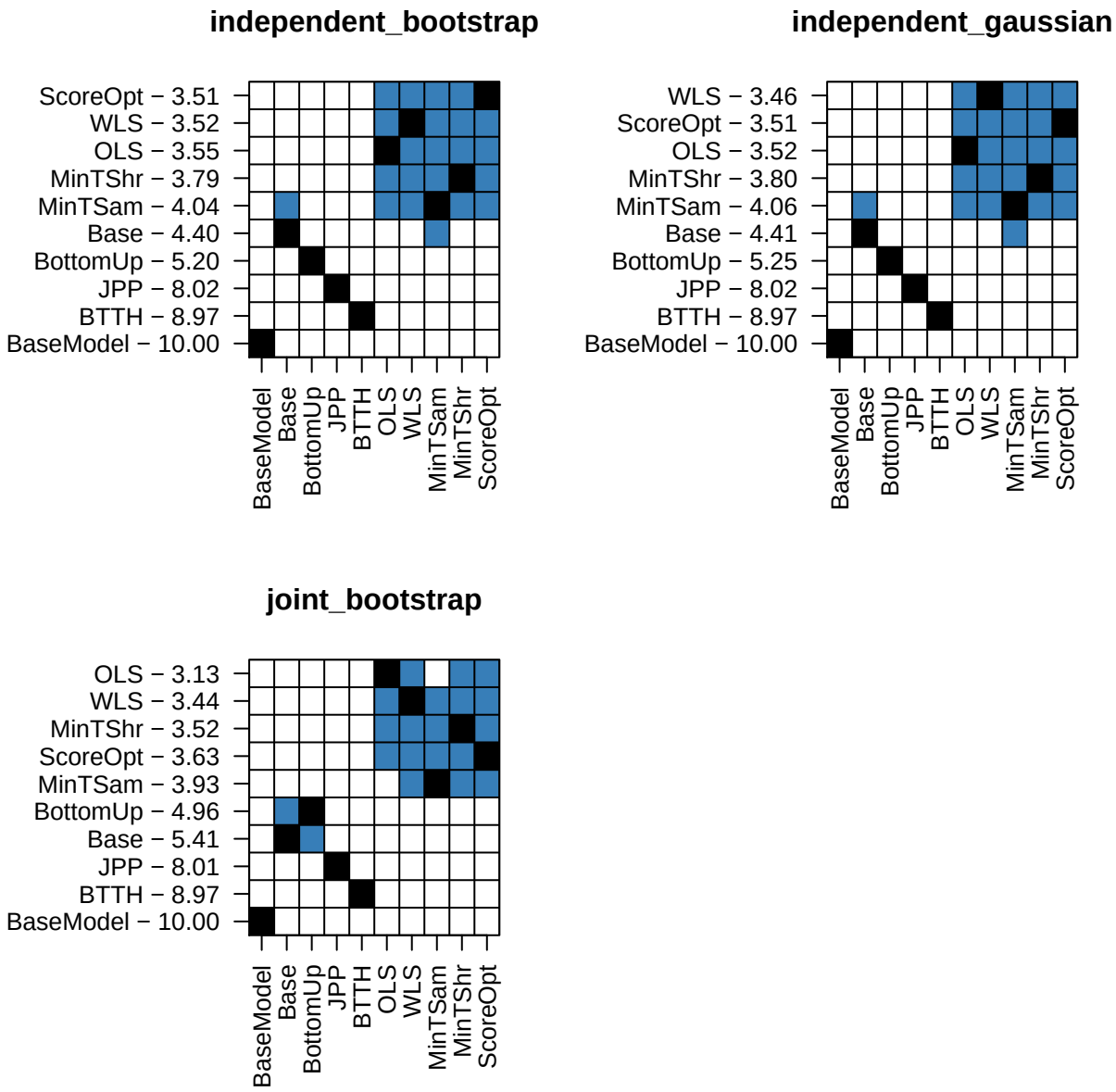

Figure 1: Results for arima modelling with a gaussian stationary DGP

ETS model

Recall that the true DGP is ARIMA so there is model misspecification here.

BaseDependence	BaseDistribution	Base	BottomUp	BTTH	JPP	MinTSam	MinTShr	OLS	ScoreOpt	WLS
independent	bootstrap	11.6969	12.3631	23.6204	18.3570	11.1353	11.1320	11.1058	10.7957	11.1559
independent	gaussian	11.6882	12.3603	23.6376	18.3614	11.1278	11.1243	11.0976	10.7816	11.1496
joint	bootstrap	11.4722	12.0697	23.6761	18.3078	10.8838	10.8803	10.8528	10.8413	10.9254

Summary of Nemenyi test below

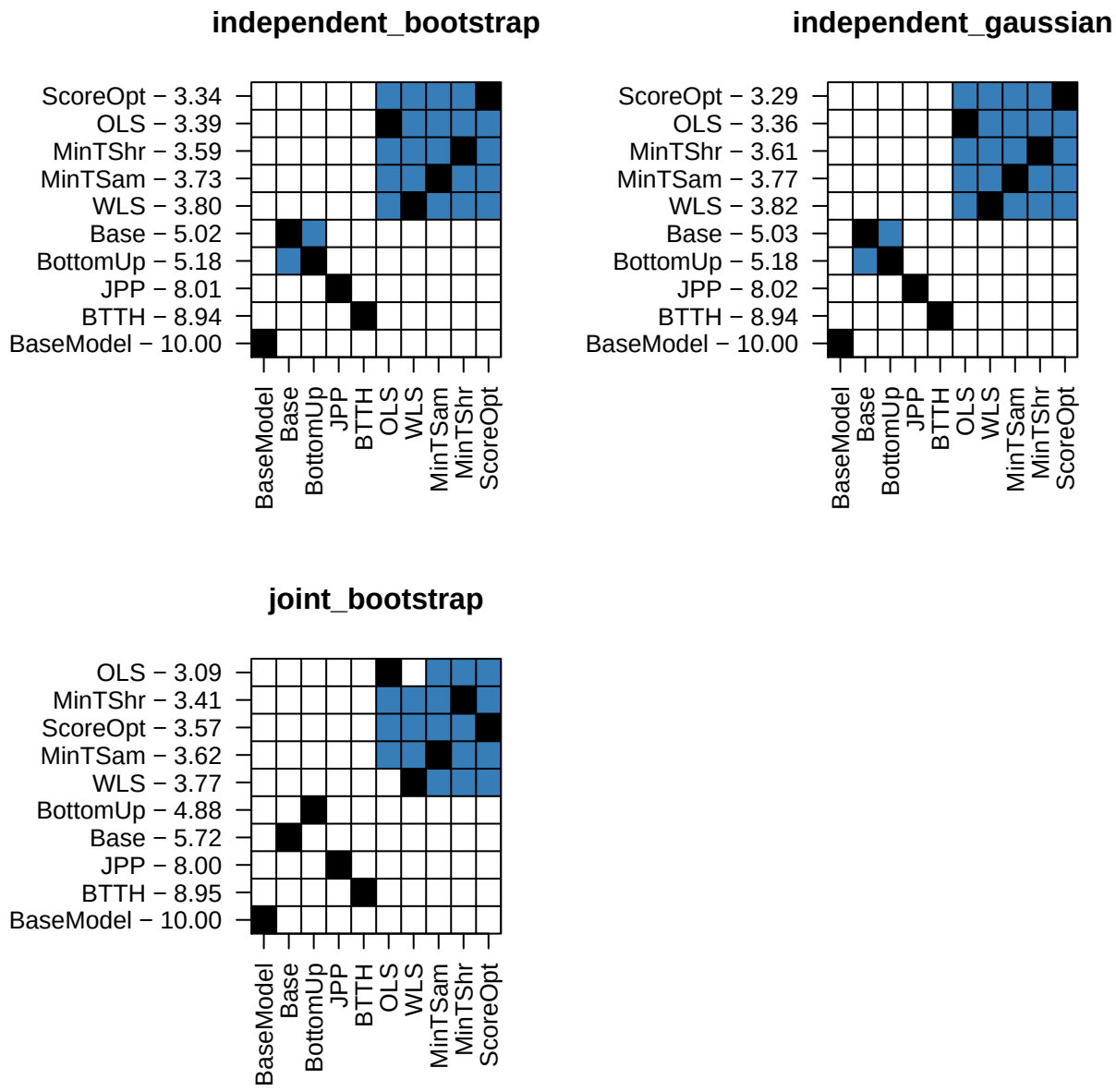

Figure 2: Results for ets modelling with a gaussian stationary DGP

Non Gaussian and Stationary DGP

The DGP has non-Gaussian residuals and all series are forced to be stationary.

ARIMA model

Recall that the true DGP is ARIMA

BaseDependence	BaseDistribution	Base	BottomUp	BTTH	JPP	MinTSam	MinTShr	OLS	ScoreOpt	WLS
independent	bootstrap	1.3697	1.4283	2.6953	2.1306	1.3397	1.3344	1.3279	1.2970	1.3260
independent	gaussian	1.3763	1.4481	2.8080	2.1393	1.3409	1.3352	1.3281	1.3003	1.3266
joint	bootstrap	1.3381	1.3792	2.7061	2.1280	1.3170	1.3119	1.3048	1.2962	1.3045

Summary of Nemenyi tests is below

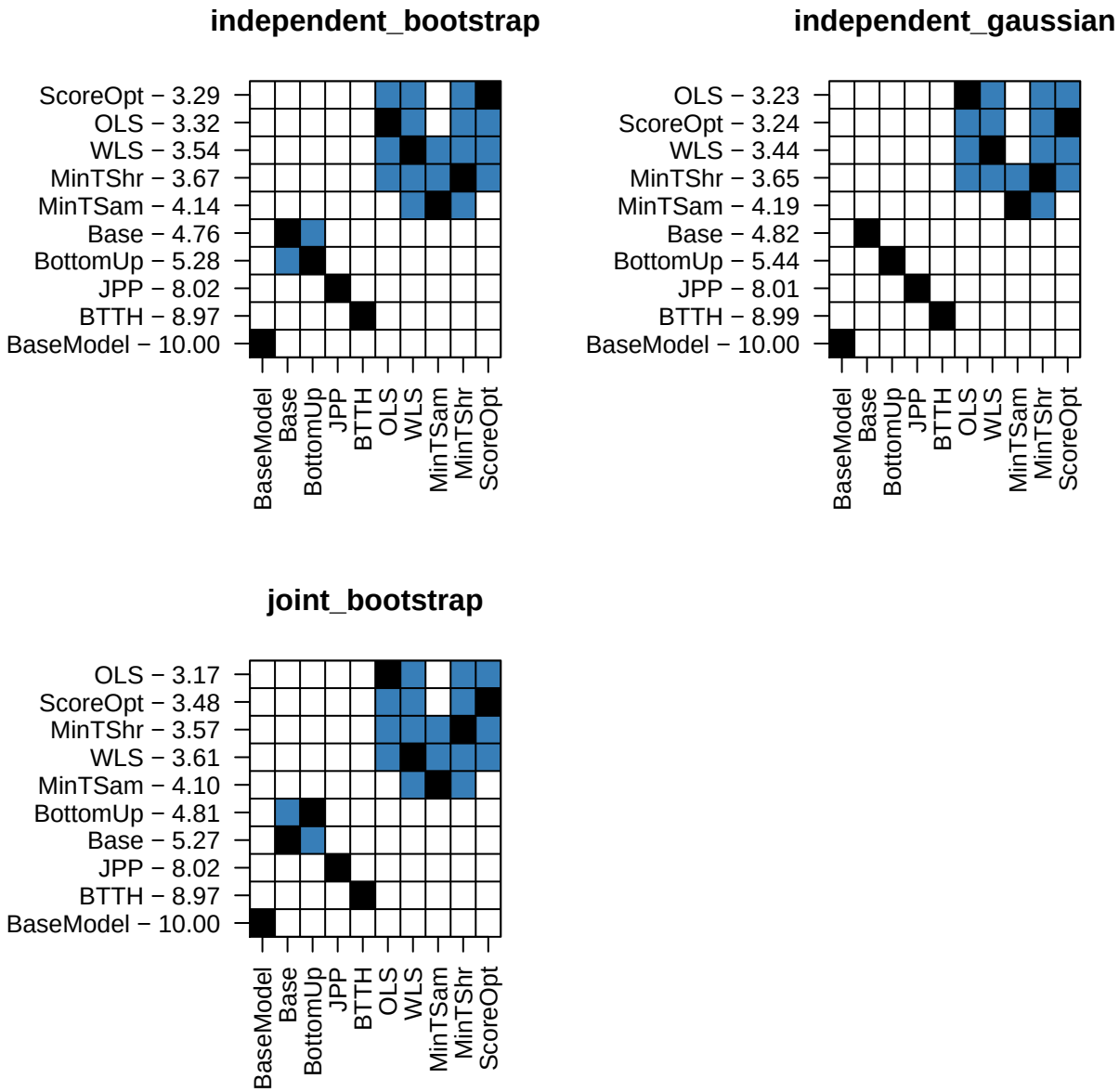

Figure 3: Results for arima modelling with a nongaussian stationary DGP

ETS model

Recall that the true DGP is ARIMA so there is model misspecification here.

BaseDependence	BaseDistribution	Base	BottomUp	BTTH	JPP	MinTSam	MinTShr	OLS	ScoreOpt	WLS
independent	bootstrap	1.3864	1.4432	2.7462	2.1614	1.3436	1.3416	1.3376	1.2971	1.3333
independent	gaussian	1.3928	1.4619	2.8638	2.1679	1.3442	1.3420	1.3375	1.2991	1.3339
joint	bootstrap	1.3554	1.3949	2.7567	2.1601	1.3212	1.3191	1.3143	1.3028	1.3122

Summary of Nemenyi test below

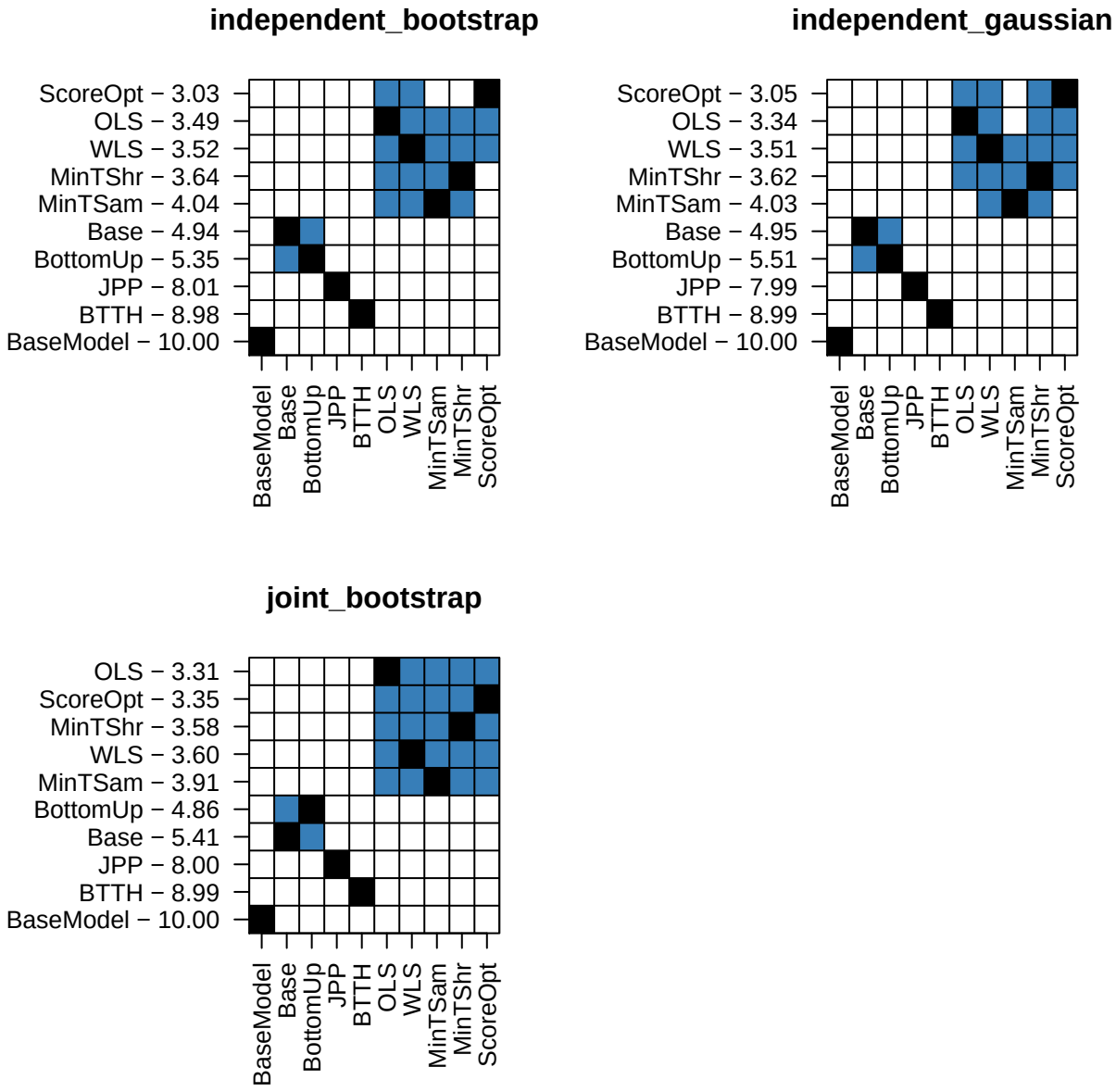

Figure 4: Results for ets modelling with a nongaussian stationary DGP

Gaussian and non-Stationary DGP

The DGP has Gaussian residuals and some series are non stationary.

ARIMA model

Recall that the true DGP is ARIMA

BaseDependence	BaseDistribution	Base	BottomUp	BTTH	JPP	MinTSam	MinTShr	OLS	ScoreOpt	WLS
independent	bootstrap	12.9091	14.7055	28.6758	19.0001	12.6706	12.6613	12.3098	12.6264	12.1775
independent	gaussian	12.8888	14.6805	28.6499	18.9871	12.6506	12.6415	12.2897	12.5894	12.1581
joint	bootstrap	12.6355	14.4142	28.7258	18.9603	12.3939	12.3842	11.9954	12.4374	11.8568

Summary of Nemenyi tests is below

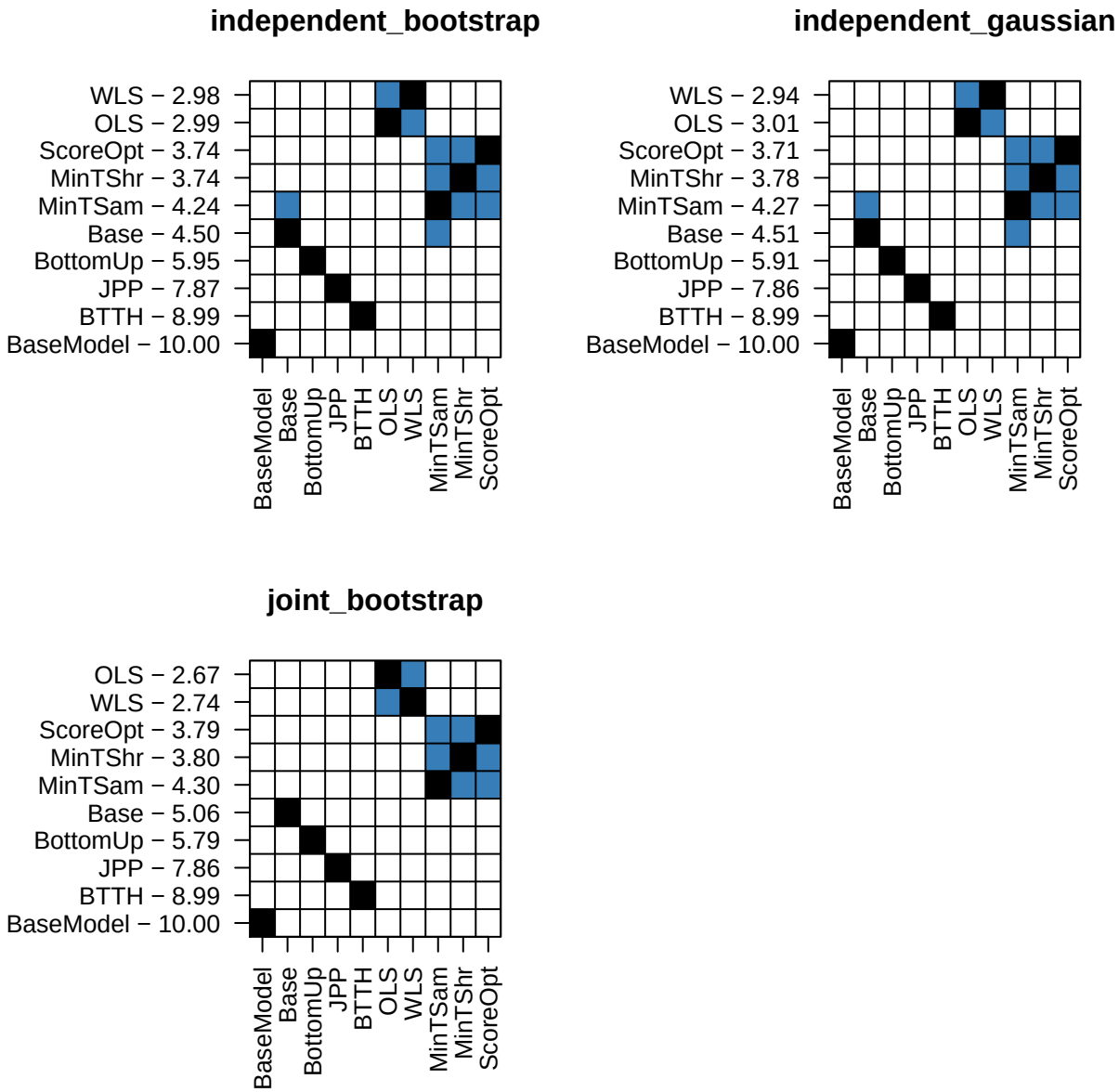

Figure 5: Results for arima modelling with a gaussian nonstationary DGP

ETS model

Recall that the true DGP is ARIMA so there is model misspecification here.

BaseDependence	BaseDistribution	Base	BottomUp	BTTH	JPP	MinTSam	MinTShr	OLS	ScoreOpt	WLS
independent	bootstrap	12.9164	14.9018	29.3246	18.9058	12.6165	12.6045	12.1915	12.4708	12.0628
independent	gaussian	12.8794	14.8257	29.2295	18.9056	12.5854	12.5735	12.1670	12.3960	12.0424
joint	bootstrap	12.6476	14.6054	29.3372	18.8680	12.3477	12.3353	11.8922	12.2788	11.7602

Summary of Nemenyi test below

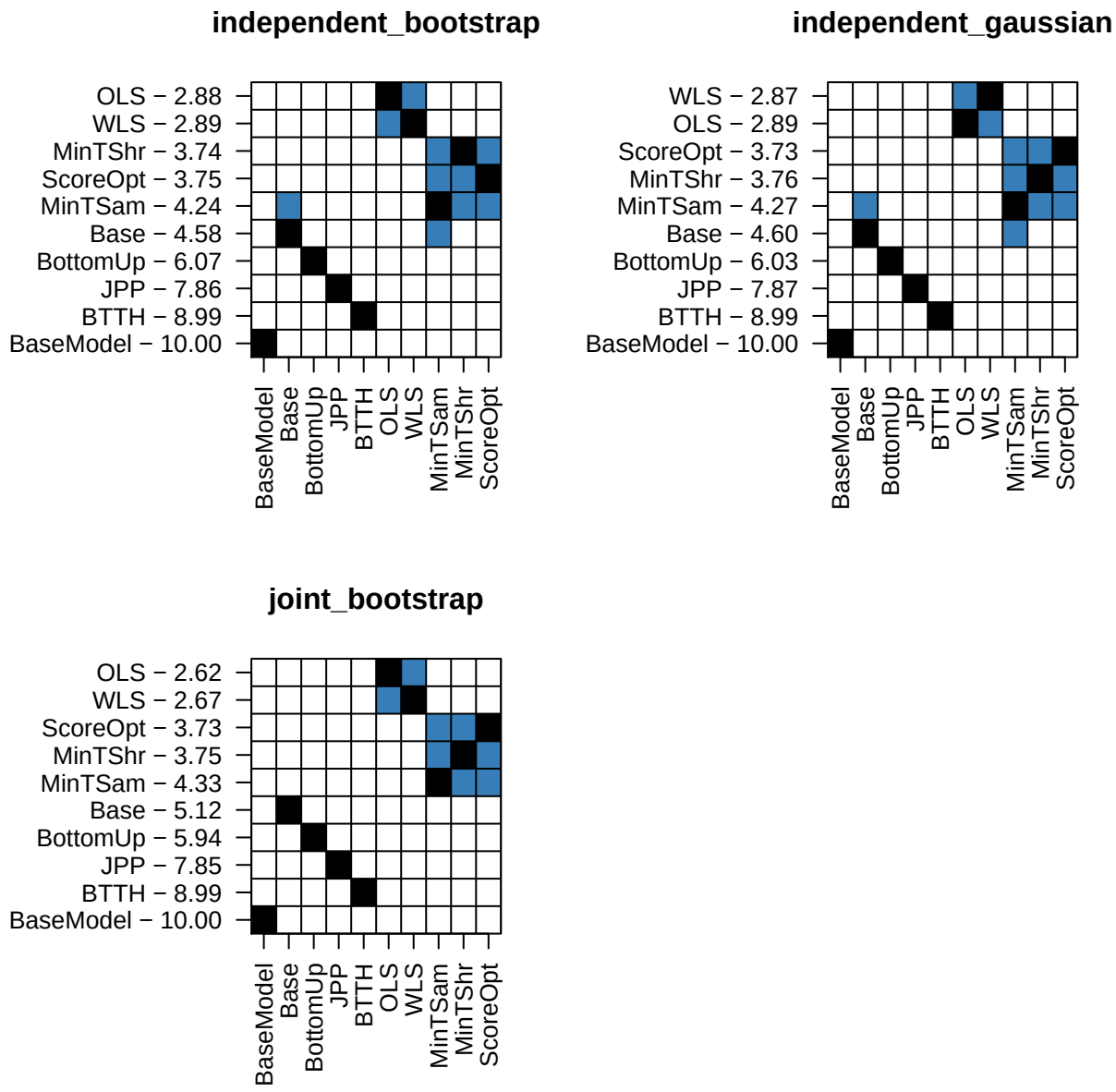

Figure 6: Results for ets modelling with a gaussian nonstationary DGP

Non Gaussian and non Stationary DGP

The DGP has non-Gaussian residuals and some series are non-stationary.

ARIMA model

Recall that the true DGP is ARIMA

BaseDependence	BaseDistribution	Base	BottomUp	BTTH	JPP	MinTSam	MinTShr	OLS	ScoreOpt	WLS
independent	bootstrap	1.5722	1.6970	3.3004	2.3600	1.5445	1.5404	1.5103	1.5273	1.4915
independent	gaussian	1.5726	1.6966	3.3218	2.3747	1.5435	1.5395	1.5091	1.5317	1.4899
joint	bootstrap	1.5326	1.6666	3.3097	2.3548	1.5108	1.5067	1.4734	1.5007	1.4587

Summary of Nemenyi tests is below

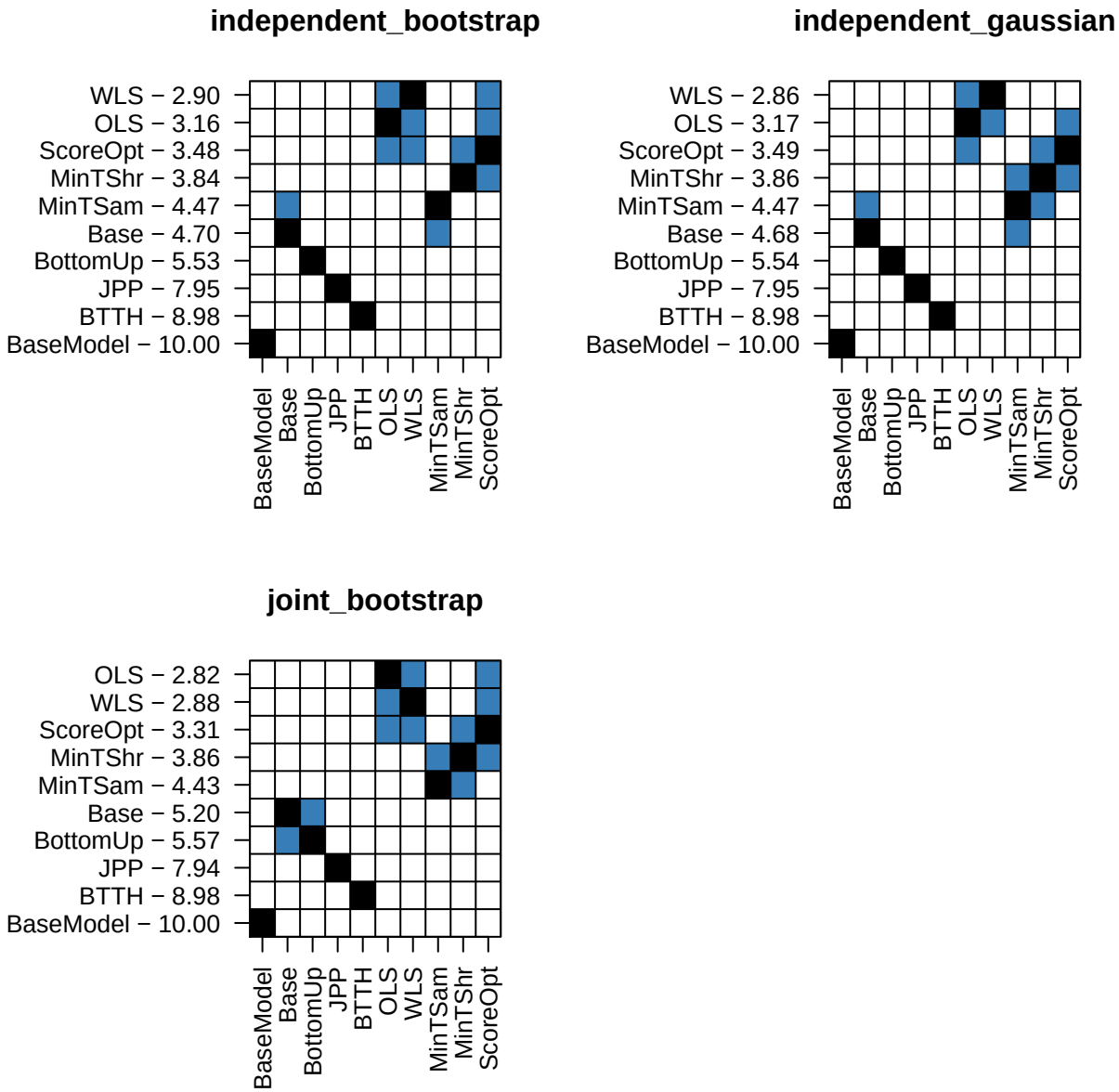

Figure 7: Results for arima modelling with a nongaussian nonstationary DGP

ETS model

Recall that the true DGP is ARIMA so there is model misspecification here.

BaseDependence	BaseDistribution	Base	BottomUp	BTTH	JPP	MinTSam	MinTShr	OLS	ScoreOpt	WLS
independent	bootstrap	1.6017	1.7168	4.7399	2.3839	4.3393	3.6853	1.5396	1.6210	1.5249
independent	gaussian	1.5865	1.7065	4.8423	2.4035	4.3554	3.7004	1.5069	1.5962	1.4934

Summary of Nemenyi test below

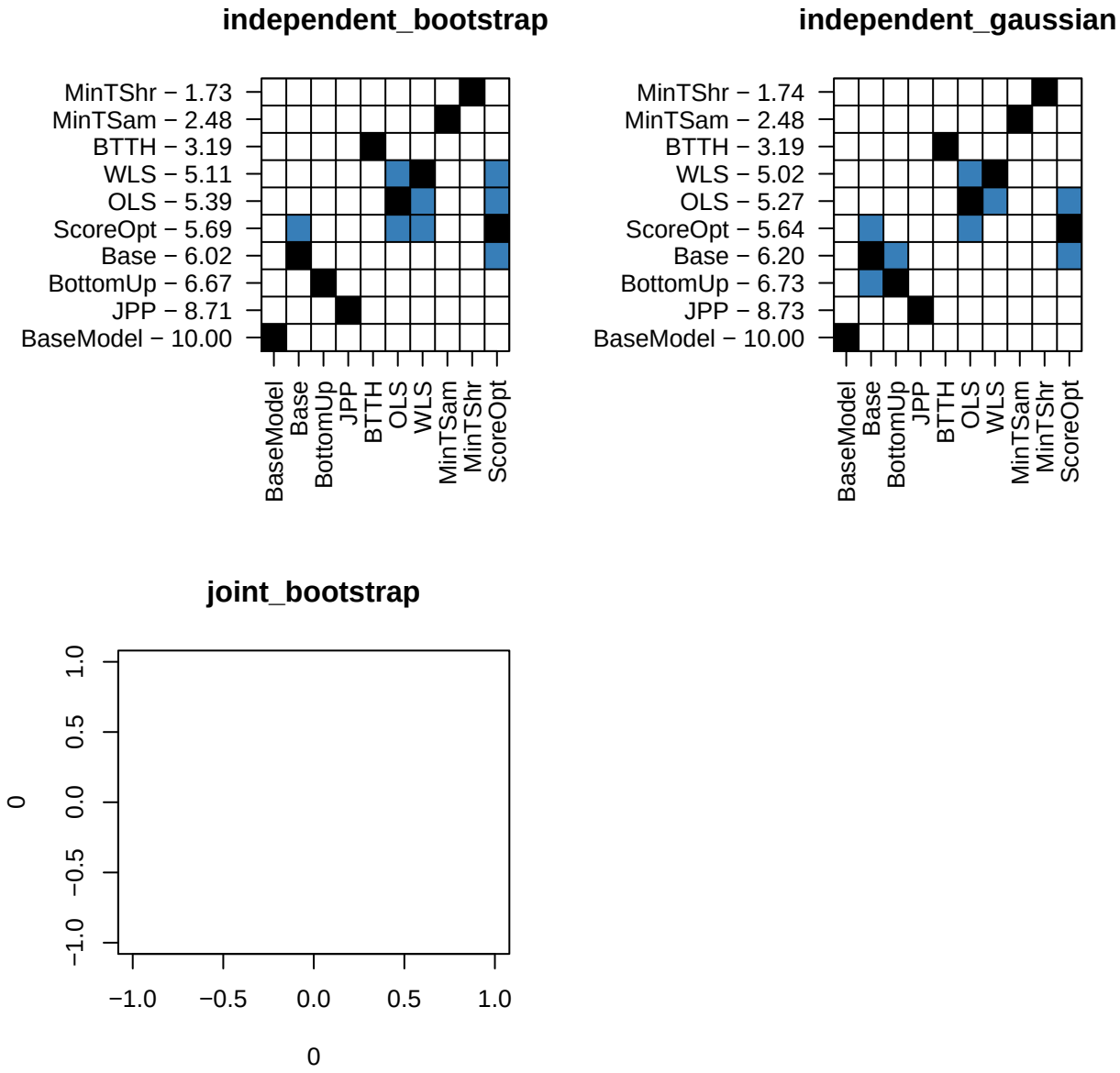

Figure 8: Results for ets modelling with a nongaussian nonstationary DGP