

Simulando procesos SARIMA

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Información de contacto

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```
## Loading required package: zoo
```

```
##
```

```
## Attaching package: 'zoo'
```

```
## The following objects are masked from 'package:base':
```

```
##
```

```
##      as.Date, as.Date.numeric
```

```
## Loading required package: MASS
```

```
## Warning: package 'forecast' was built under R version 4.1.1
```

```
## Registered S3 method overwritten by 'quantmod':
```

```
##   method             from
```

```
##   as.zoo.data.frame zoo
```

```
##
```

```
## Attaching package: 'forecast'
```

```
## The following object is masked from 'package:astsa':
```

```
##
```

```
##      gas
```

Simulando SARIMA(0,0,1,0,0,1)_12

Simulemos el siguiente proceso

$$x_t = Z_t + \theta_1 Z_{t-1} + \Theta_1 Z_{t-12} + \theta_1 \Theta_1 Z_{t-13}$$

$$Z_t \sim N(0, \sigma^2)$$

$$\theta_1 = 0.7$$

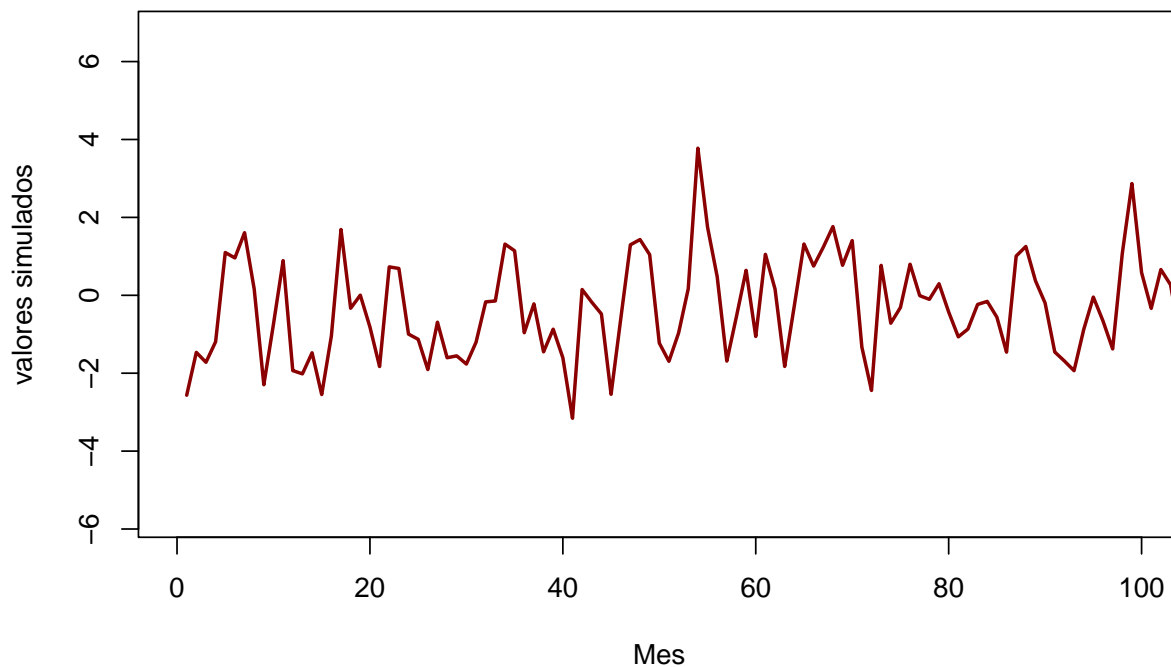
$$\Theta_1 = 0.6$$

$$\sigma^2 = 1$$

Visualización y primeras 20 observaciones

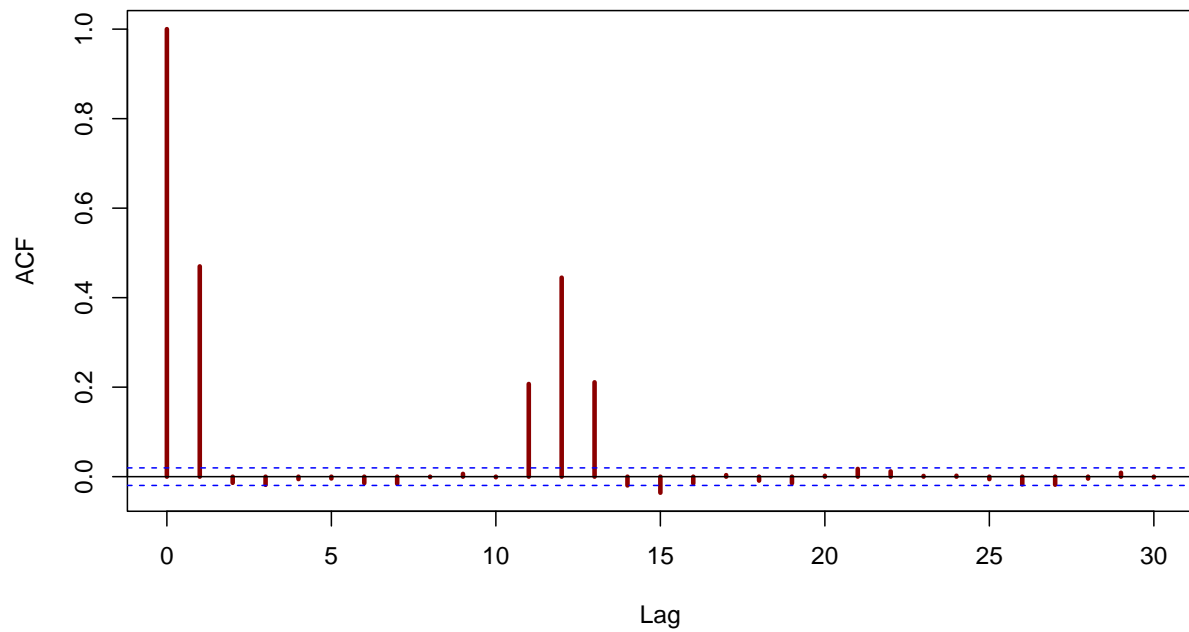
```
## [1] -2.565967388 -1.464976935 -1.720404854 -1.192312150 1.098695635
## [6] 0.959271624 1.606940255 0.159922750 -2.296589955 -0.736076281
## [11] 0.890526882 -1.932541307 -2.017227962 -1.476022465 -2.548058428
## [16] -1.045414373 1.689114422 -0.333279897 0.003318215 -0.814978983
```

Primeras 100 observaciones – SARIMA(0,0,1,0,0,1)_12

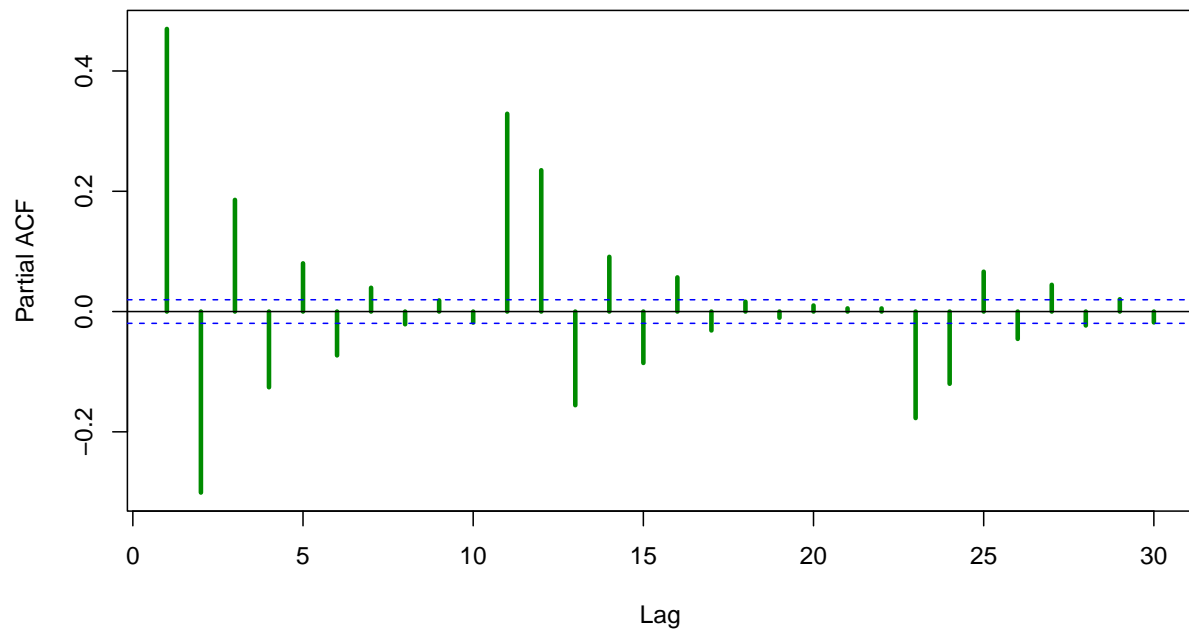


ACF y PACF

ACF – SARIMA(0,0,1,0,0,1)_12



PACF – SARIMA(0,0,1,0,0,1)_12



Simulando SARIMA(2,0,1,1,0,1)_12

Simulemos el siguiente proceso

$$x_t = -0.1x_{t-1} + 0.2x_{t-2} - 0.25x_{t-12} - 0.025x_{t-13} + 0.05x_{t-14} + Z_t - 0.3Z_{t-1} + 0.5Z_{t-12} - 0.15Z_{t-13}$$

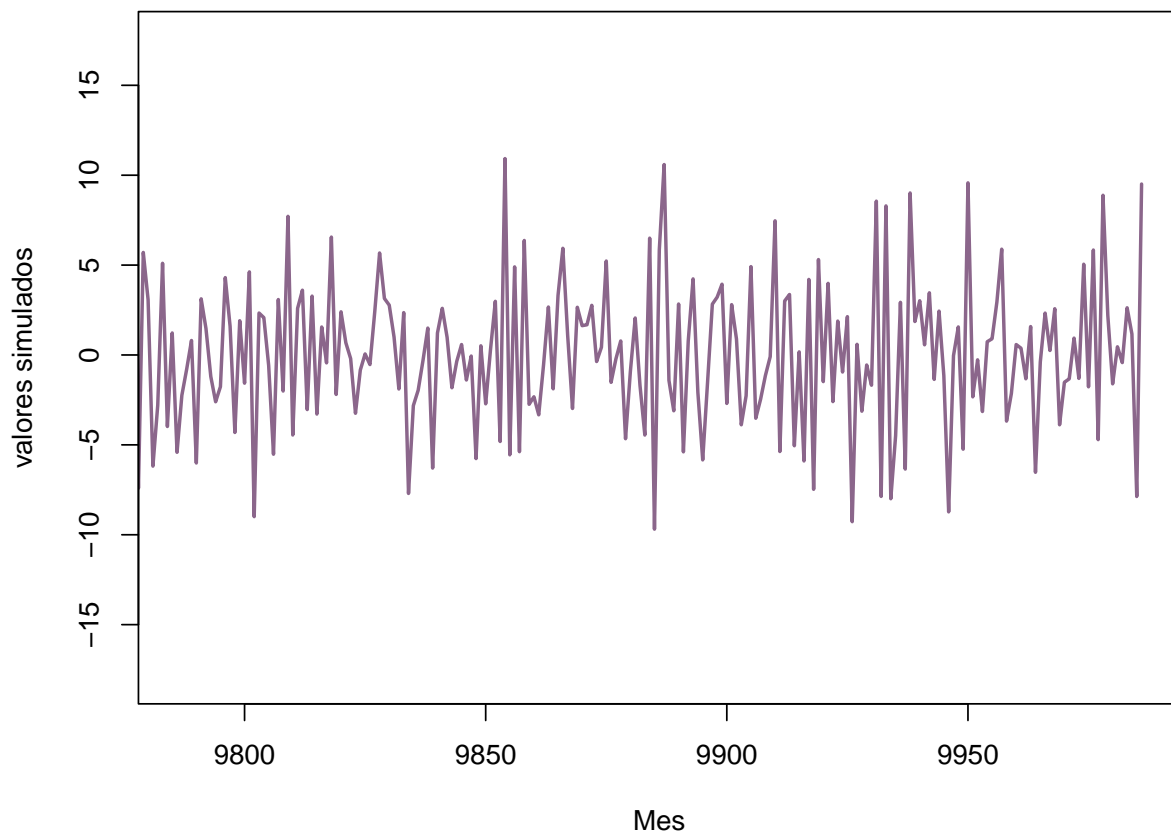
$$Z_t \sim N(0, \sigma^2)$$

$$\sigma^2 = 15$$

Visualización y primeras 30 observaciones

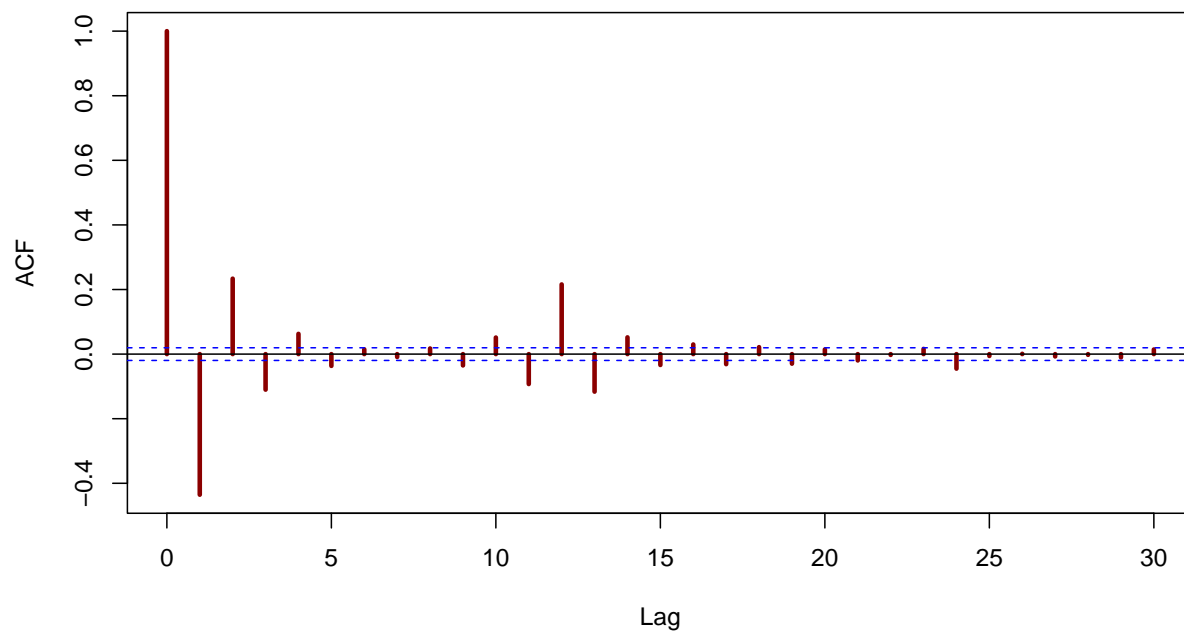
```
## [1]  3.8308456  3.4084510  6.1441200  5.3484683 -1.0746367  6.2877782
## [7] -7.6898090  3.8488887 -1.8279759  0.1104776  3.4196133 -5.0561475
## [13]  7.8392440  0.3046848  0.6736017 -4.3534811 -3.5101879  0.6120136
## [19] -0.6535081  2.5388988  0.8149158 -1.8502137  2.4960063 -2.6903969
## [25]  7.7185256 -2.4964028 -0.9432887  0.1311544 -1.3910135 -0.2042555
```

Primeras 100 observaciones – SARIMA(2,0,1,1,0,1)_12



ACF y PACF

ACF – SARIMA(2,0,1,1,0,1)_12



PACF – SARIMA(2,0,1,1,0,1)_12

