Drug B

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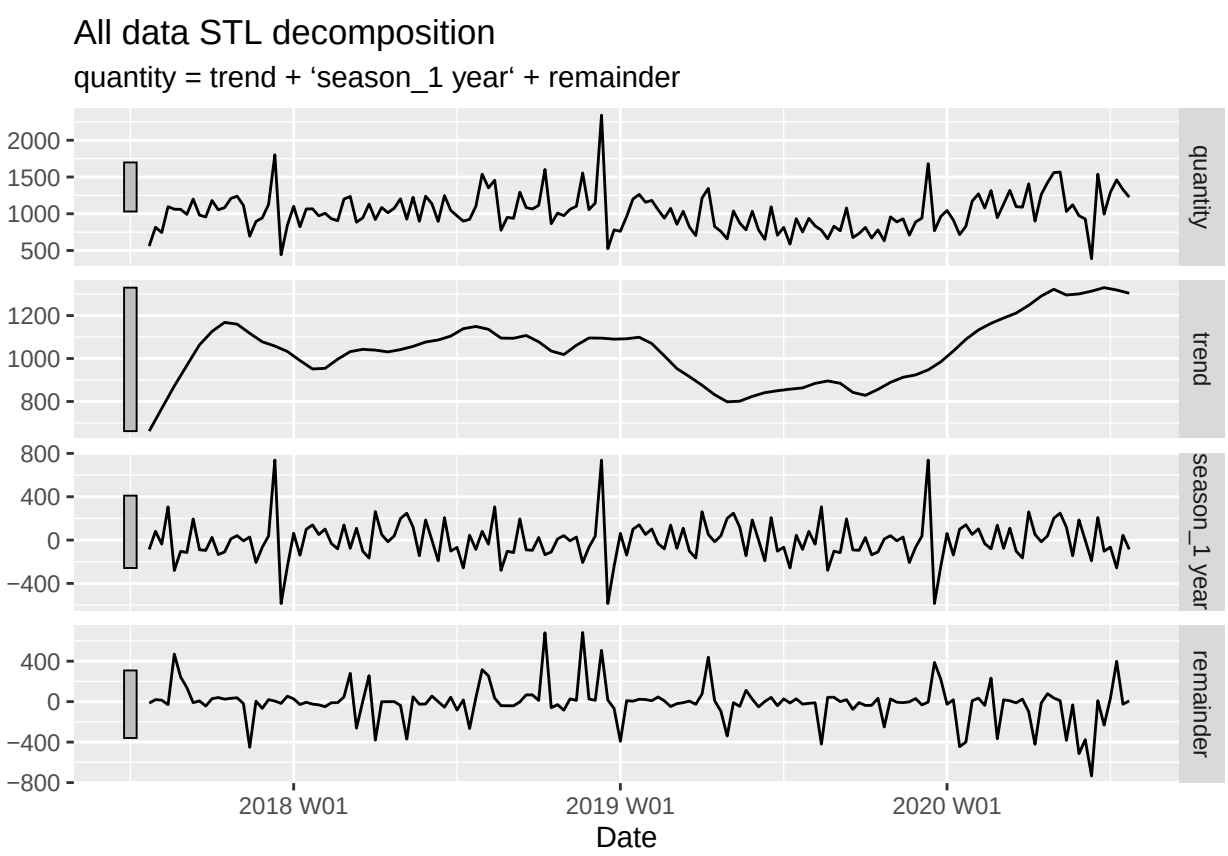
Introduction

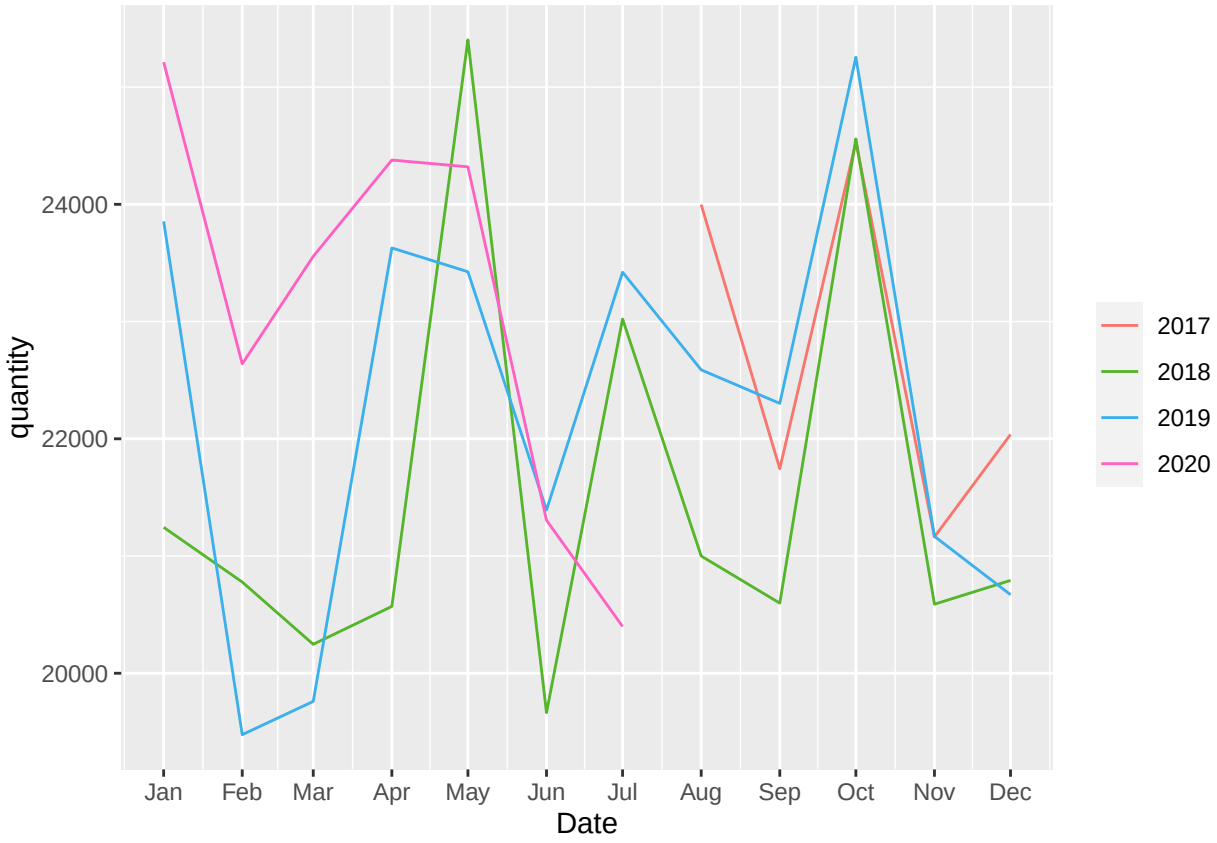
Methods

- SES
- ARIMA
- (More to be added)

Summary

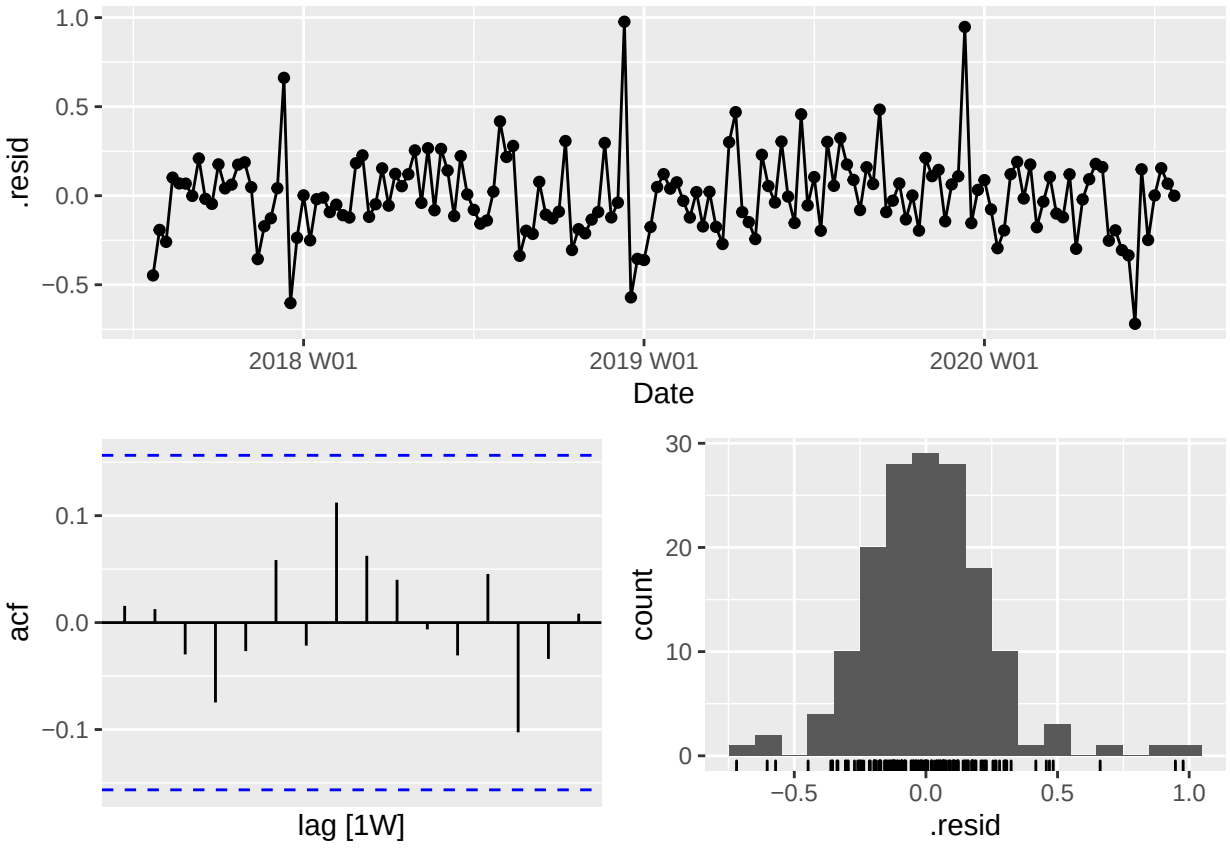


Yearly seasonality



Simple exponential smoothing

.model	term	estimate
ETS(quantity)	alpha	0.0199247
ETS(quantity)	beta	0.0199246
ETS(quantity)	l	1003.0056424
ETS(quantity)	b	12.5547062

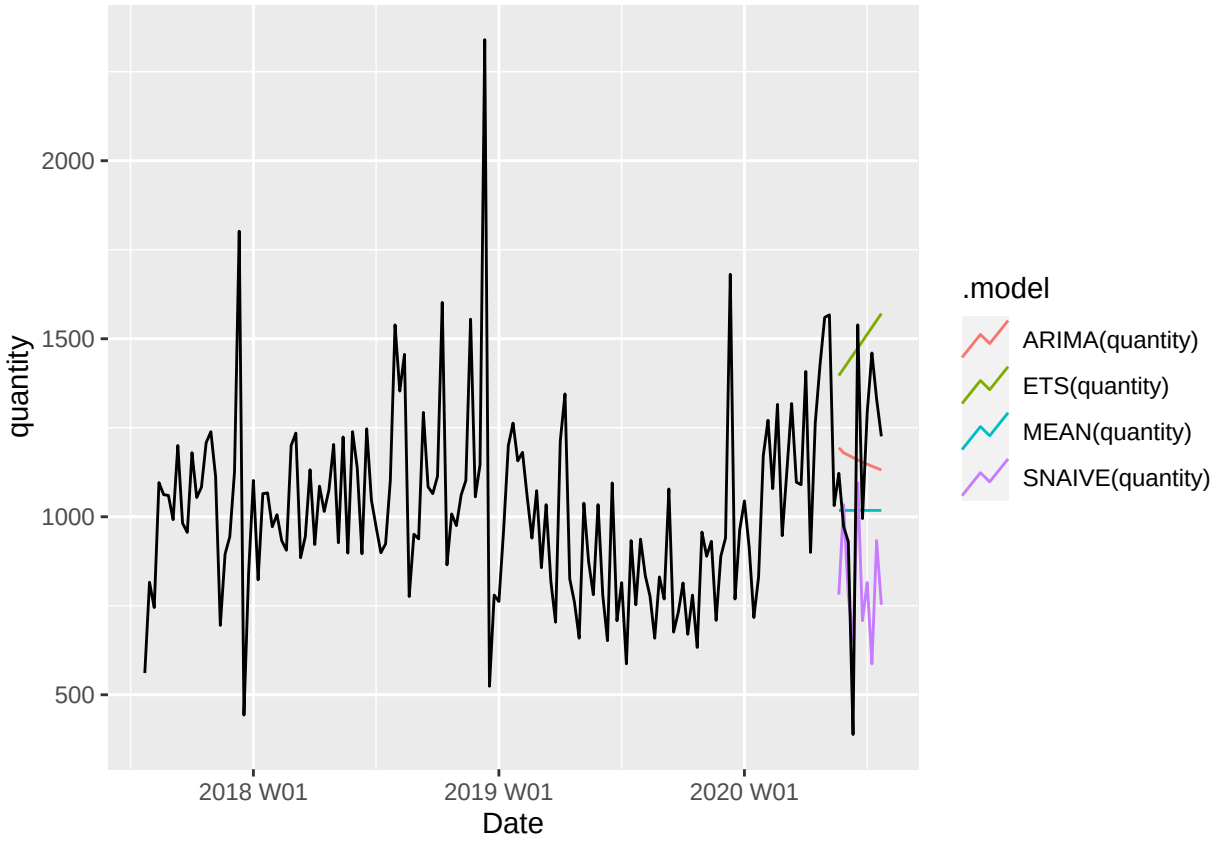


Ljung Box test for autocorrelation of residuals

.model	lb_stat	lb_pvalue
ETS(quantity)	9.441867	0.4907437

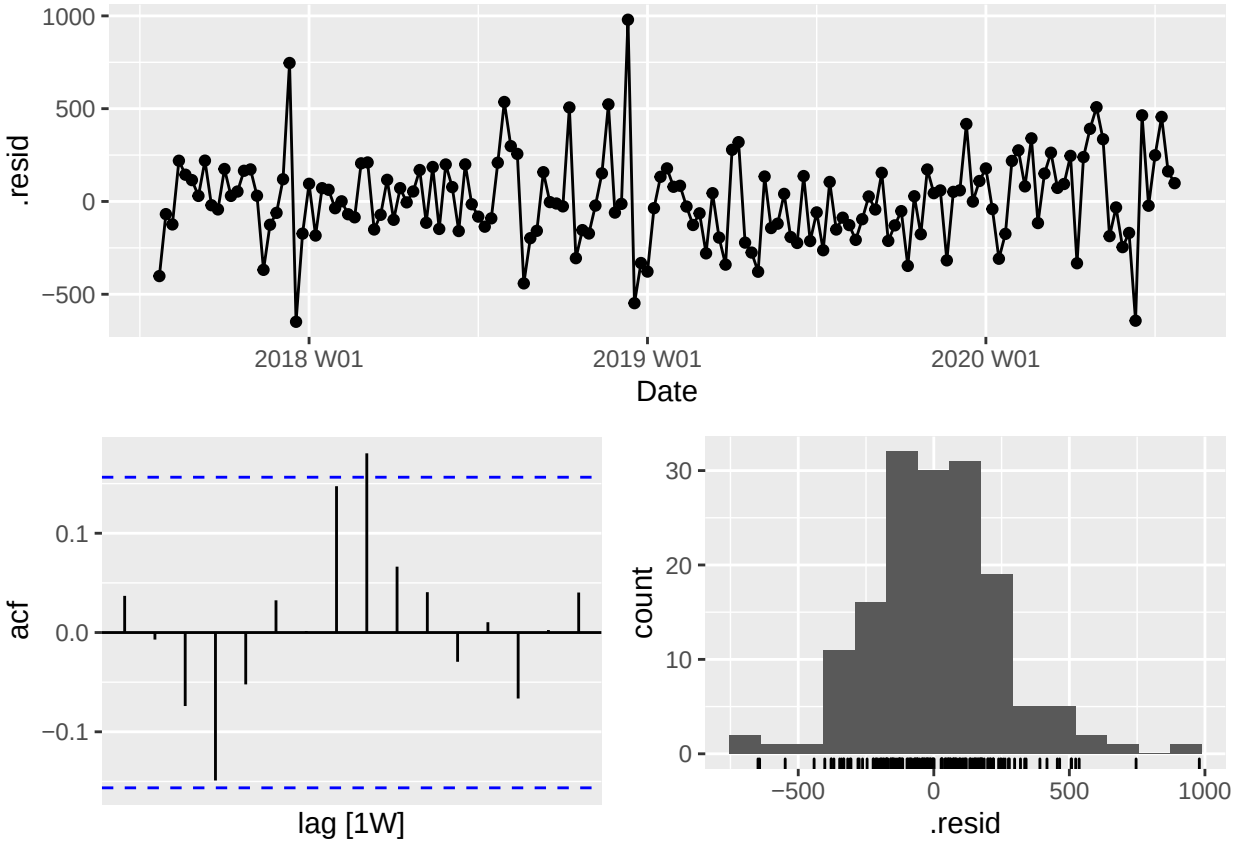
Residuals show no autocorrelation (p>.05)

ARIMA



Model terms

.model	term	estimate	std.error	statistic	p.value
ARIMA(quantity, approximation = FALSE)	ar1	0.9570034	0.0322600	29.665353	0.0000000
ARIMA(quantity, approximation = FALSE)	ma1	-0.8212870	0.0579502	-14.172284	0.0000000
ARIMA(quantity, approximation = FALSE)	sar1	0.3072149	0.0861304	3.566856	0.0004793
ARIMA(quantity, approximation = FALSE)	constant	30.7369758	2.7946623	10.998458	0.0000000



The model returned is ARIMA(1,0,1)(1,0,0). It may be that this model is more complicated than we need.

Ljung Box test for autocorrelation of residuals

.model	lb_stat	lb_pvalue
ARIMA(quantity, approximation = FALSE)	16.75022	0.080077

No autocorrelation of residuals (p>.05)

Forecast accuracy

.model	.type	ME	RMSE	MAE	MPE	MAPE	MASE
ARIMA(quantity)	Test	-32.769	323.92	258.78	-19.0010	34.977	0.91061
ETS(quantity)	Test	-357.850	462.21	370.88	-51.1150	51.962	1.30510
MEAN(quantity)	Test	107.790	331.77	264.78	-4.3204	31.351	0.93173
SNAIVE(quantity)	Test	311.850	431.67	376.75	19.5310	34.350	1.32570