Distance as a signal

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Cross-correlations

**Forecast inclusion criteria**

- Targets: 1-4 wk ahead inc death
- Target End Dates: Jan-Dec 2021 with all 4 horizons.
- Model: all models submitted on a particular date
- Probability levels: All
- Locations: All except US,4,42,45,39,49,50

Using raw values means the sign (which should be positive) is not as important as the lag.

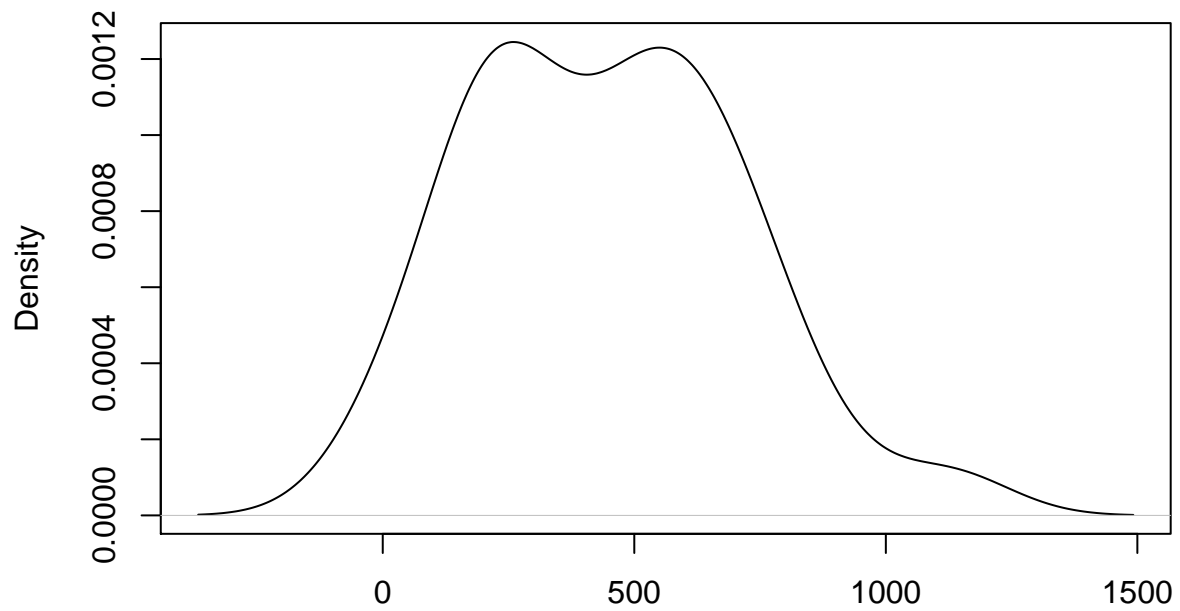# Plots of inc deaths, median CDs, smoothed inc deaths, smoothed median CDs, and CCF
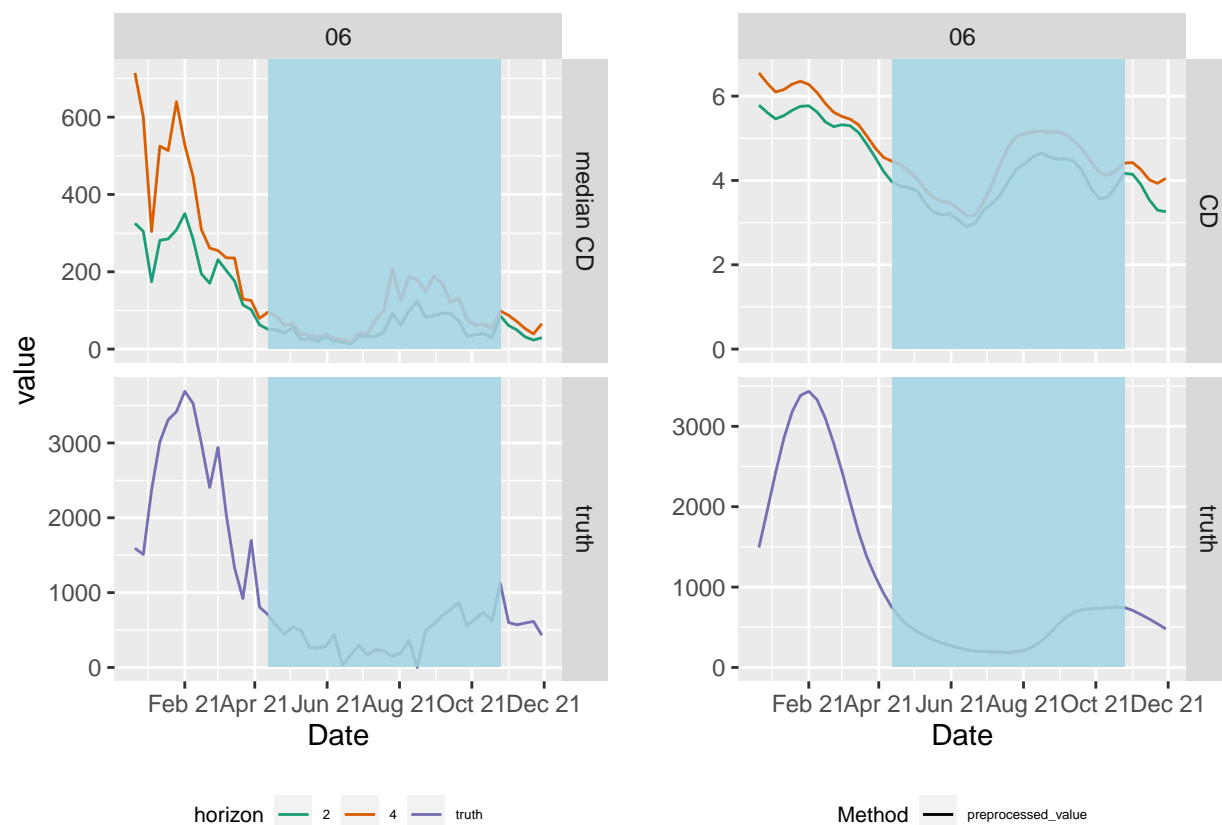
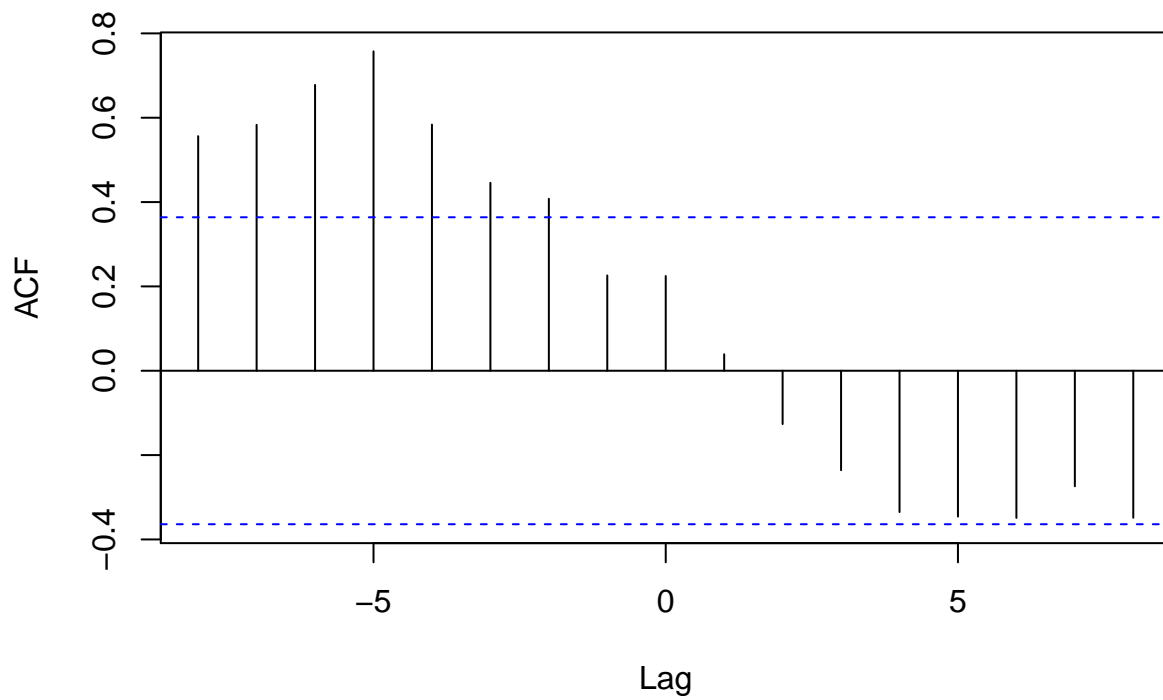
density.default(x = pxt$value)
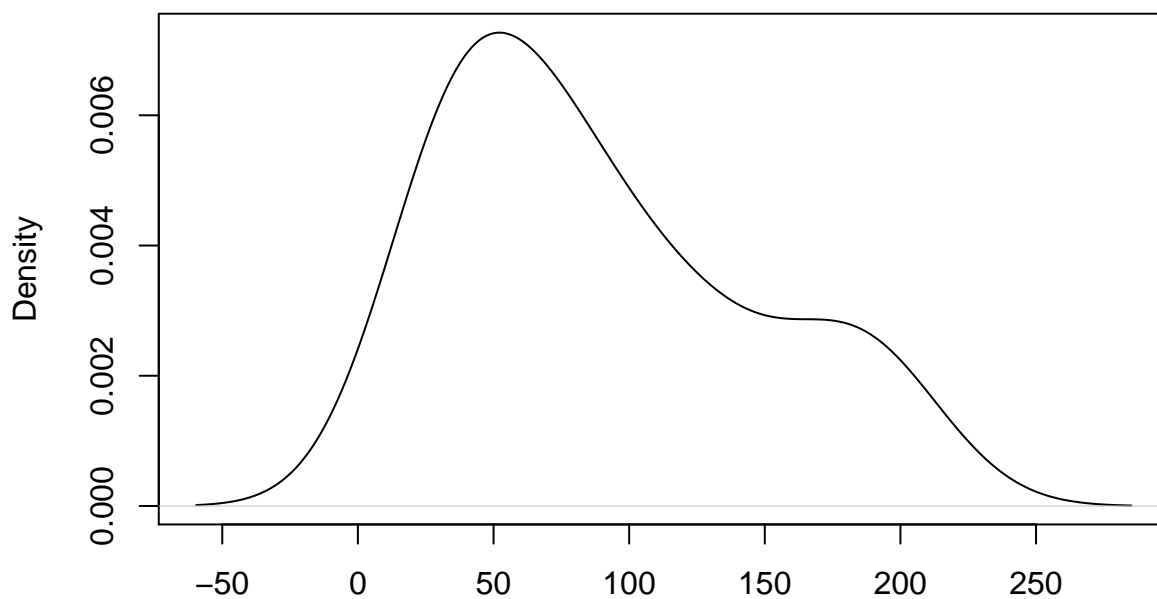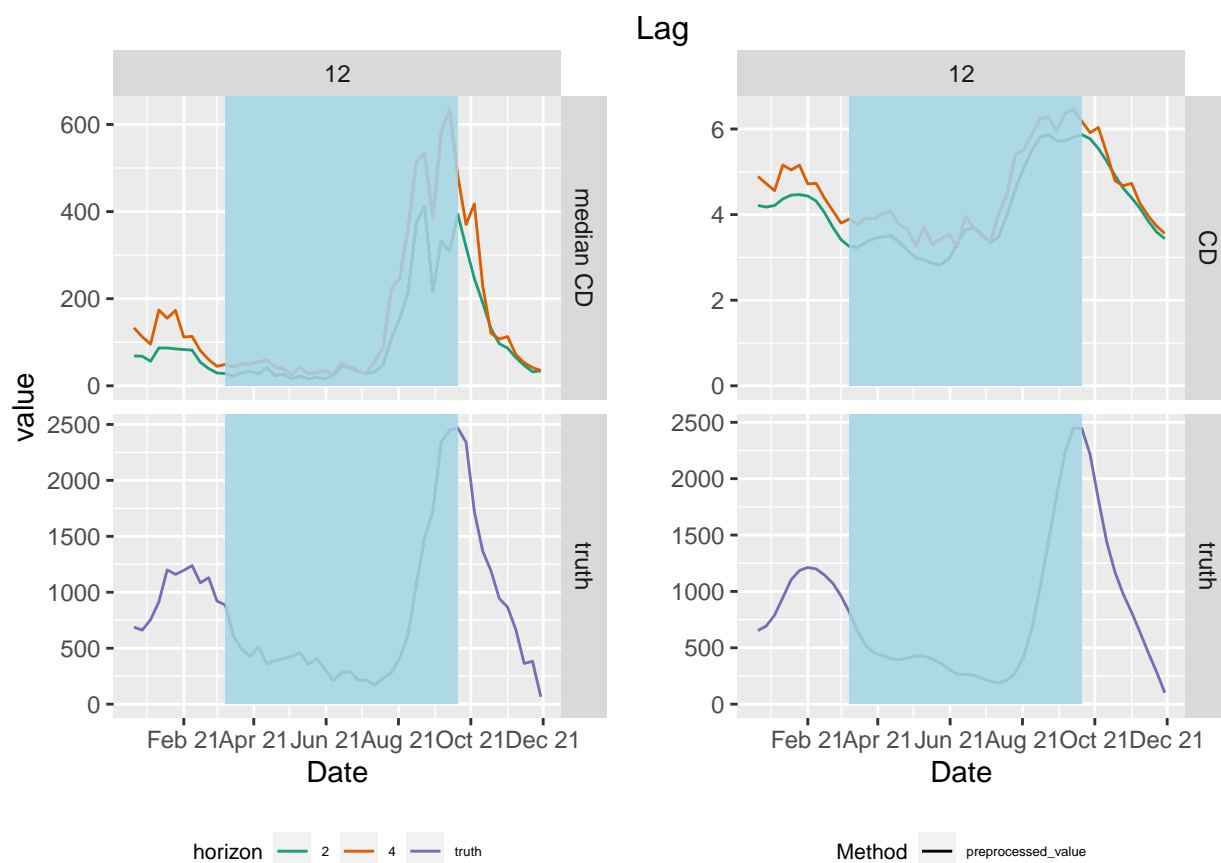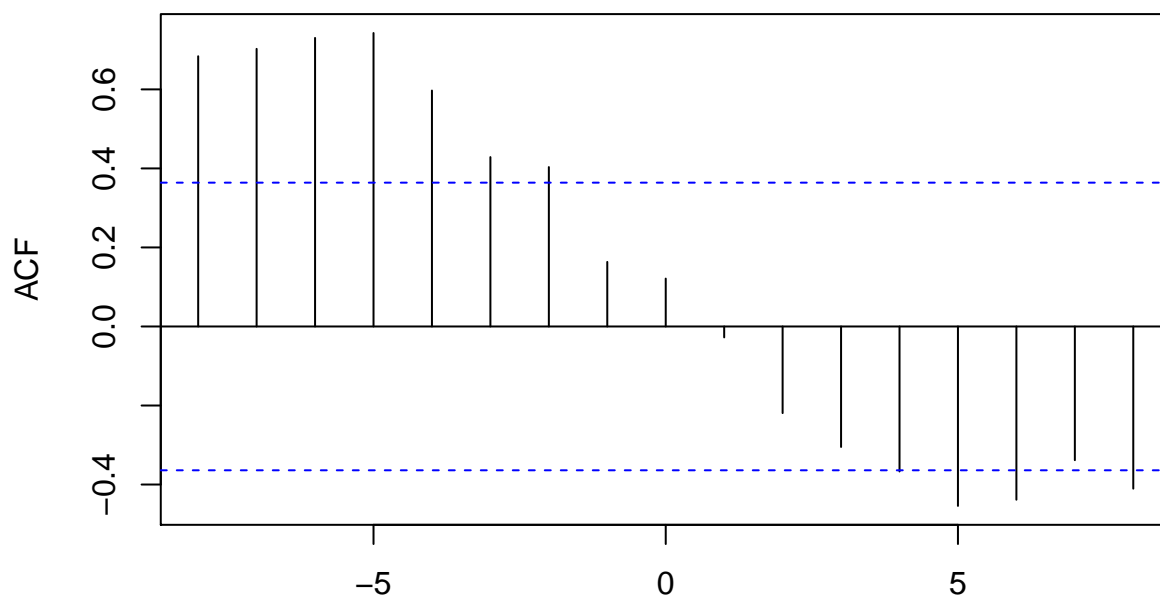

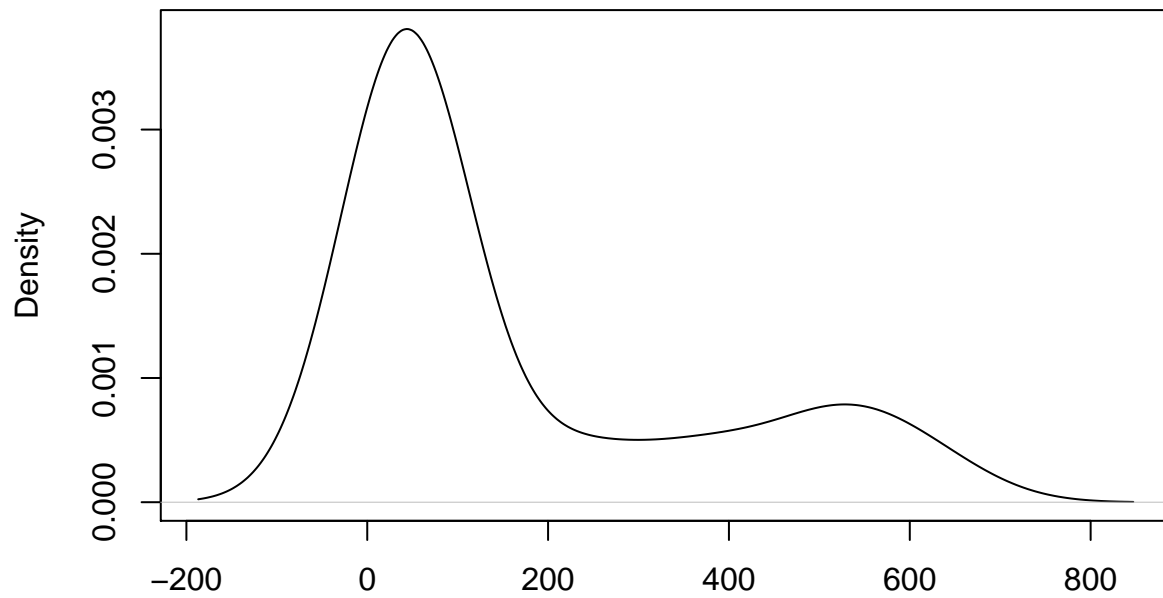N = 29   Bandwidth = 26.03

density.default(x = py$value)

N = 29   Bandwidth = 122.3
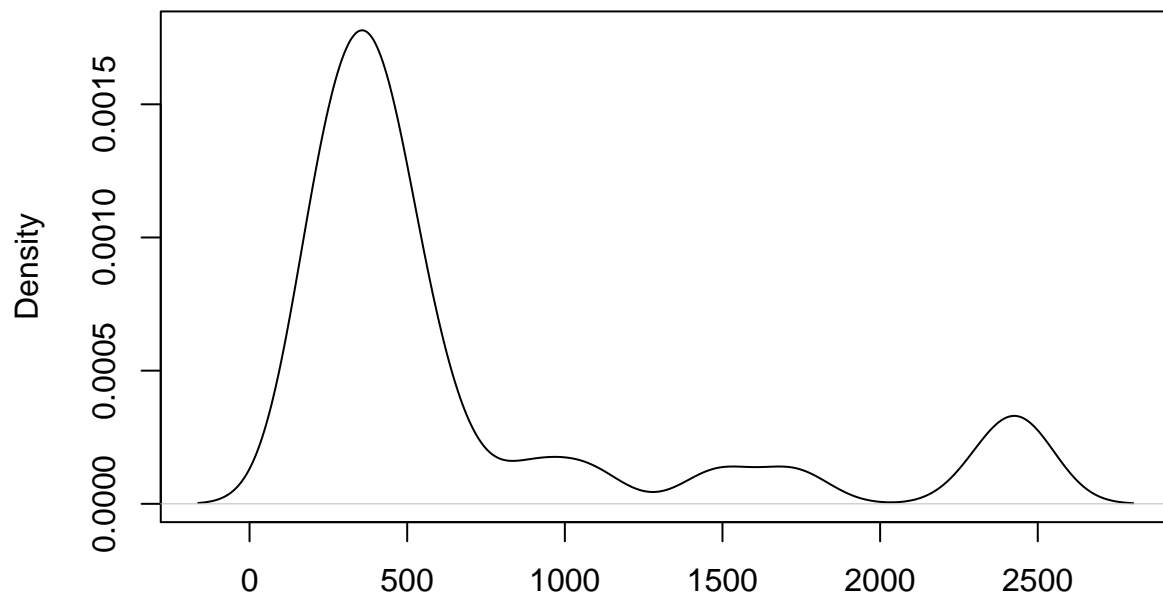
2 wk ahead − 06

4 wk ahead – 06

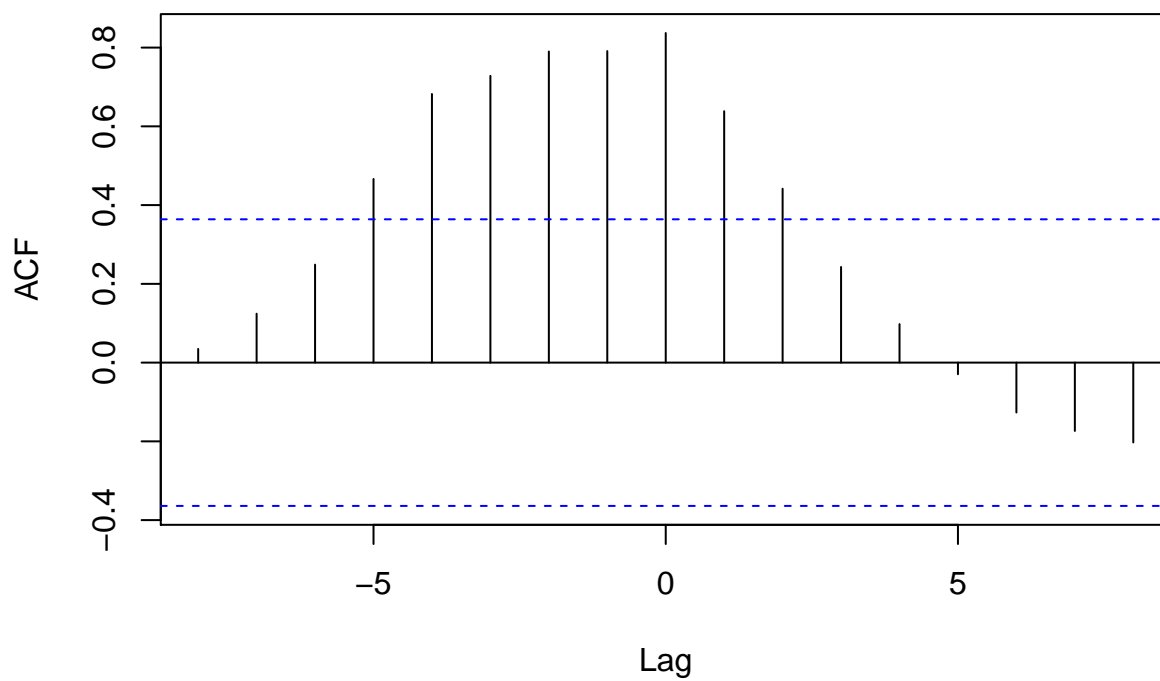# density.default(x = pxt$value)

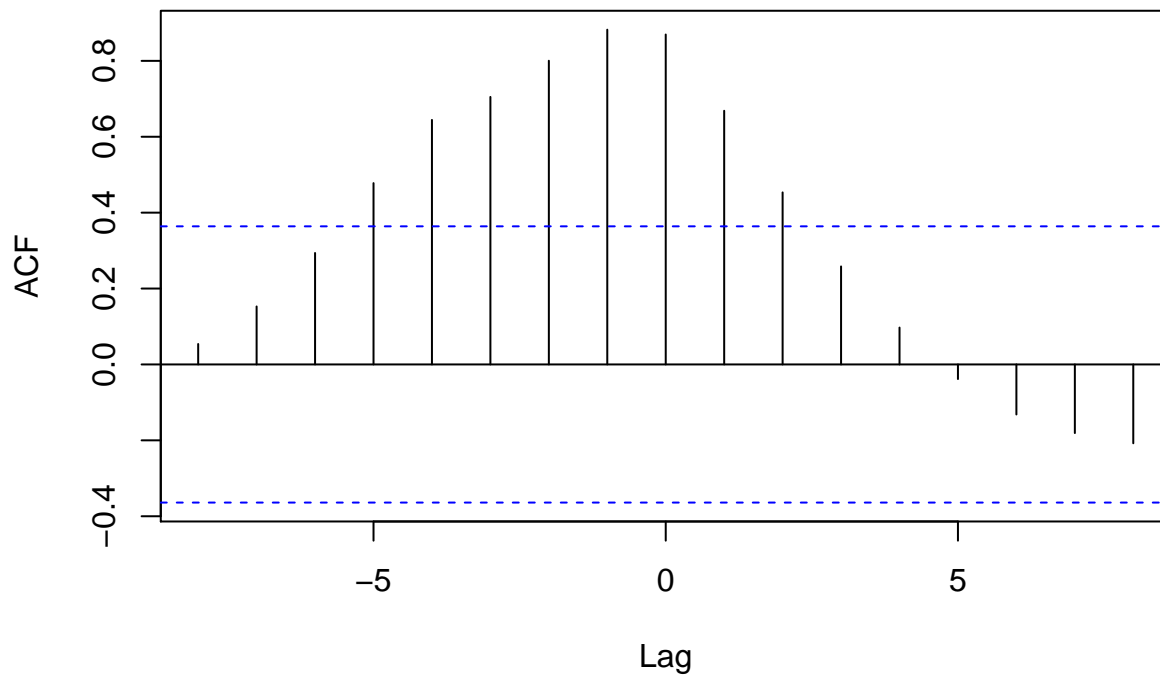N = 29   Bandwidth = 71.01
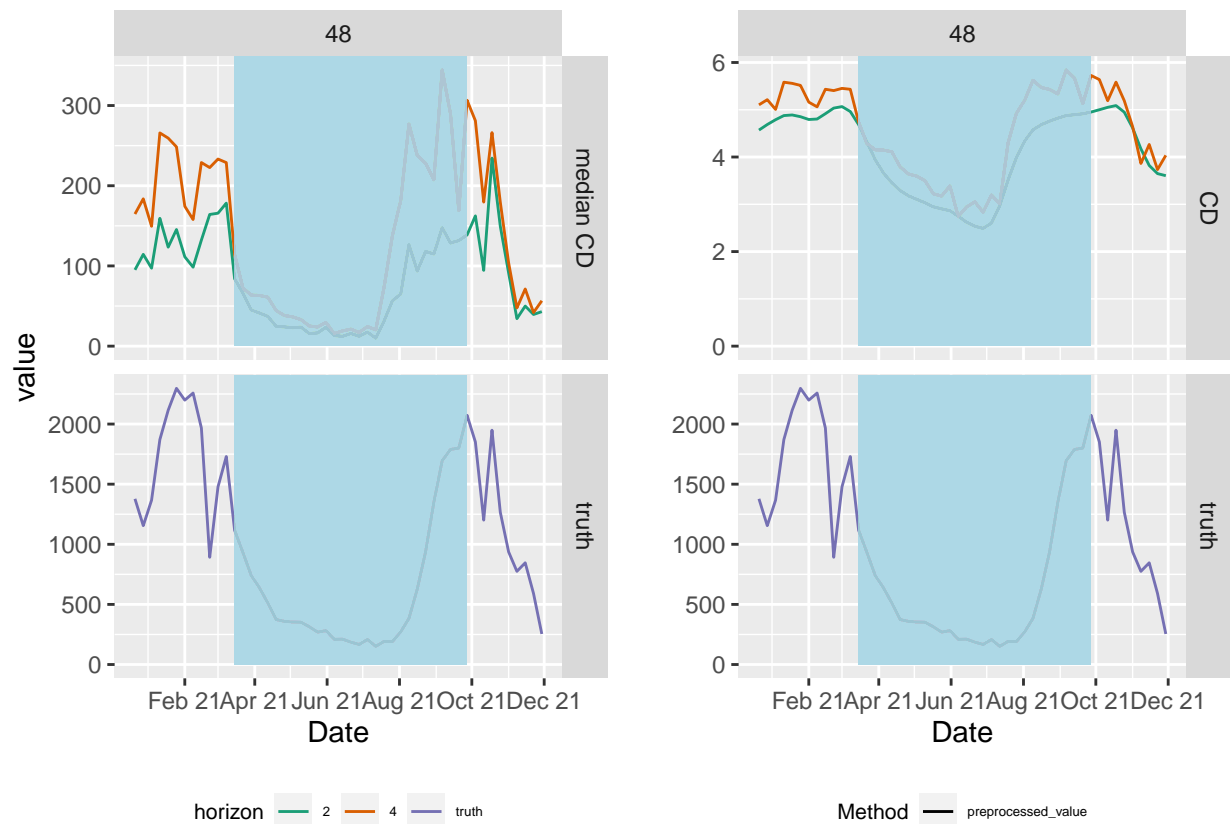
density.default(x = py$value)

N = 29   Bandwidth = 111.7

2 wk ahead − 12

4 wk ahead − 12

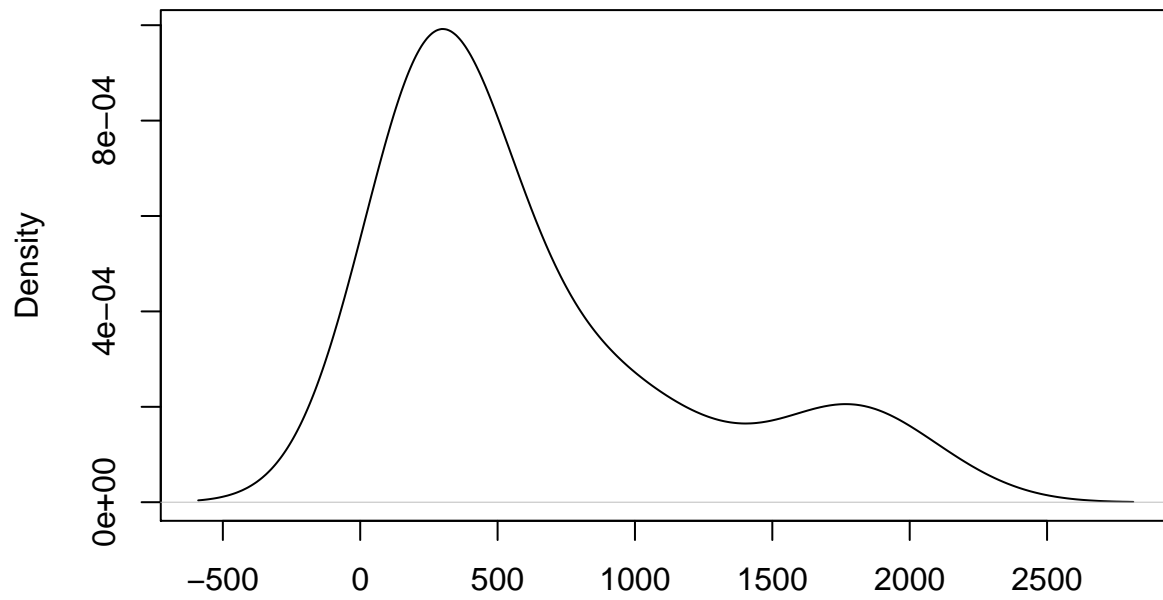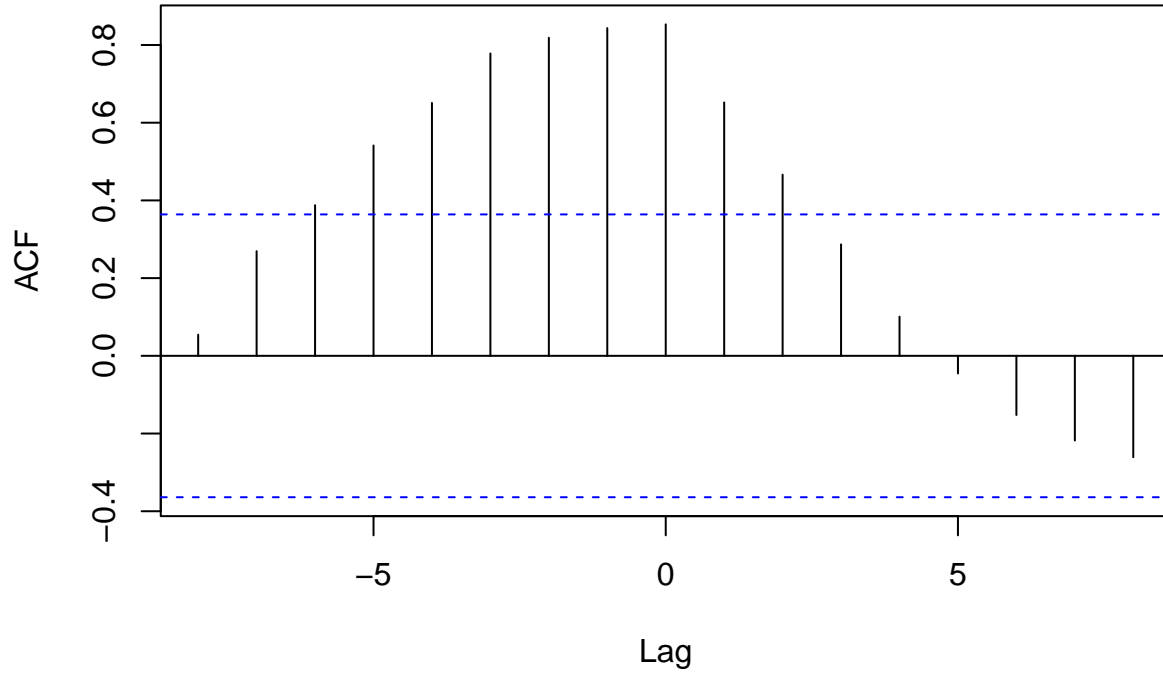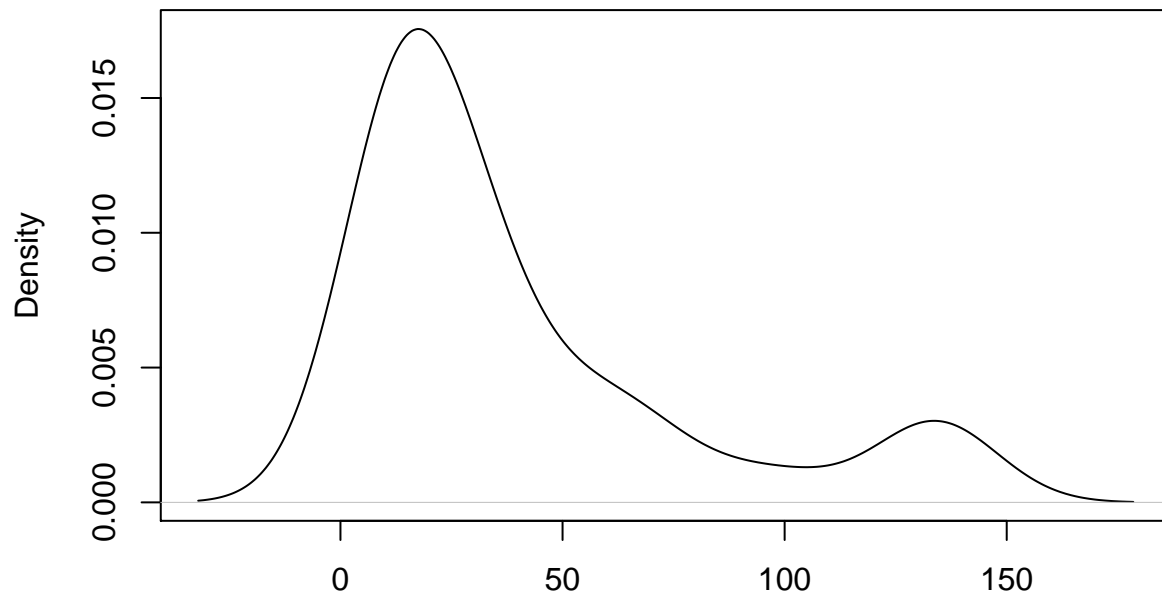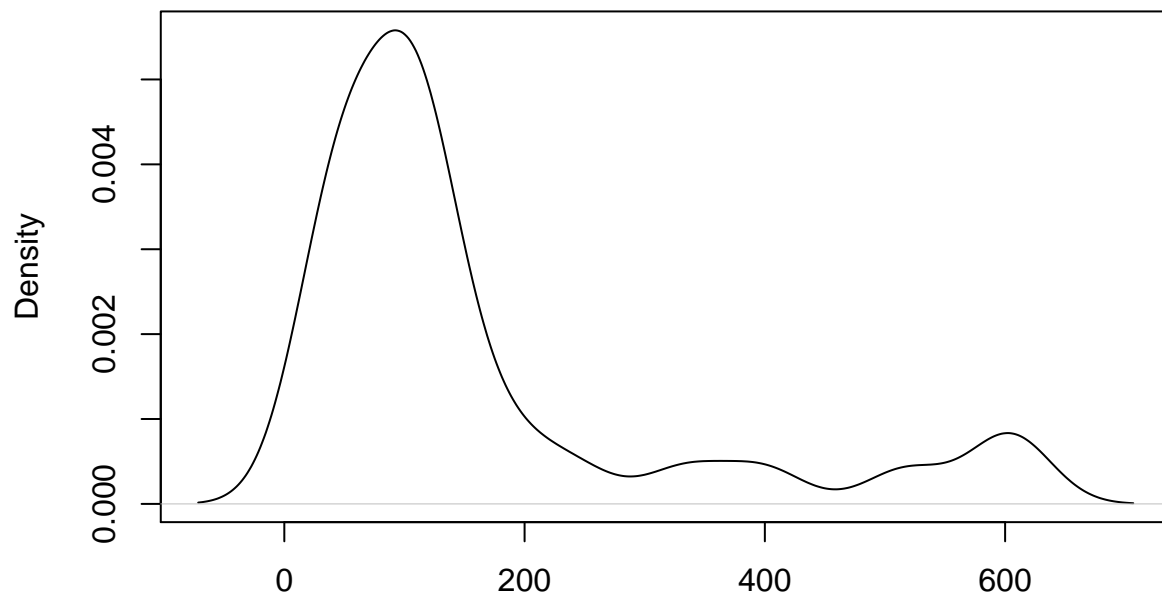density.default(x = pxt$value)
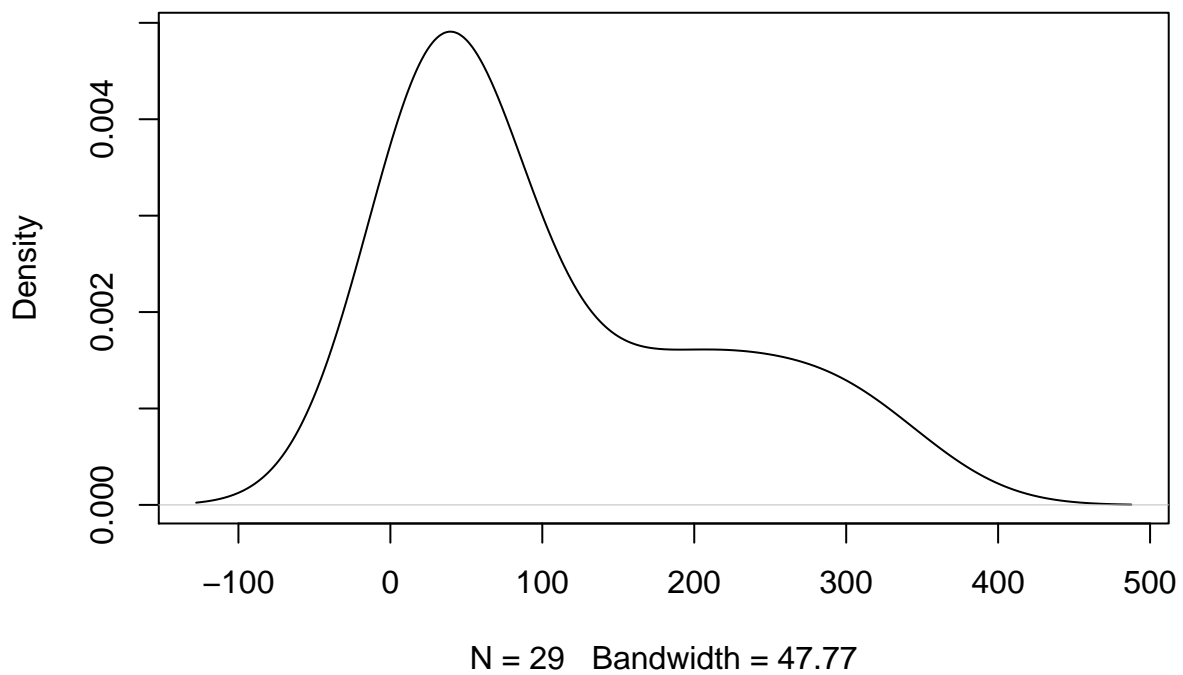
N = 29   Bandwidth = 47.77

density.default(x = py$value)

N = 29   Bandwidth = 246.9

2 wk ahead − 48

Lag
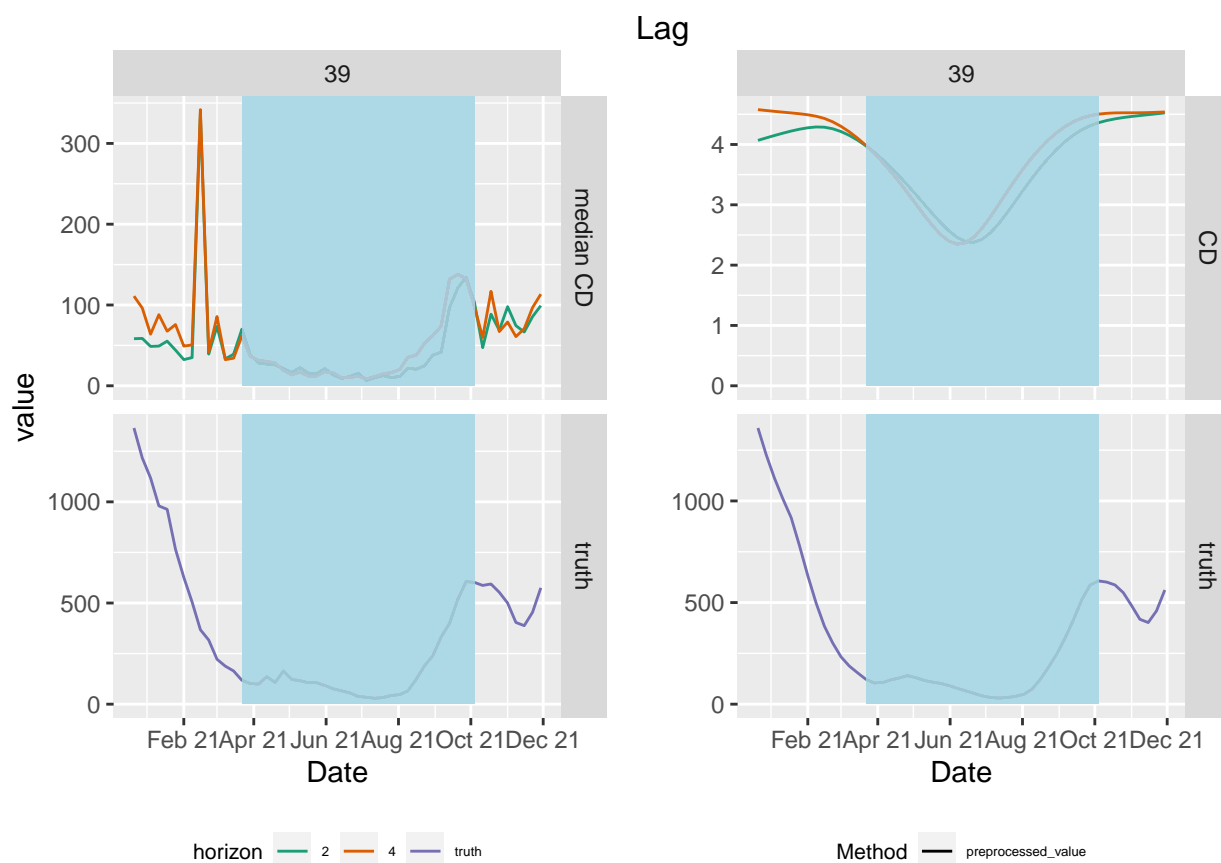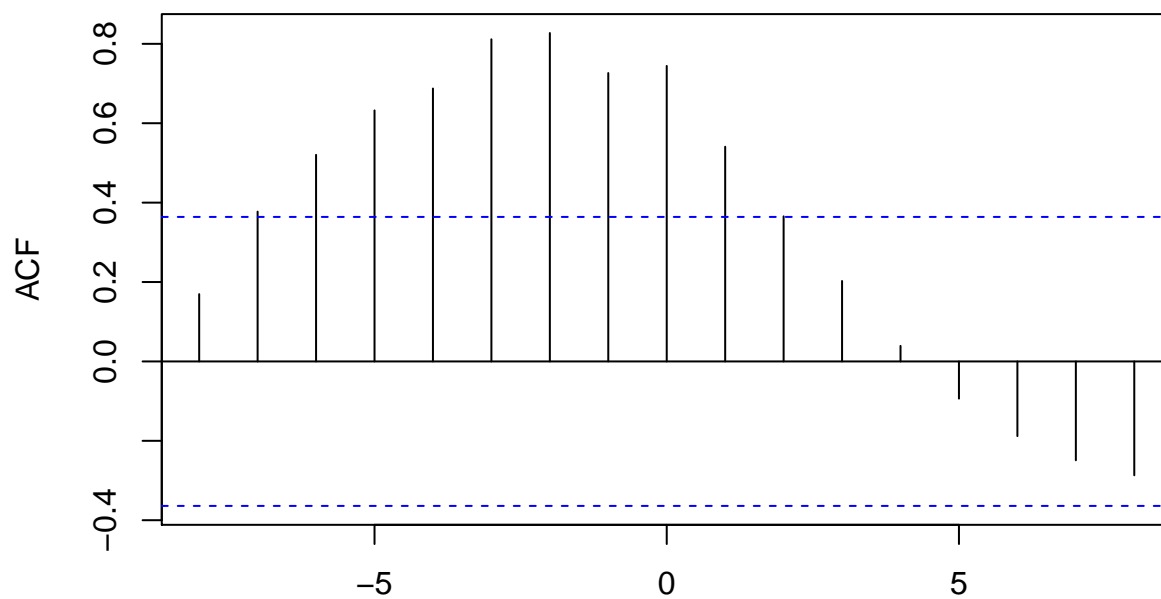
4 wk ahead − 48

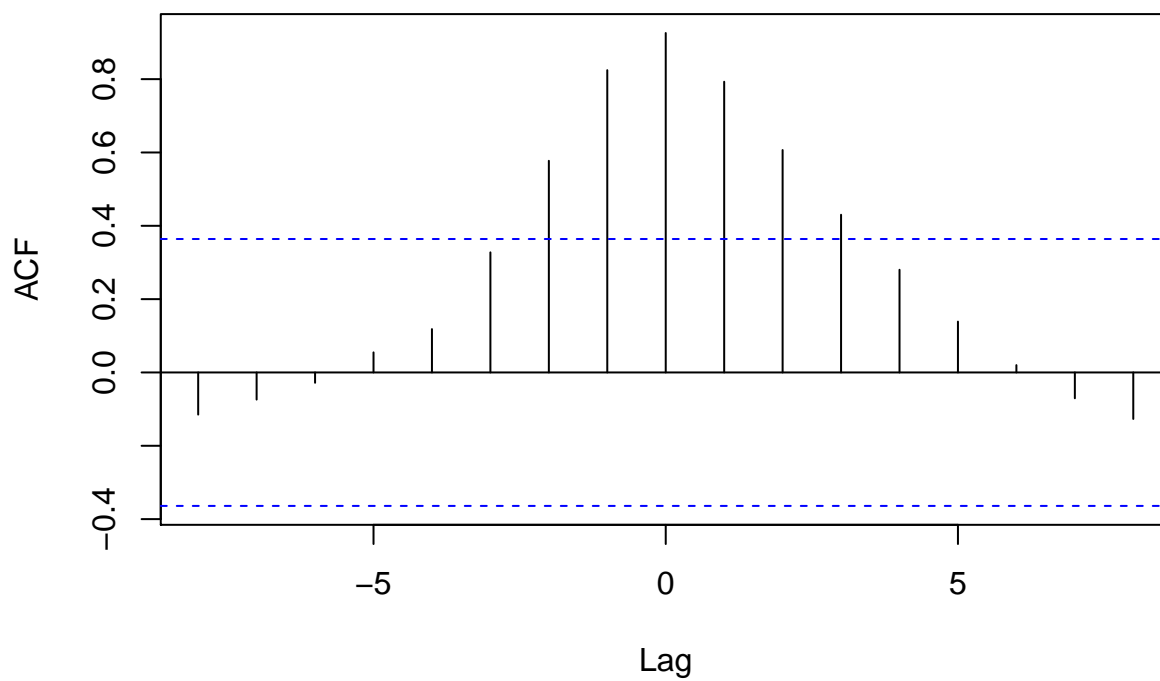**density.default(x = pxt$value)**

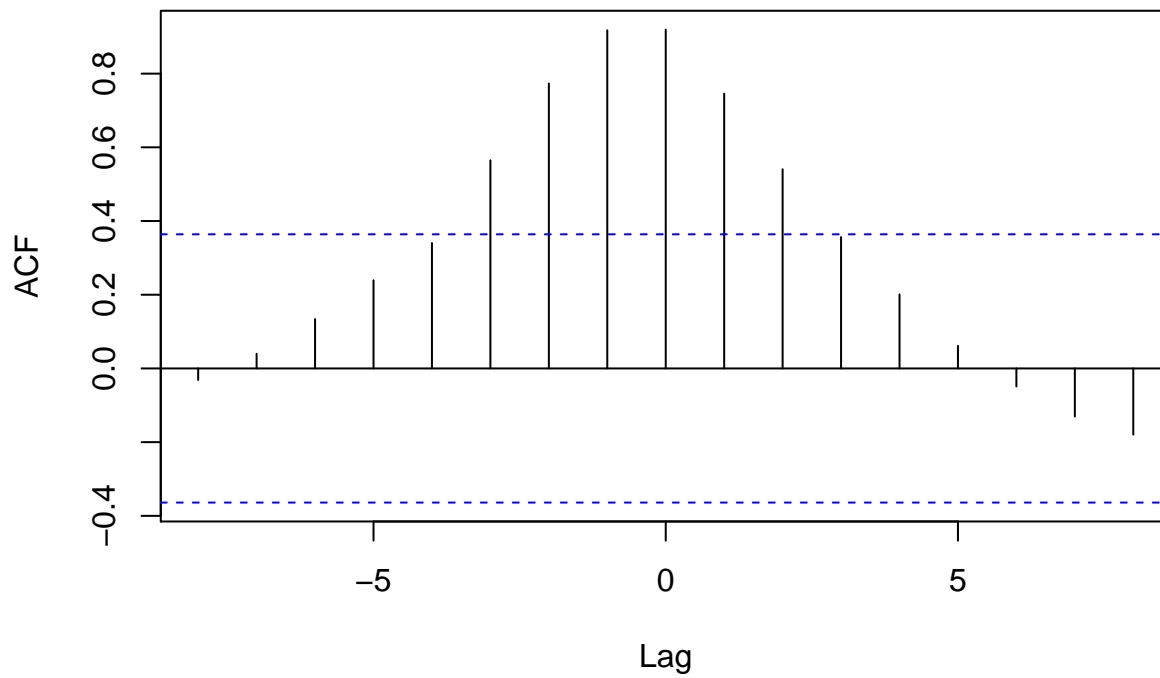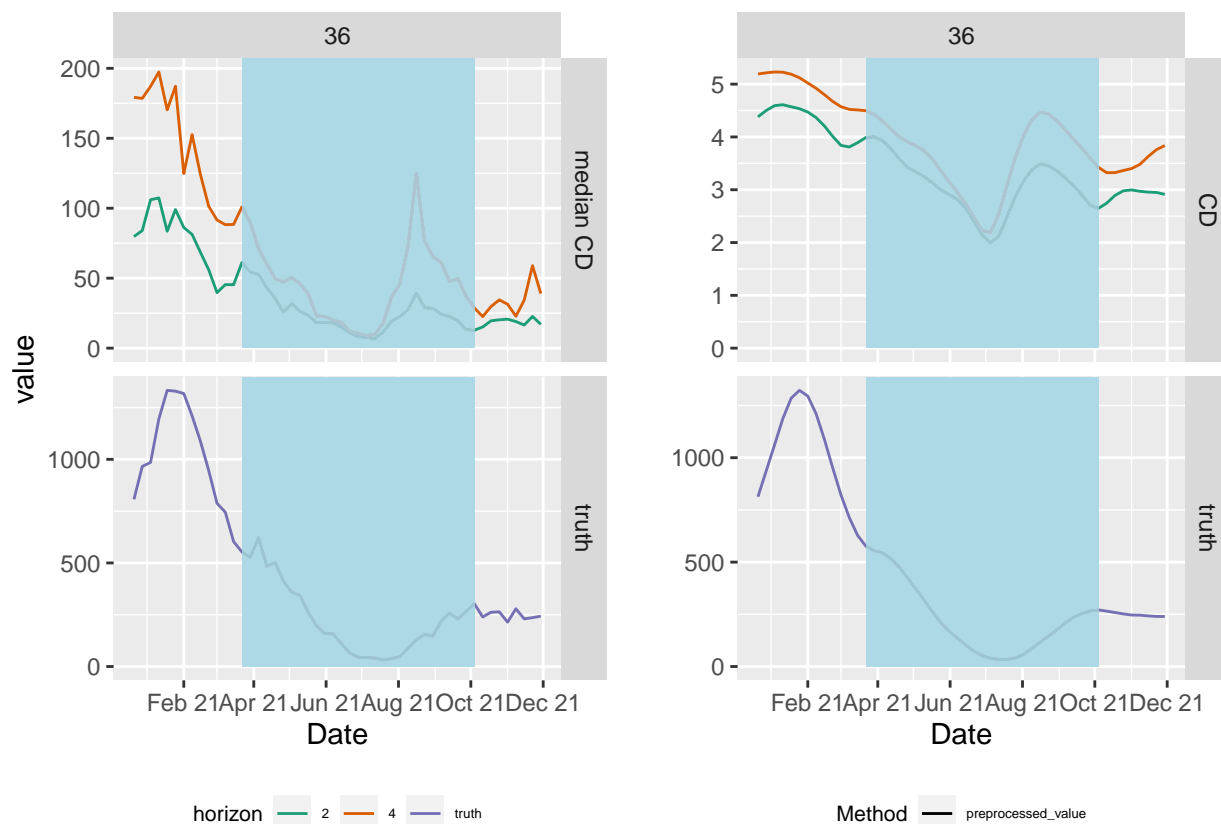N = 29   Bandwidth = 13.49
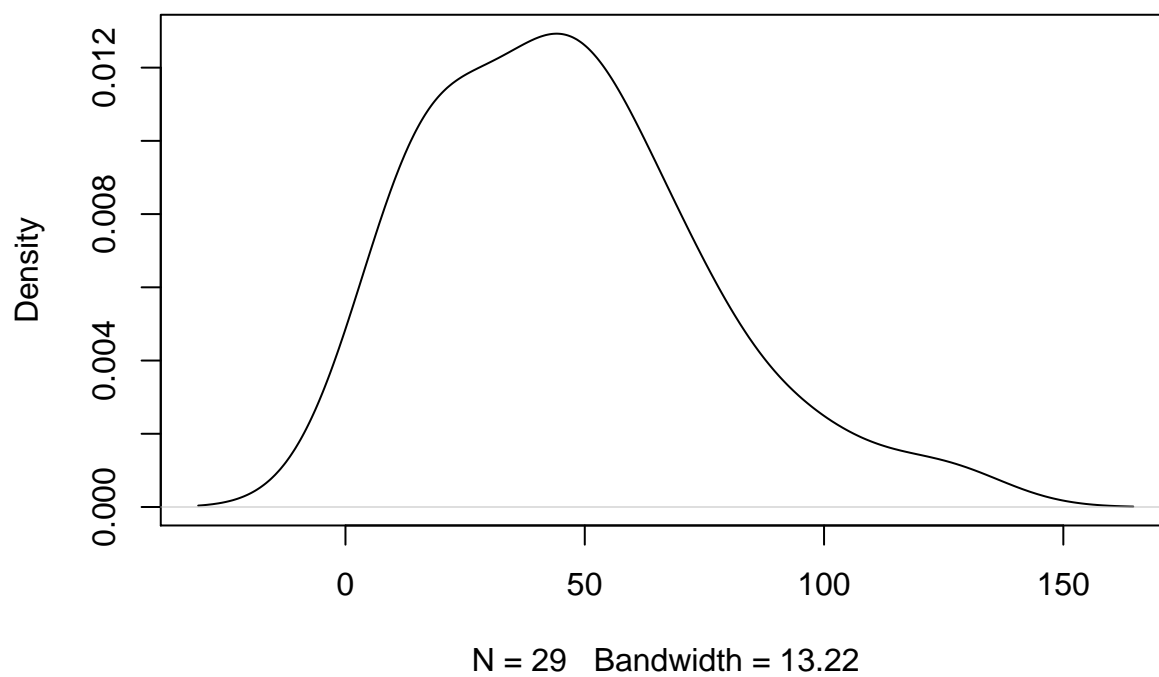
density.default(x = py$value)

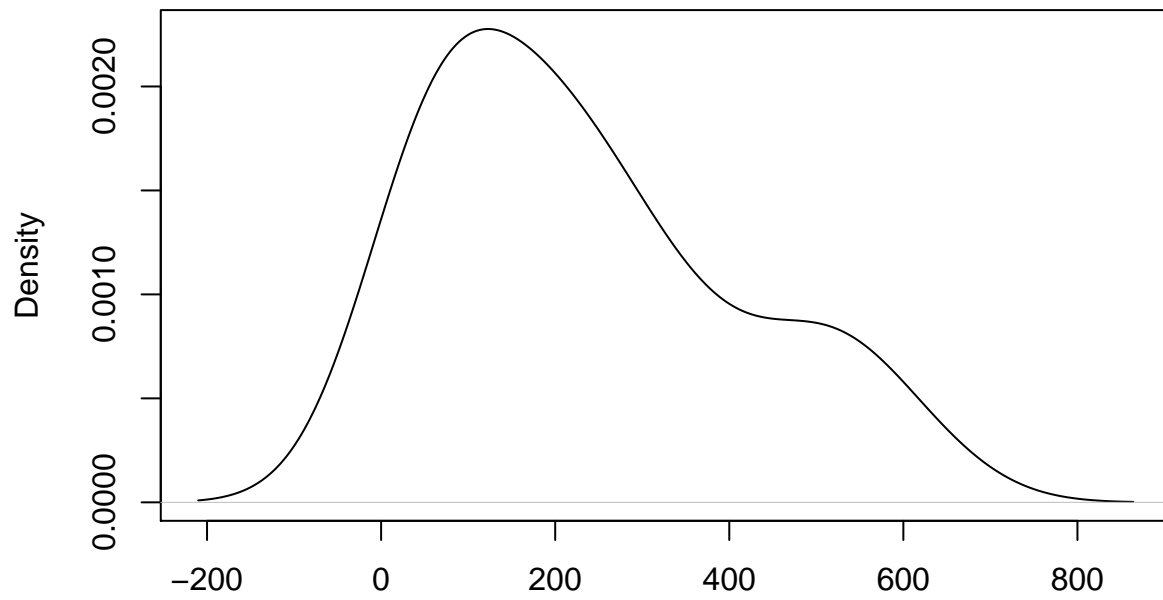N = 29   Bandwidth = 33.56
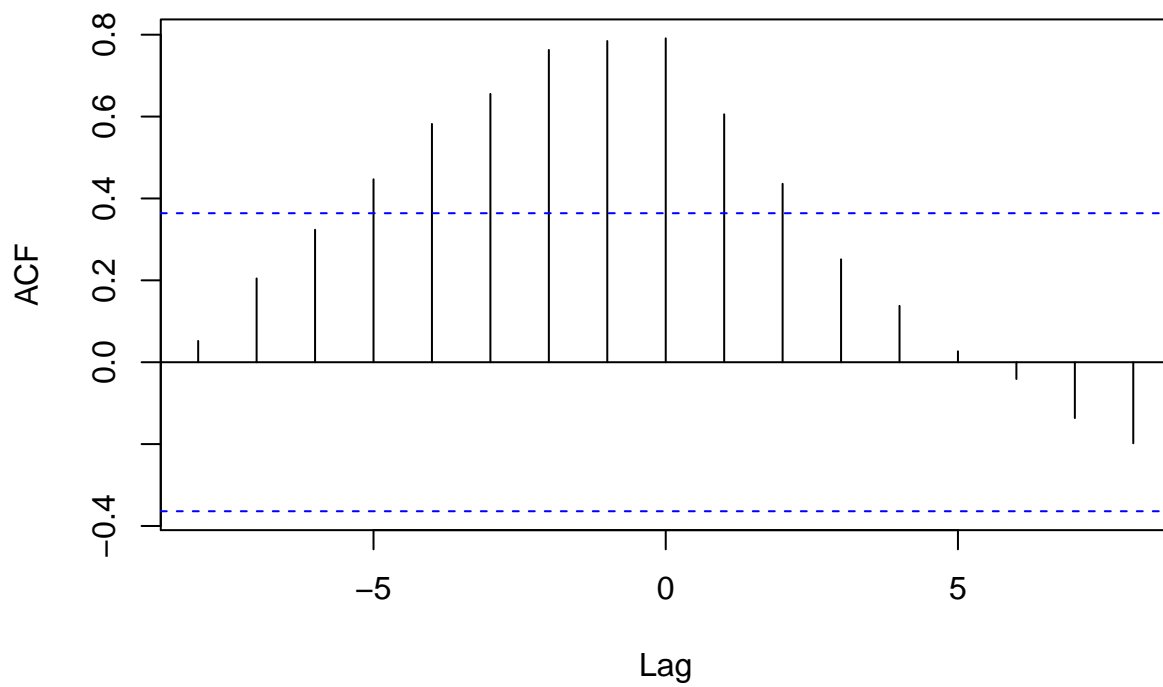
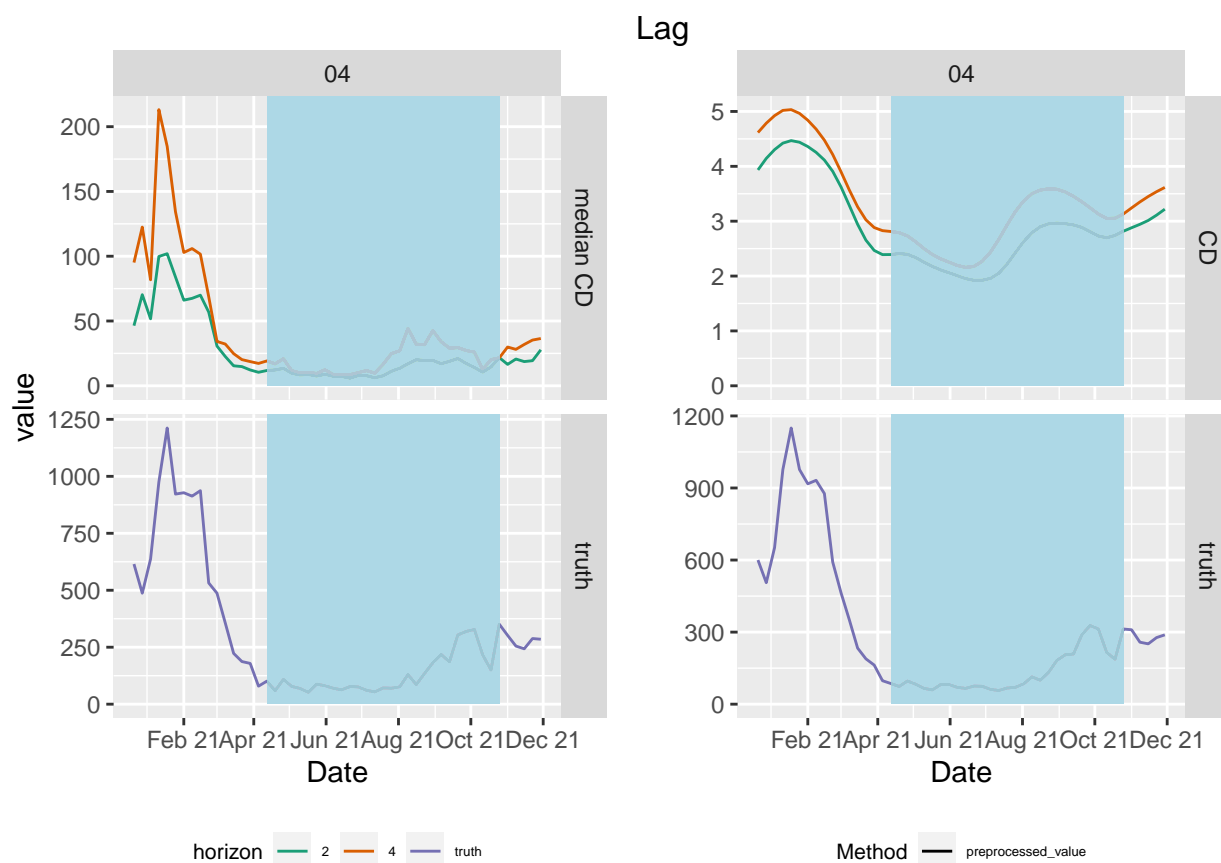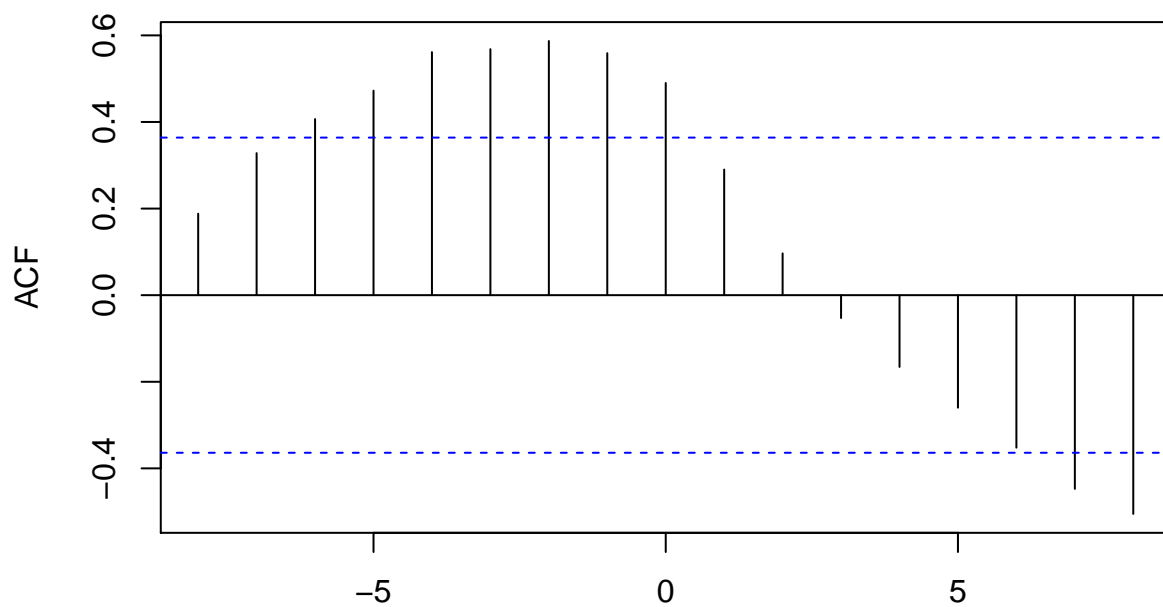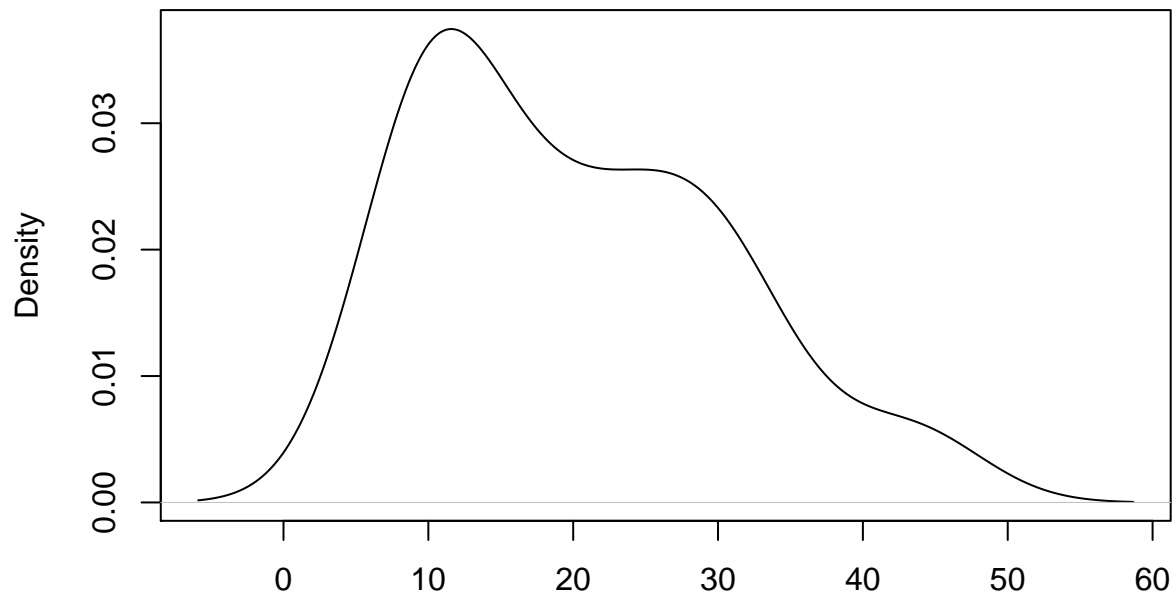# 2 wk ahead − 39

4 wk ahead − 39

density.default(x = pxt$value)

N = 29   Bandwidth = 13.22

density.default(x = py$value)

N = 29   Bandwidth = 80.72

2 wk ahead − 36

Lag

4 wk ahead − 36

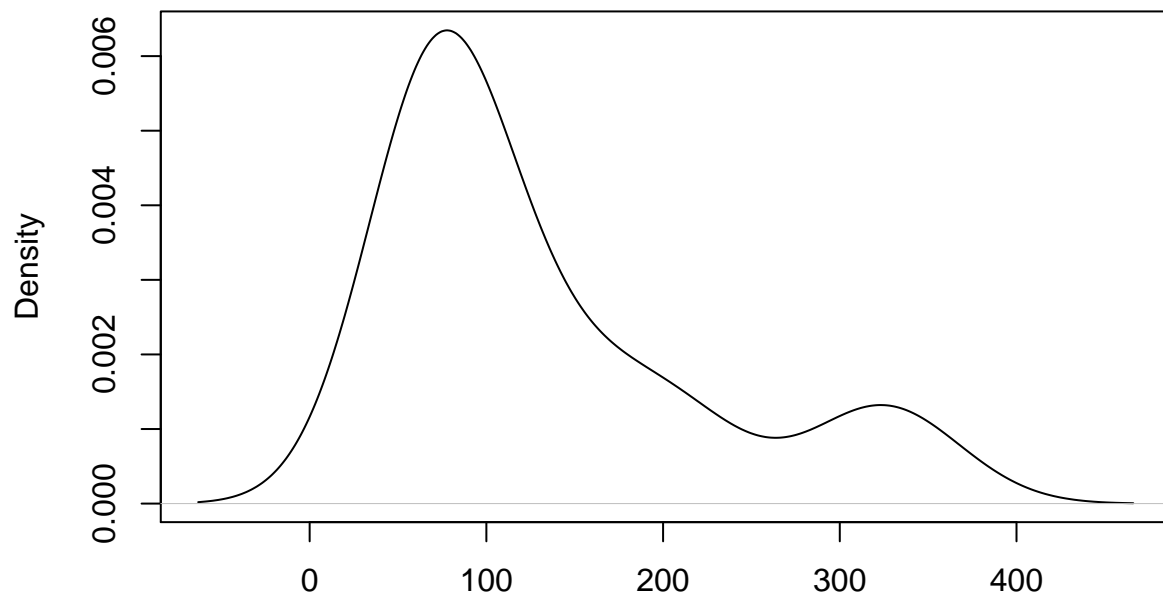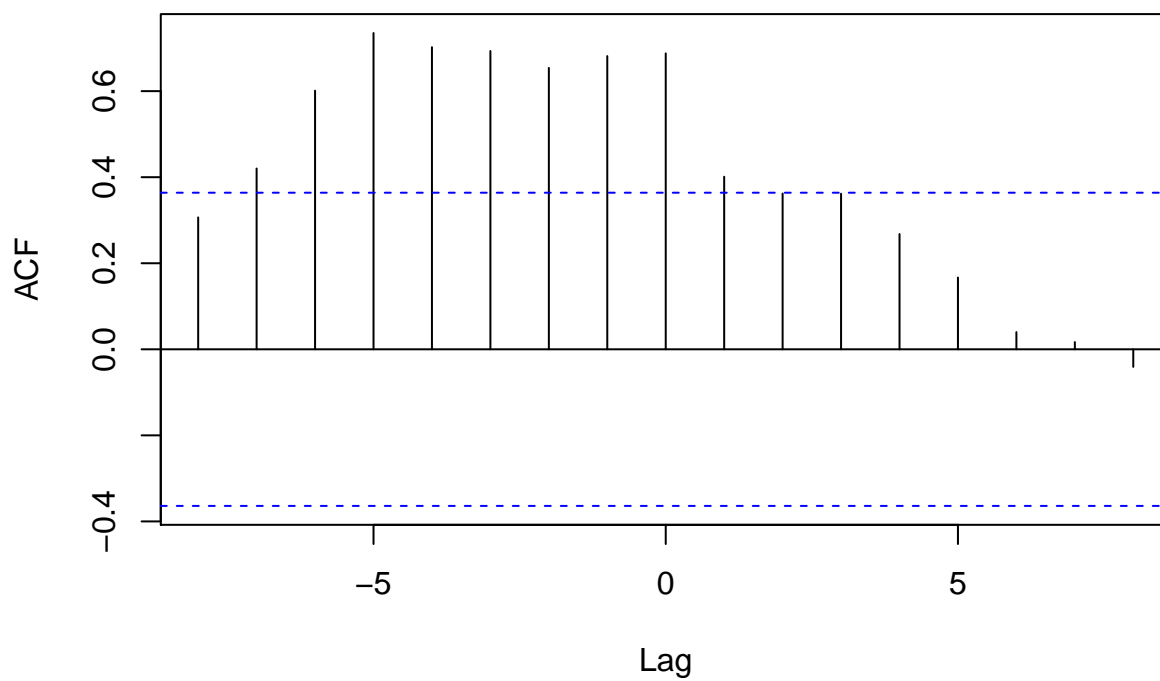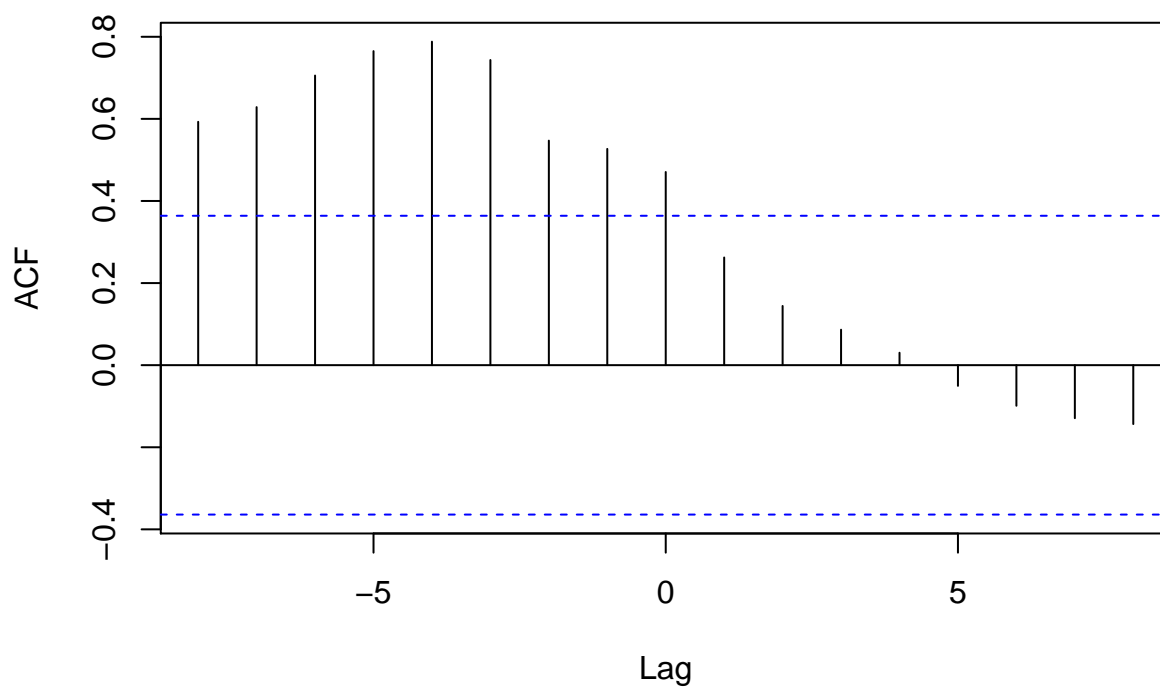## density.default(x = pxt$value)

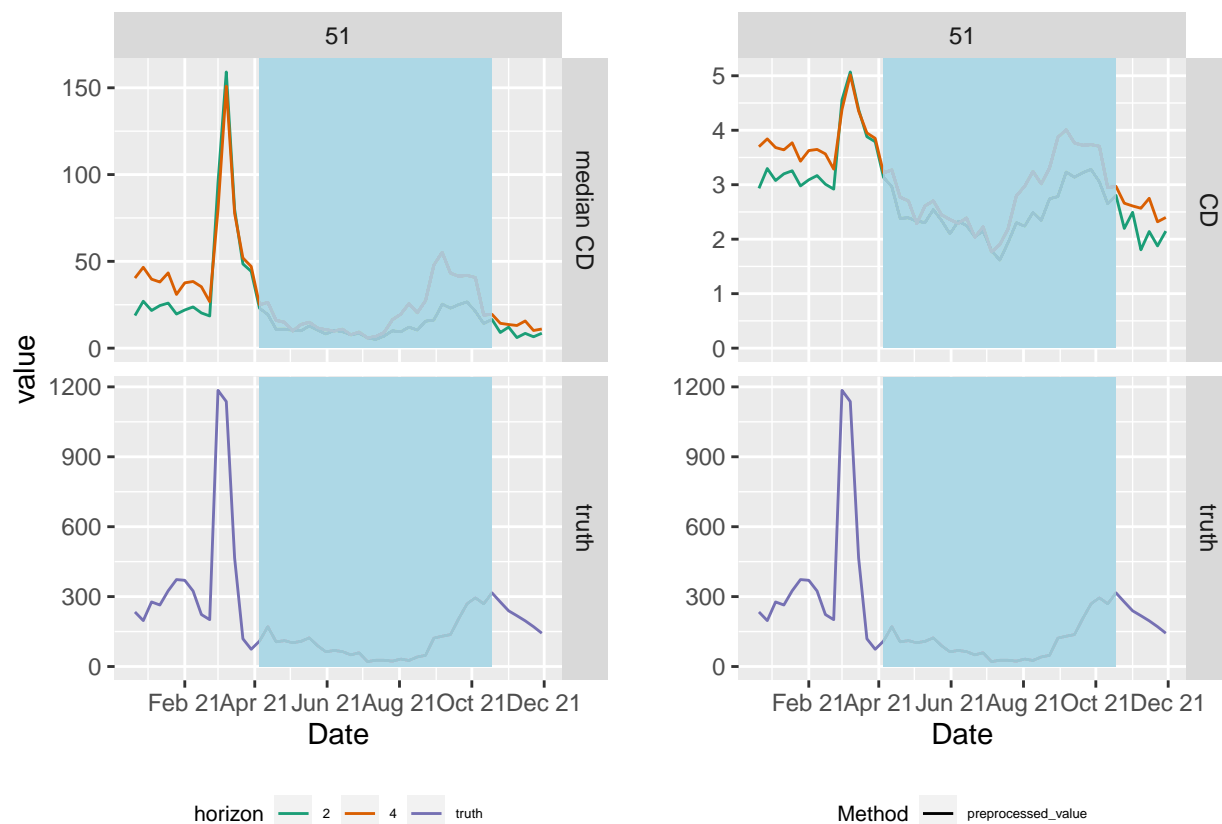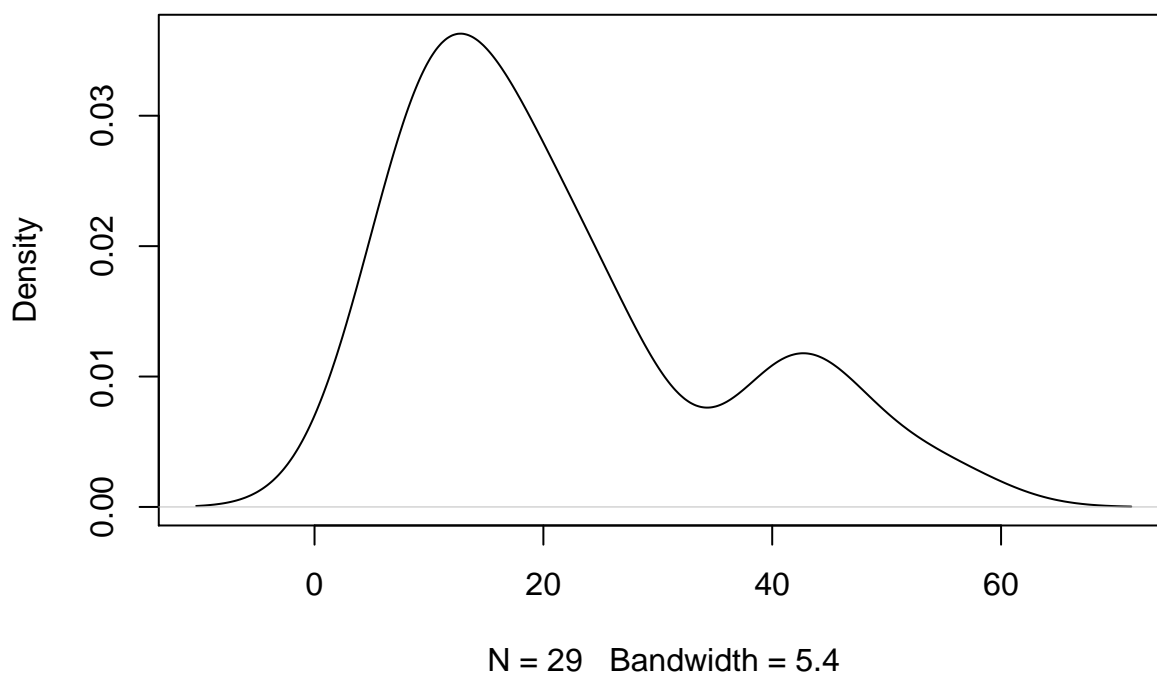N = 29   Bandwidth = 4.811

density.default(x = py$value)

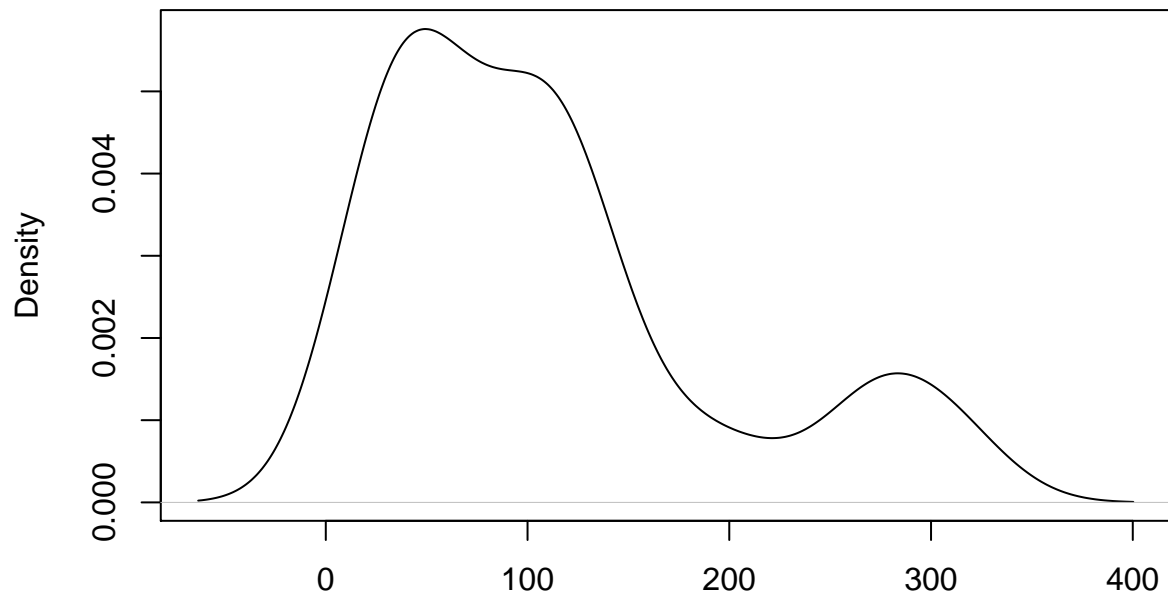N = 29   Bandwidth = 38.36
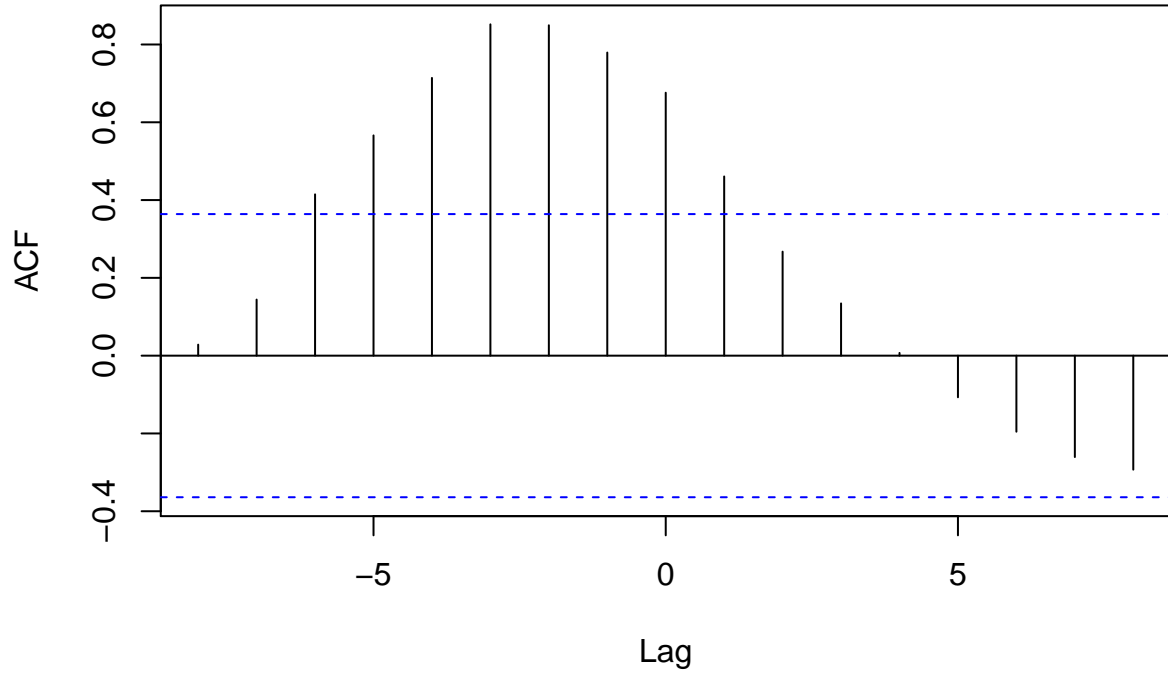
2 wk ahead − 04

4 wk ahead − 04

16

density.default(x = pxt$value)
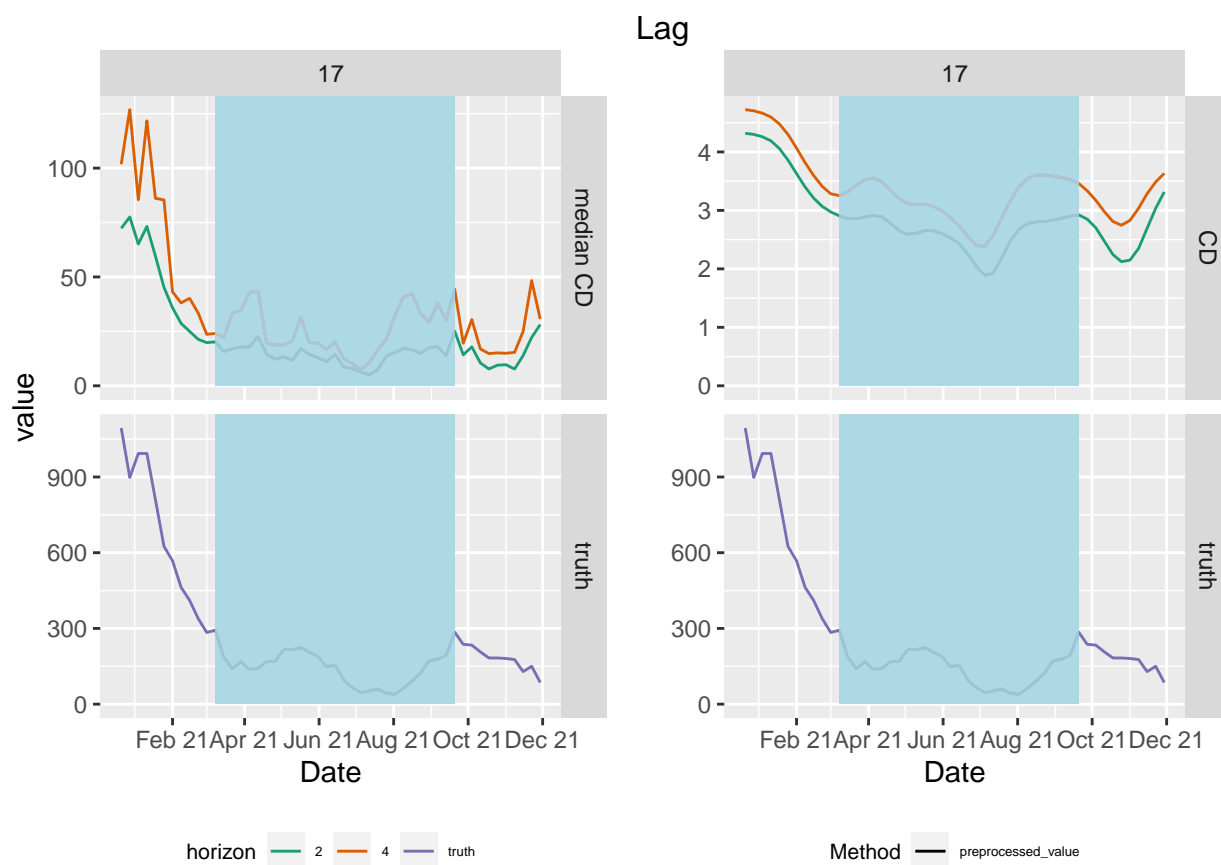
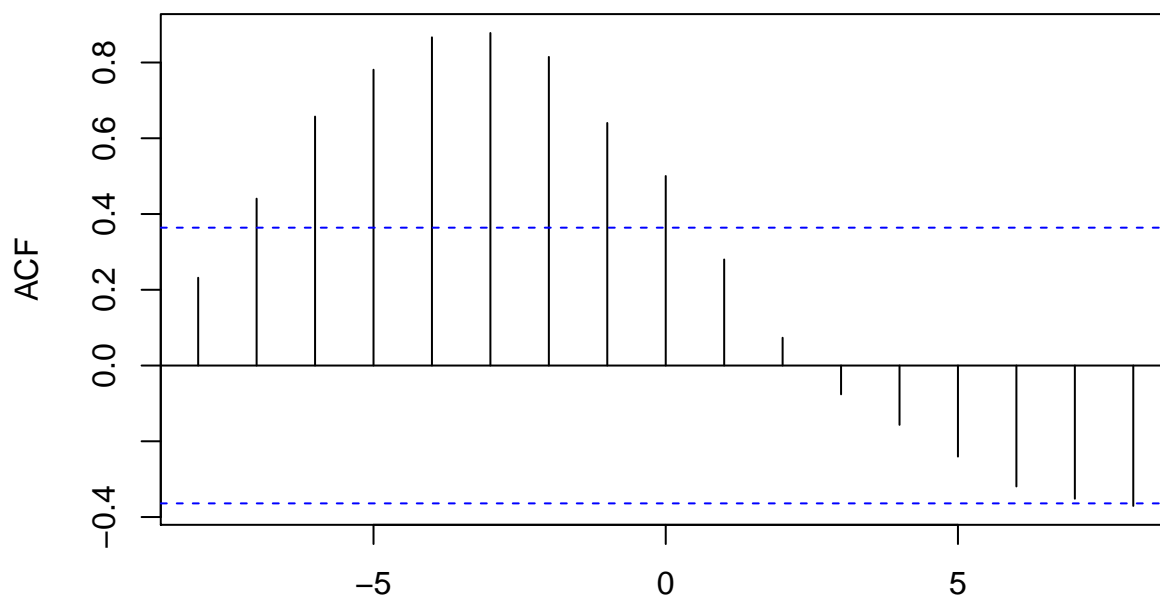

N = 29   Bandwidth = 5.4
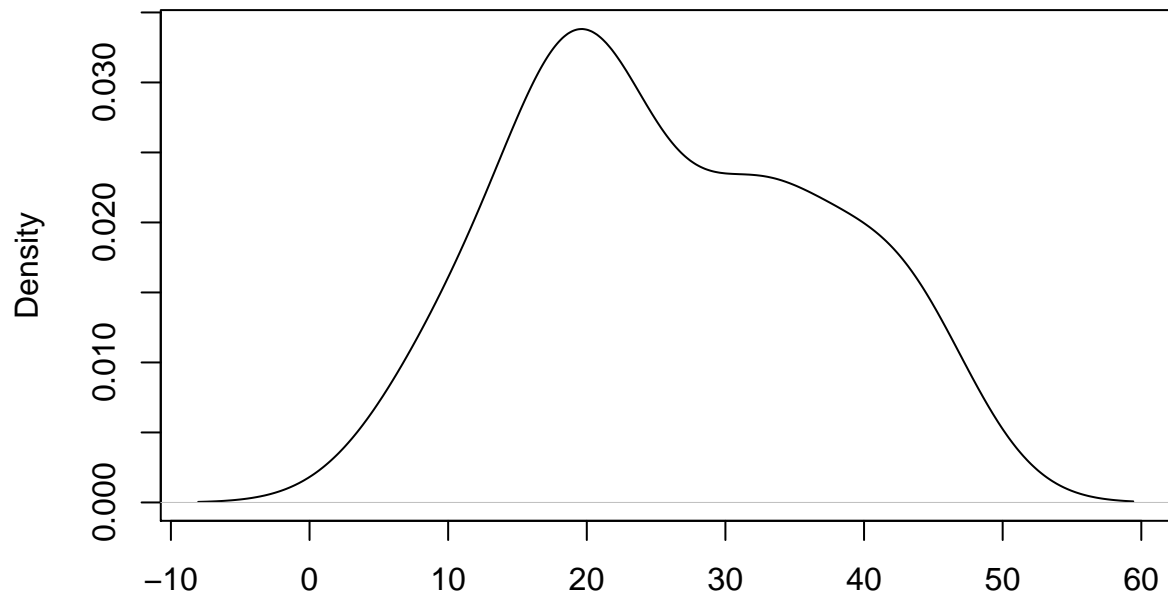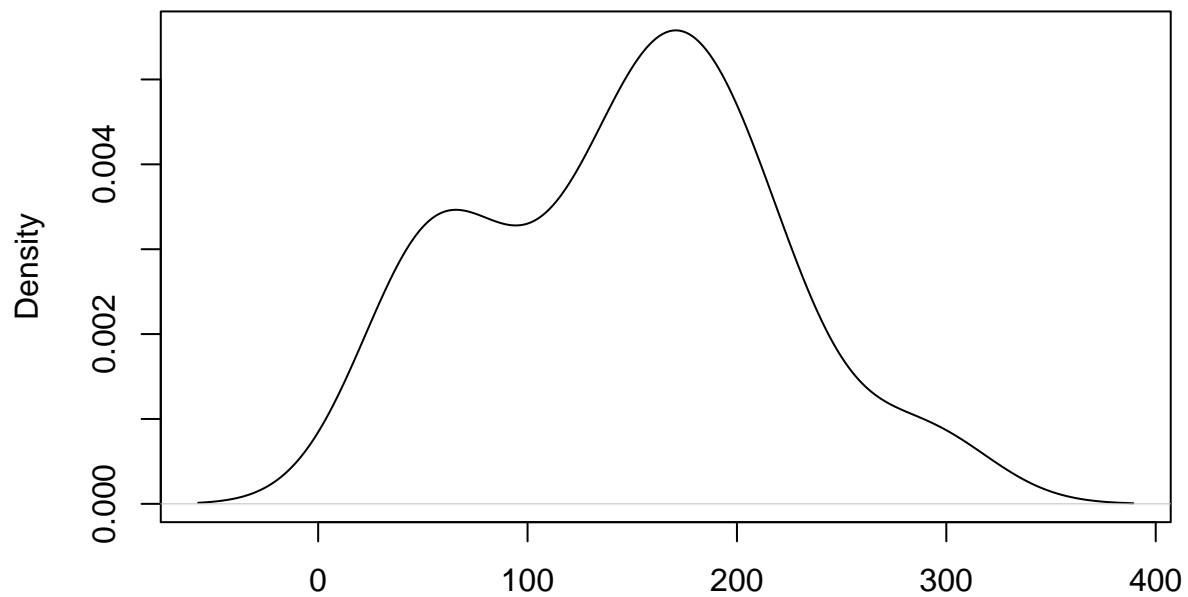
density.default(x = py$value)

N = 29   Bandwidth = 28.08
2 wk ahead − 51

Lag

4 wk ahead − 51

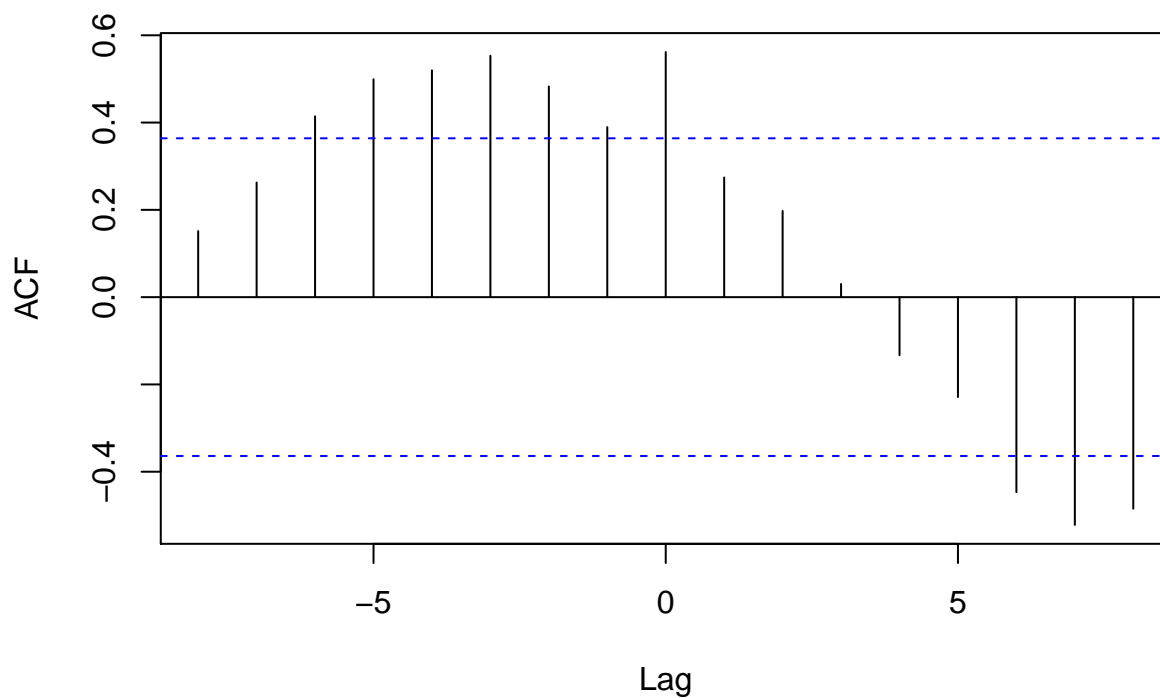**density.default(x = pxt$value)**

N = 29   Bandwidth = 5.028

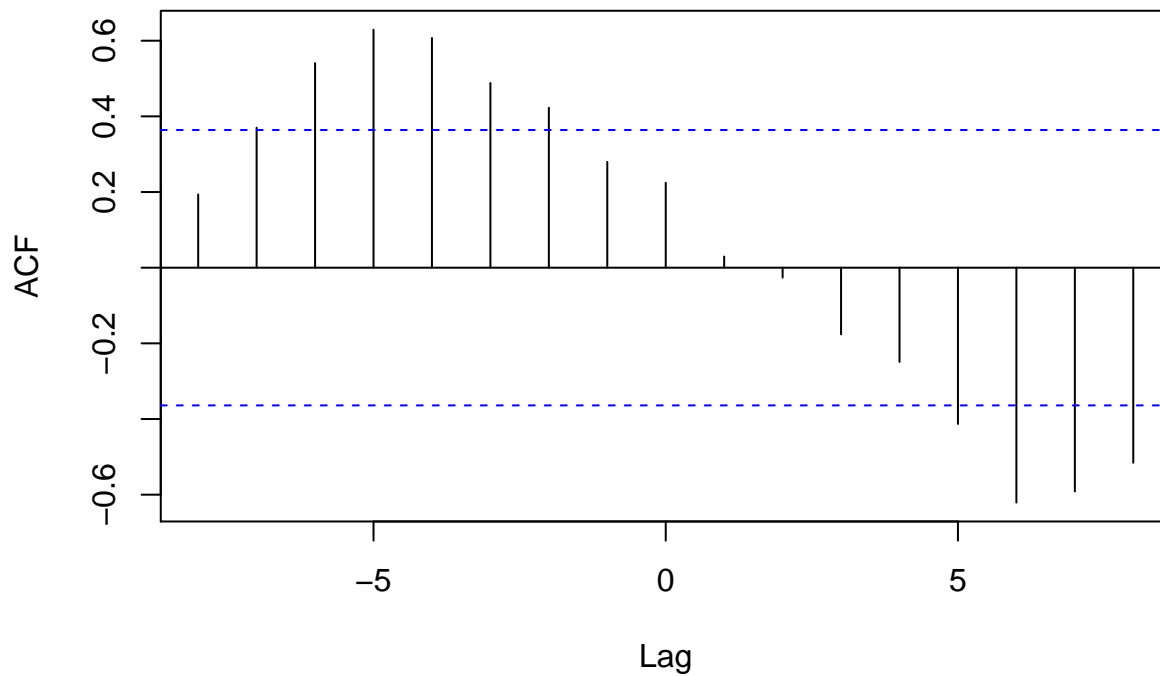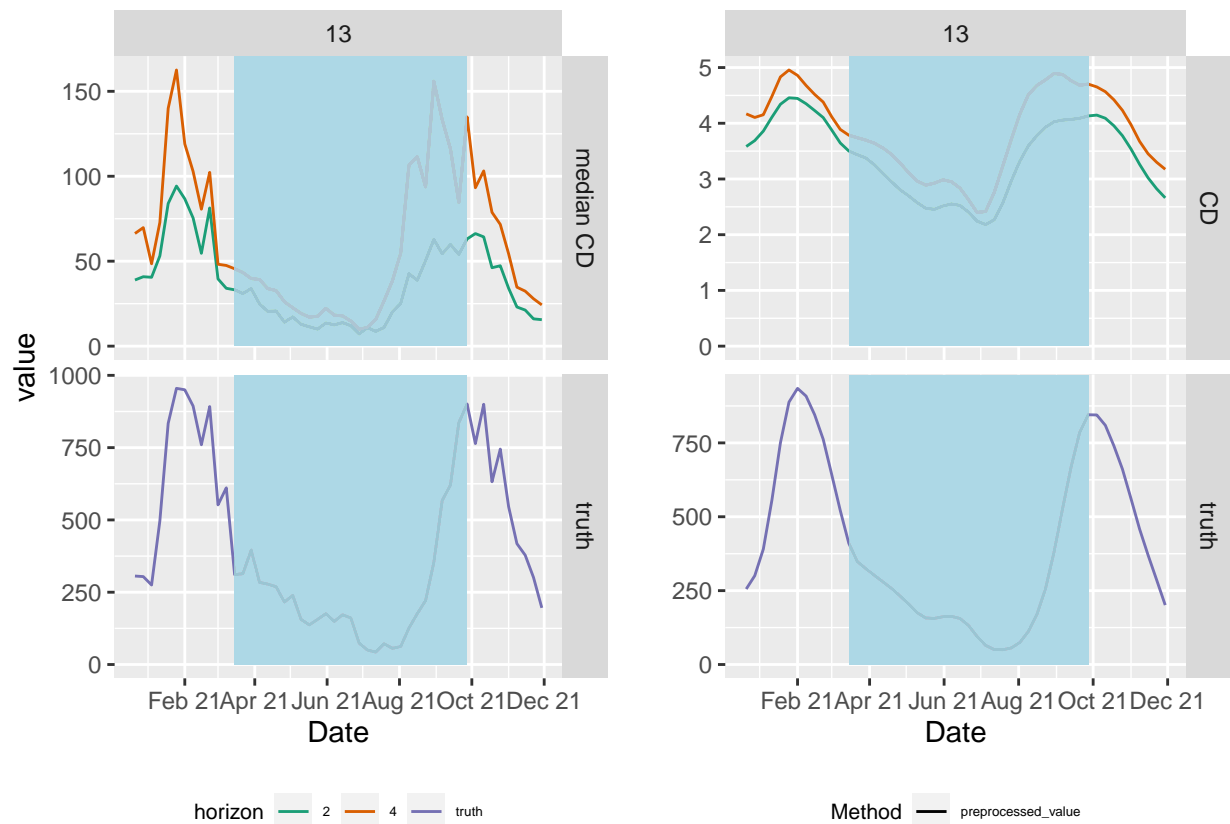**density.default(x = py$value)**

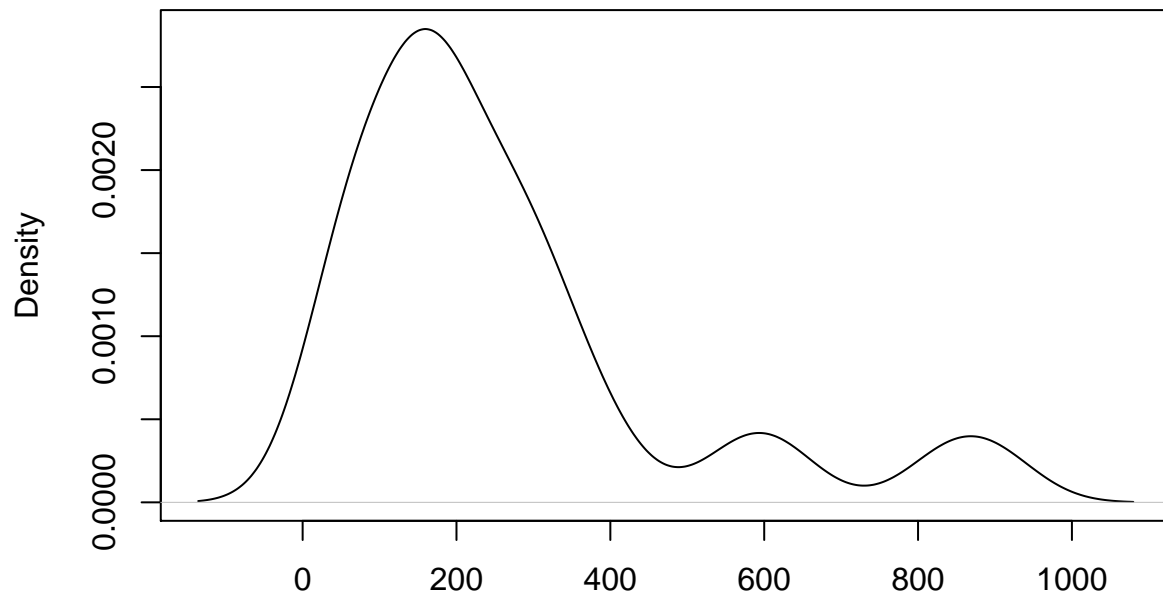N = 29   Bandwidth = 32.1

2 wk ahead – 17

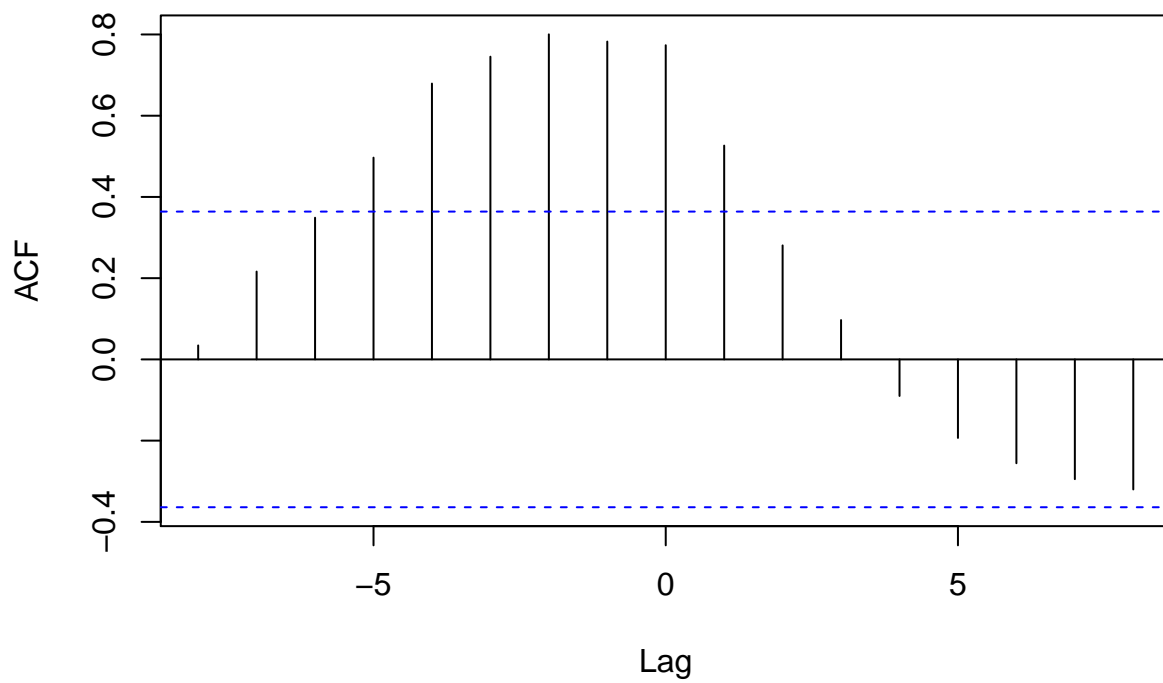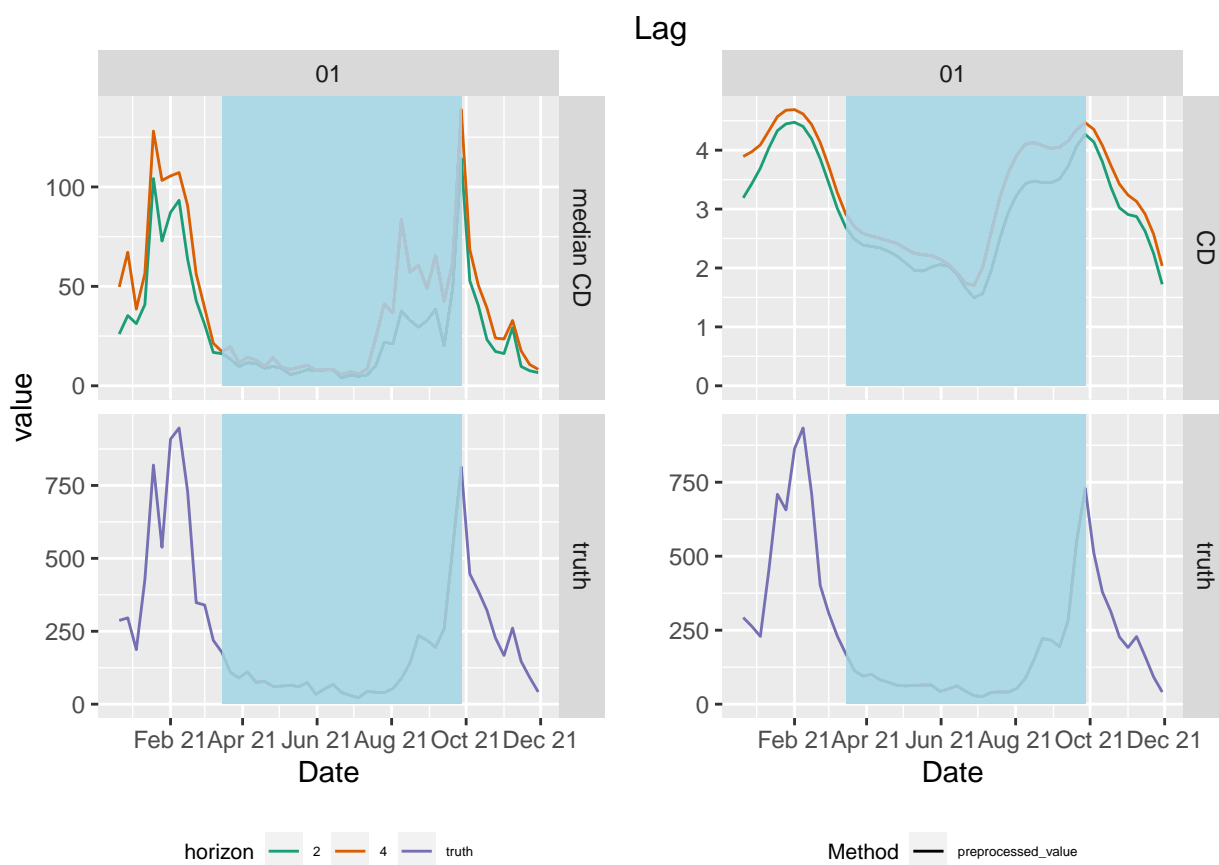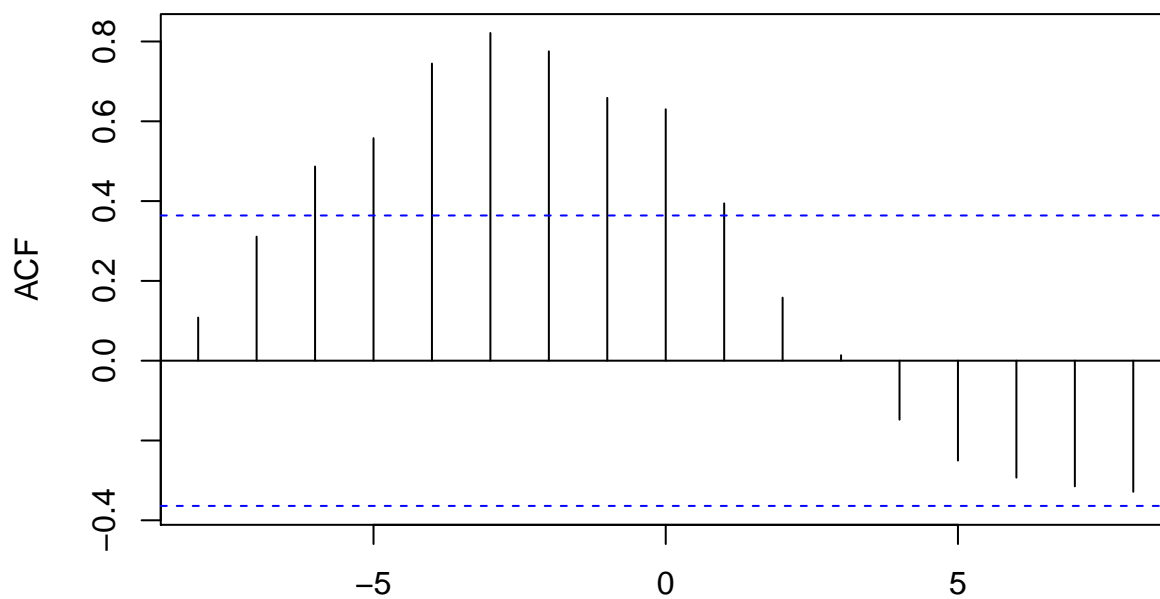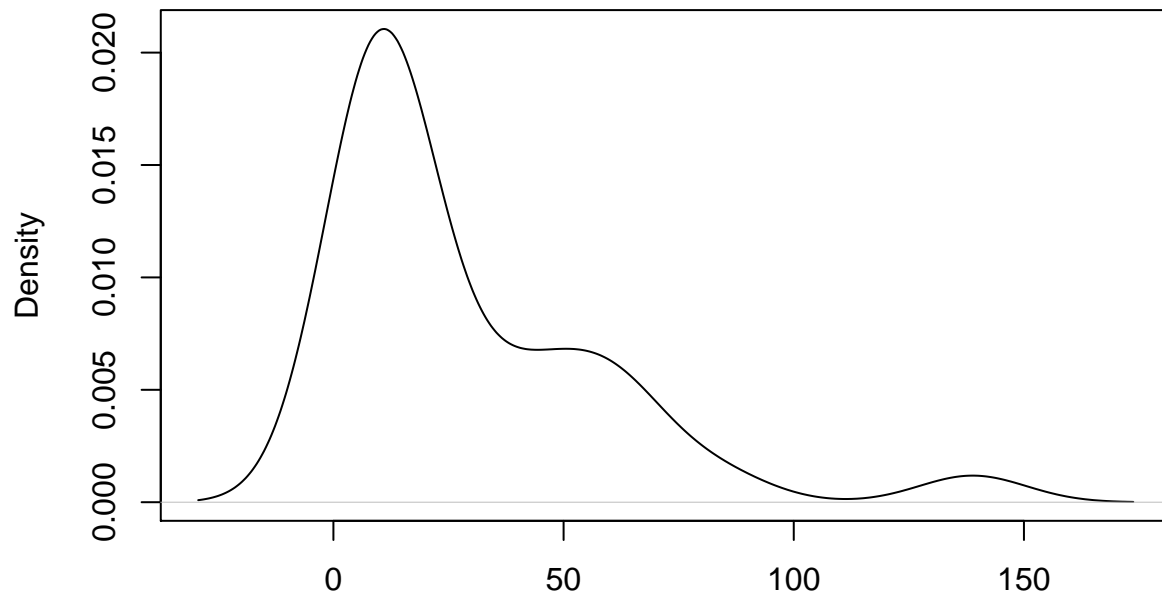
4 wk ahead – 17

density.default(x = pxt$value)
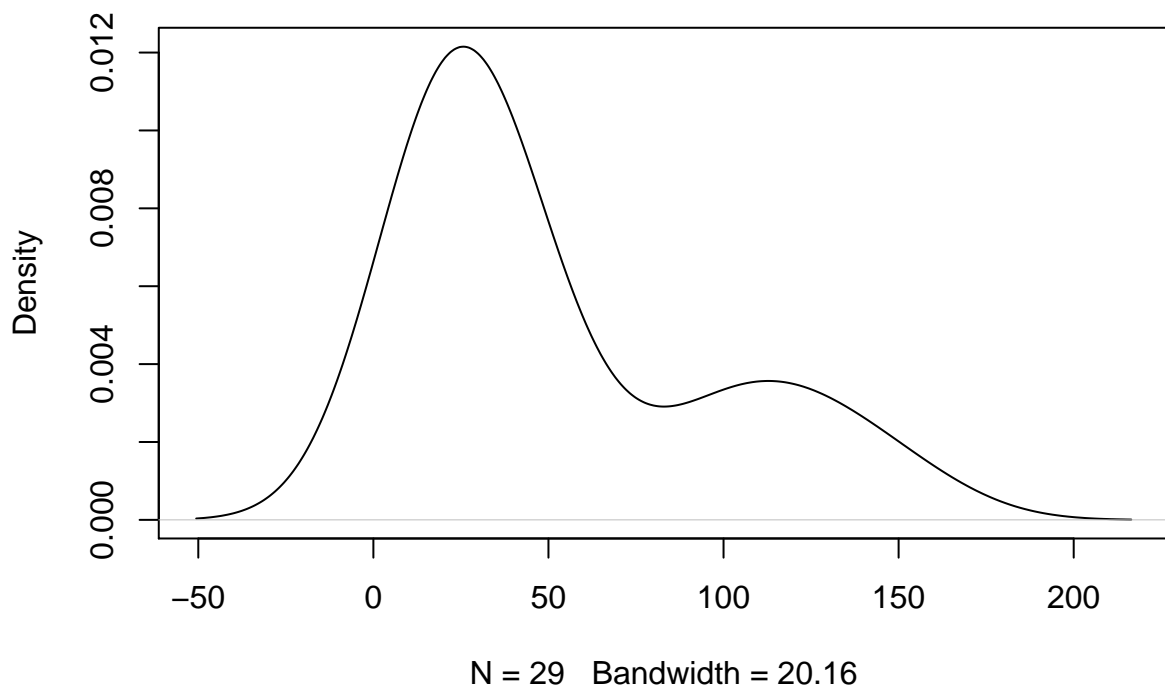
N = 29   Bandwidth = 20.16

density.default(x = py$value)

N = 29   Bandwidth = 59.59

2 wk ahead − 13

Lag

4 wk ahead − 13

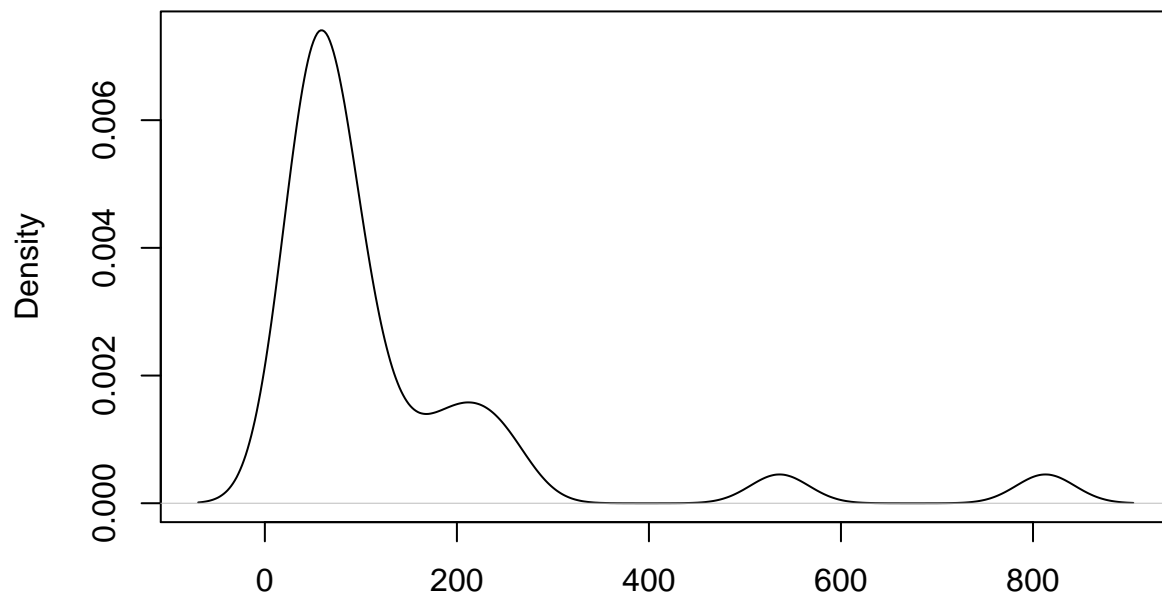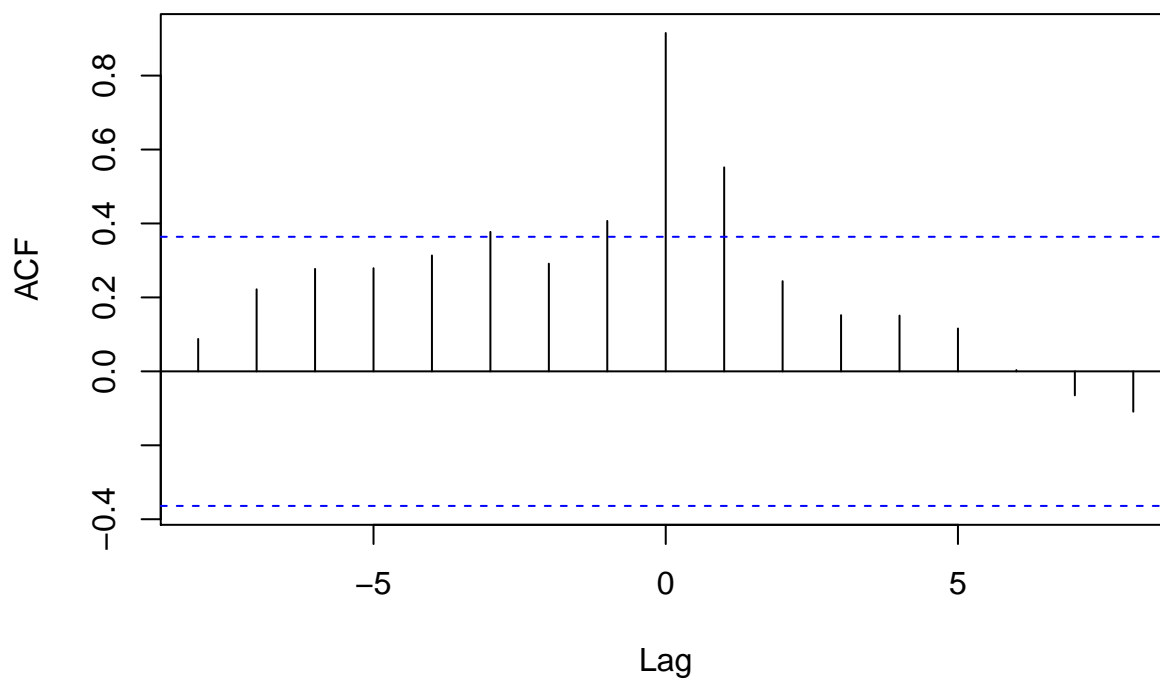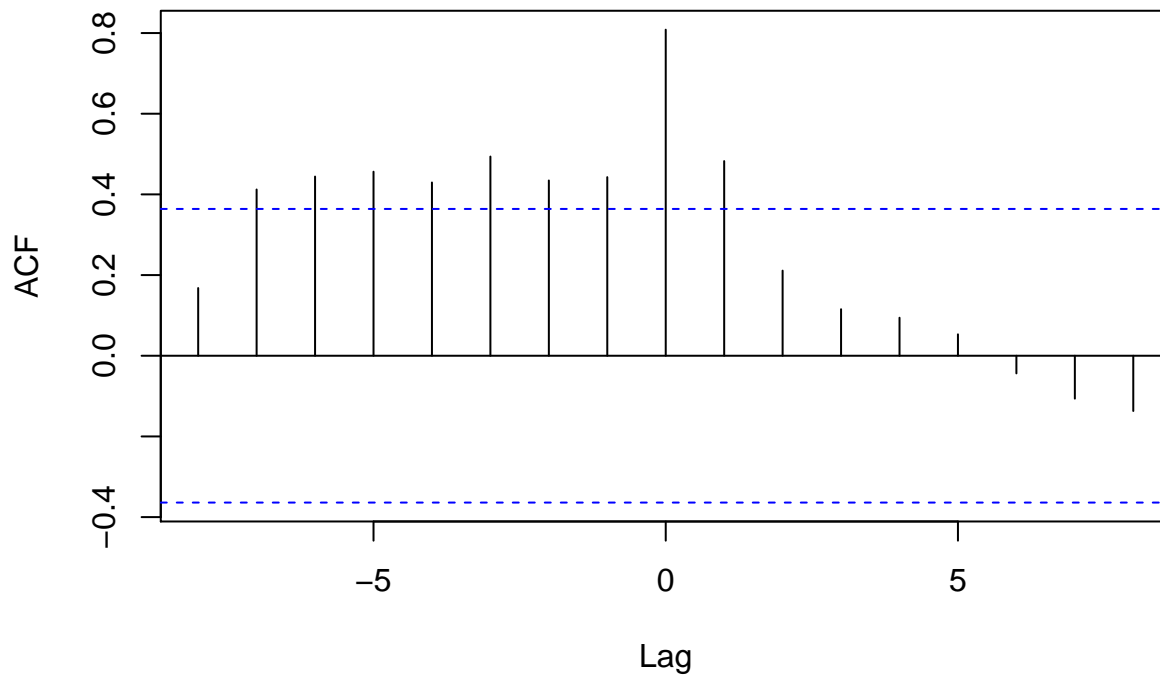**density.default(x = pxt$value)**

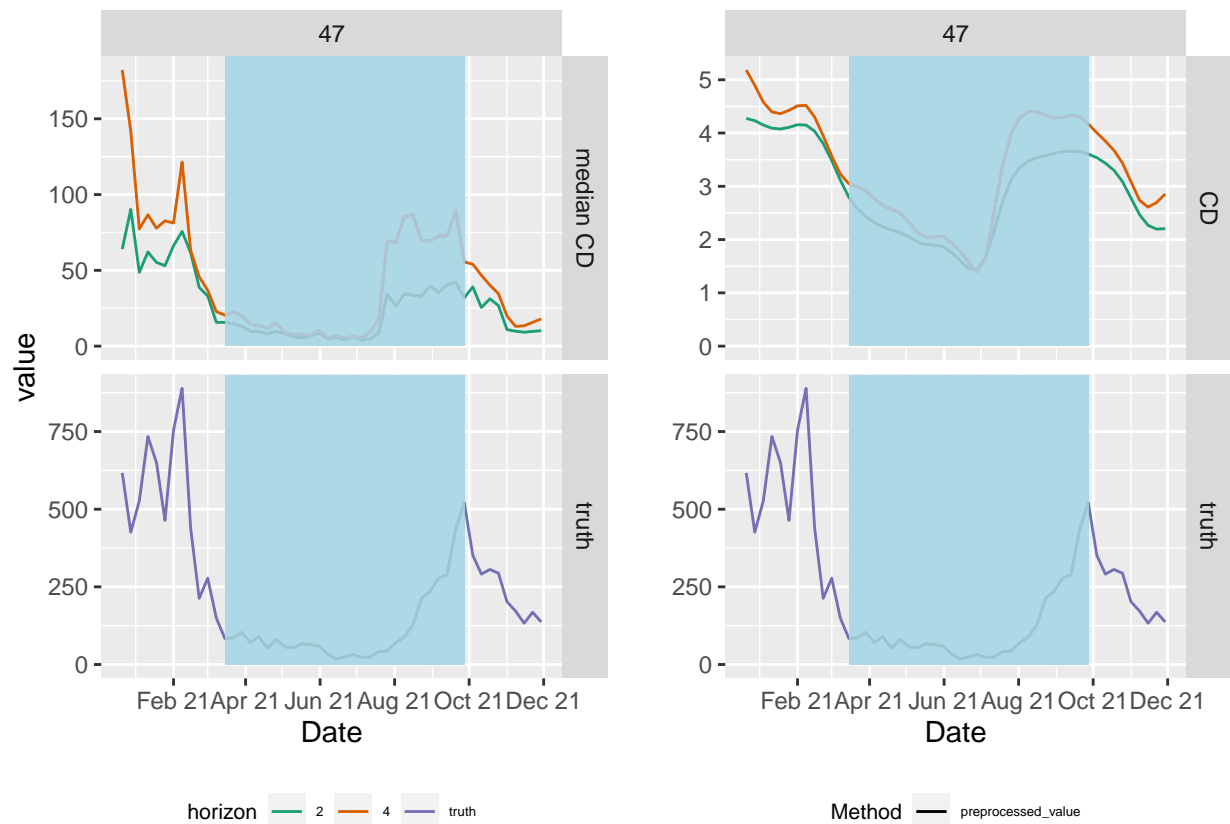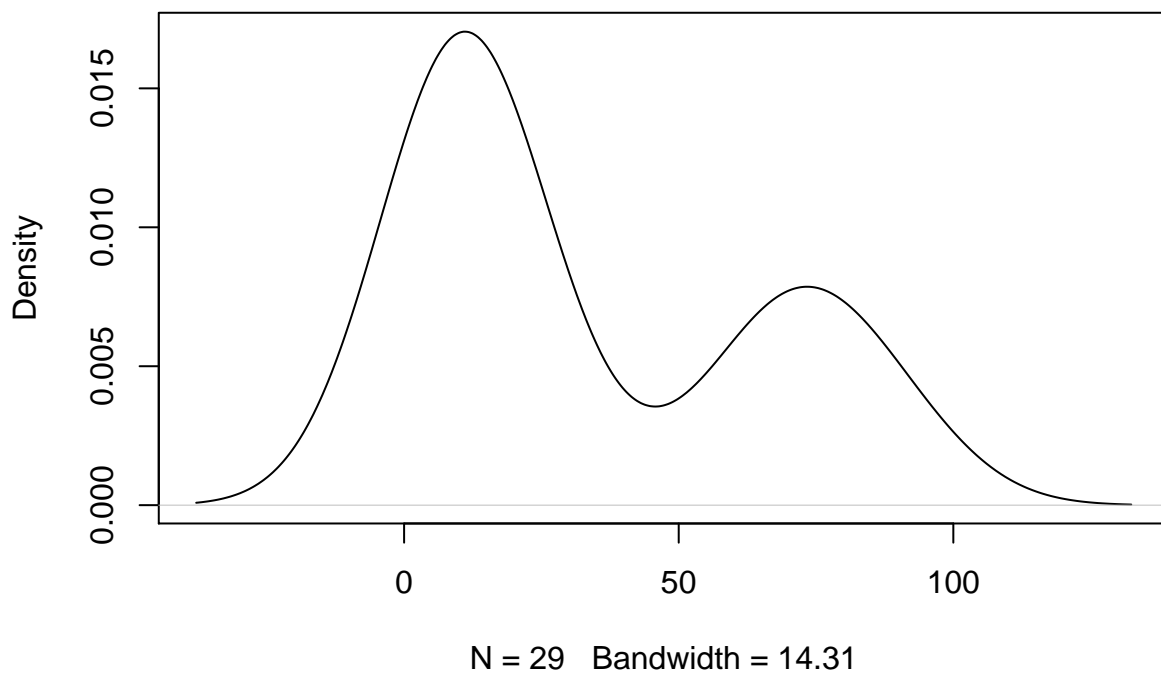N = 29   Bandwidth = 11.63

density.default(x = py$value)

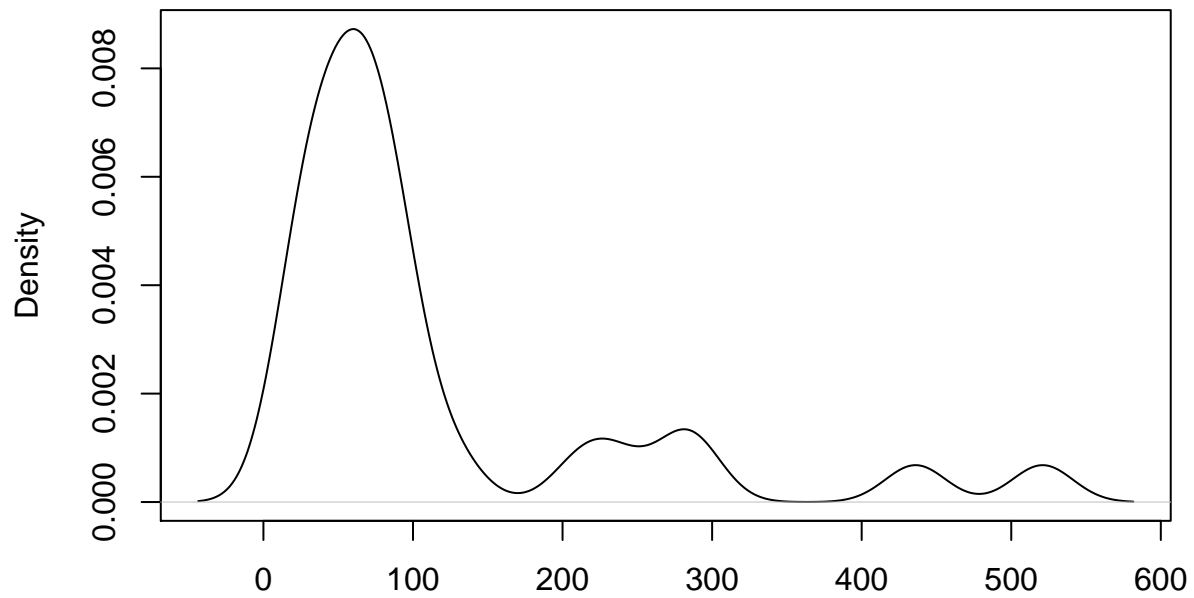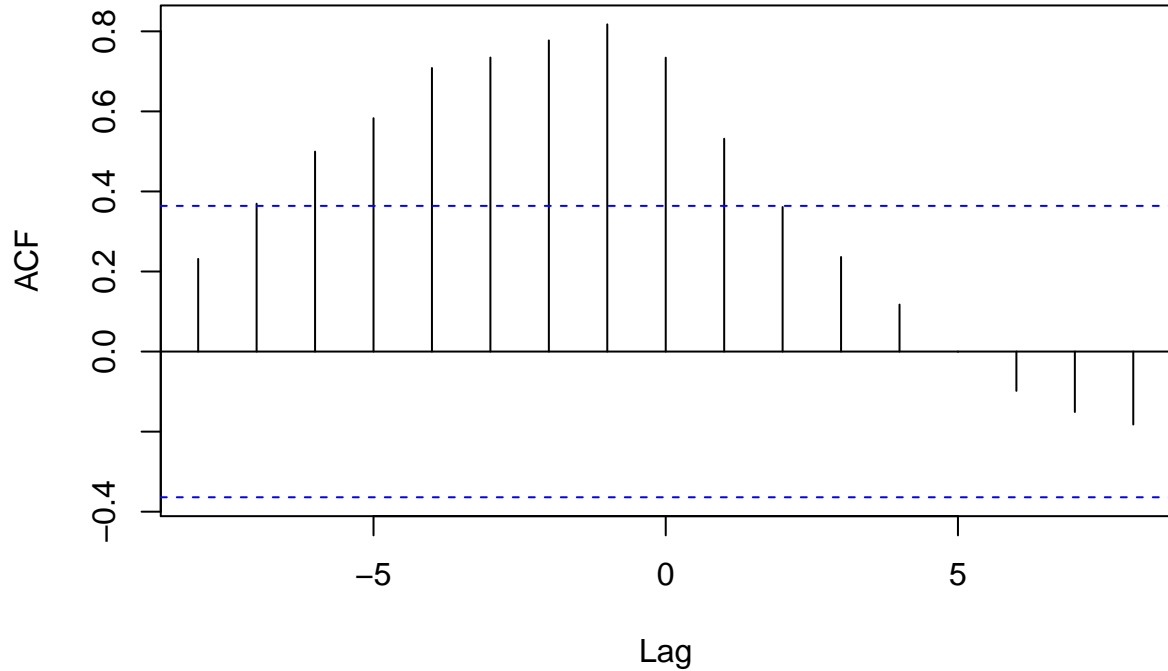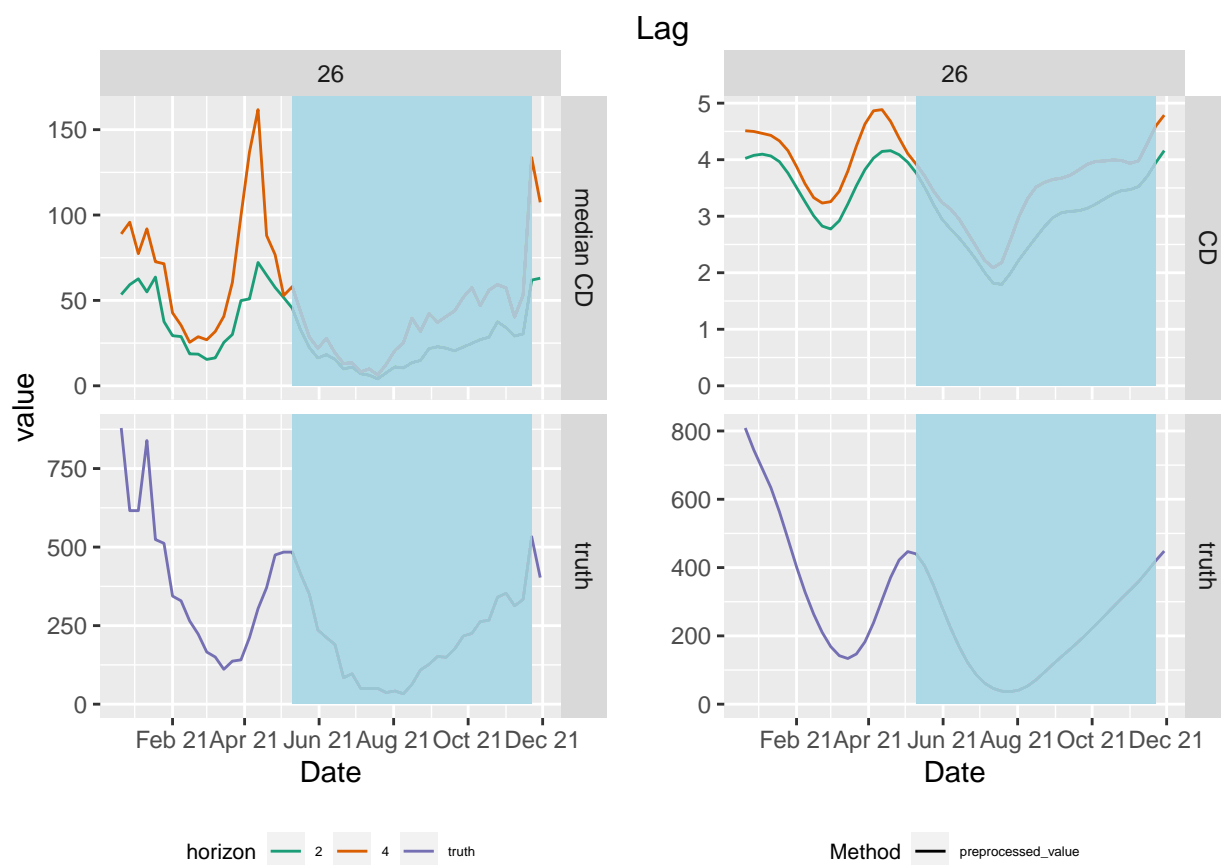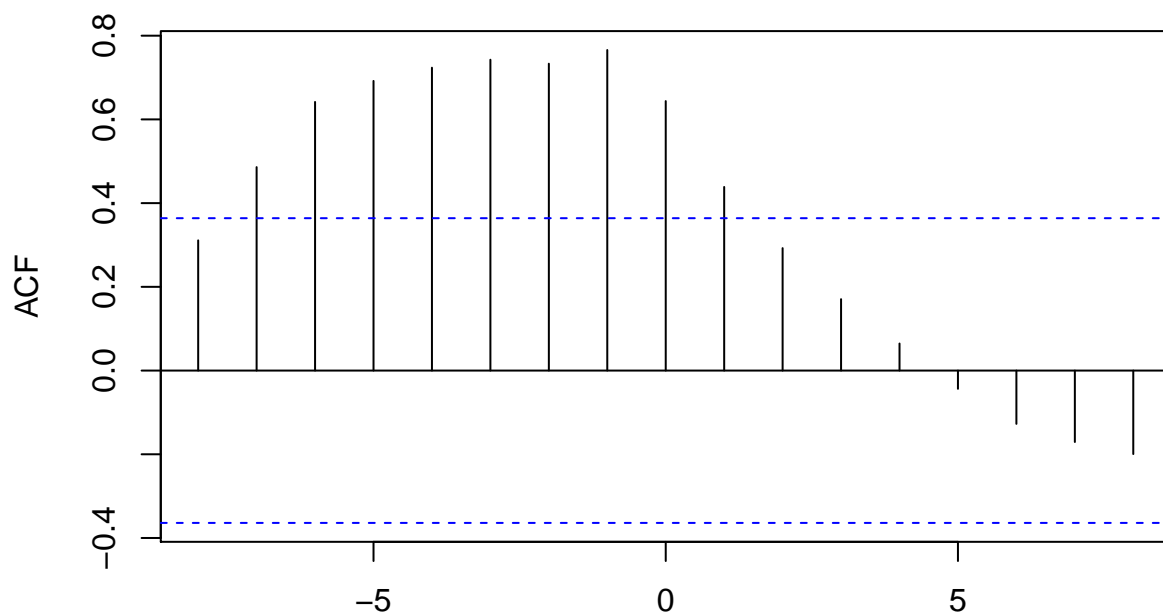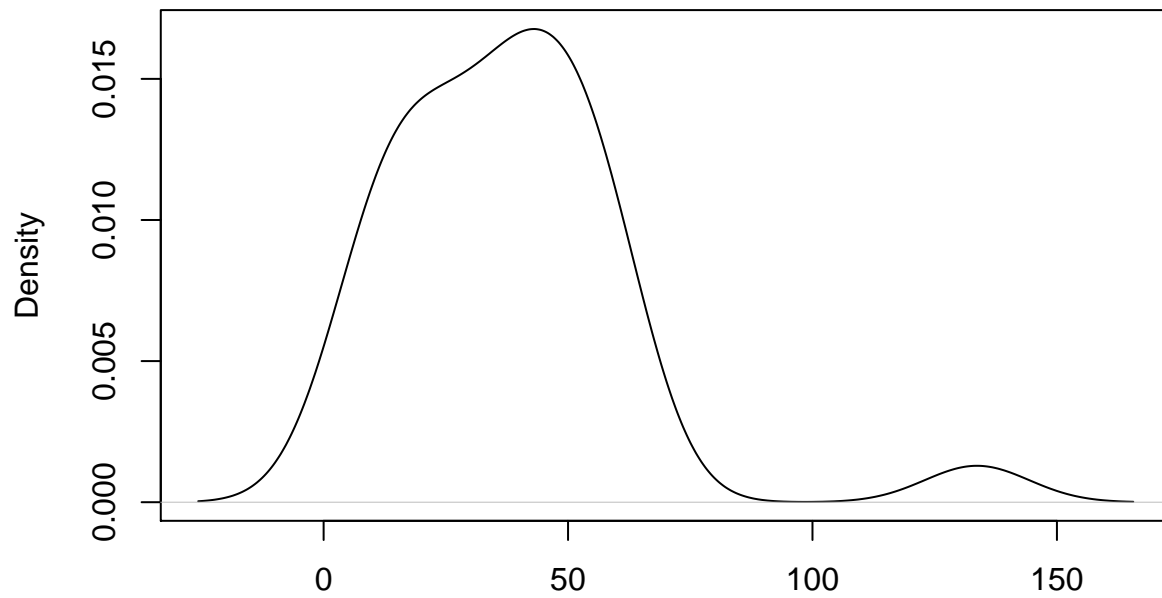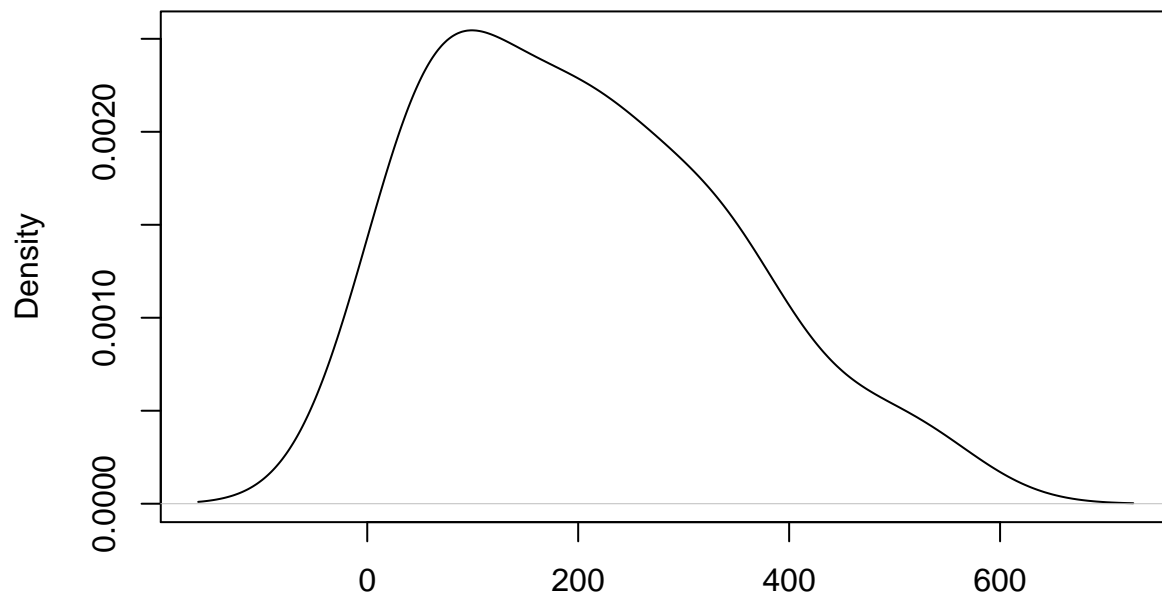N = 29   Bandwidth = 30.48

2 wk ahead − 01

4 wk ahead − 01

density.default(x = pxt$value)

N = 29   Bandwidth = 14.31

density.default(x = py$value)

N = 29   Bandwidth = 20.21

2 wk ahead − 47

Lag

4 wk ahead − 47
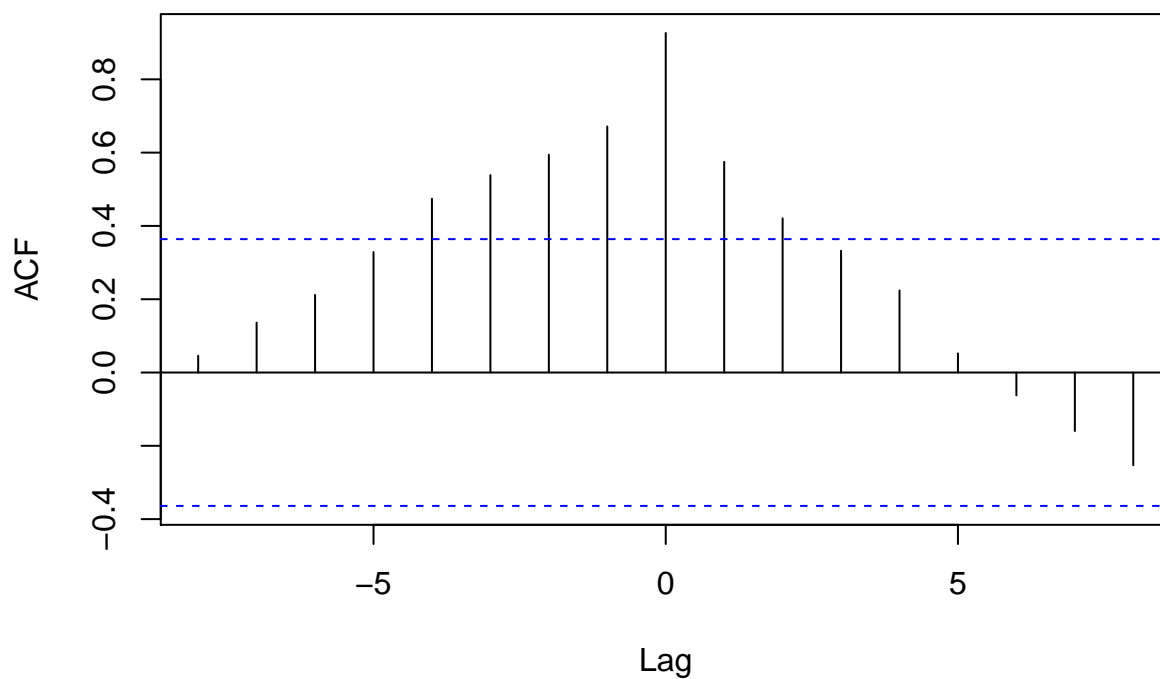
density.default(x = pxt$value)

N = 29   Bandwidth = 10.66
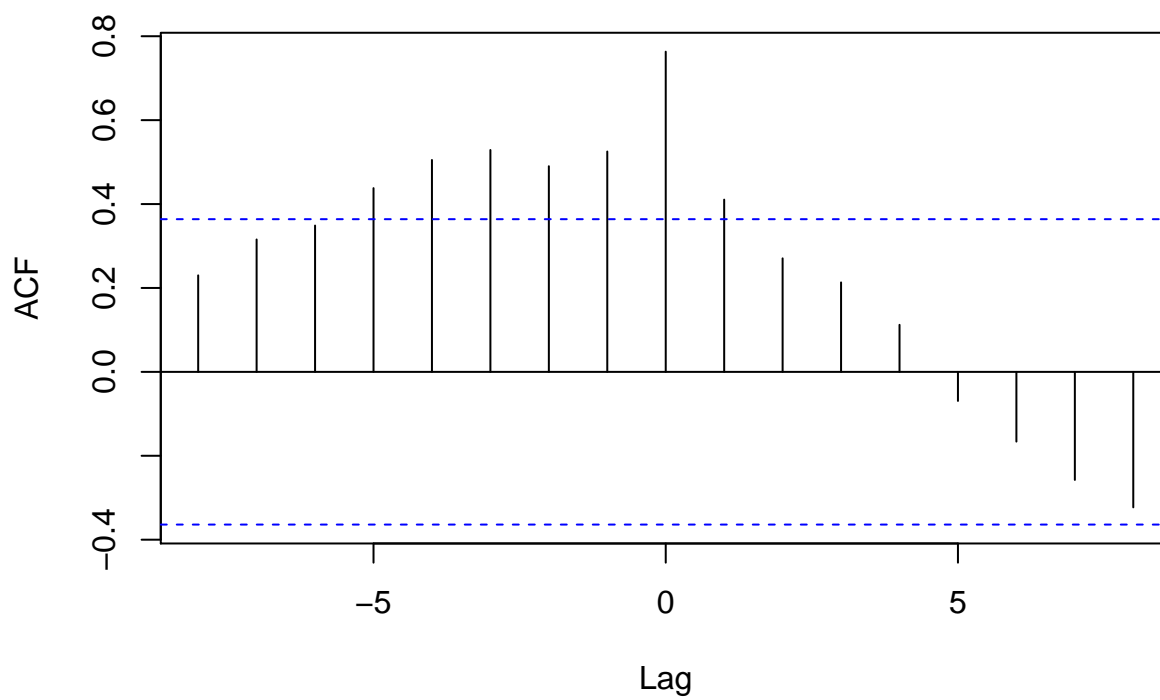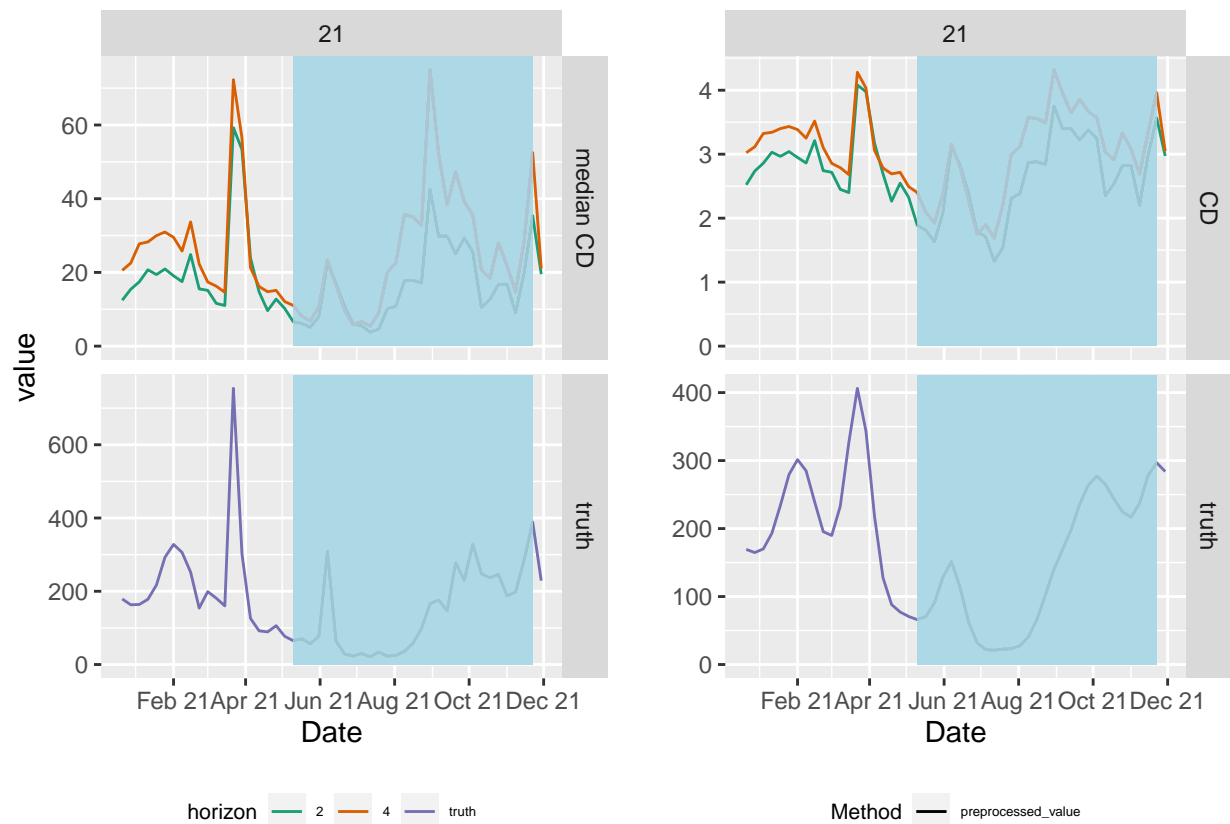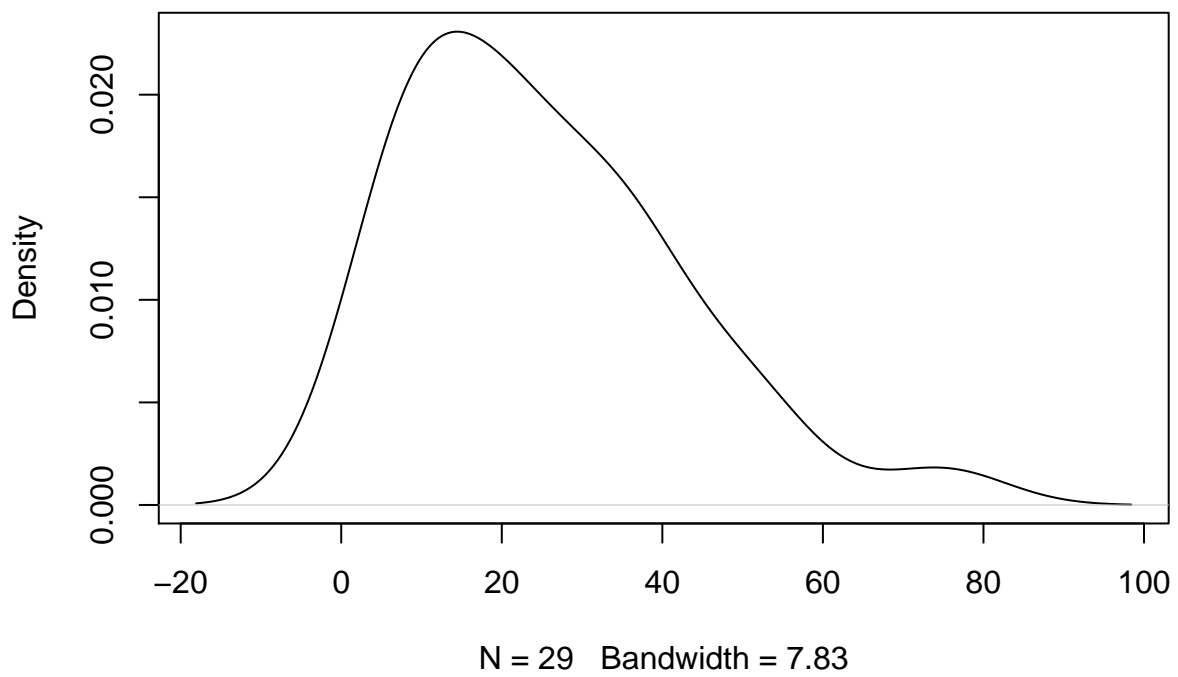
density.default(x = py$value)

N = 29   Bandwidth = 64.43

2 wk ahead − 26

ACF

Lag

4 wk ahead − 26

ACF

Lag

density.default(x = pxt$value)

N = 29   Bandwidth = 7.83

density.default(x = py$value)

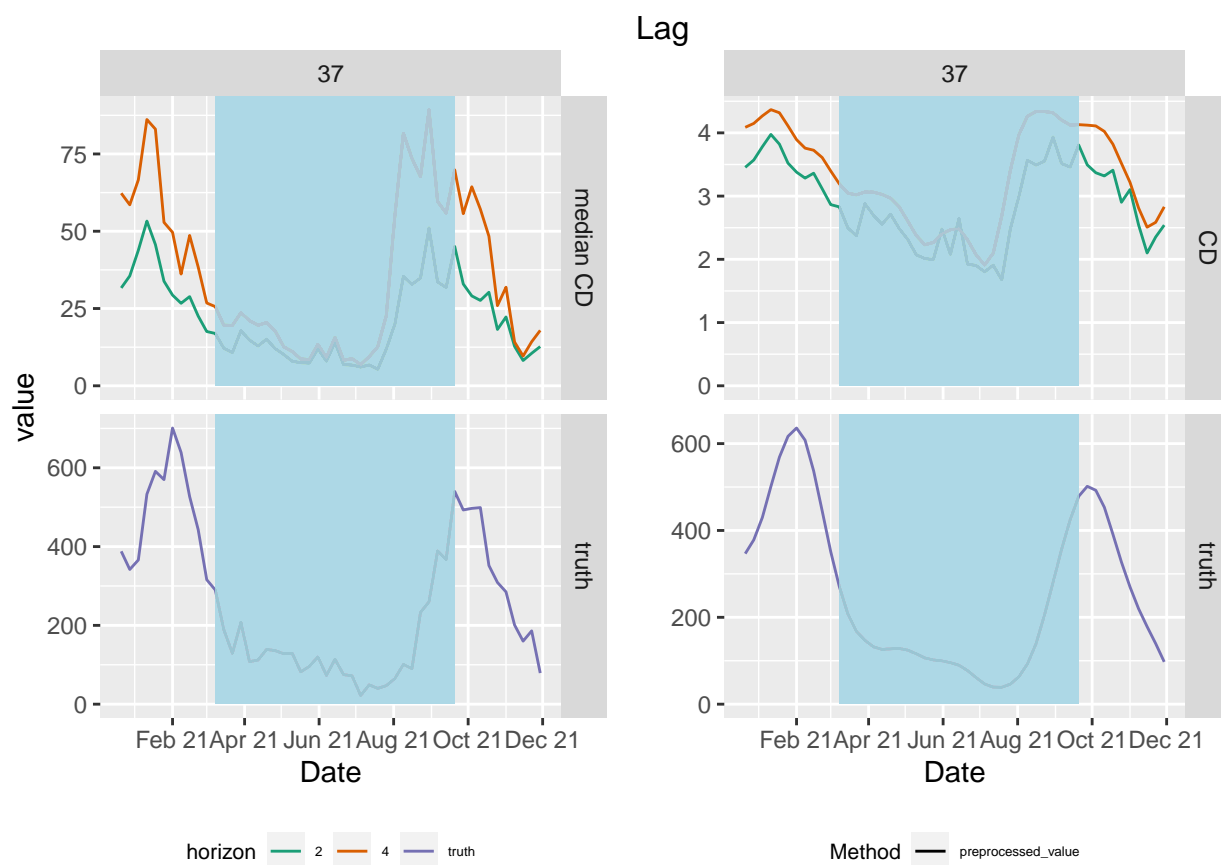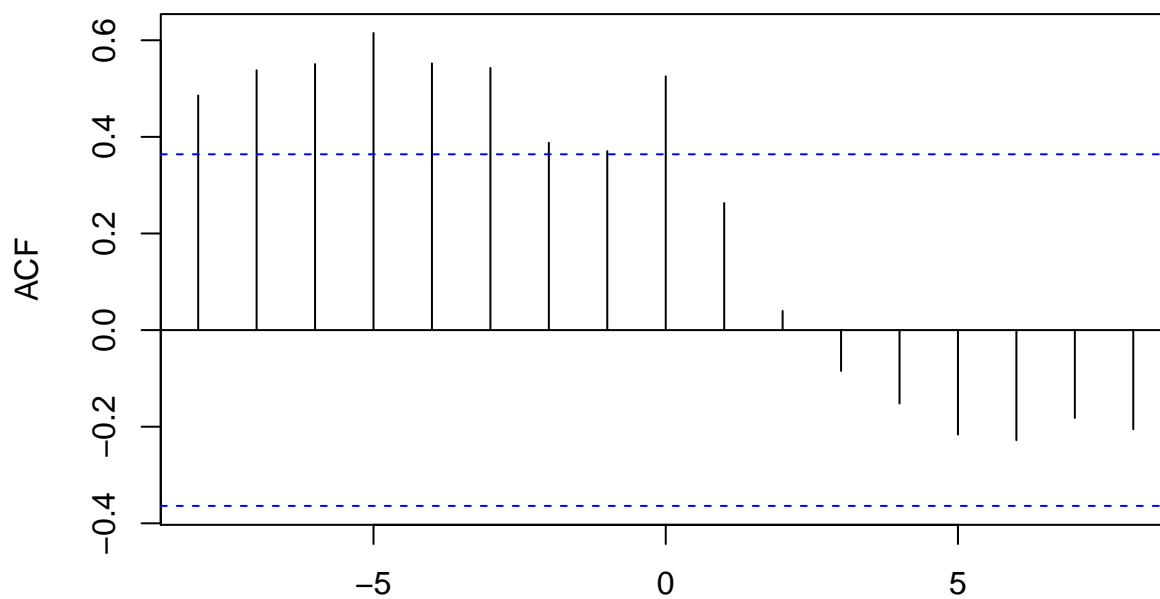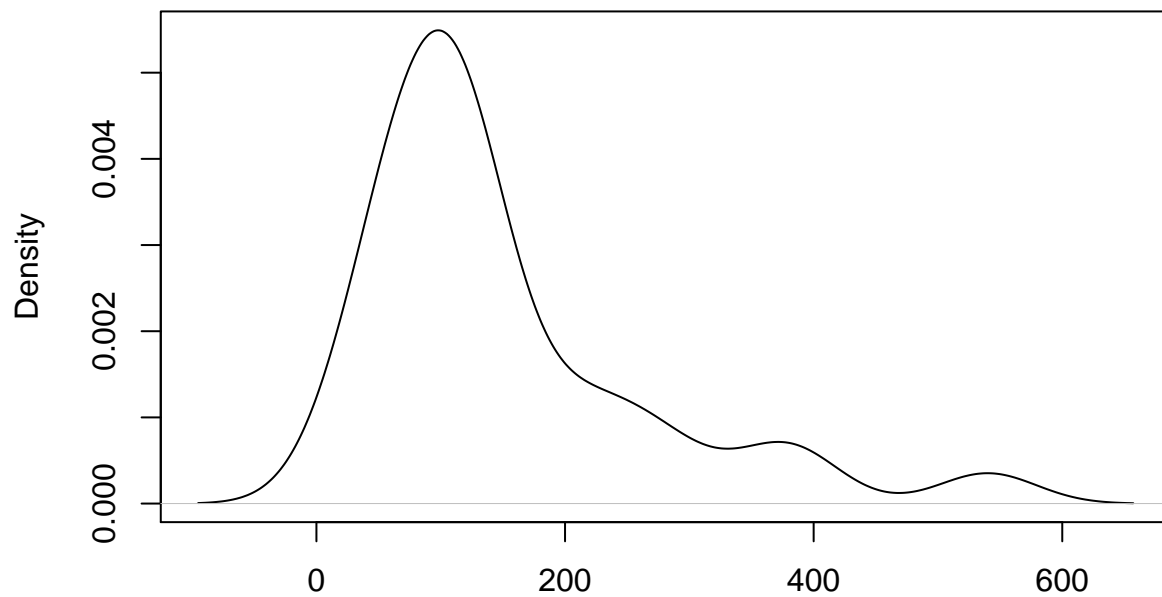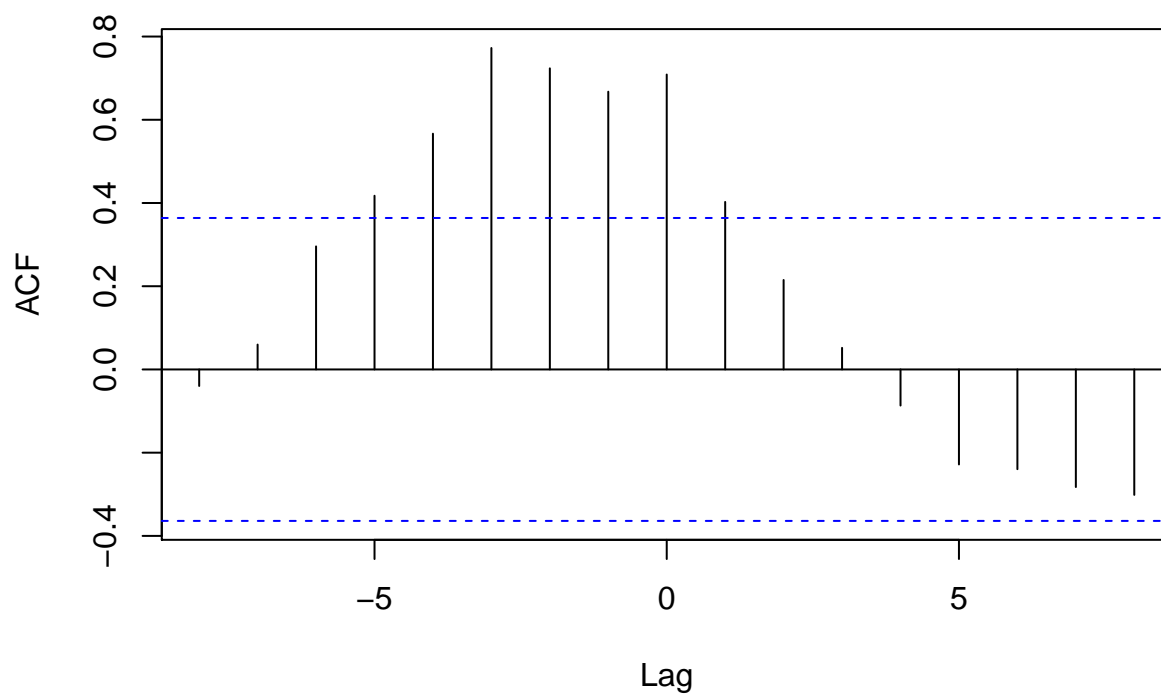N = 29   Bandwidth = 51.39

2 wk ahead − 21

Lag
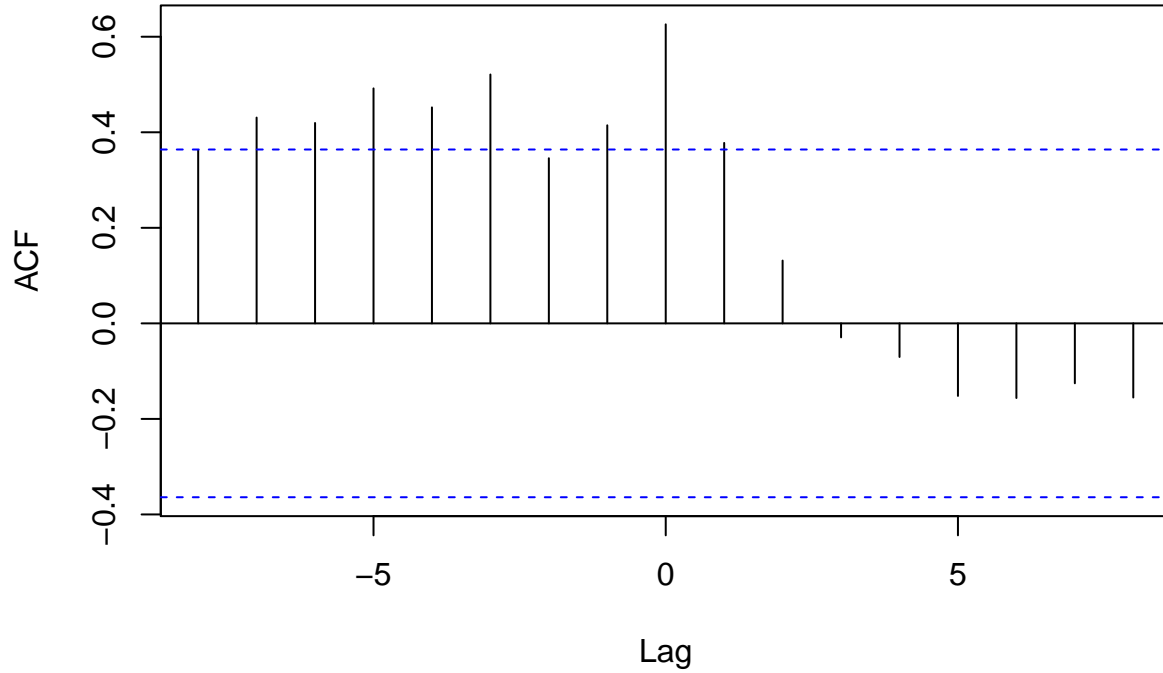
4 wk ahead − 21

density.default(x = pxt$value)
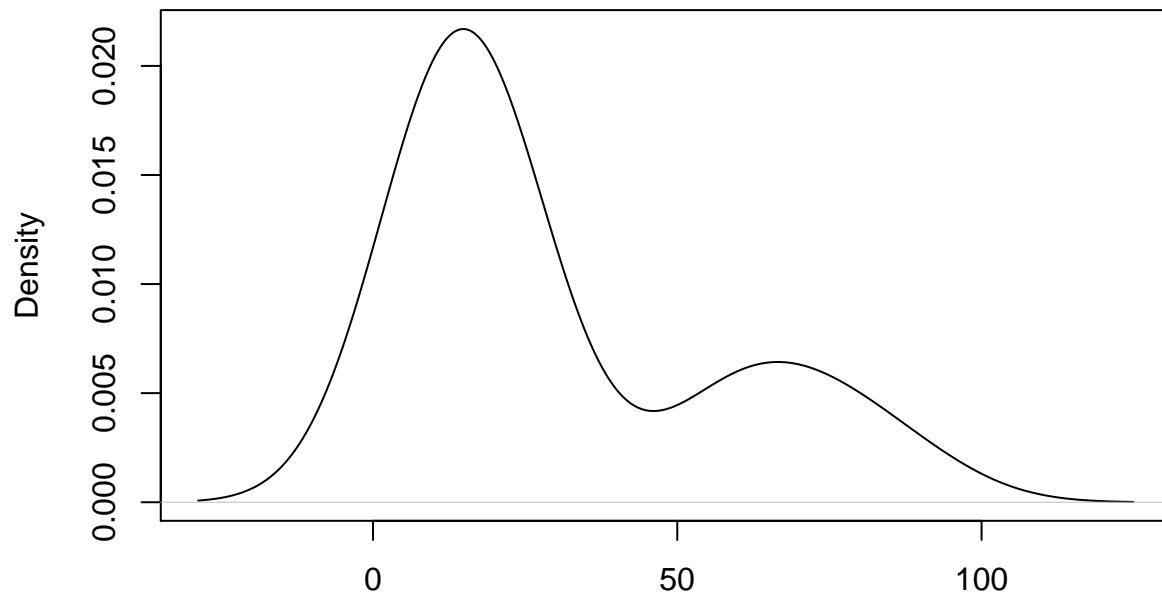
Density

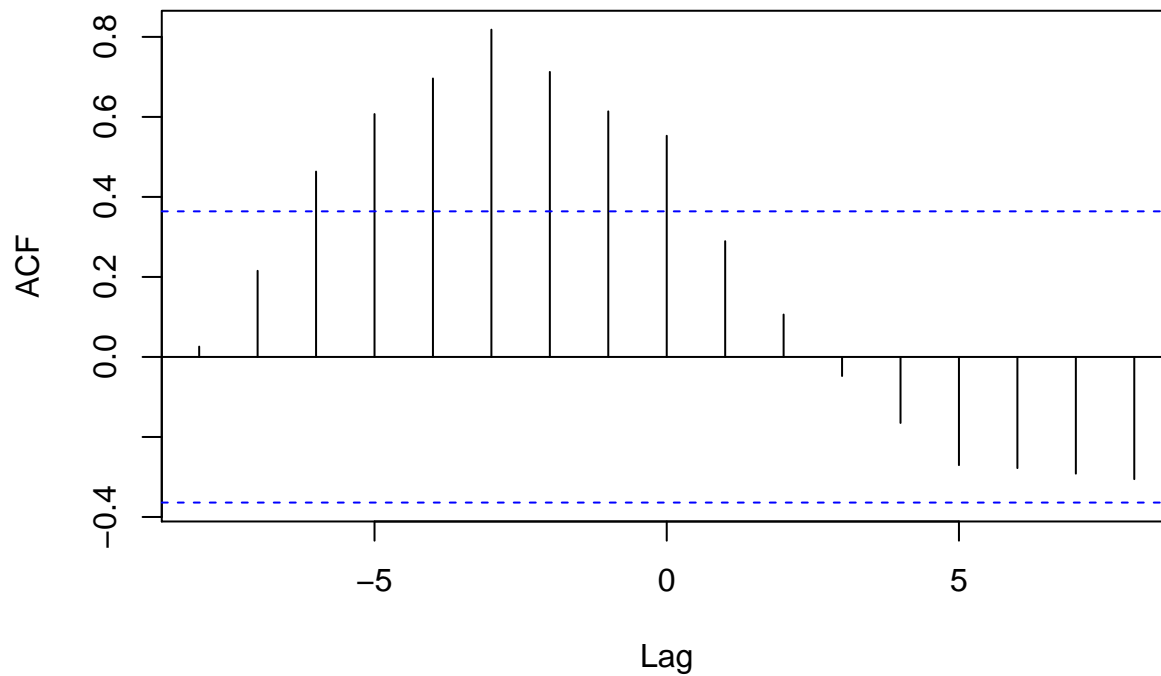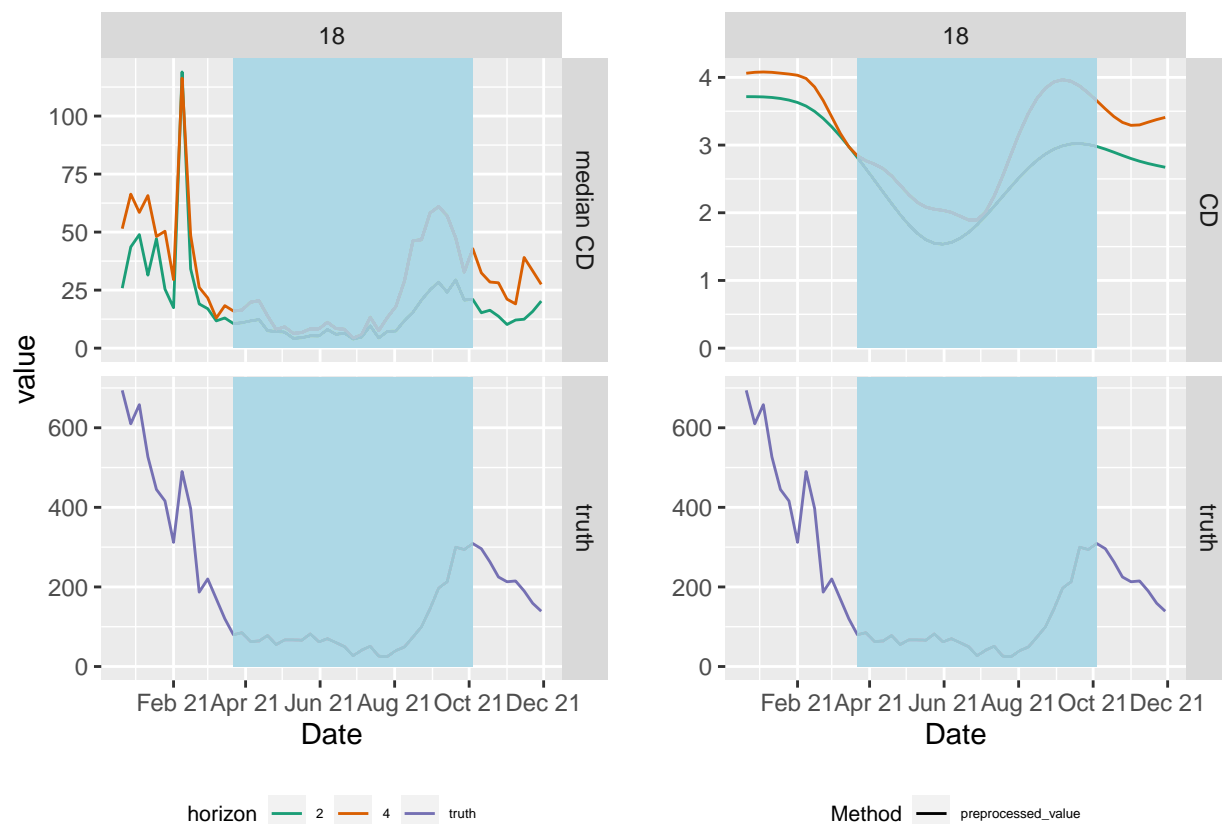N = 29   Bandwidth = 11.86

density.default(x = py$value)

Density

N = 29   Bandwidth = 39.04

2 wk ahead − 37

4 wk ahead − 37

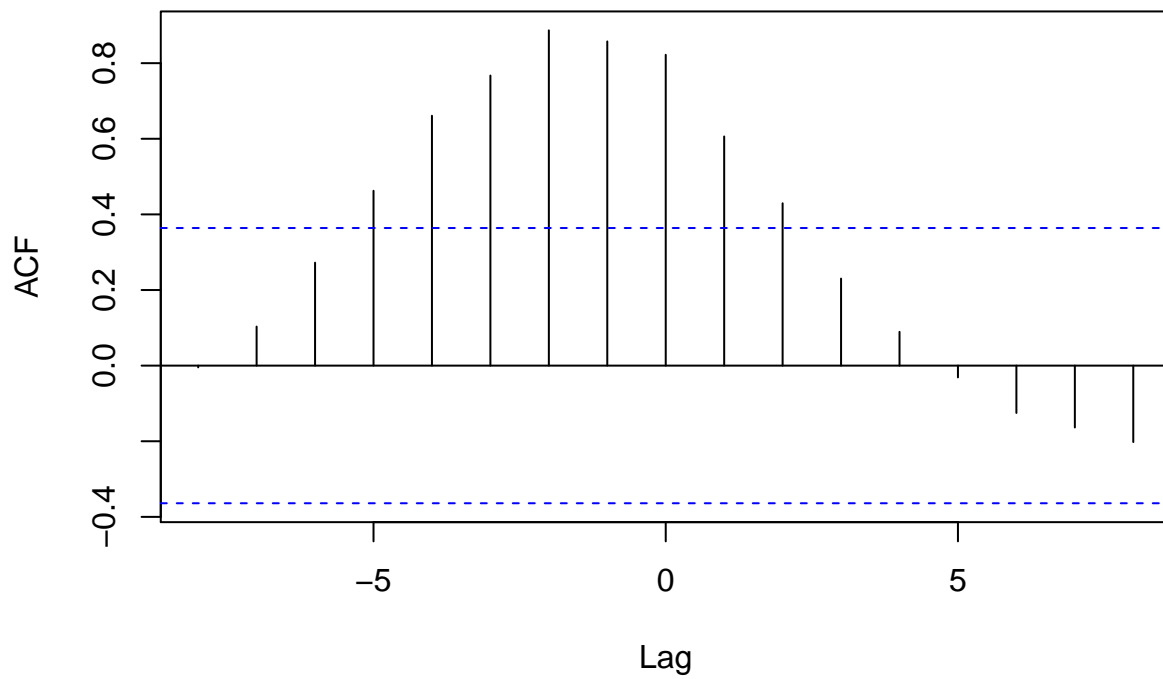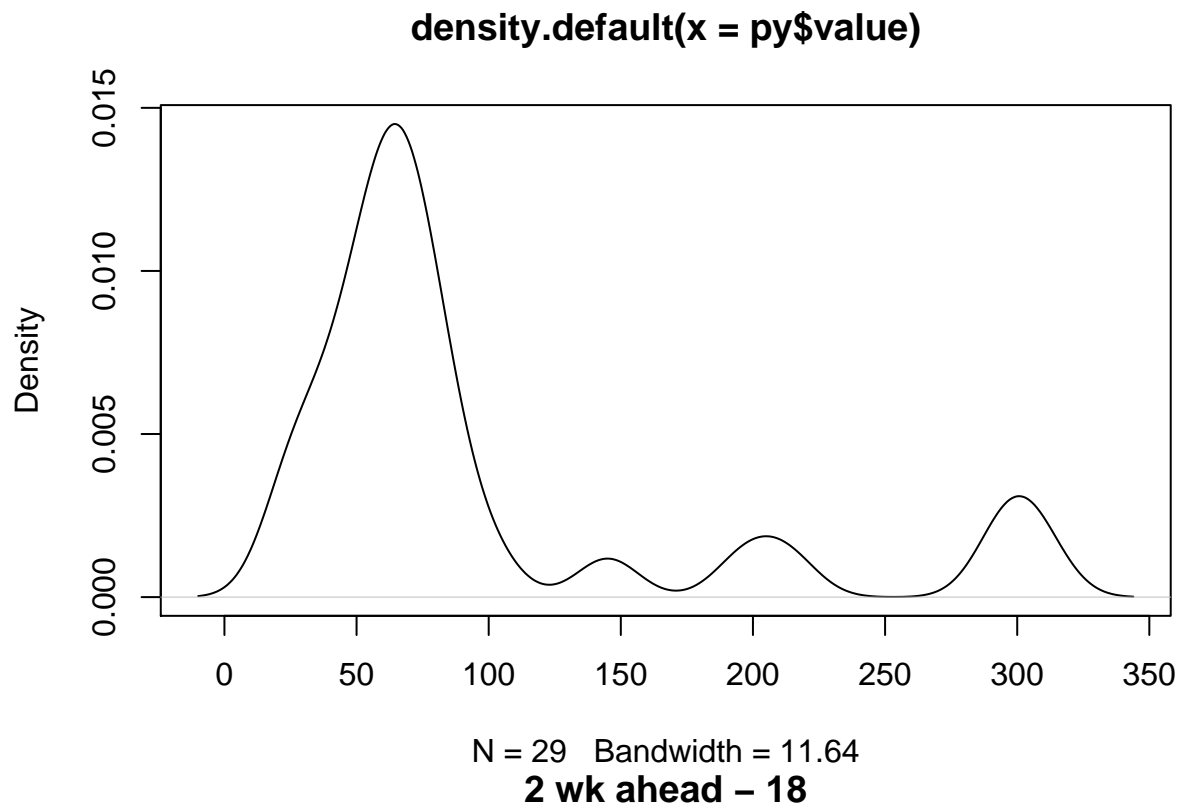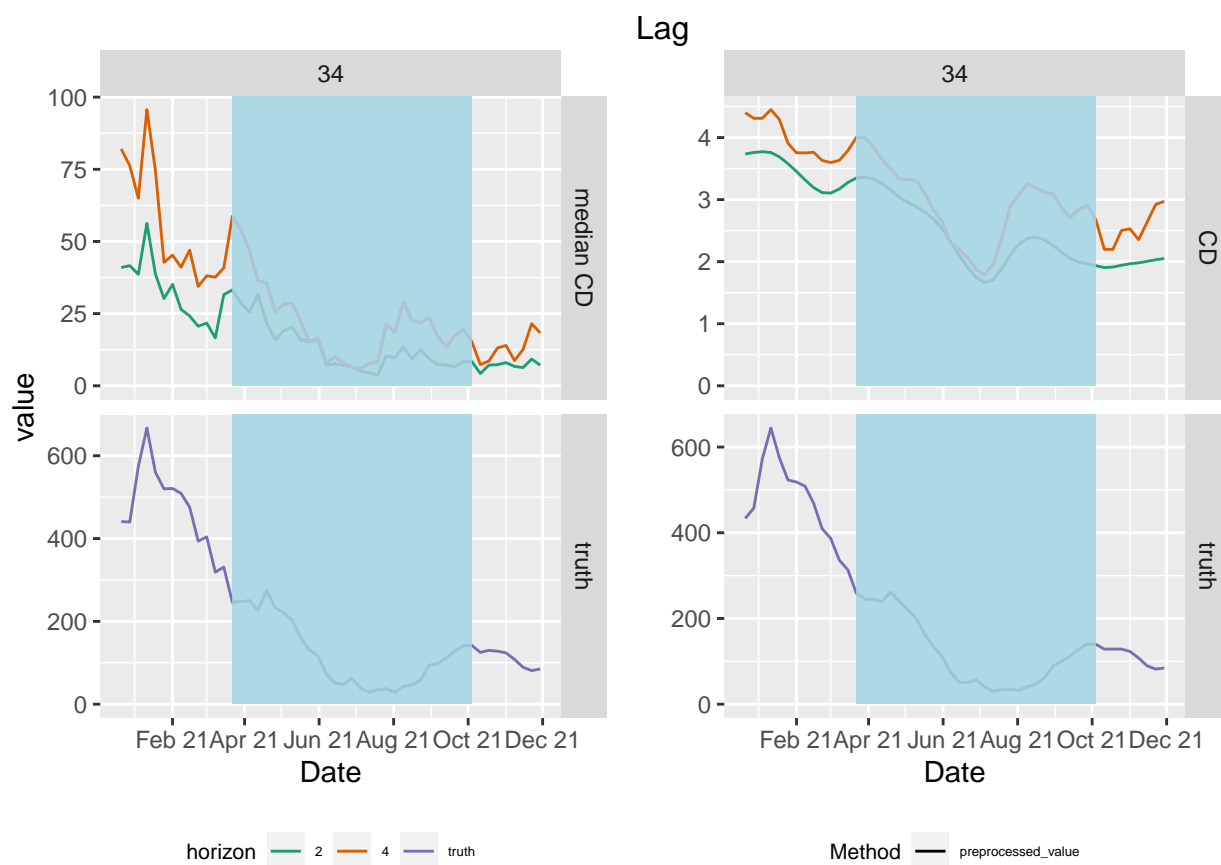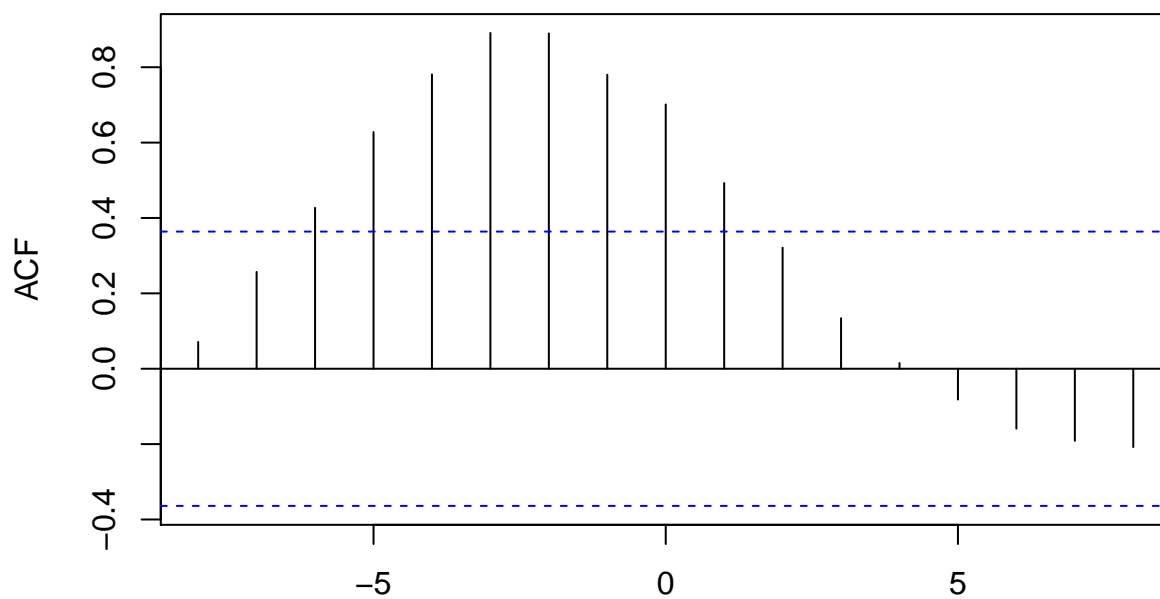density.default(x = pxt$value)

N = 29   Bandwidth = 8.367

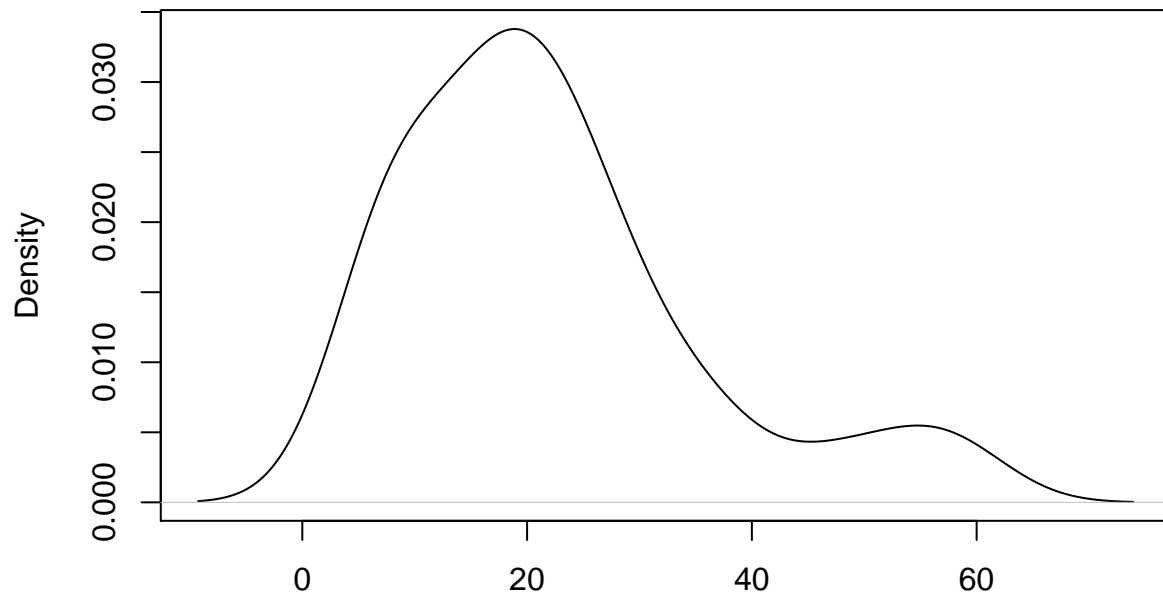**density.default(x = py$value)**
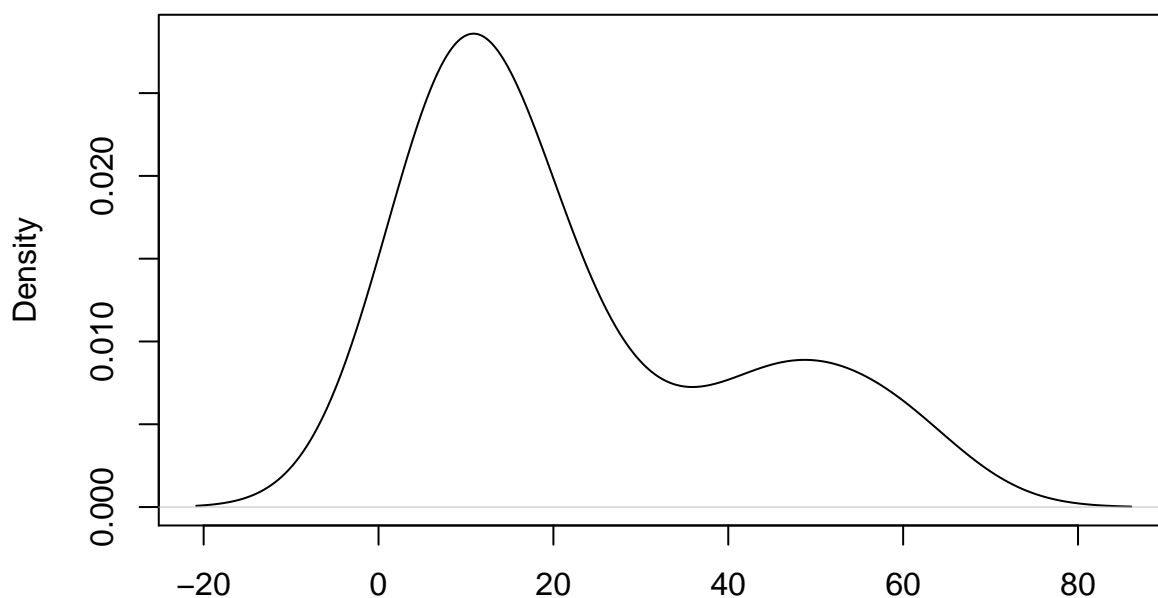
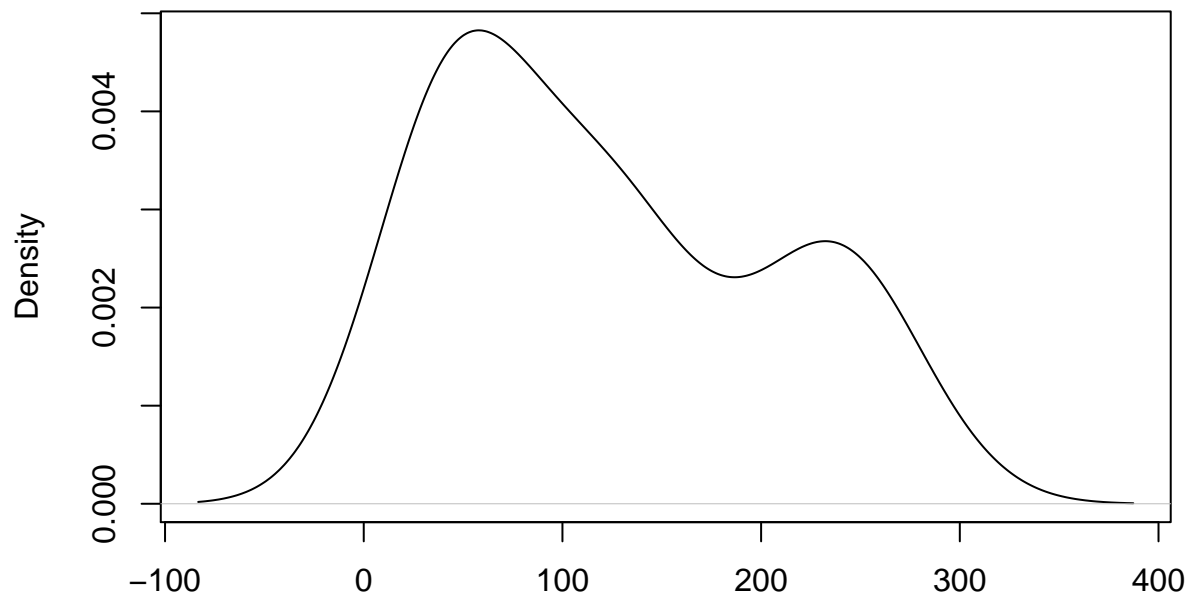N = 29 Bandwidth = 11.64
2 wk ahead − 18

4 wk ahead – 18

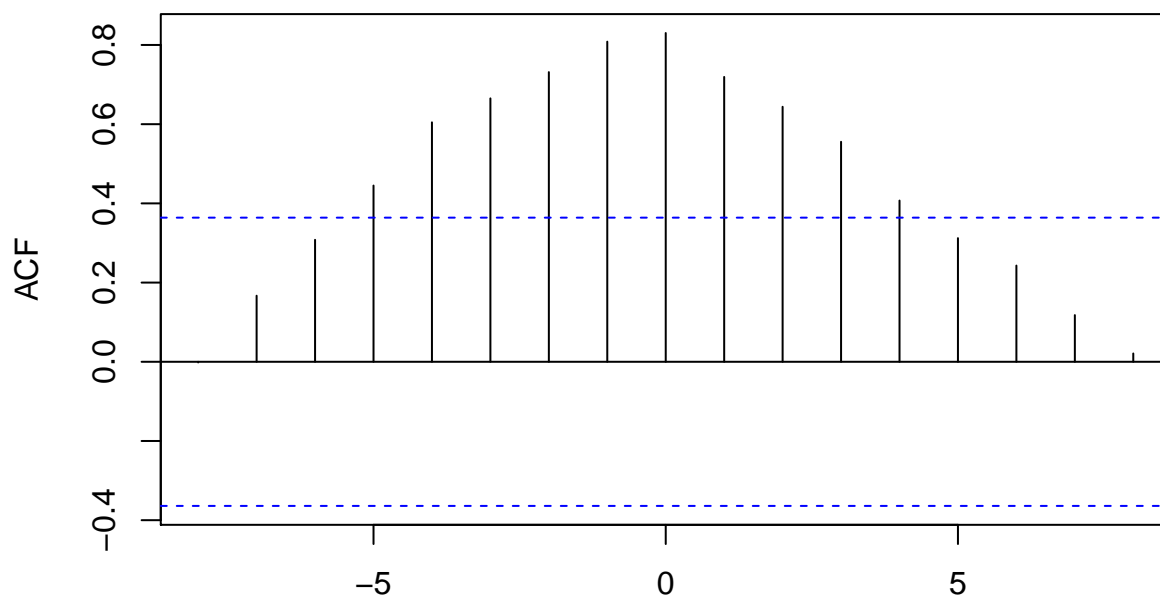**density.default(x = pxt$value)**

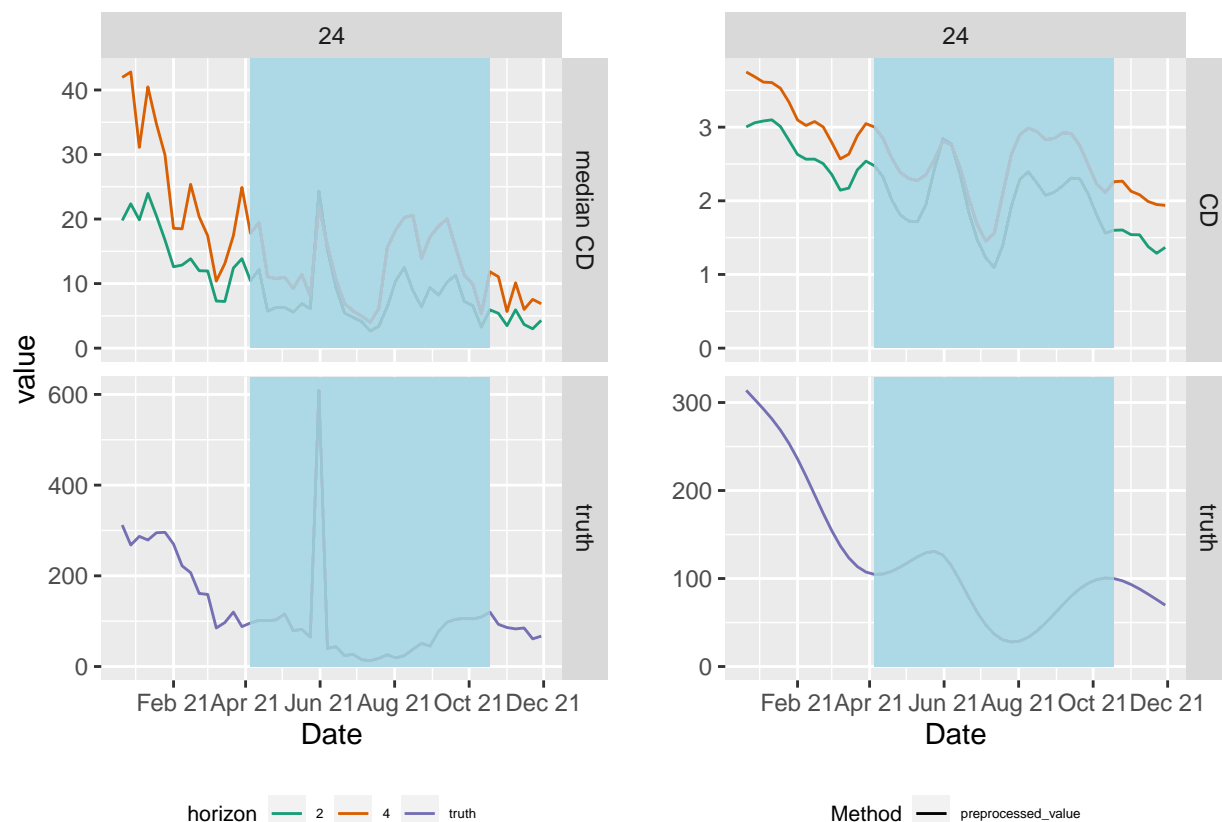N = 29   Bandwidth = 5.058

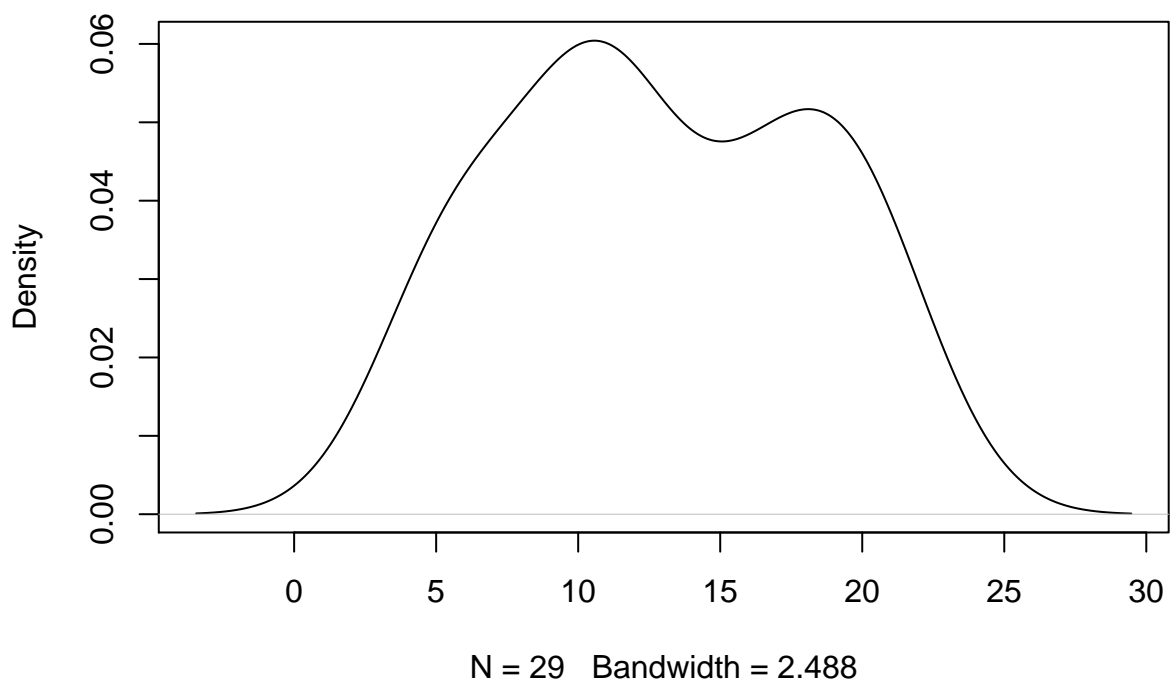**density.default(x = py$value)**

N = 29   Bandwidth = 37.44

40

2 wk ahead − 34

4 wk ahead − 34

density.default(x = pxt$value)
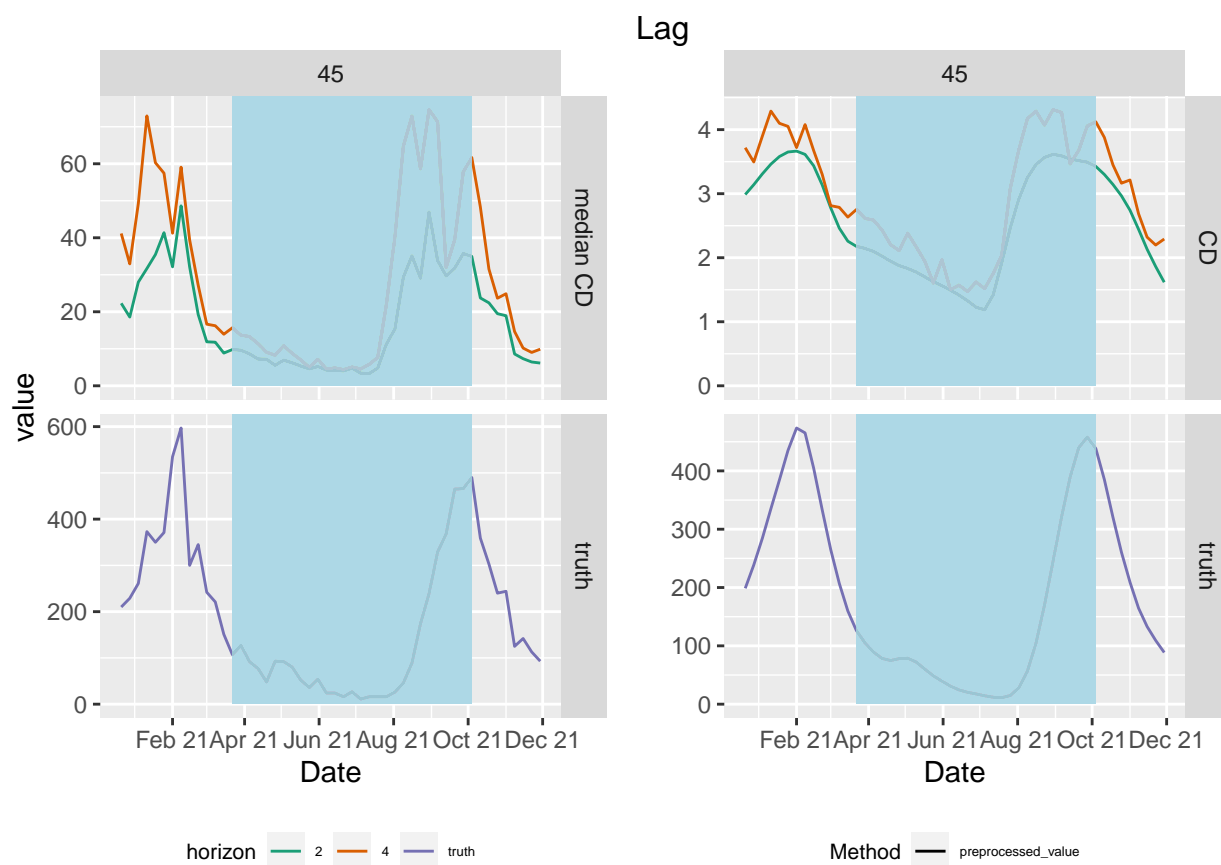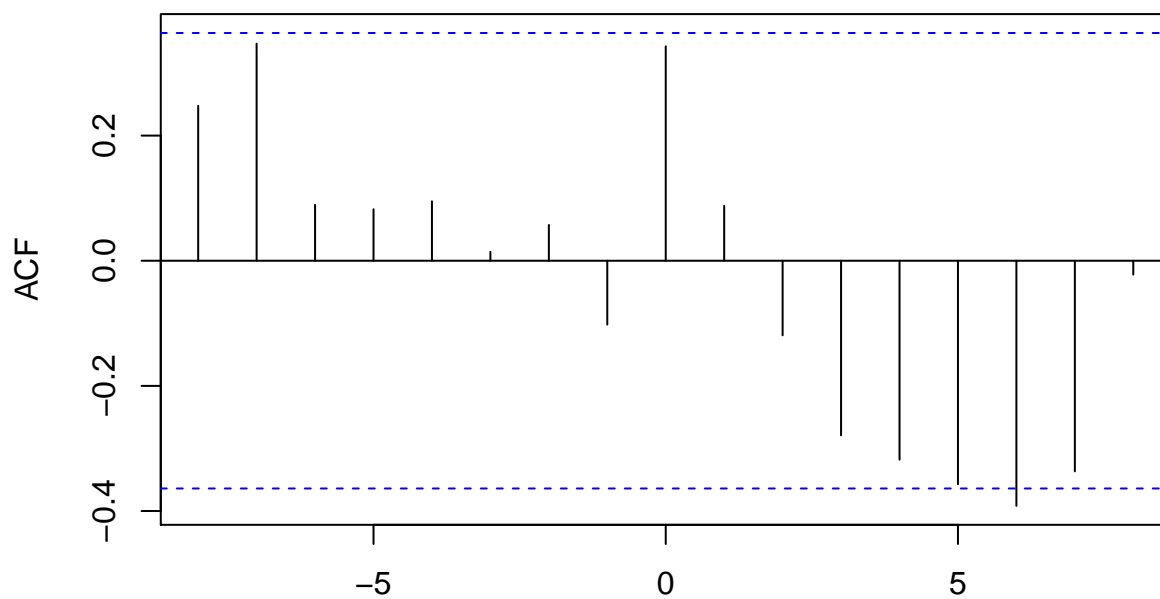

N = 29   Bandwidth = 2.488

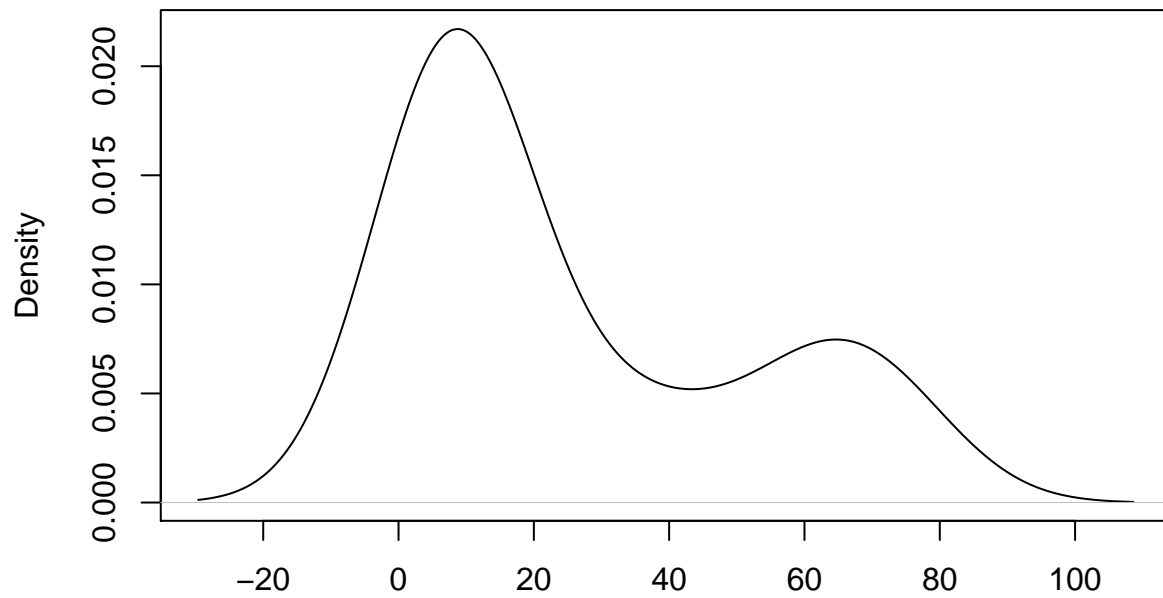**density.default(x = py$value)**

N = 29   Bandwidth = 26.03
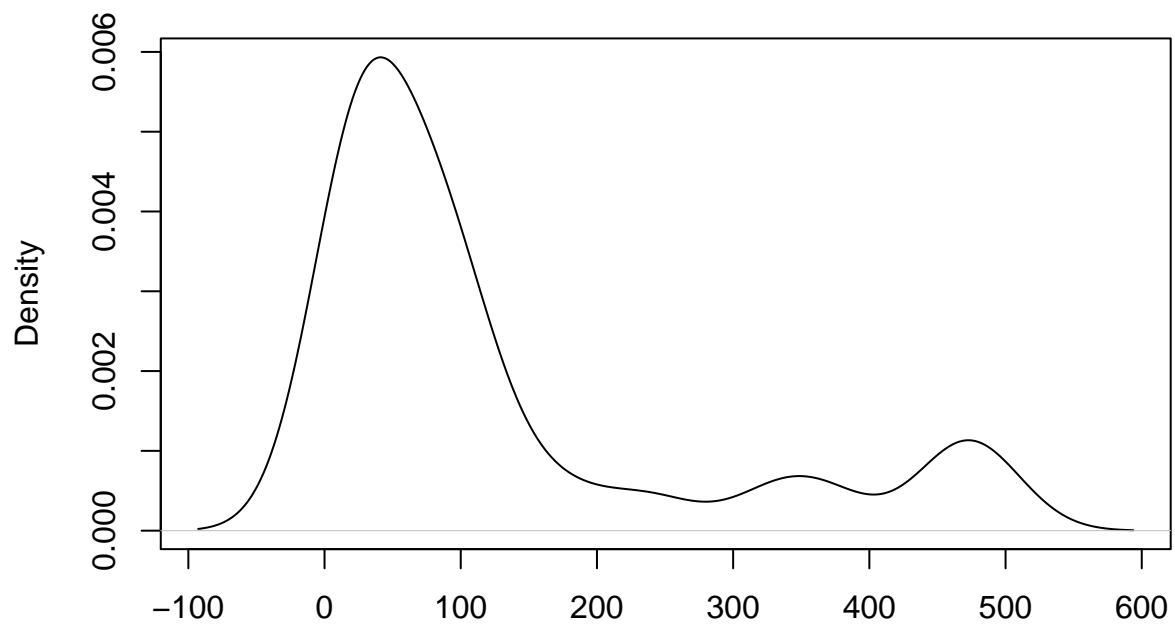
2 wk ahead − 24
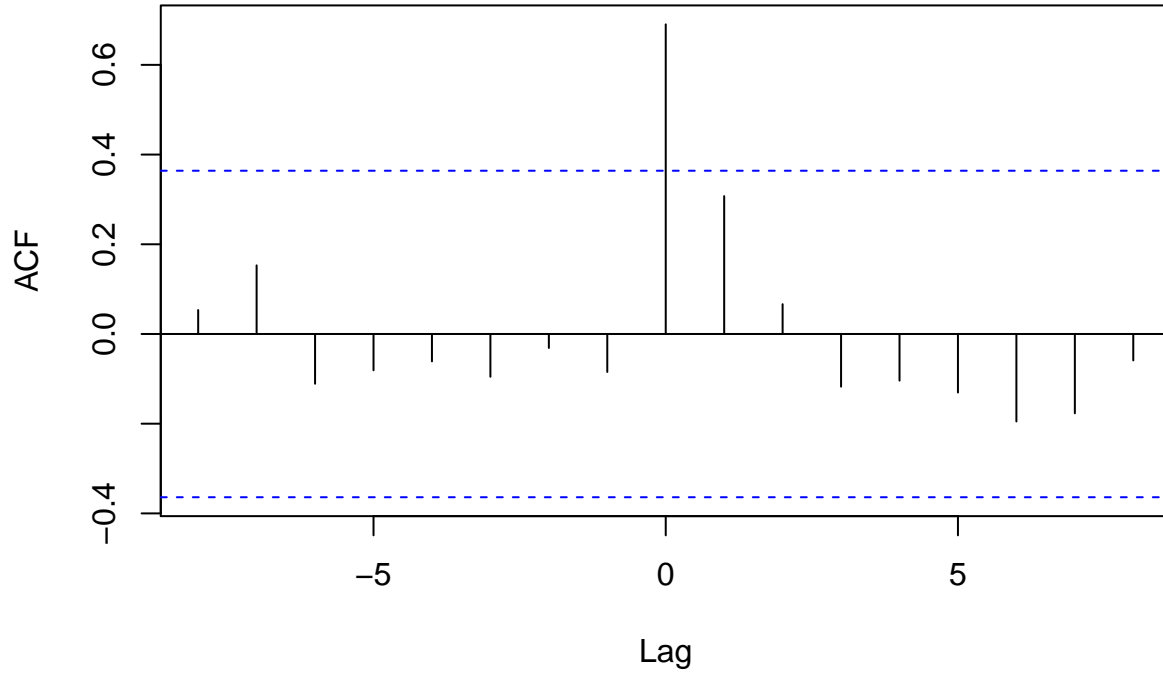
4 wk ahead − 24

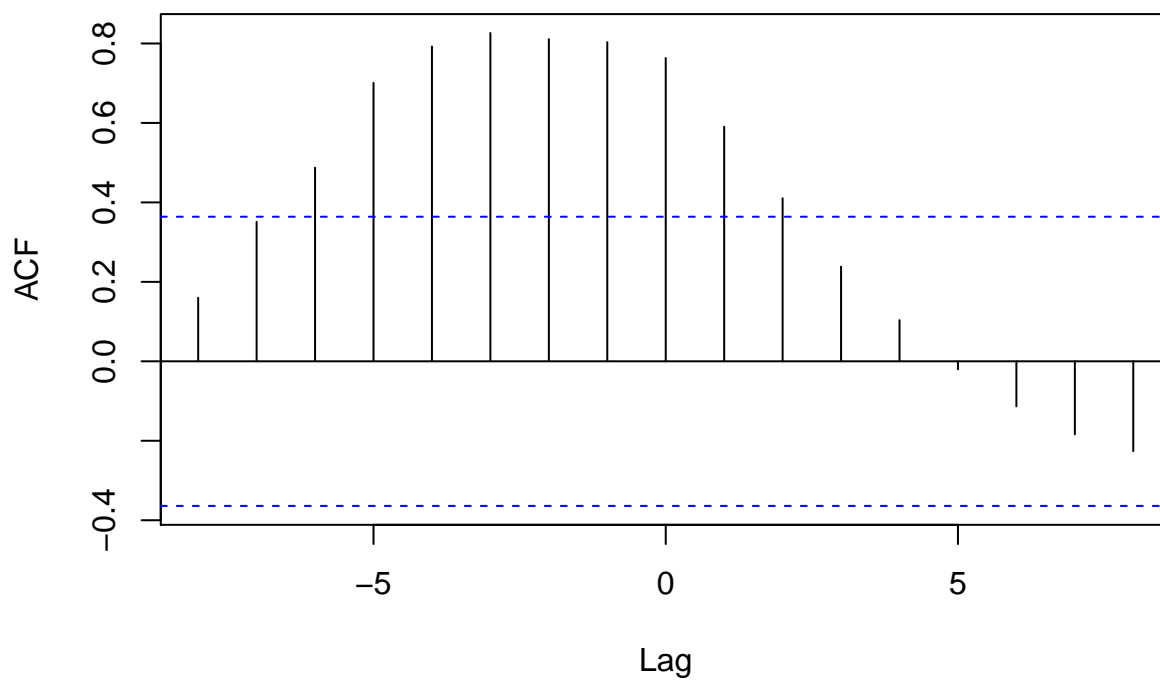**density.default(x = pxt$value)**

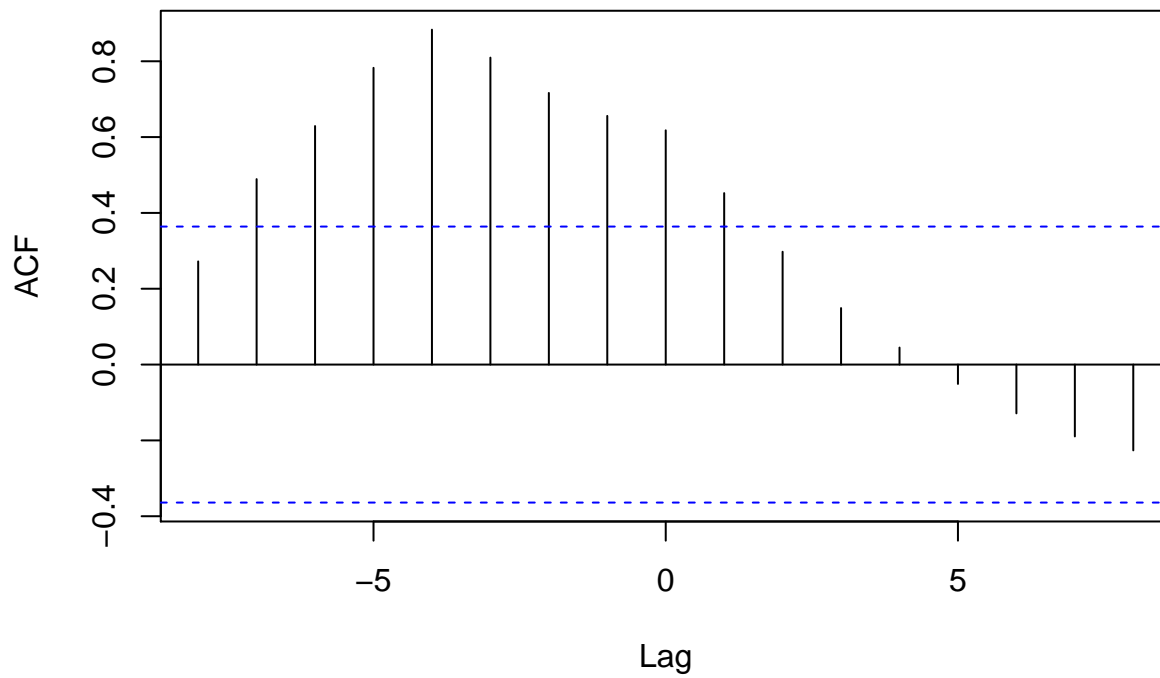

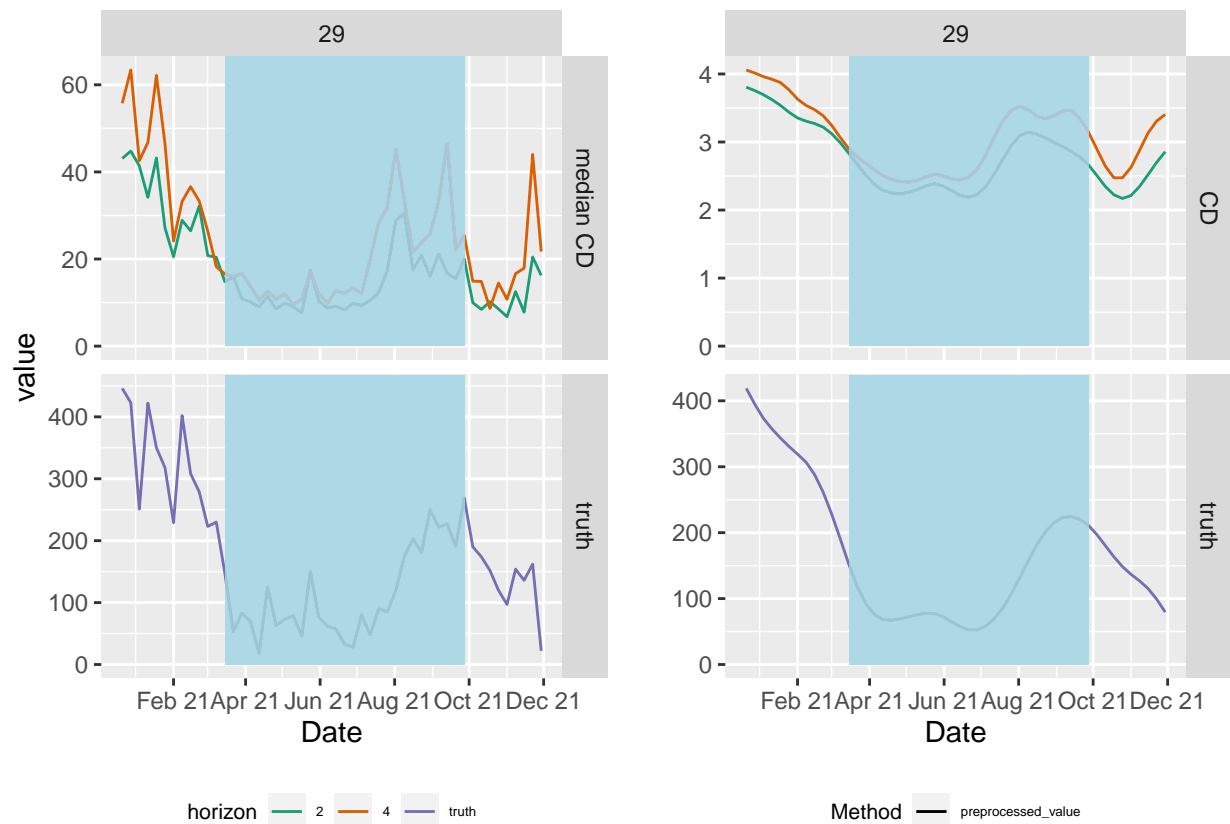N = 29   Bandwidth = 11.32

density.default(x = py$value)

N = 29   Bandwidth = 34.59

2 wk ahead − 45

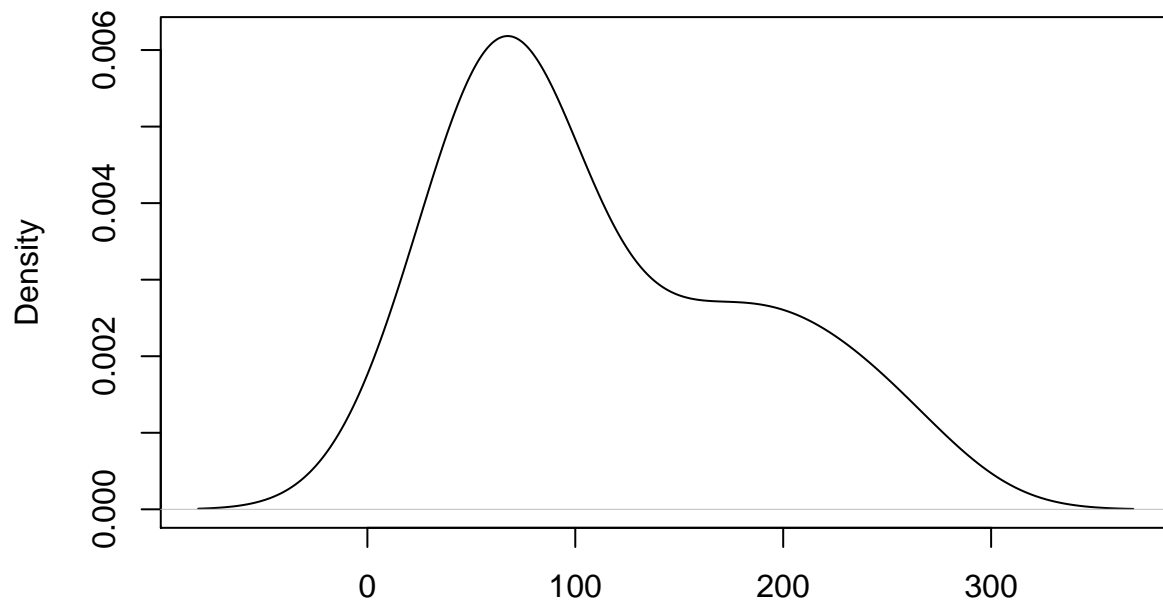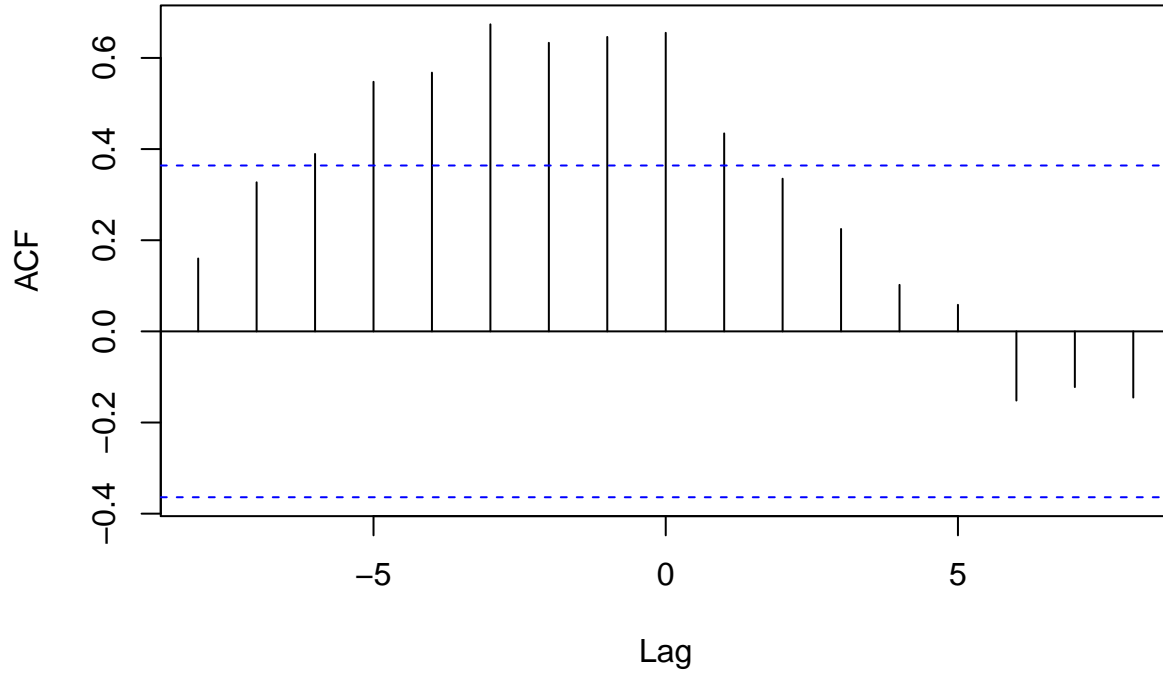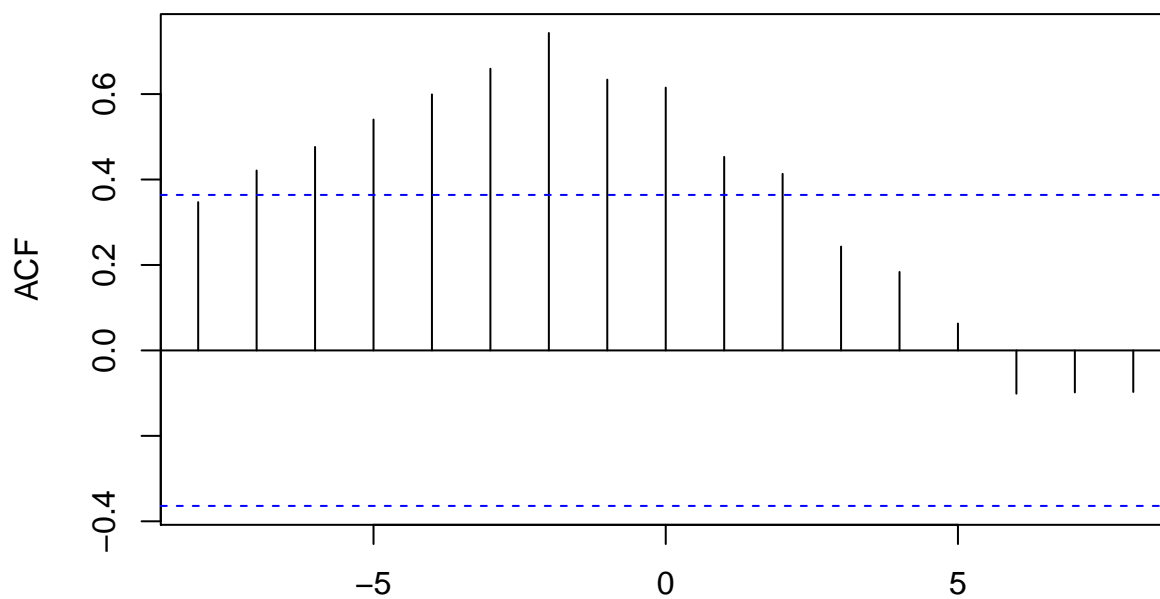# 4 wk ahead − 45

density.default(x = pxt$value)
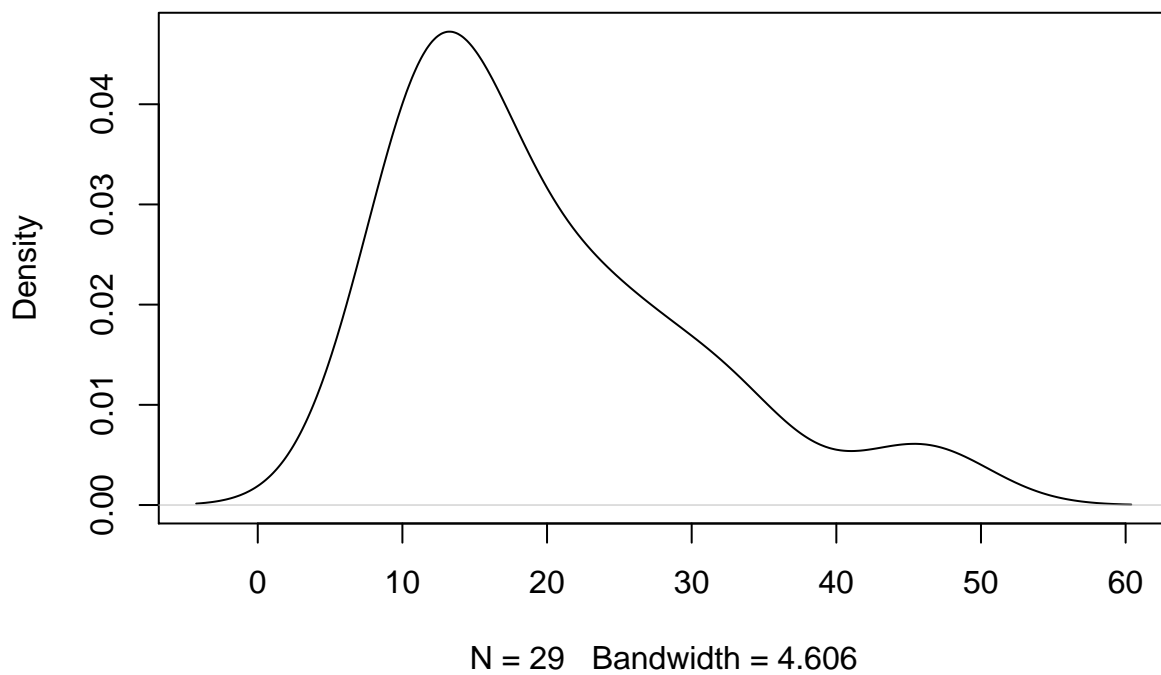
N = 29   Bandwidth = 4.606

density.default(x = py$value)

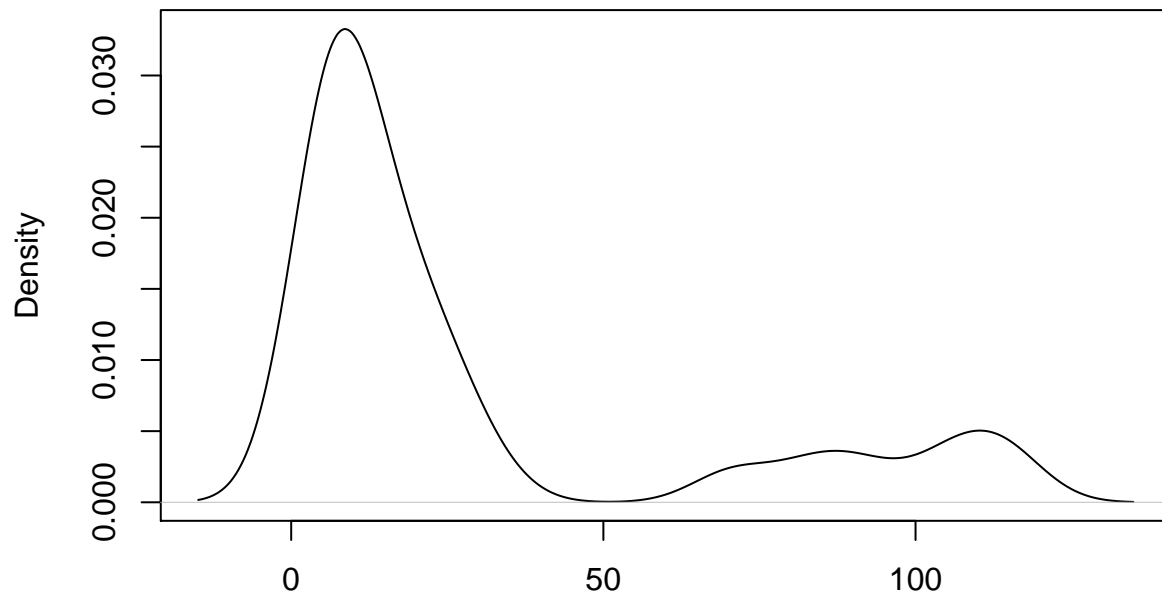N = 29   Bandwidth = 33.13

2 wk ahead − 29

Lag
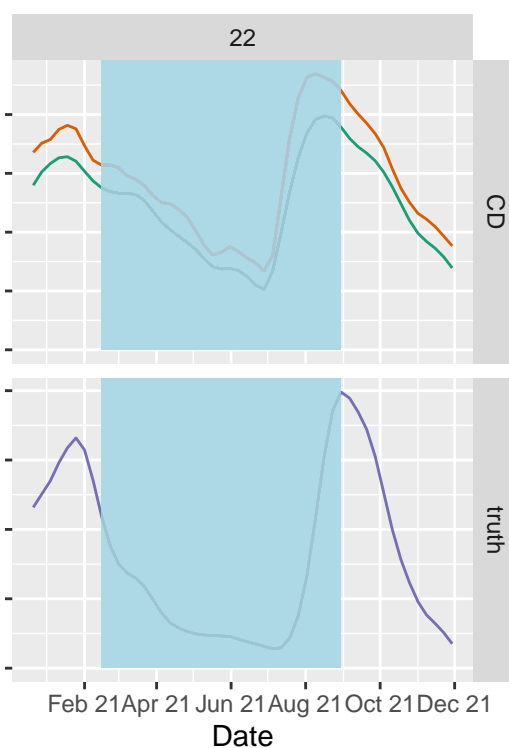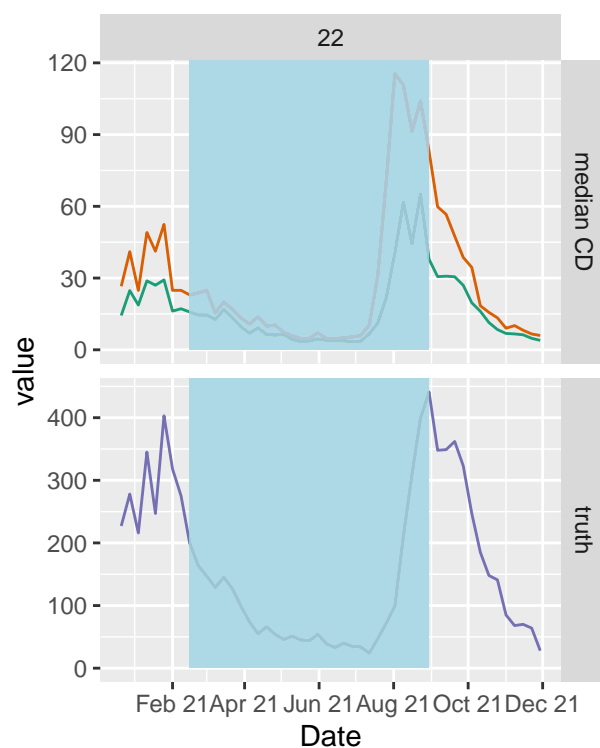
4 wk ahead − 29

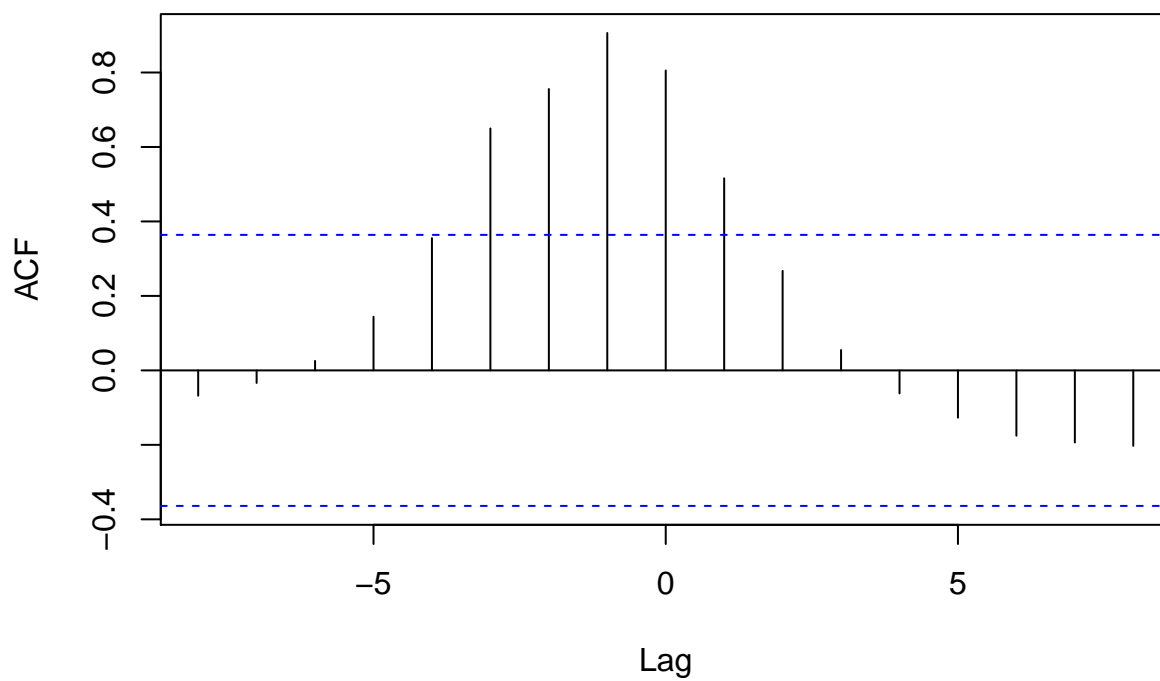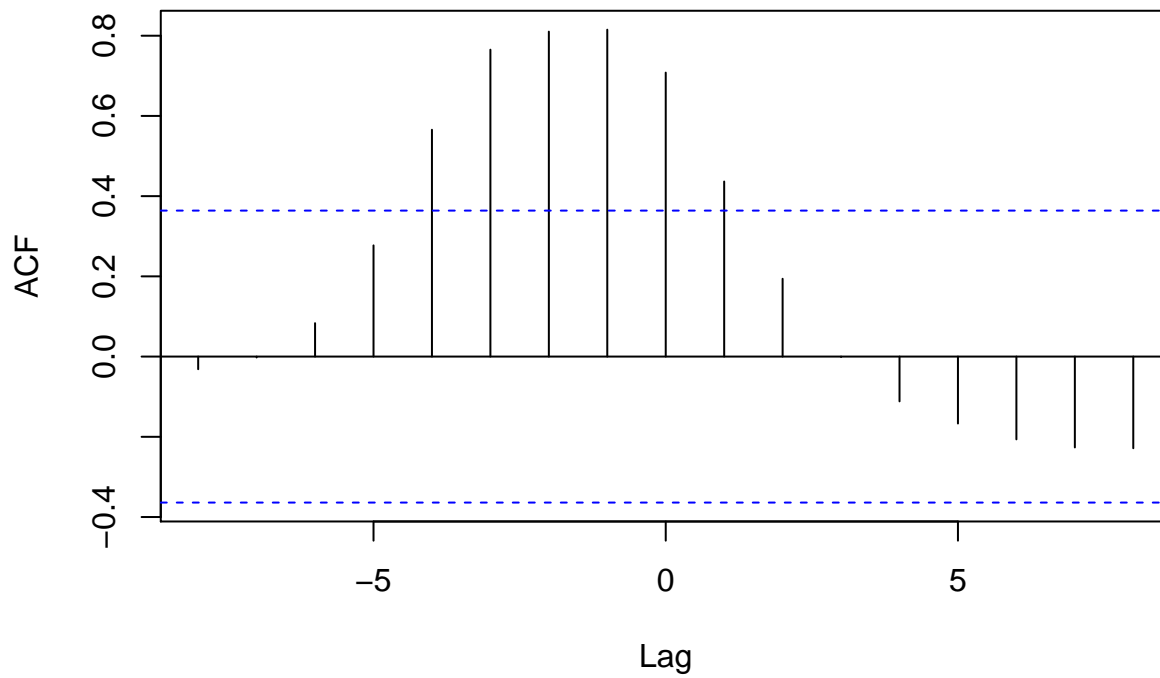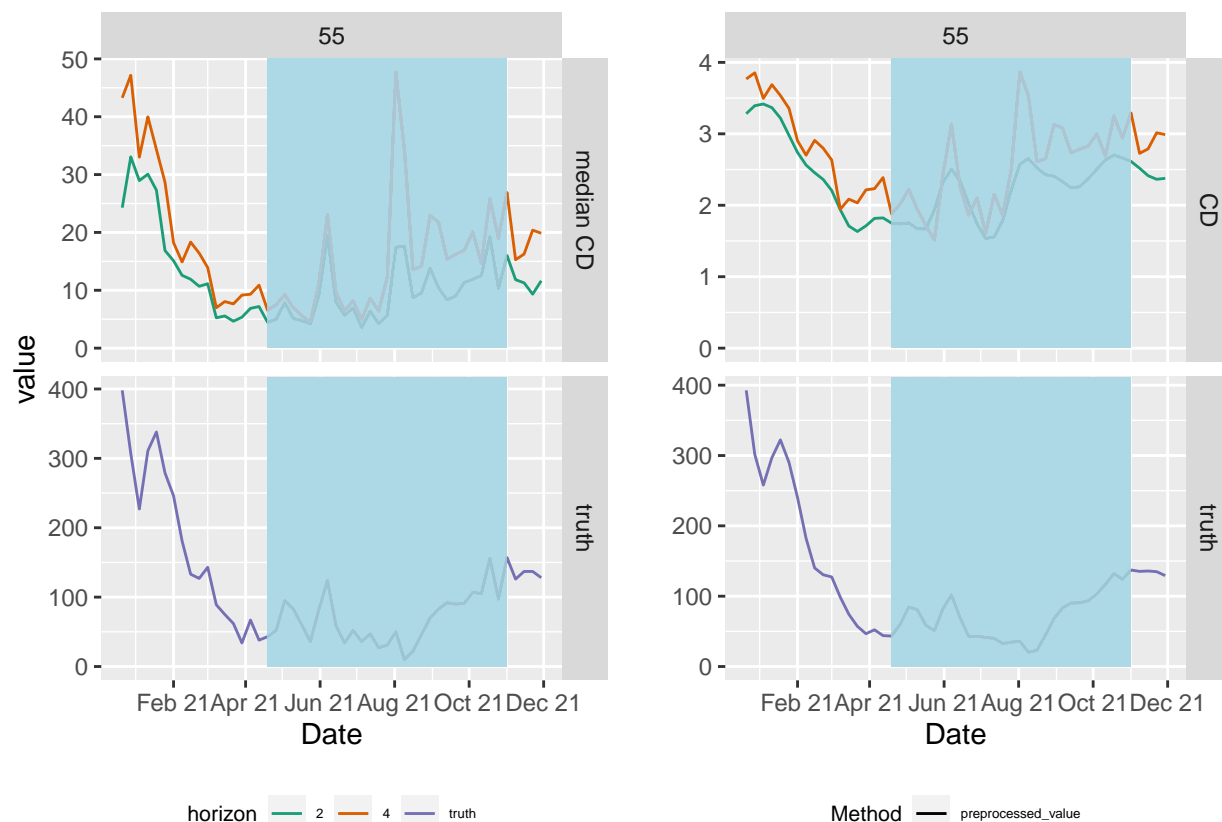**density.default(x = pxt$value)**

N = 29   Bandwidth = 6.457

density.default(x = py$value)
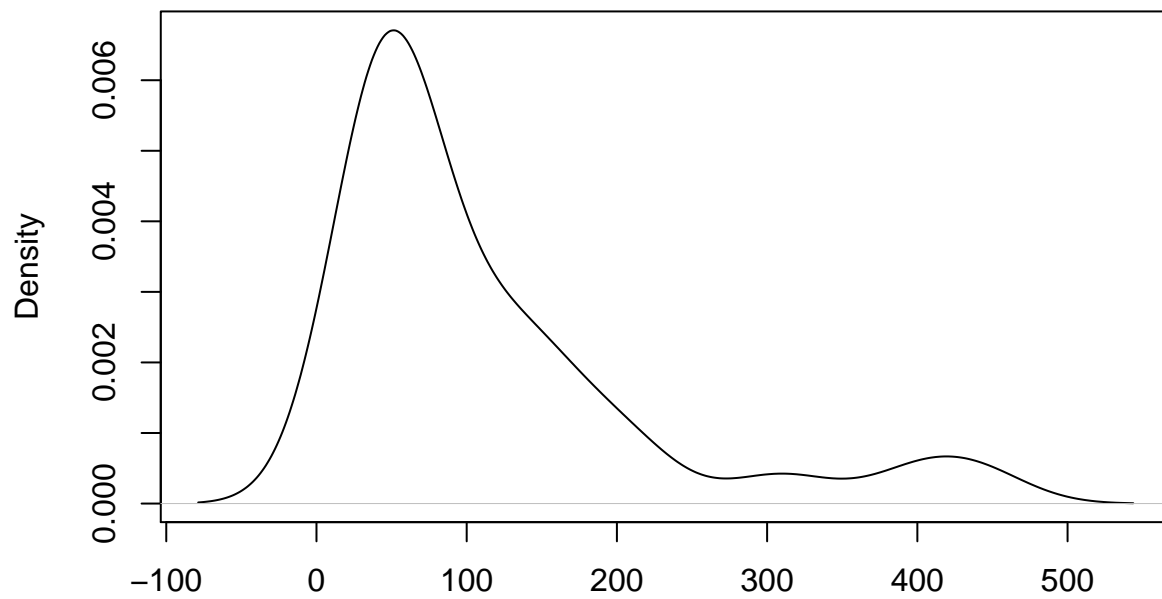
N = 29   Bandwidth = 34.25

2 wk ahead − 22

ACF / Lag

4 wk ahead − 22

ACF / Lag

density.default(x = pxt$value)

N = 29   Bandwidth = 4.311

density.default(x = py$value)
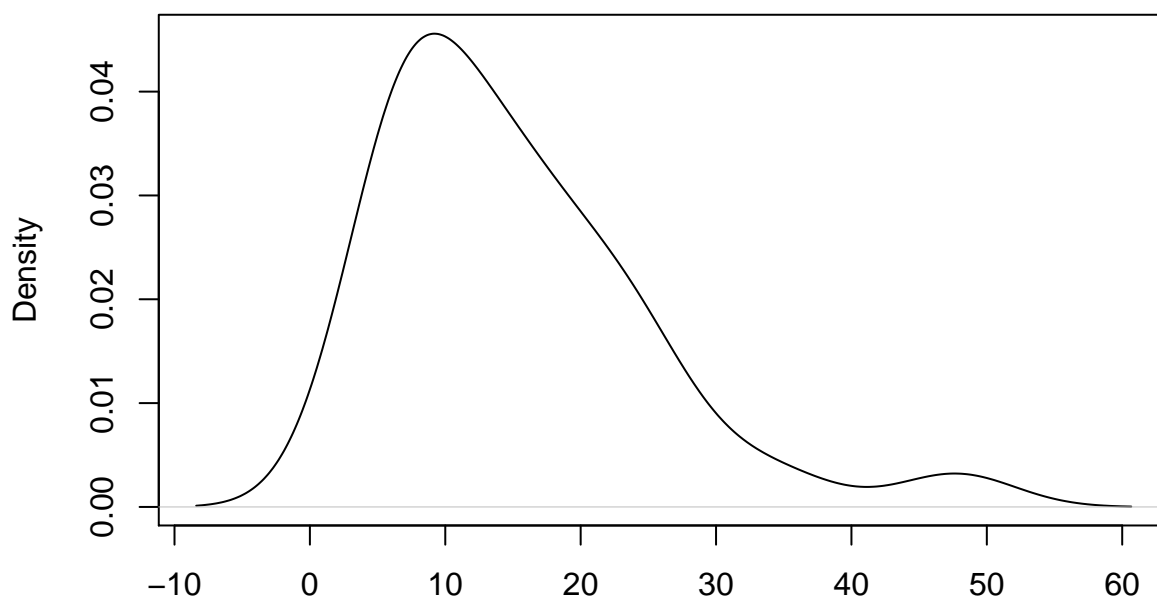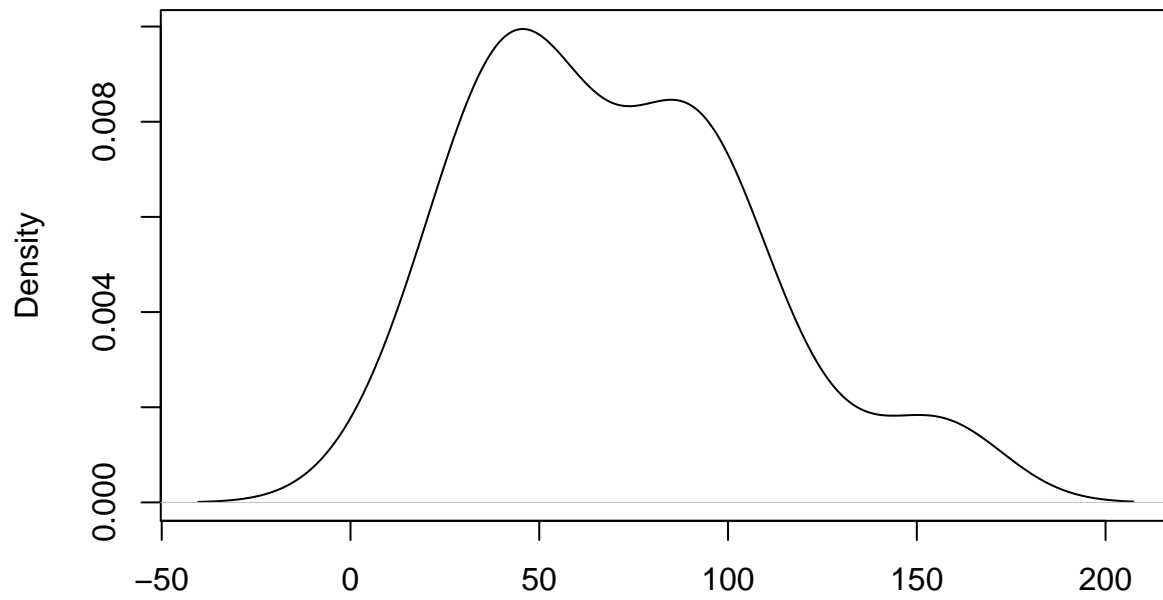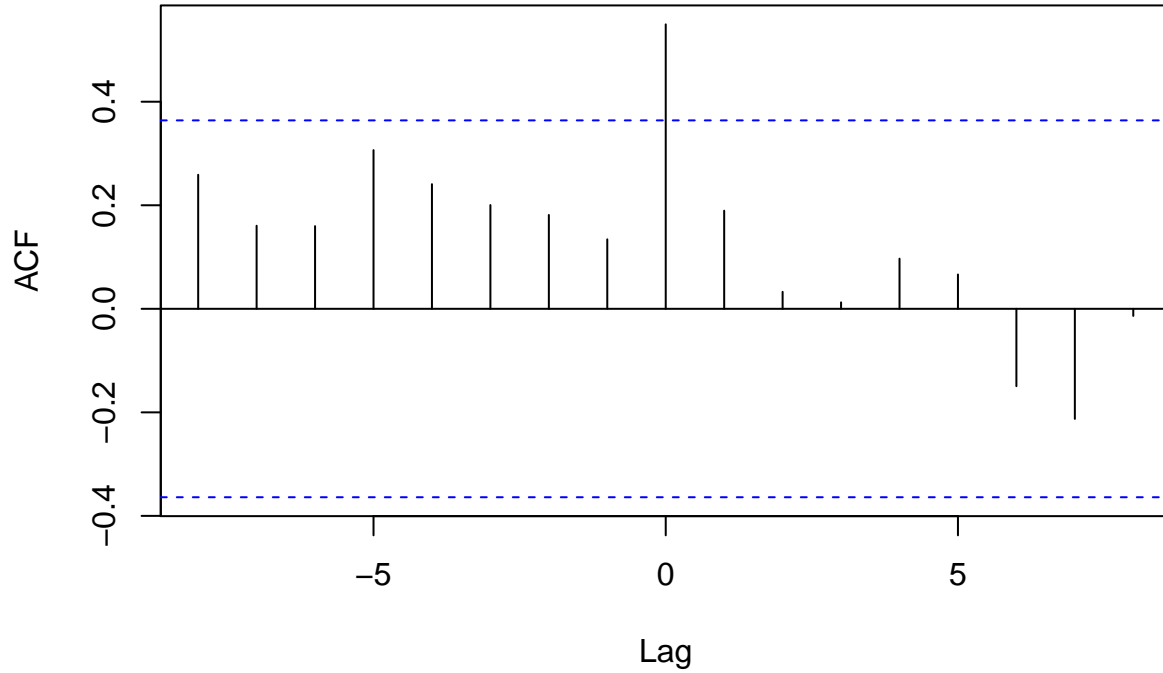

N = 29   Bandwidth = 16.78

2 wk ahead − 55

Lag

4 wk ahead – 55
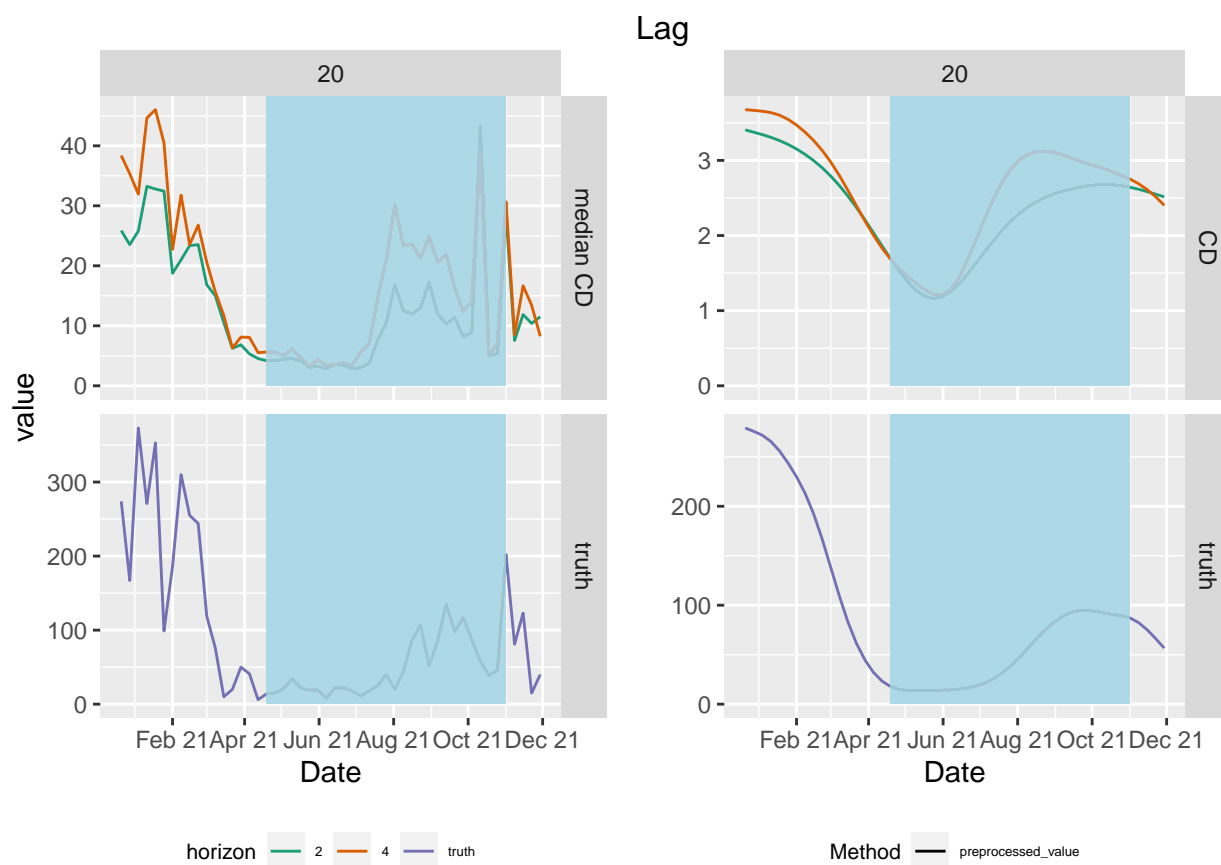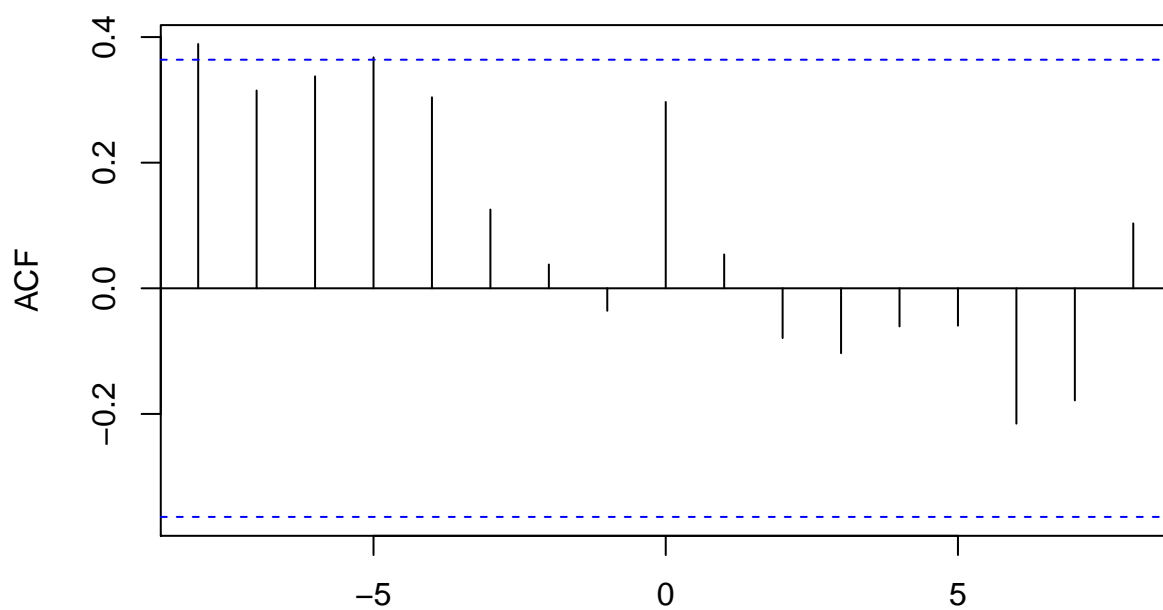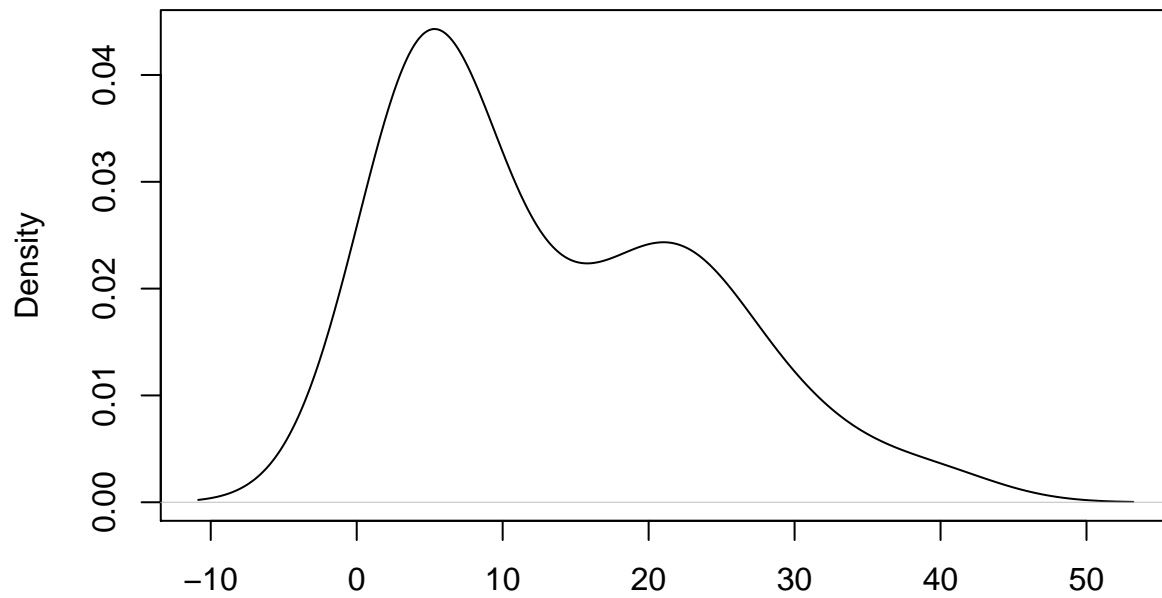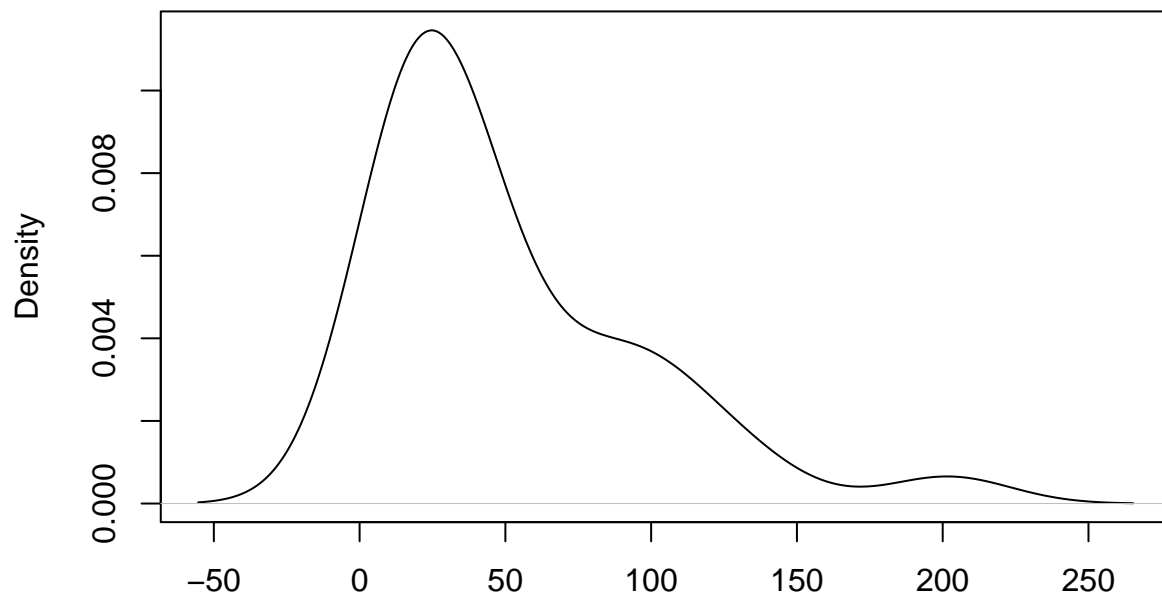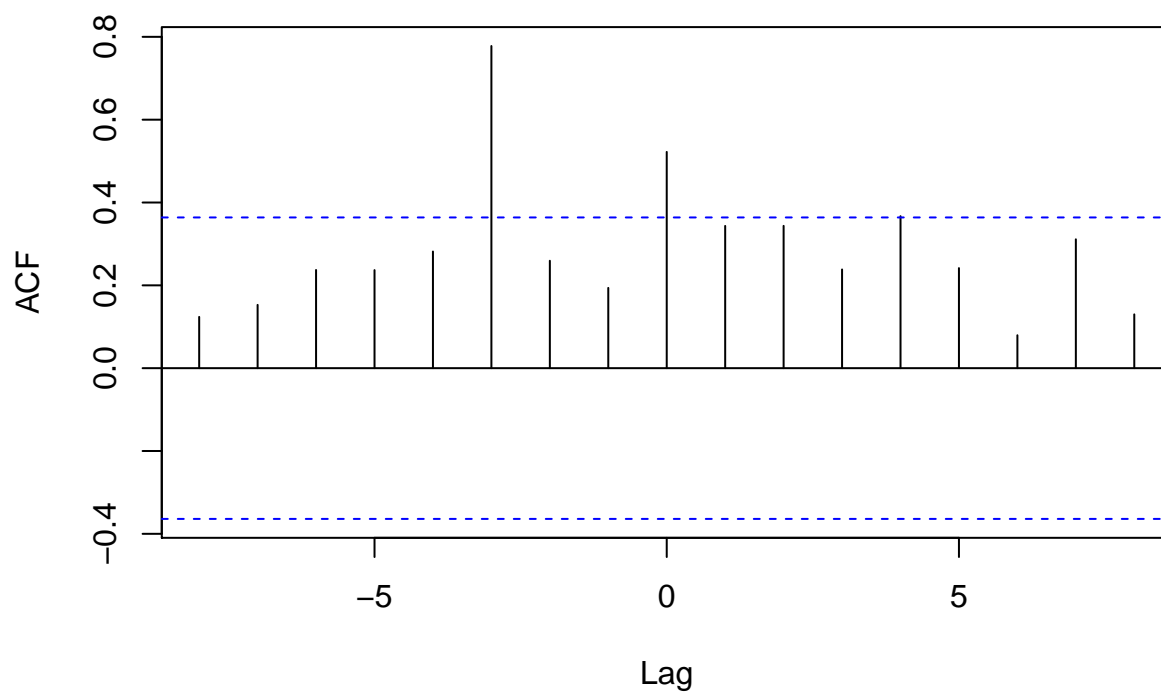
density.default(x = pxt$value)

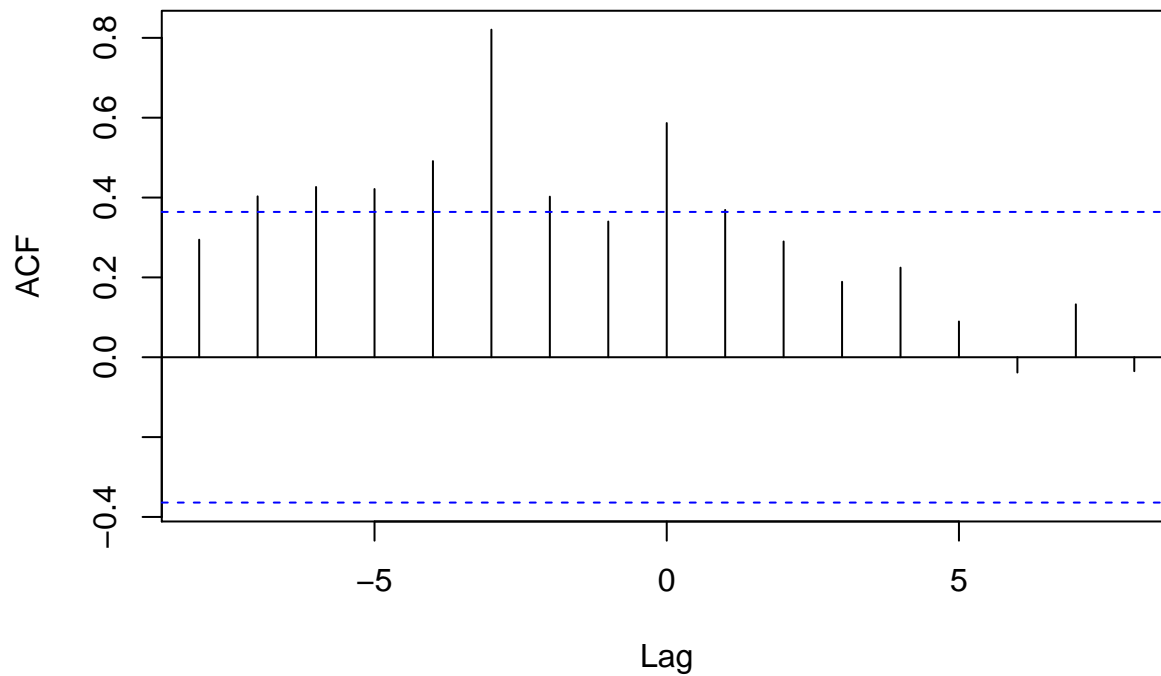N = 29   Bandwidth = 4.701

density.default(x = py$value)
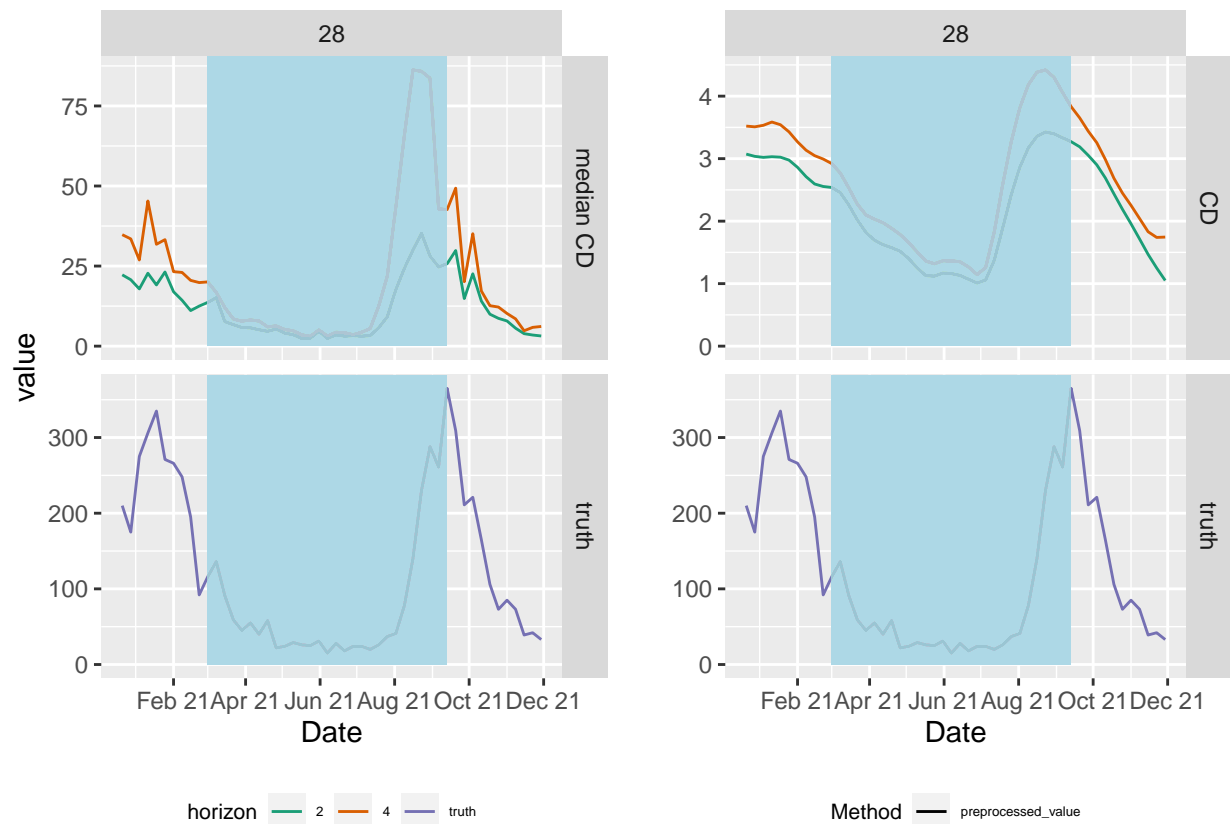

N = 29   Bandwidth = 21.12

2 wk ahead − 20

4 wk ahead − 20

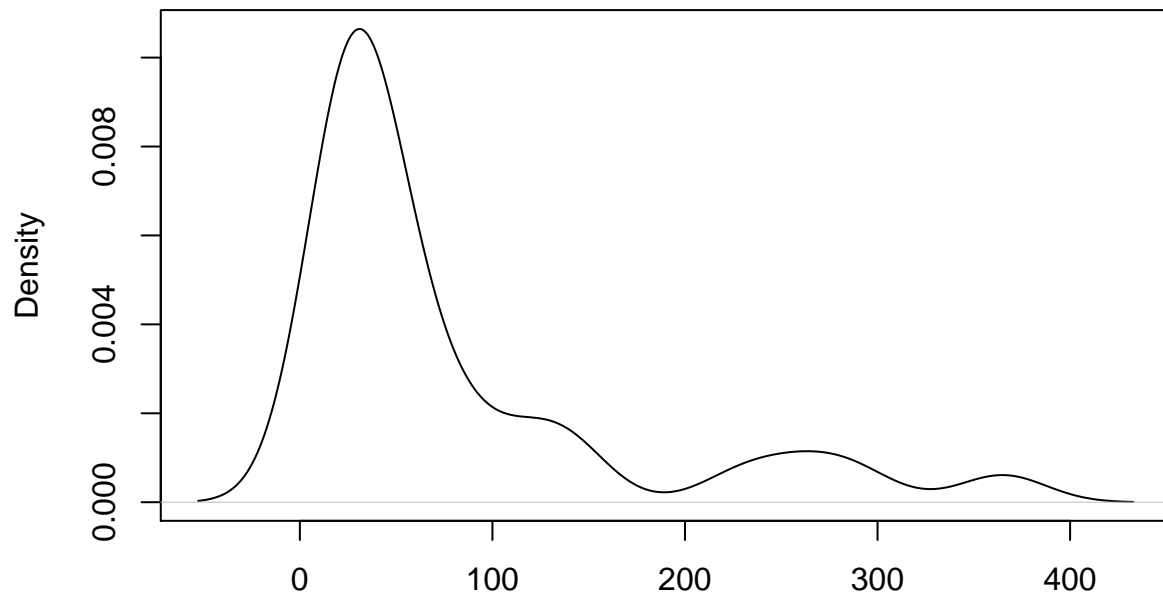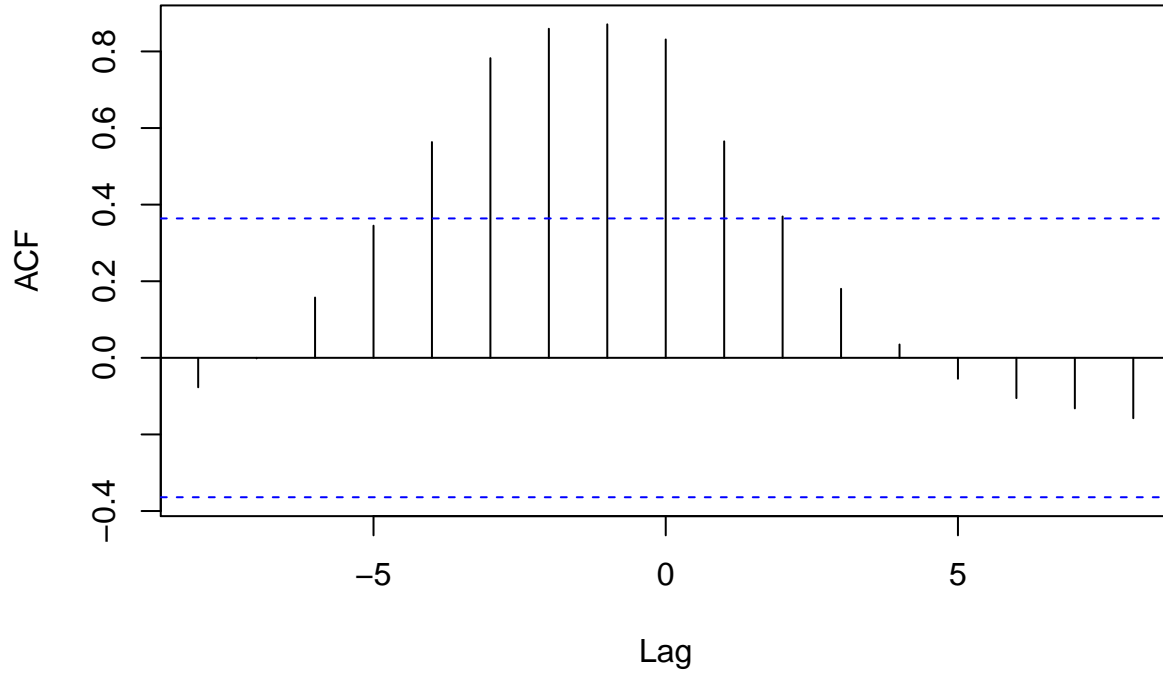density.default(x = pxt$value)
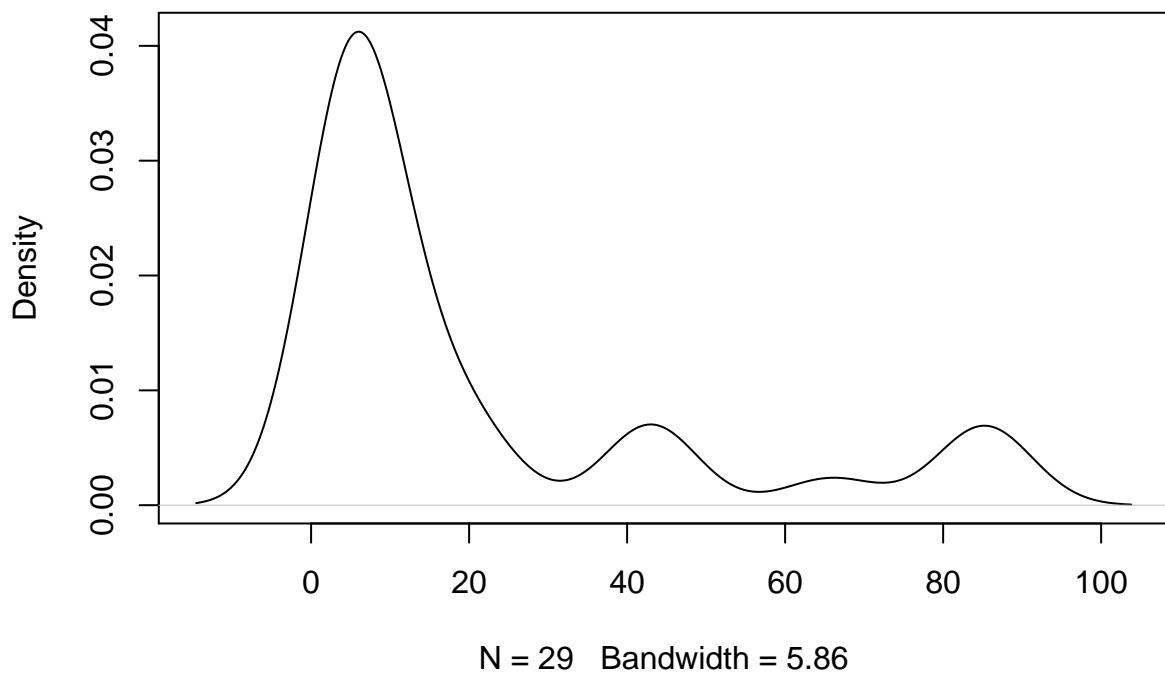
N = 29   Bandwidth = 5.86

density.default(x = py$value)

N = 29   Bandwidth = 22.6
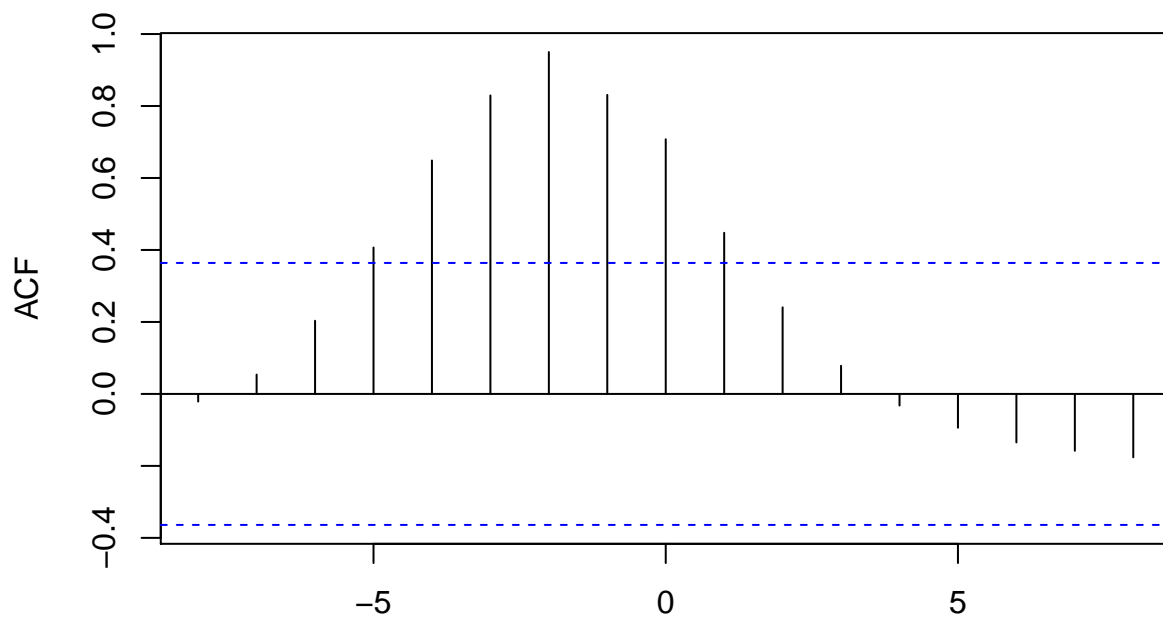
2 wk ahead − 28

Lag
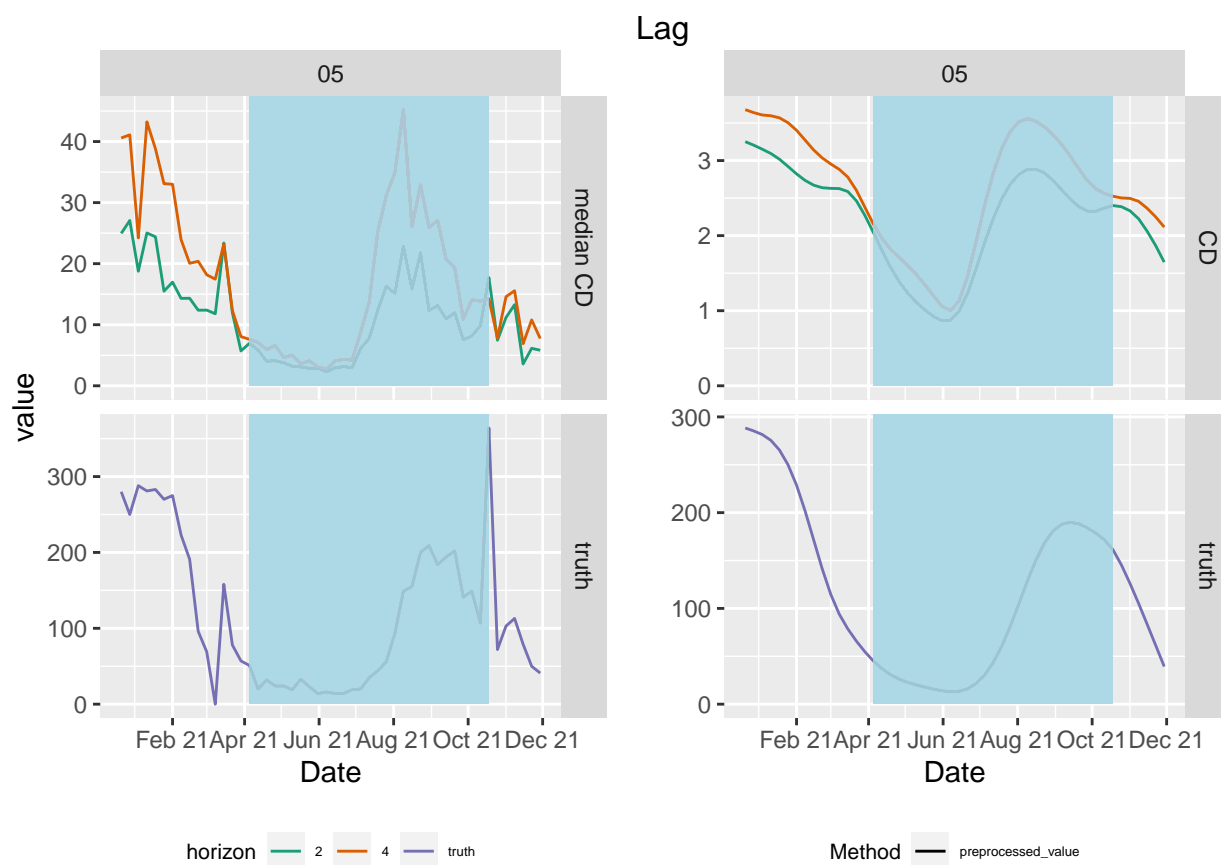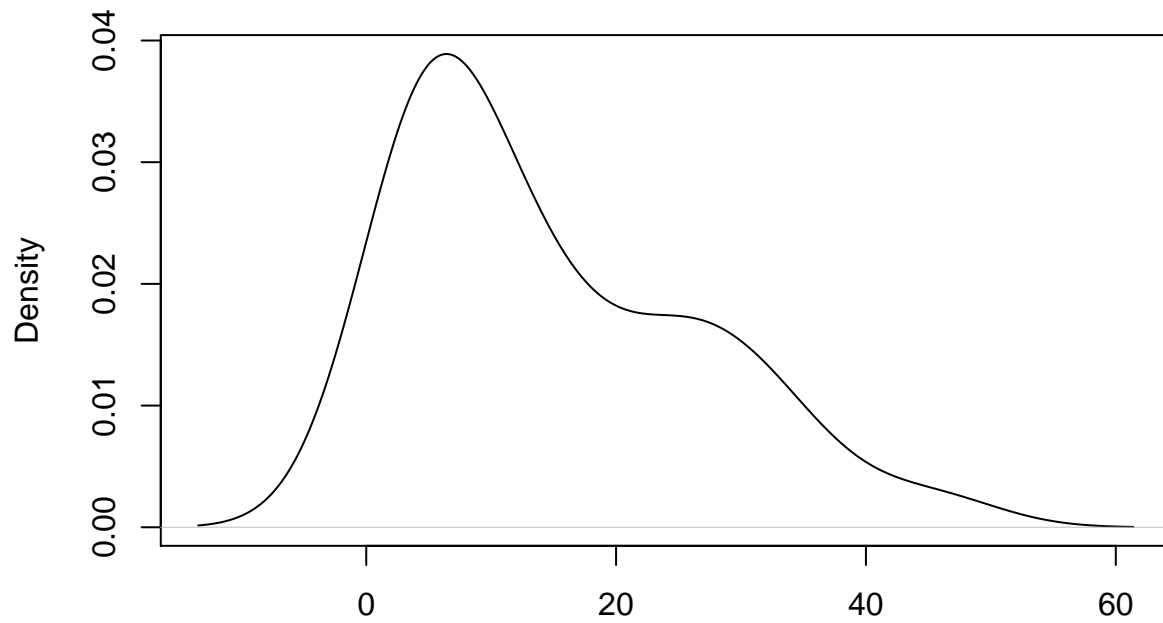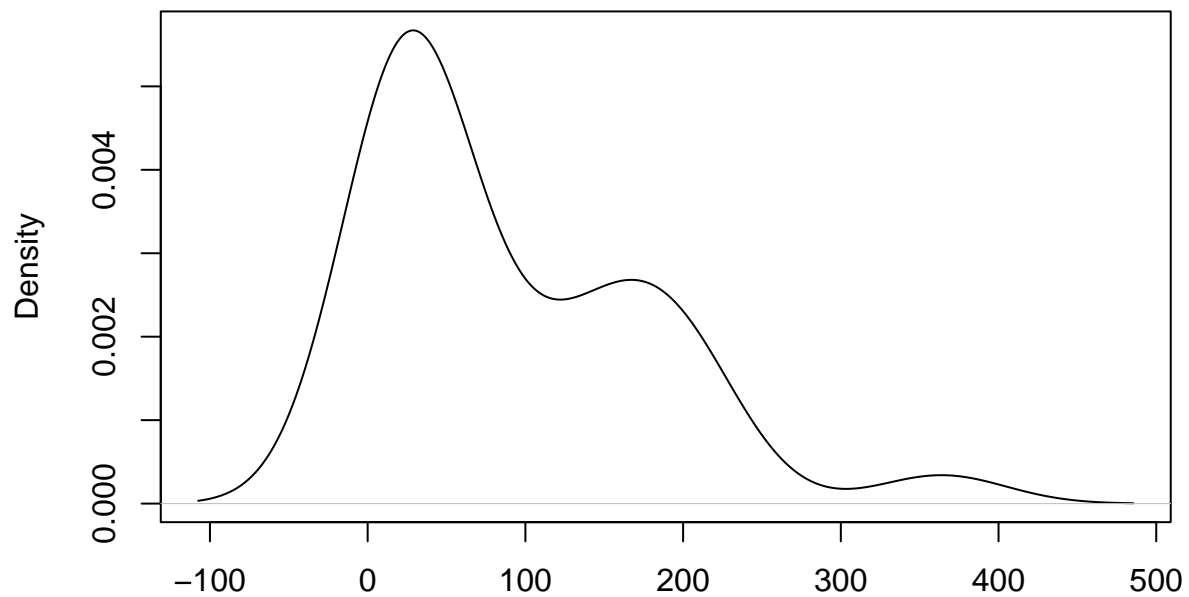
4 wk ahead – 28

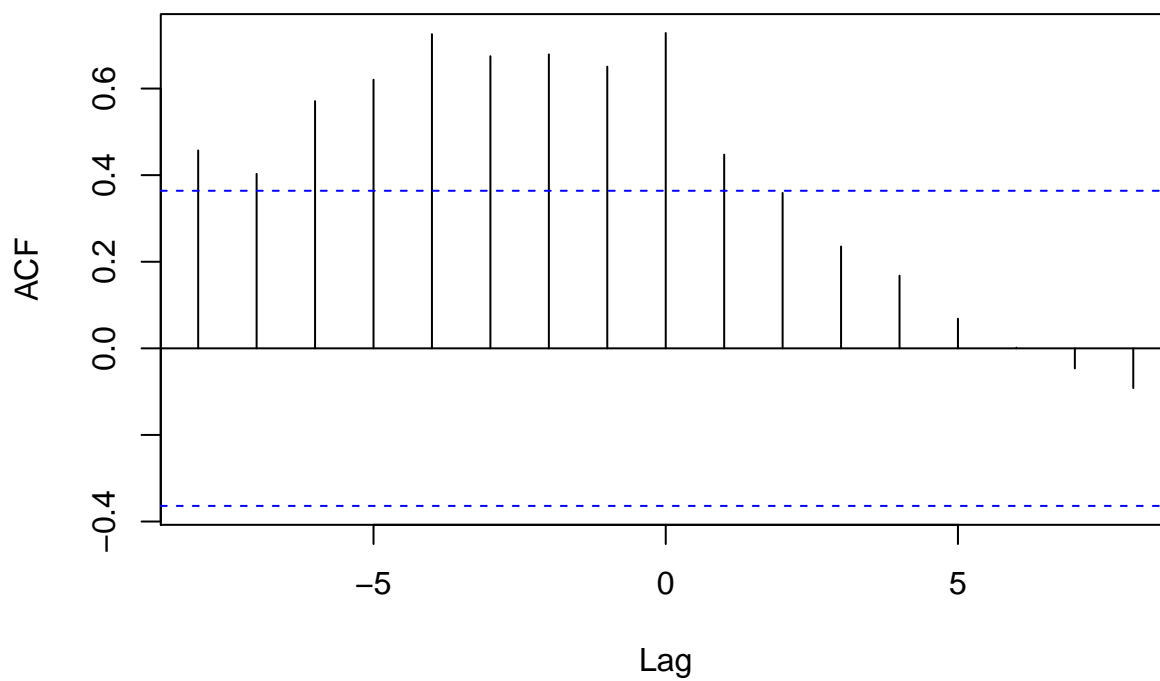**density.default(x = pxt$value)**

N = 29 Bandwidth = 5.391
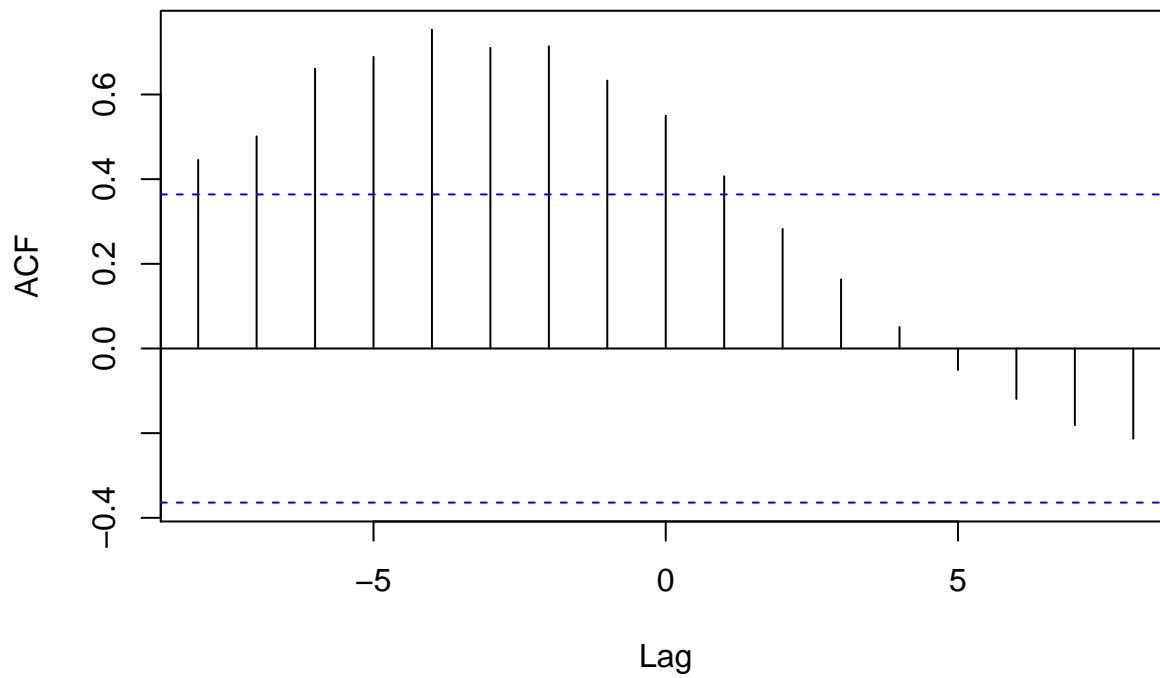
density.default(x = py$value)

N = 29 Bandwidth = 40.49

2 wk ahead − 05

4 wk ahead − 05

density.default(x = pxt$value)

N = 29   Bandwidth = 3.076

density.default(x = py$value)
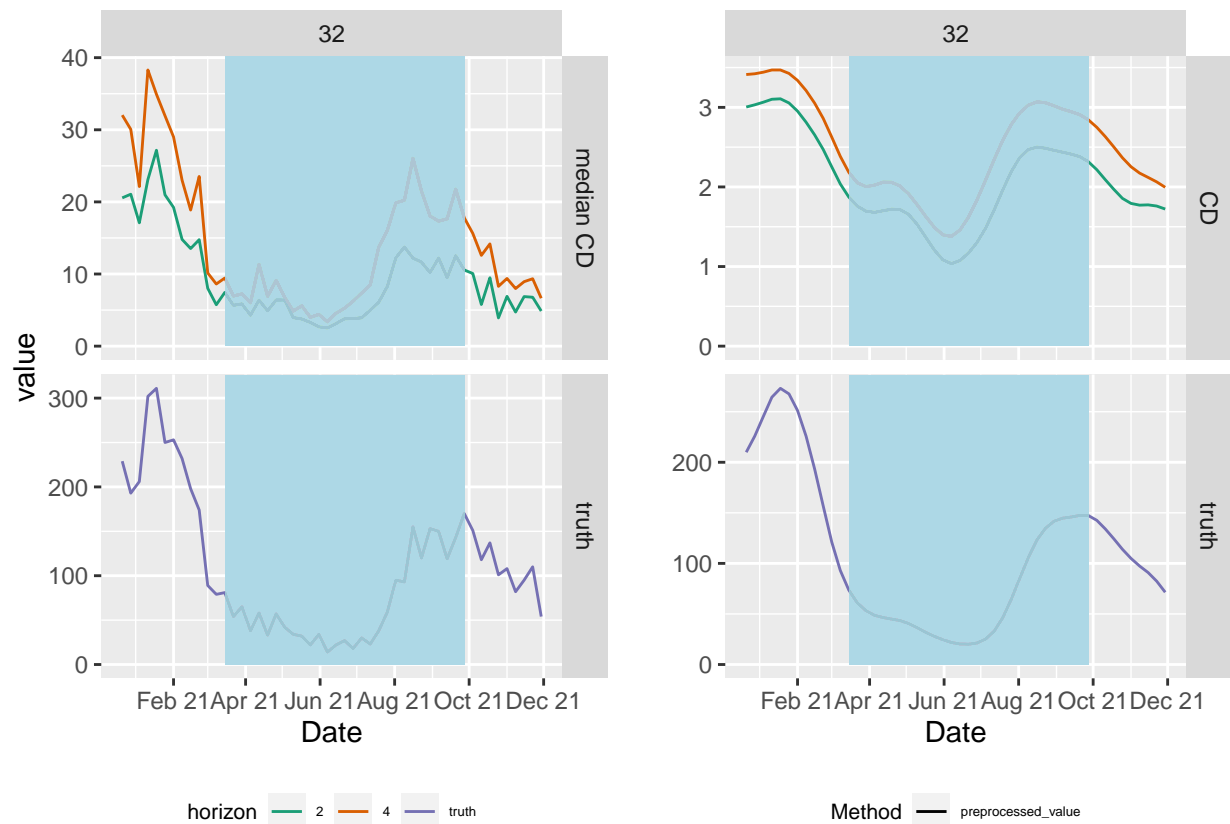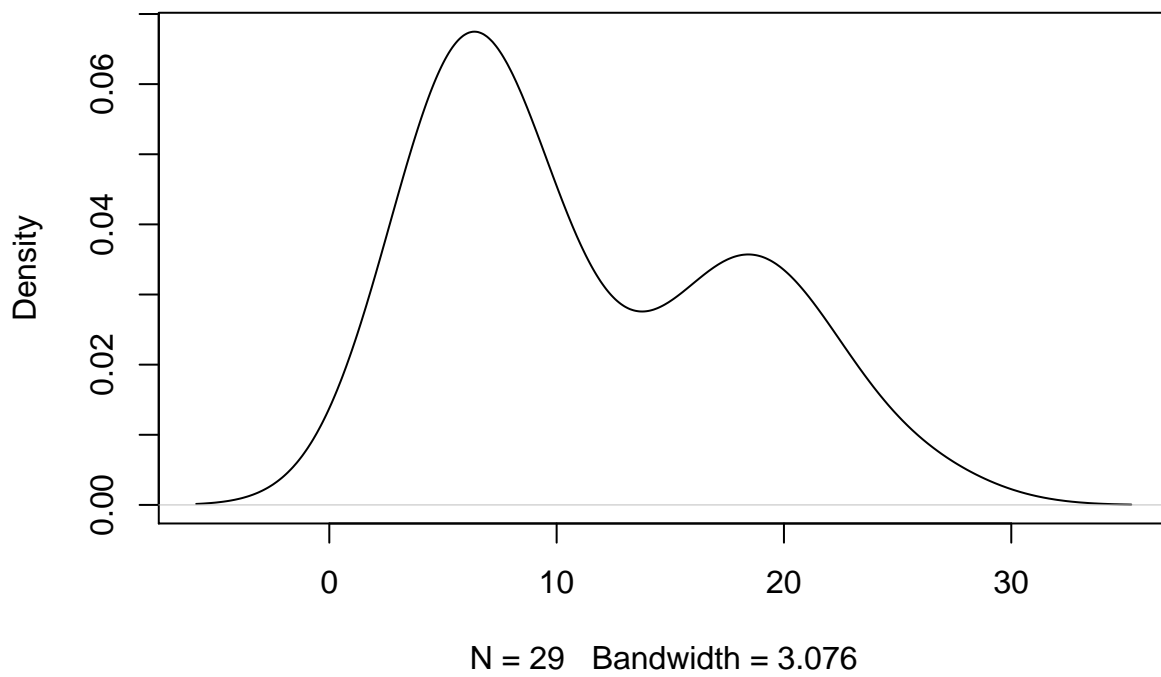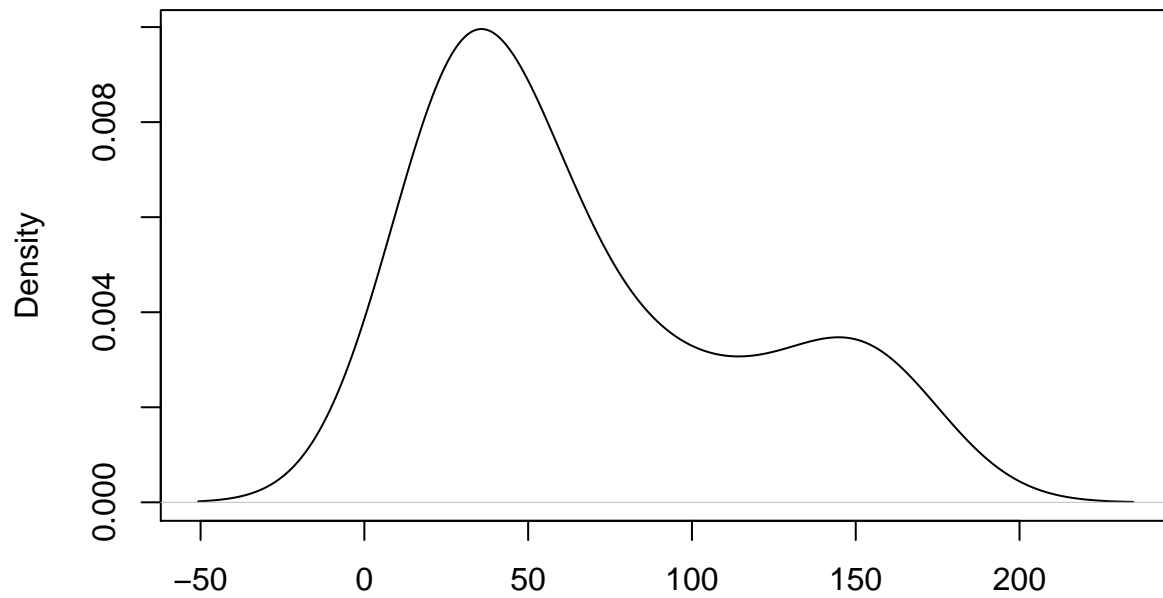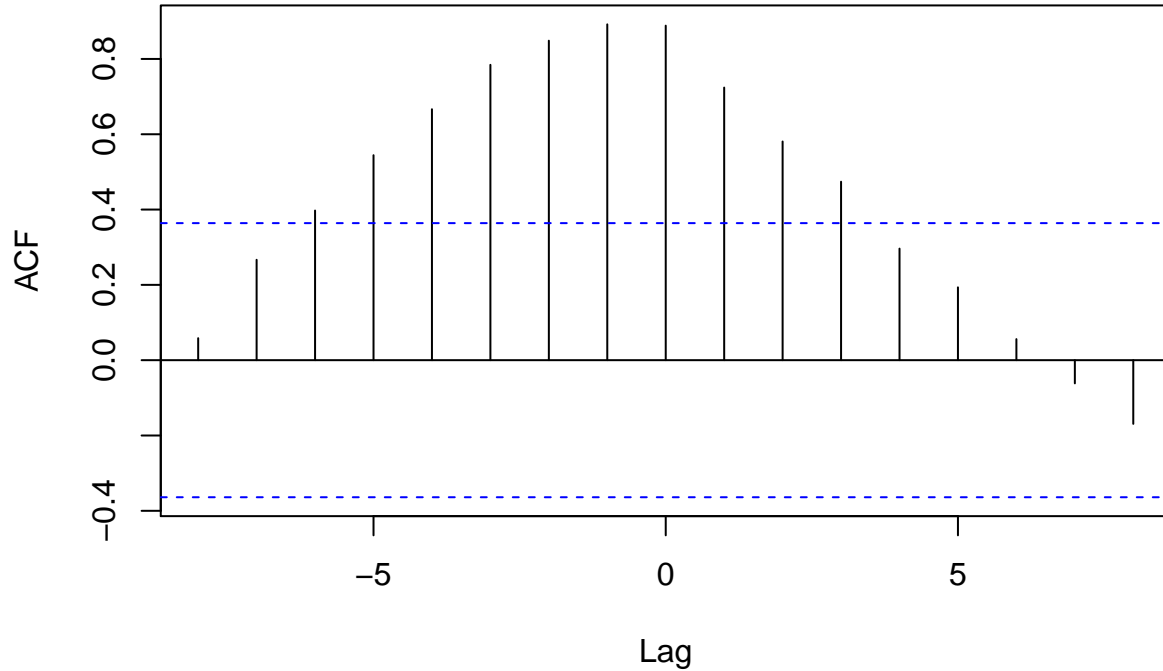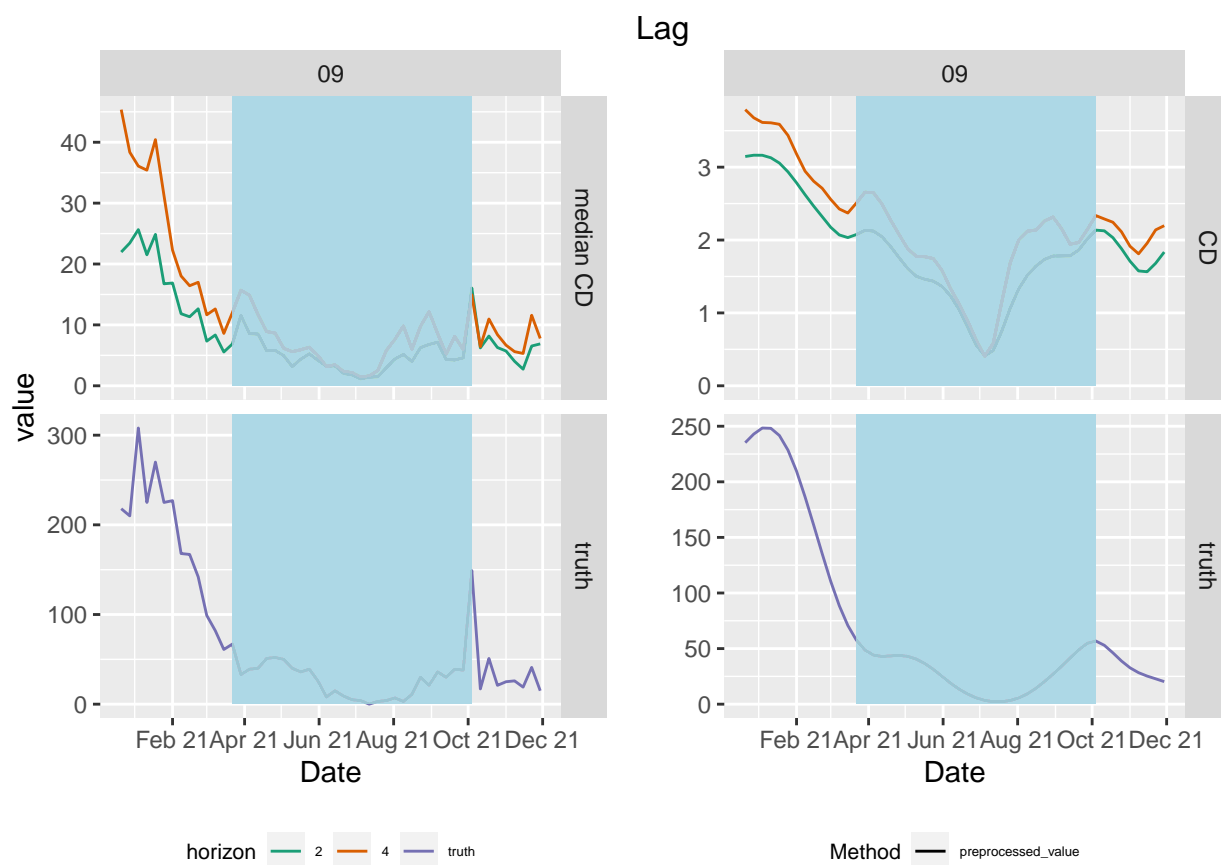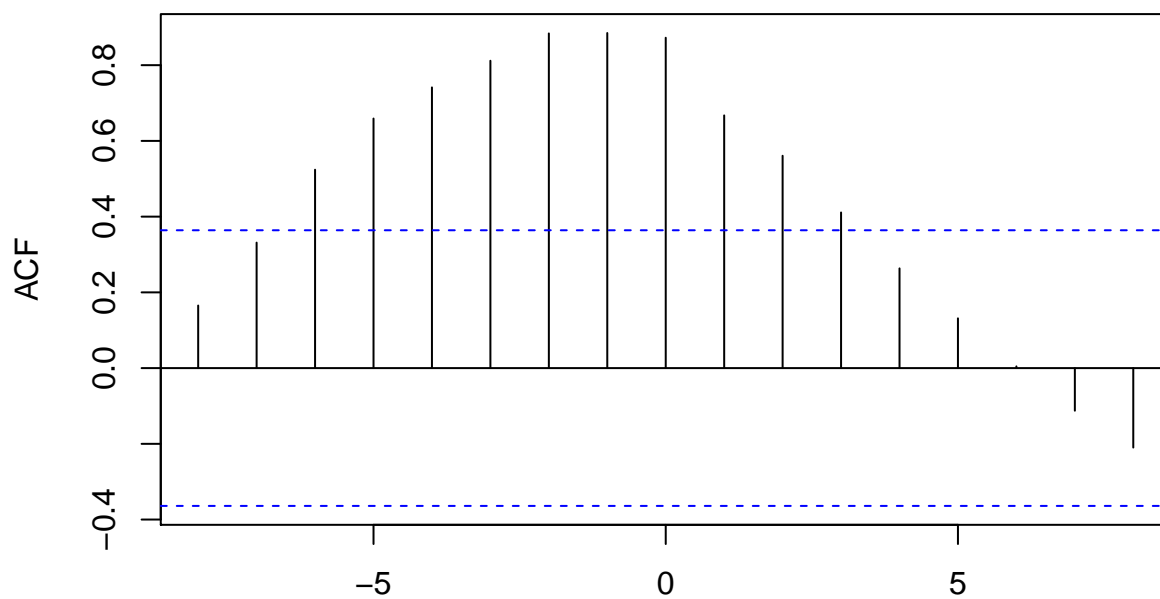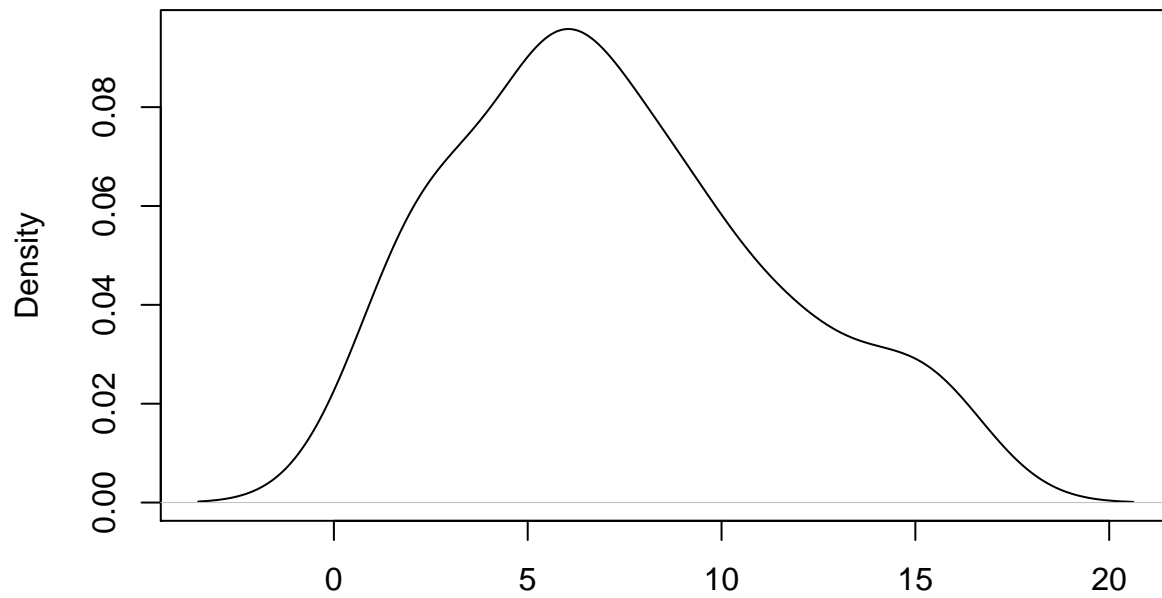

N = 29   Bandwidth = 21.58
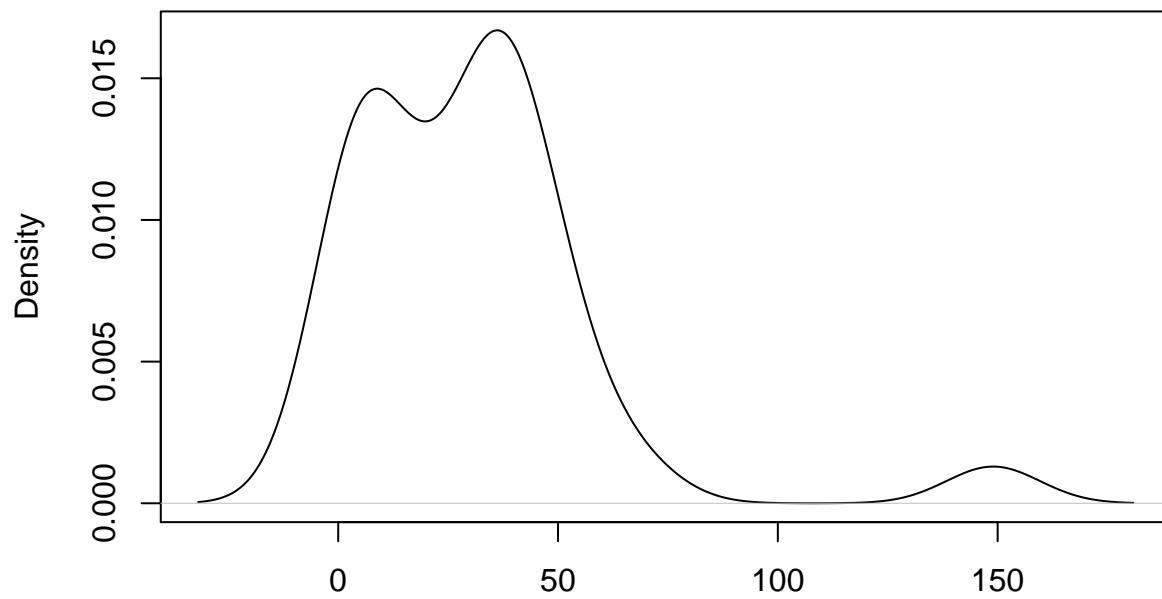
2 wk ahead − 32

Lag

4 wk ahead – 32
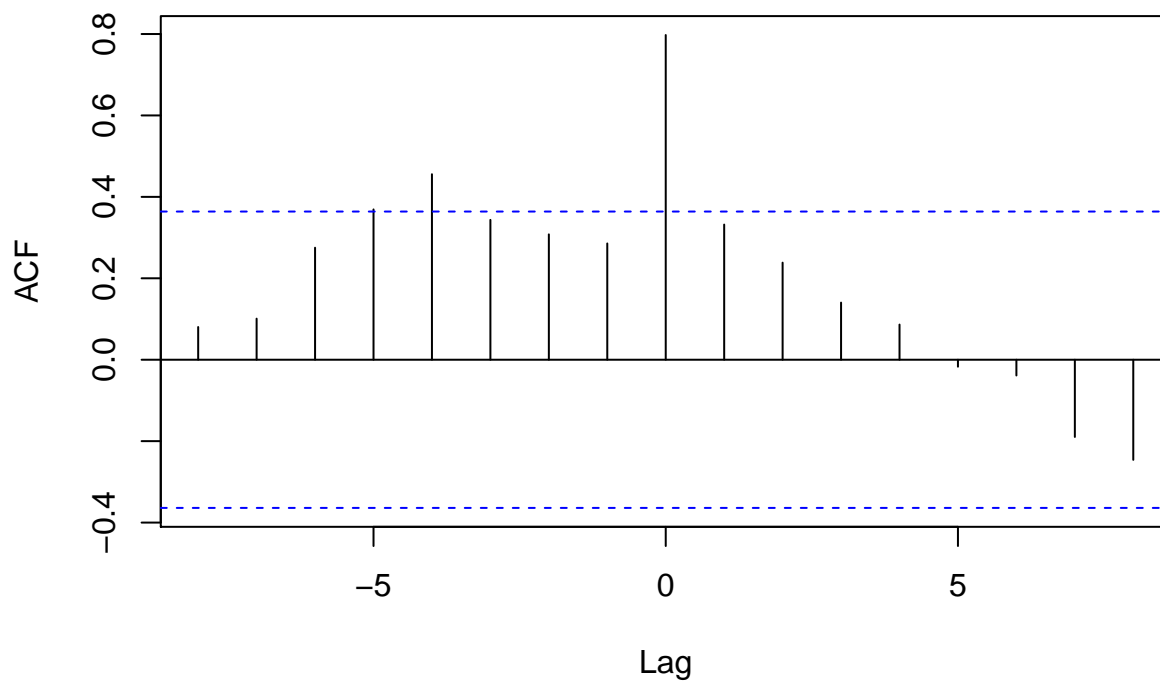
density.default(x = pxt$value)
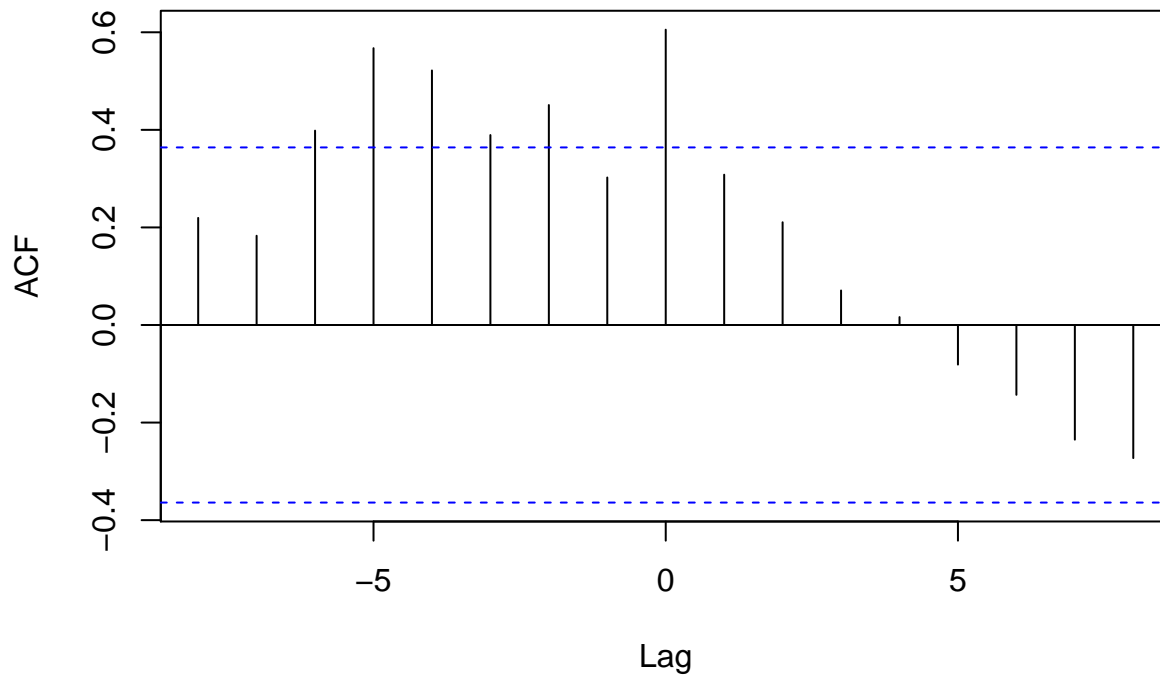

N = 29   Bandwidth = 1.641

density.default(x = py$value)

N = 29   Bandwidth = 10.62

2 wk ahead − 09

4 wk ahead − 09

density.default(x = pxt$value)

N = 29   Bandwidth = 3.011

density.default(x = py$value)
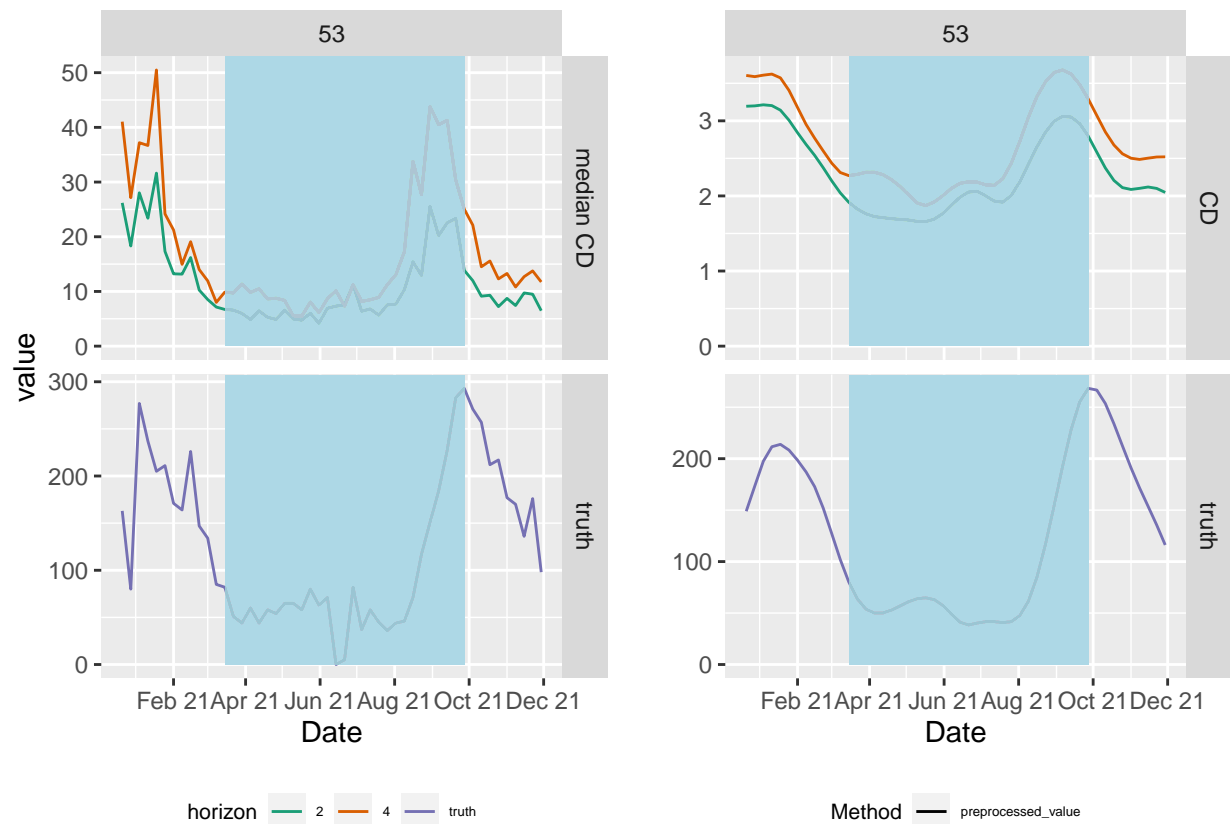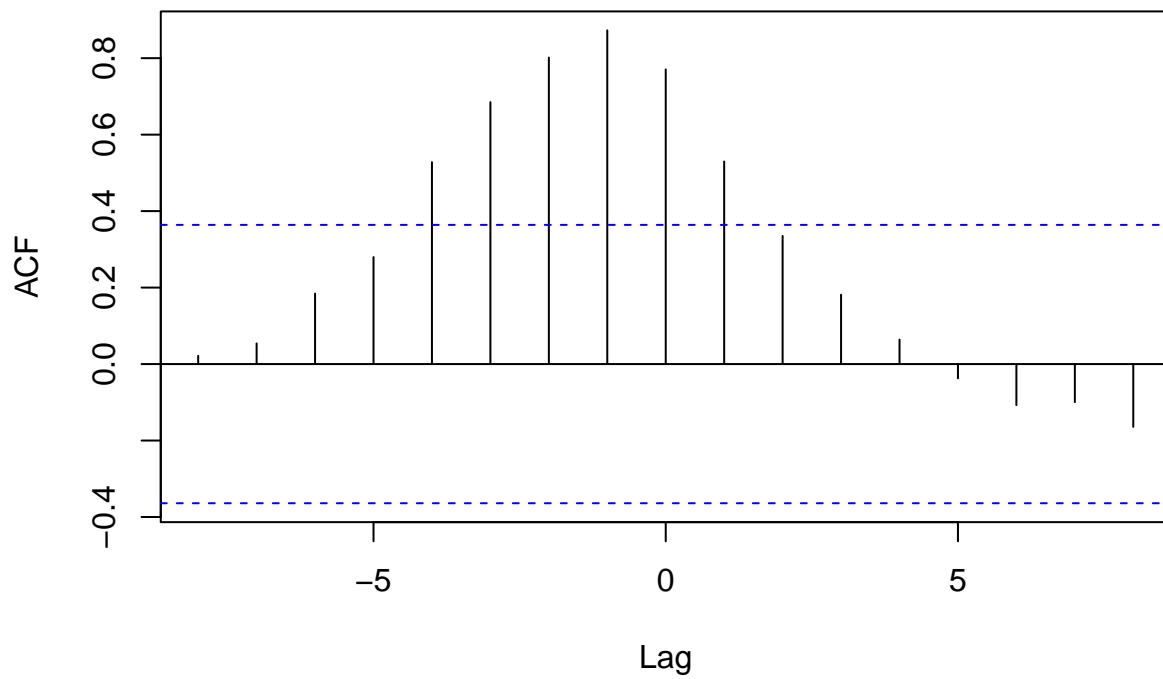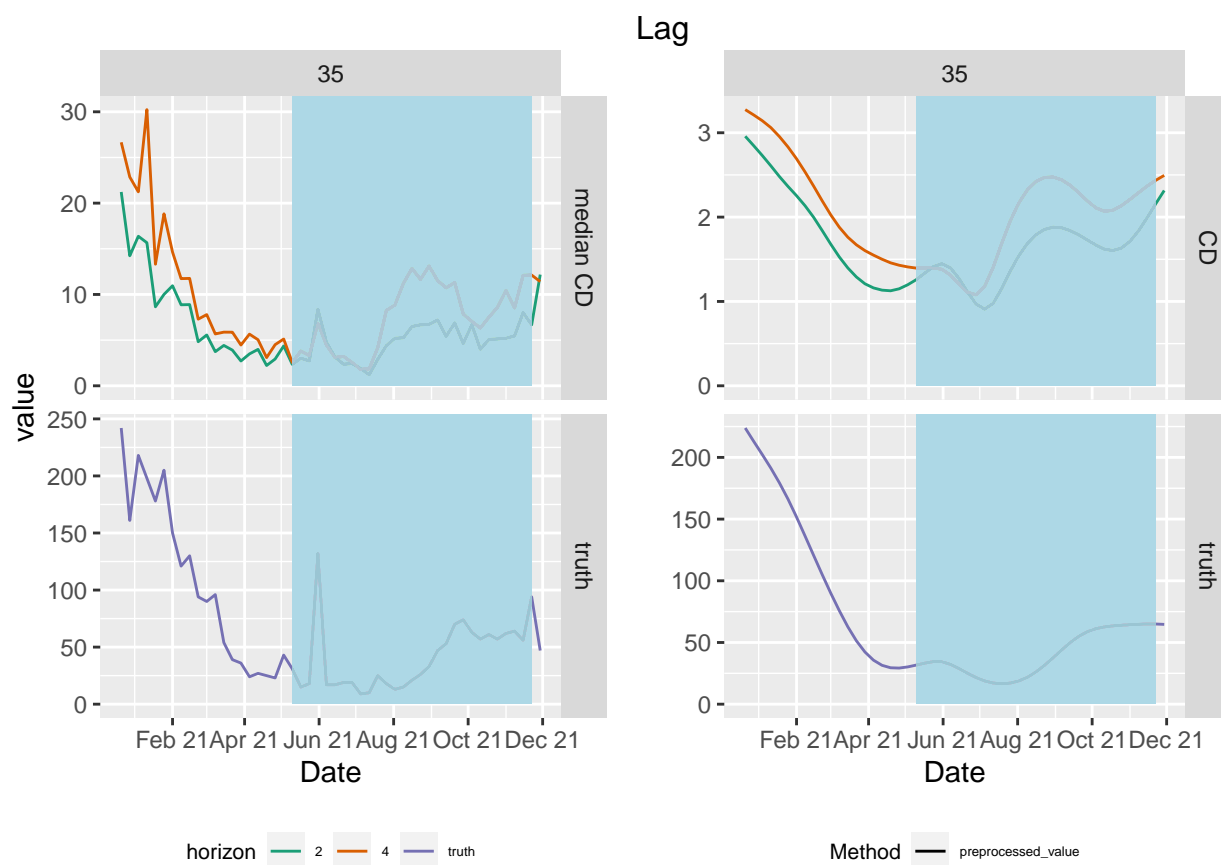

N = 29   Bandwidth = 12.67
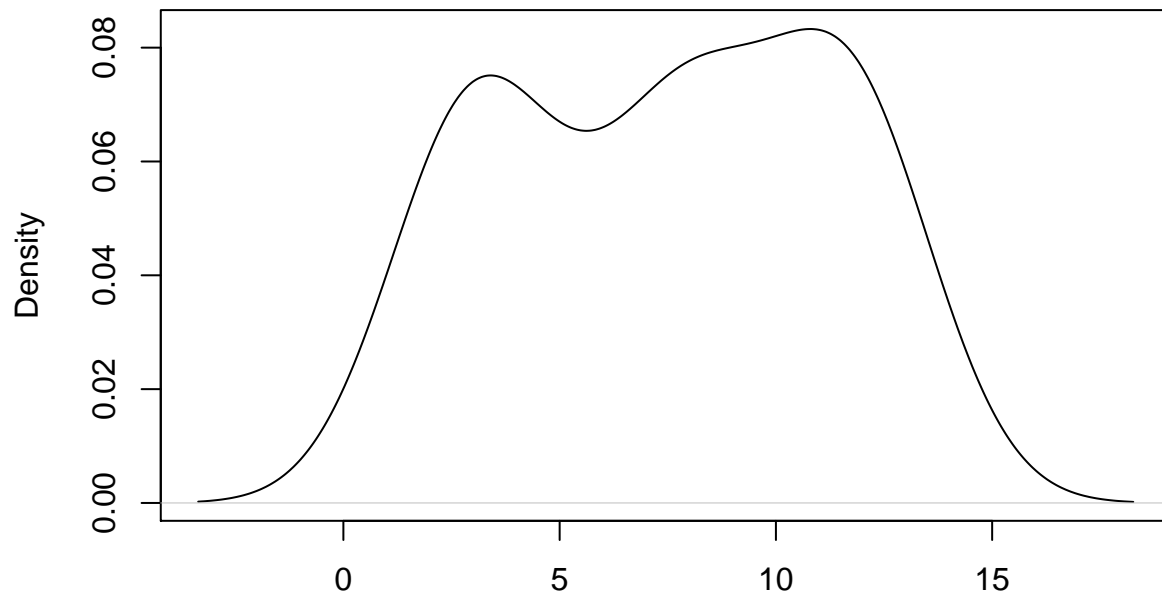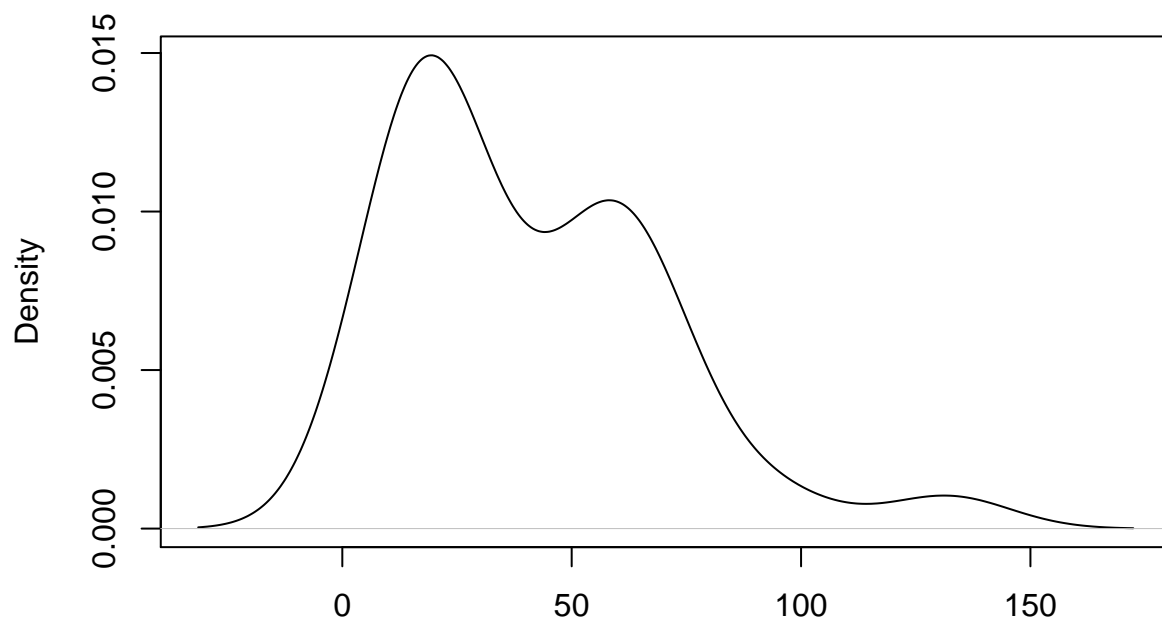**2 wk ahead − 53**
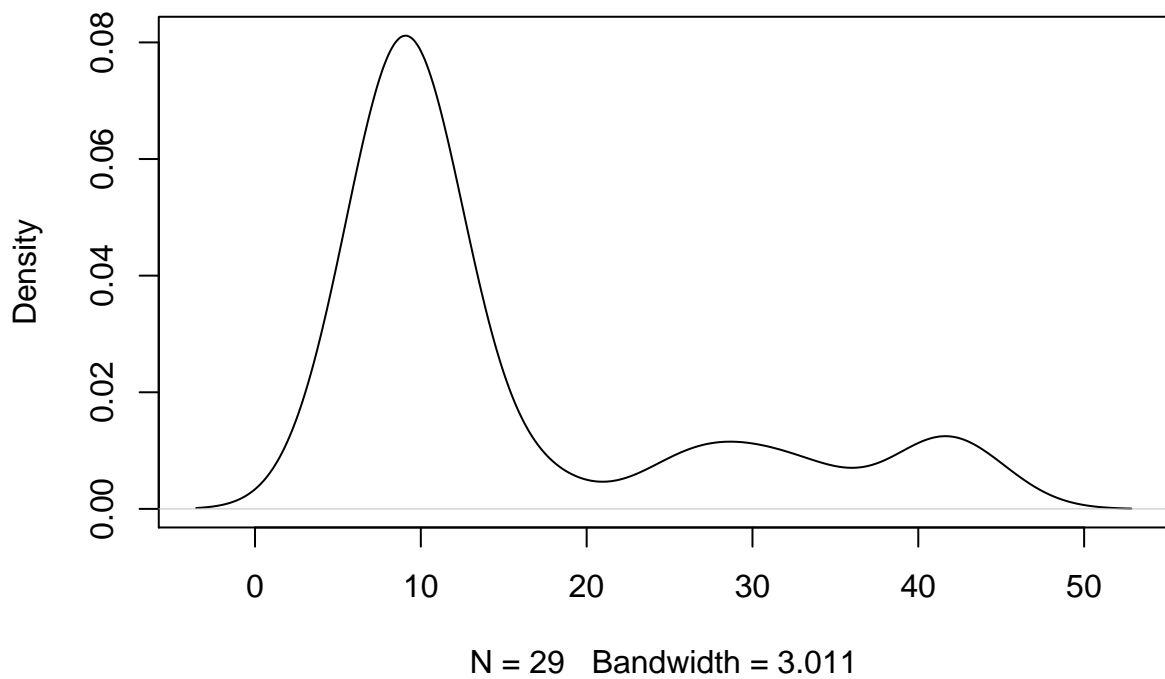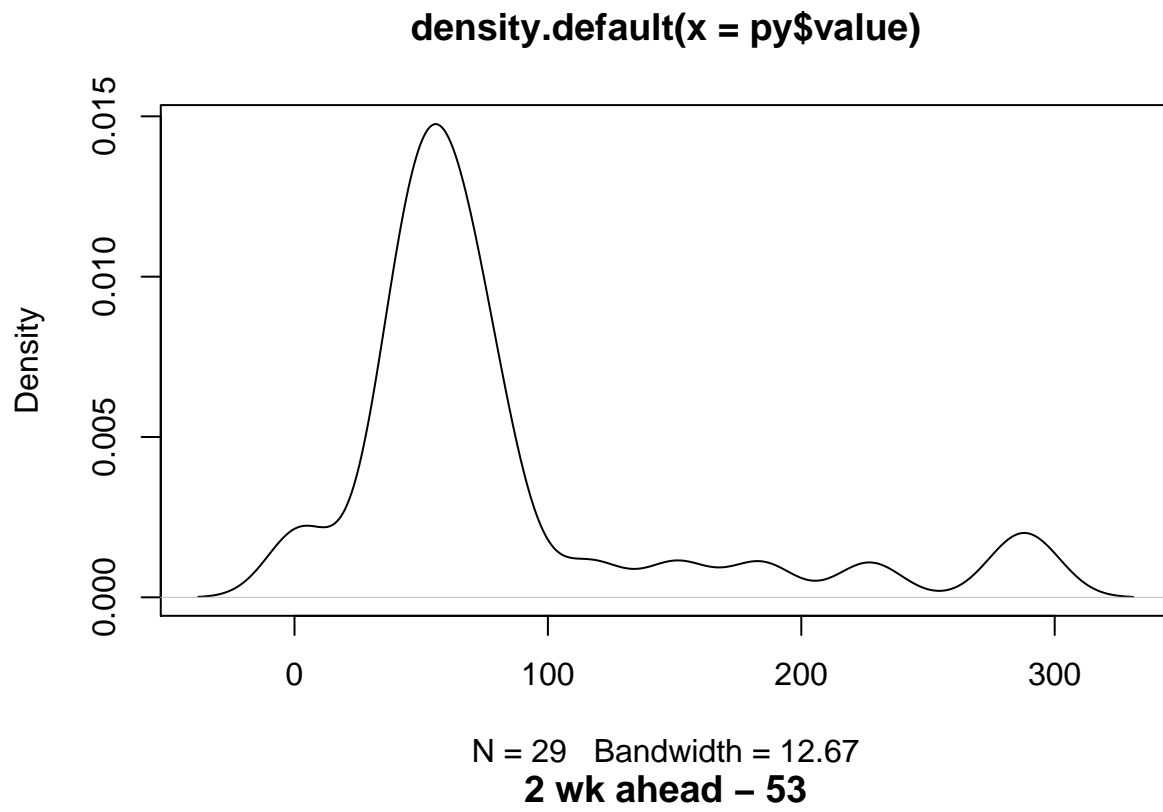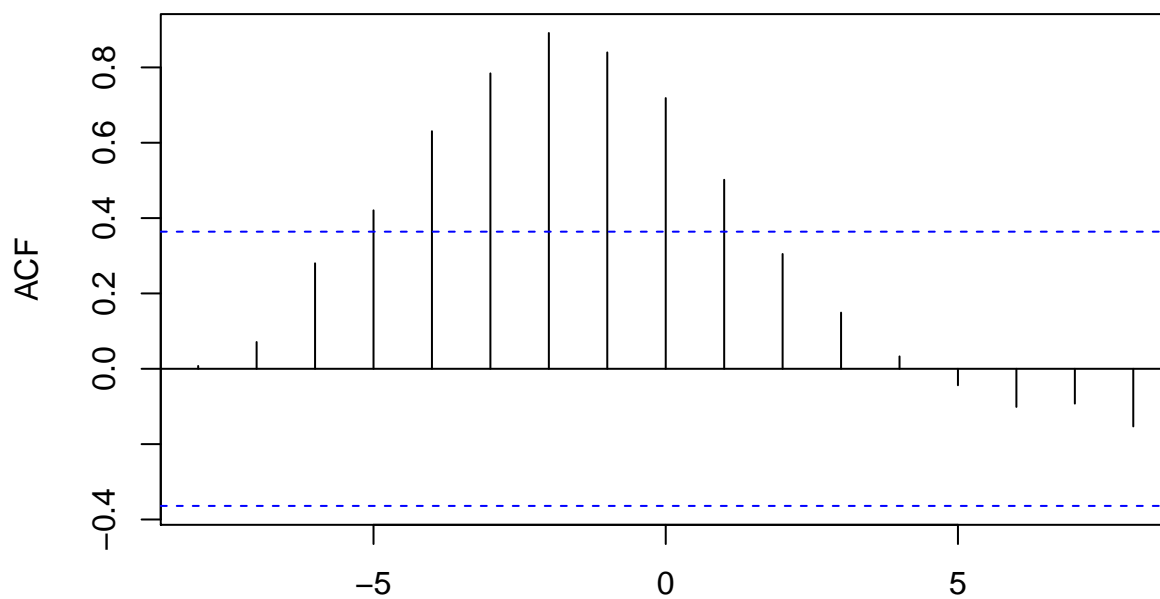
4 wk ahead – 53
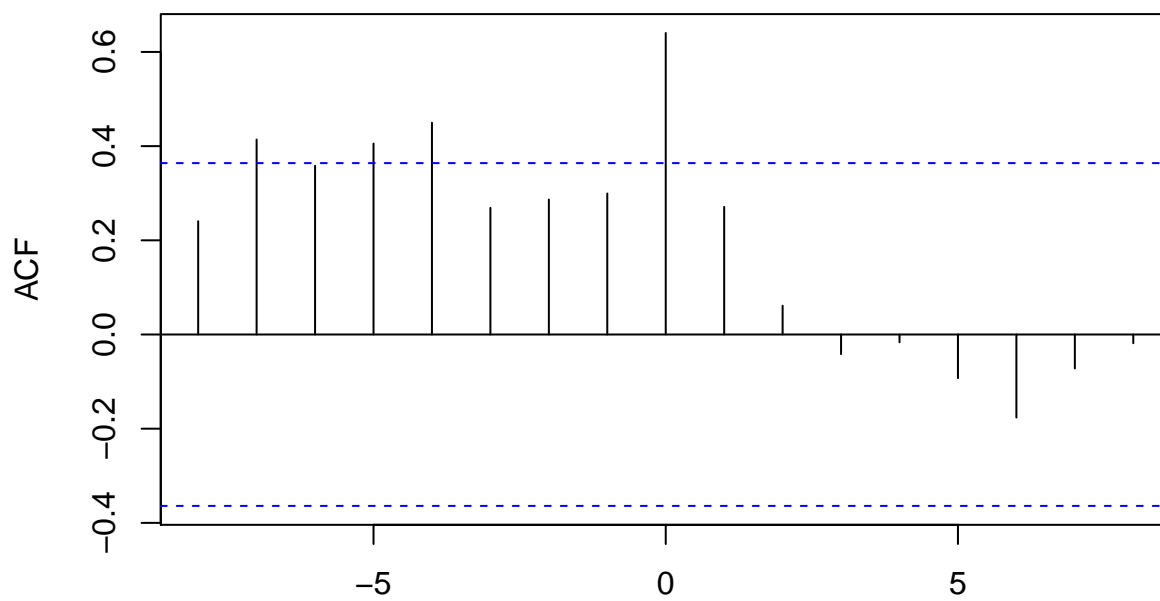
density.default(x = pxt$value)

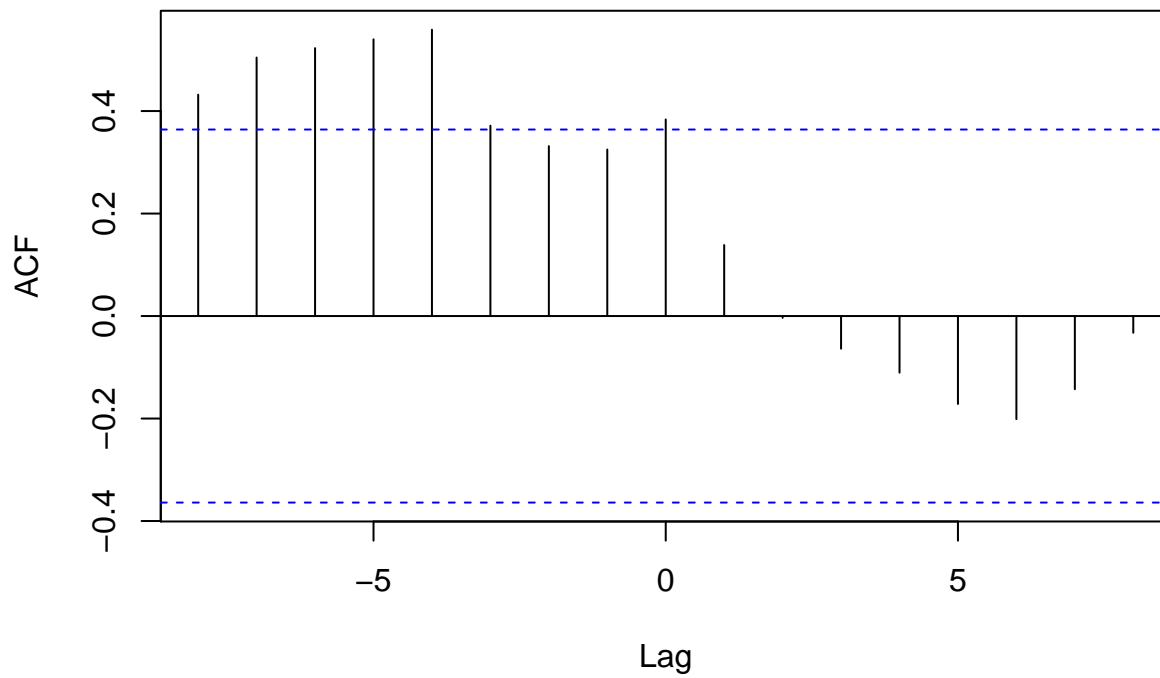N = 29   Bandwidth = 1.718

density.default(x = py$value)

N = 29   Bandwidth = 13.47

2 wk ahead − 35

4 wk ahead − 35

density.default(x = pxt$value)

N = 29   Bandwidth = 3.177

density.default(x = py$value)
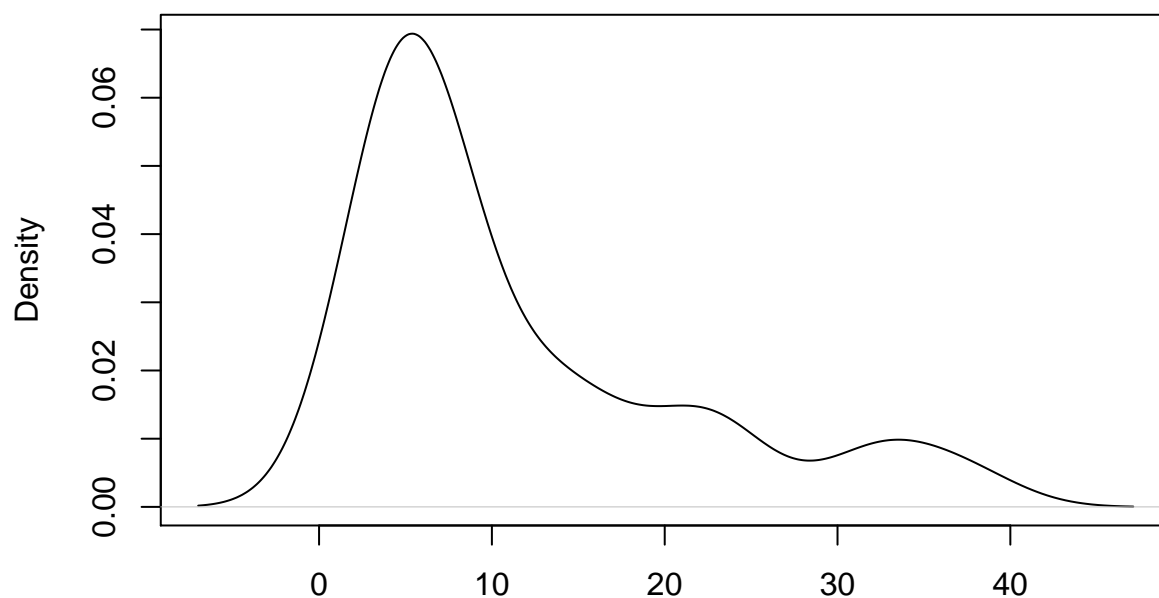
N = 29   Bandwidth = 14.04

2 wk ahead − 54
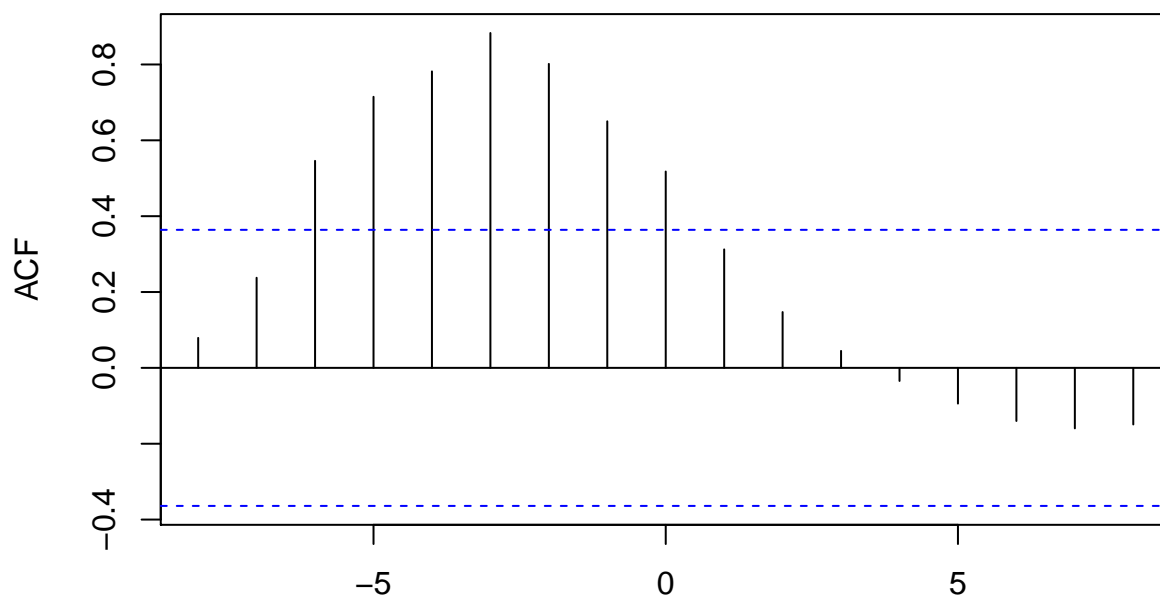
4 wk ahead – 54

density.default(x = pxt$value)

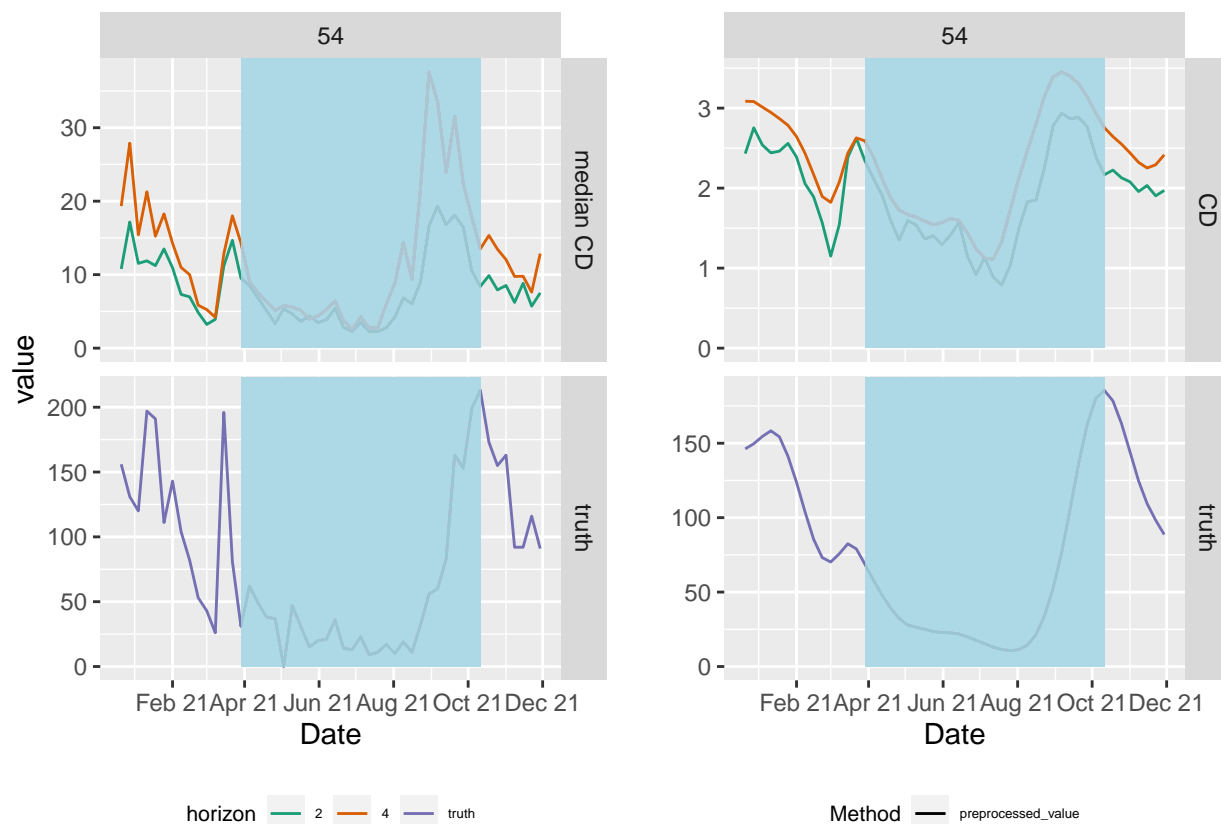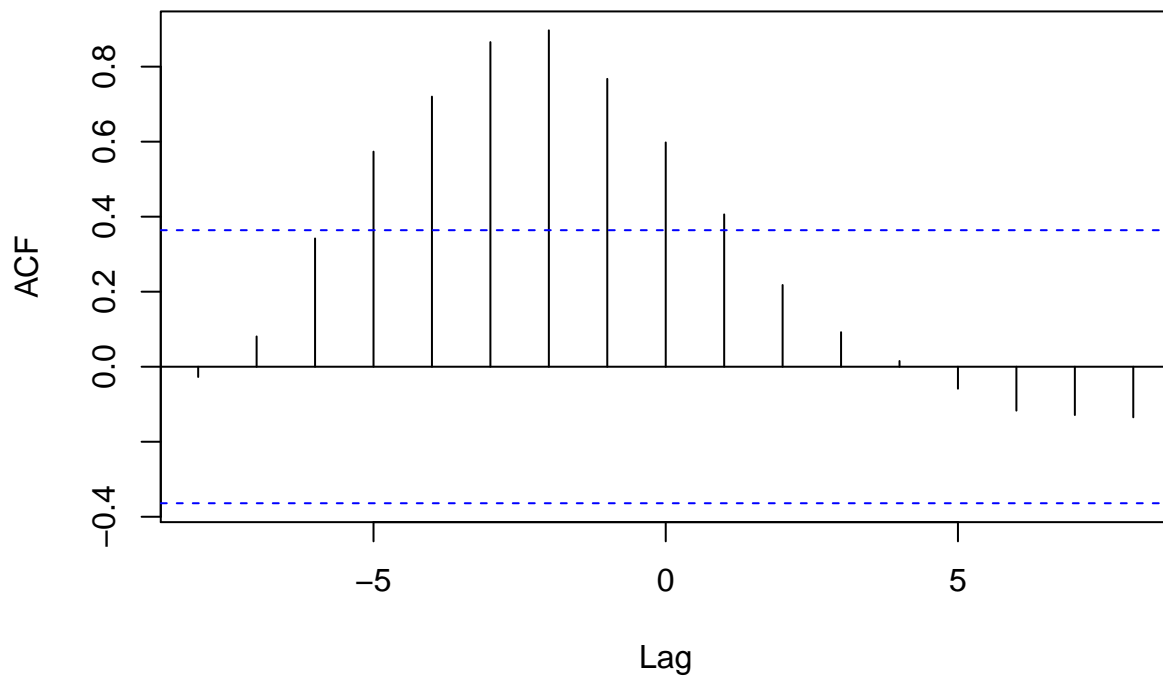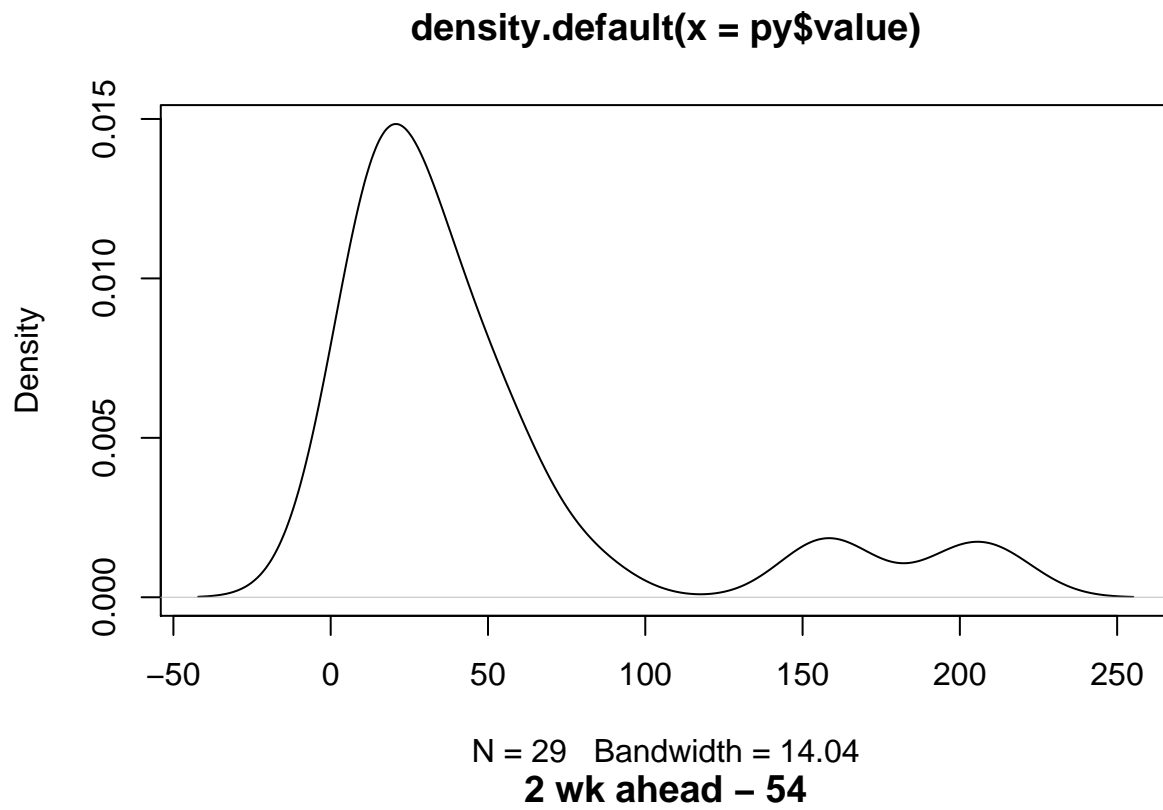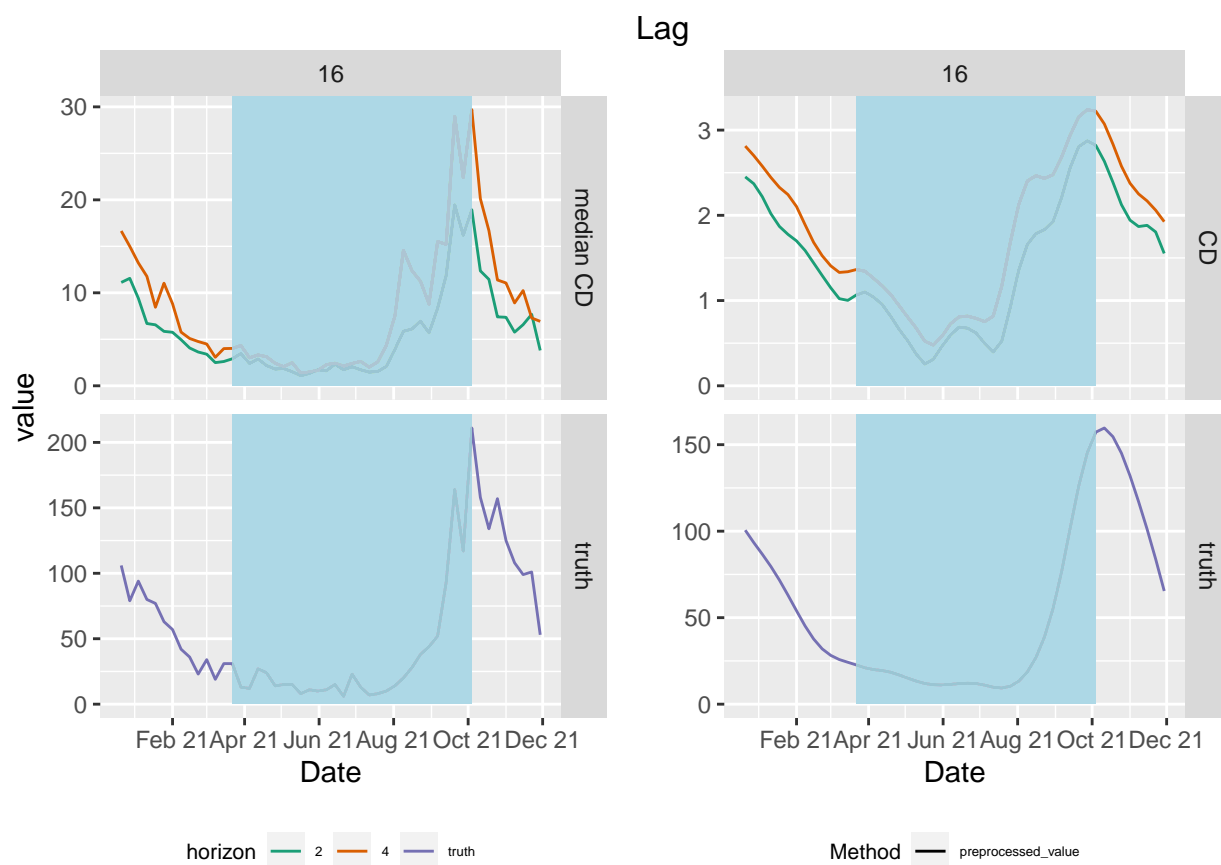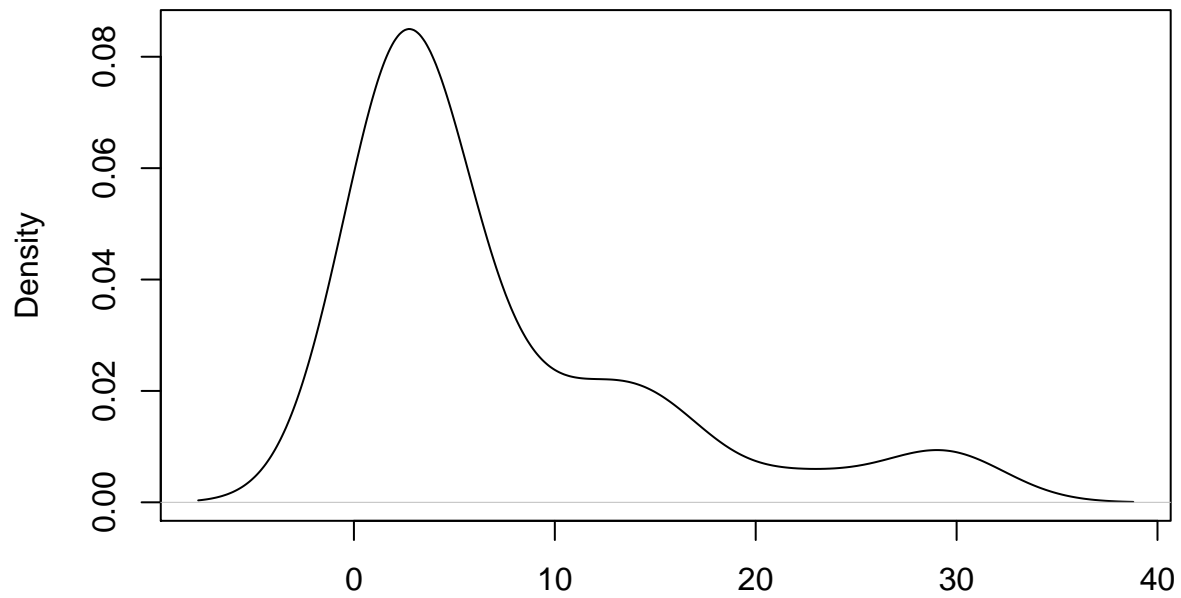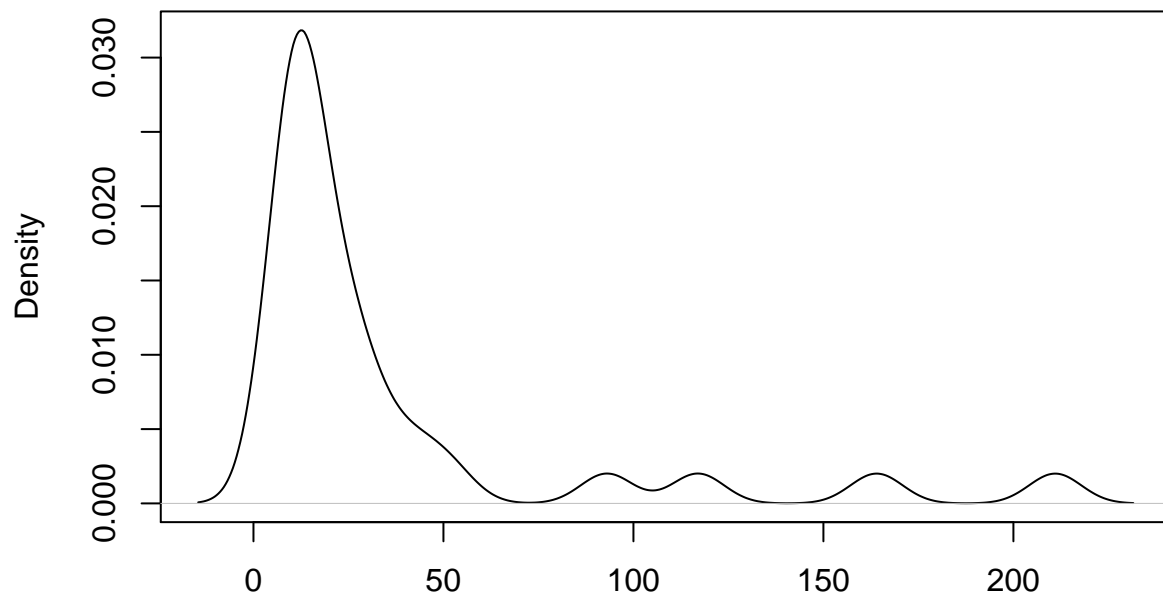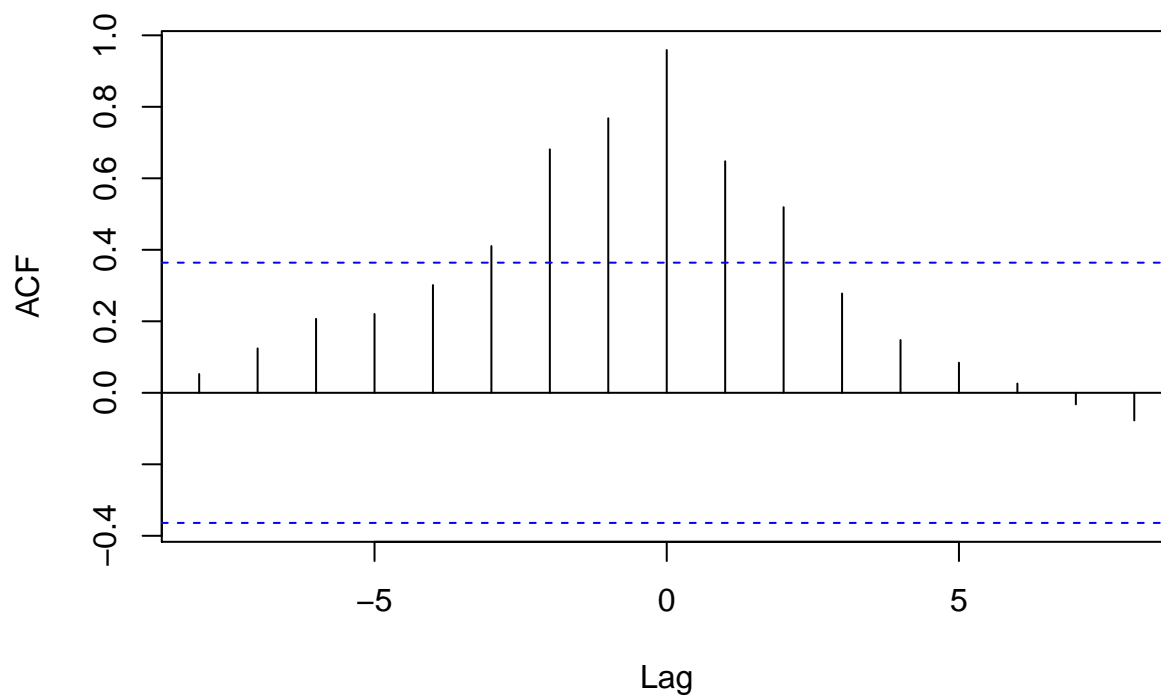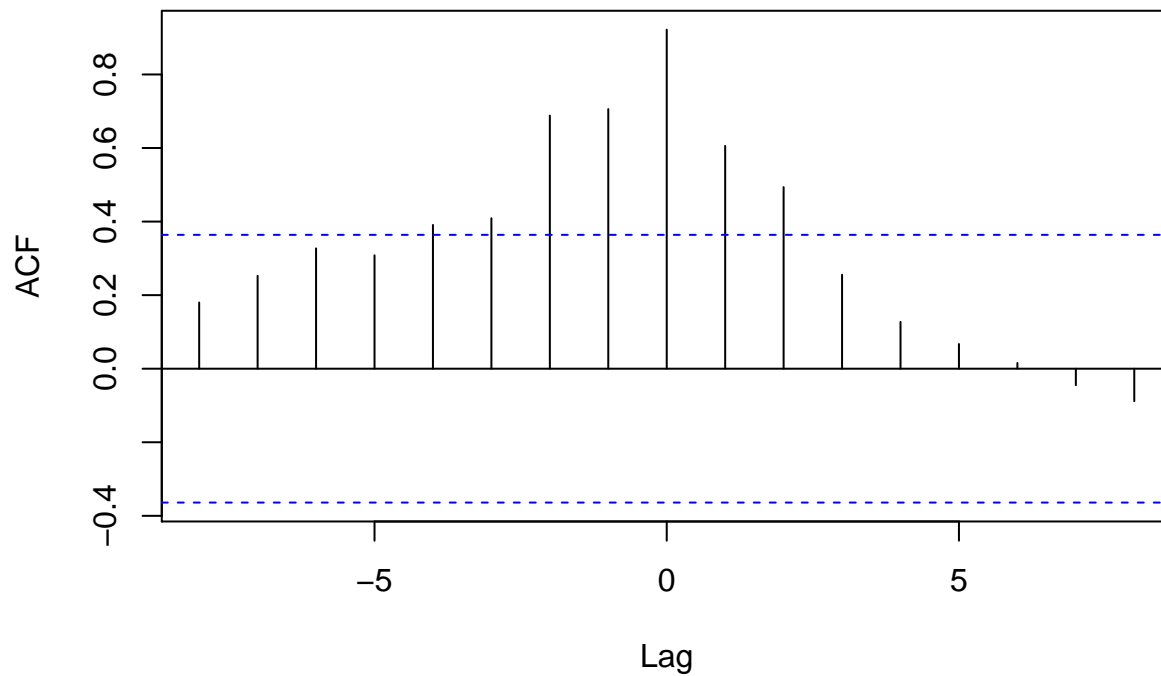N = 29   Bandwidth = 3.031
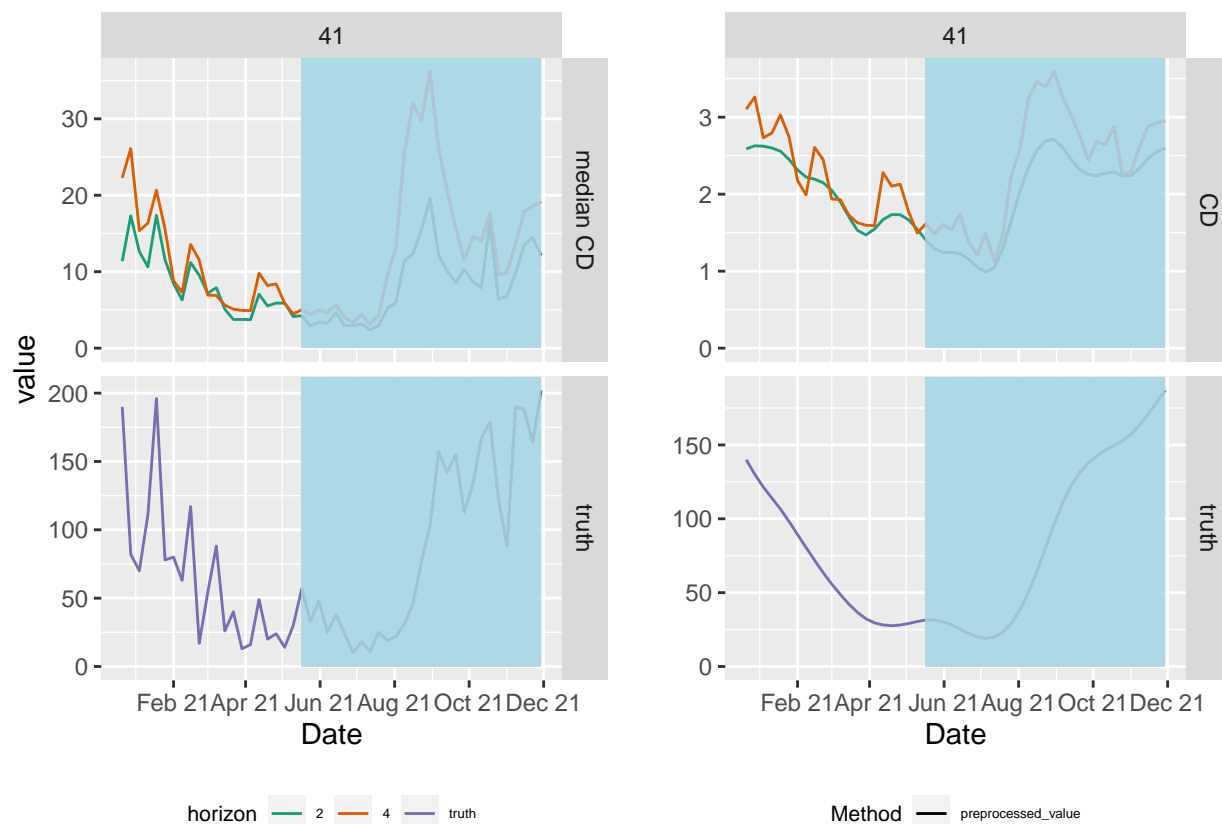
density.default(x = py$value)

N = 29   Bandwidth = 6.85
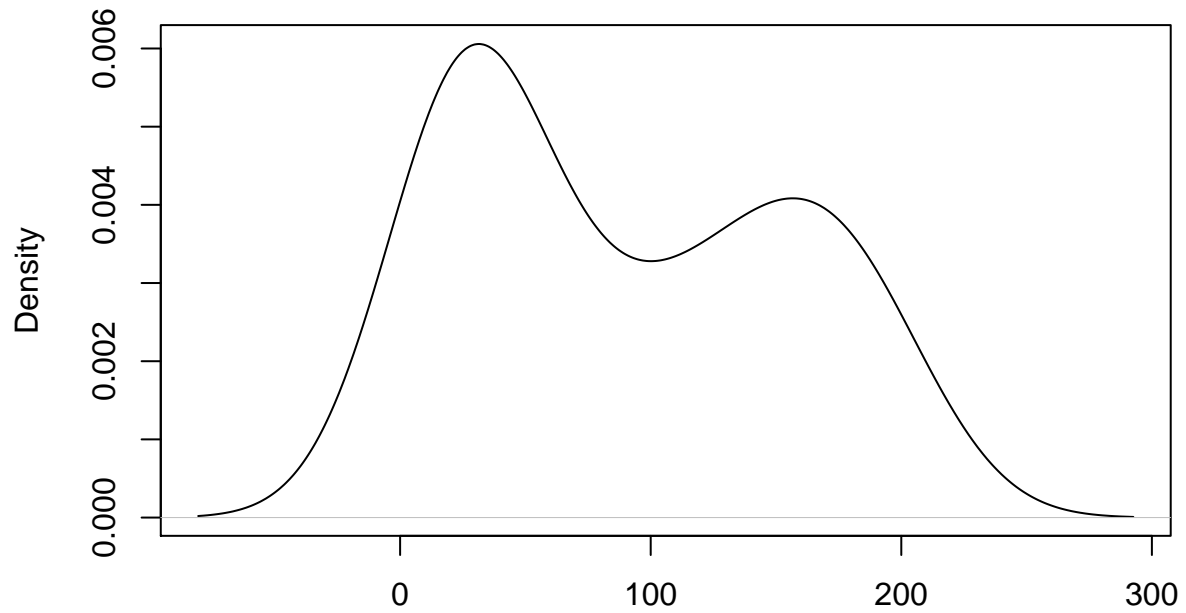
2 wk ahead − 16

4 wk ahead − 16

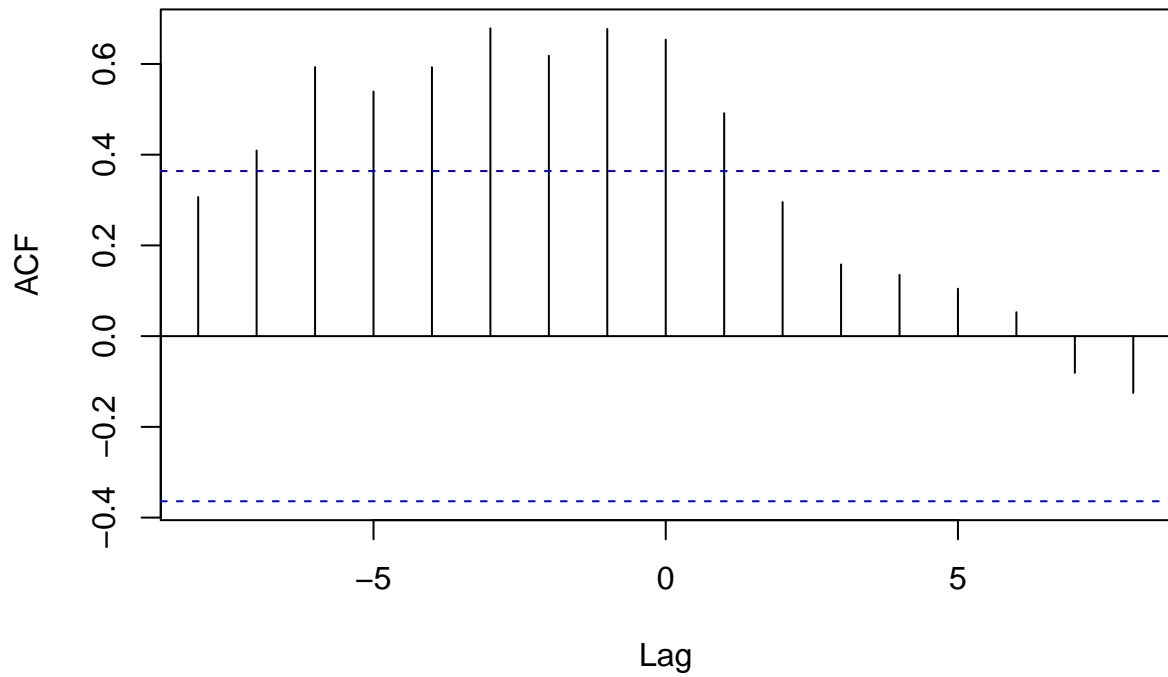density.default(x = pxt$value)
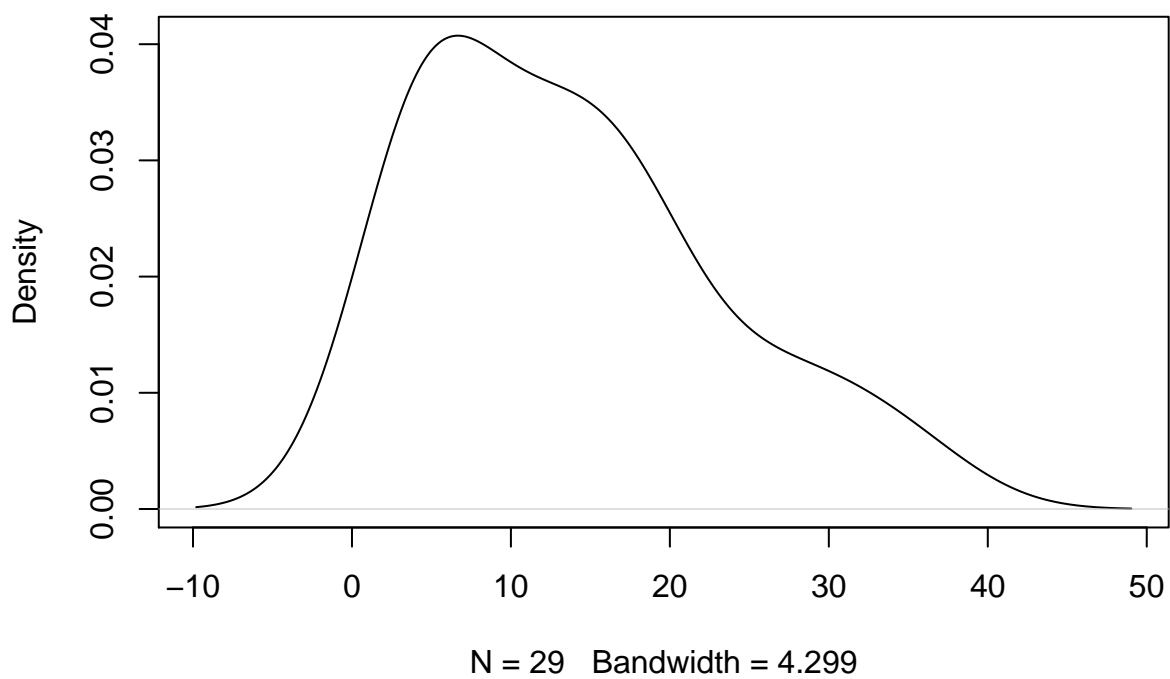
N = 29   Bandwidth = 4.299

density.default(x = py$value)
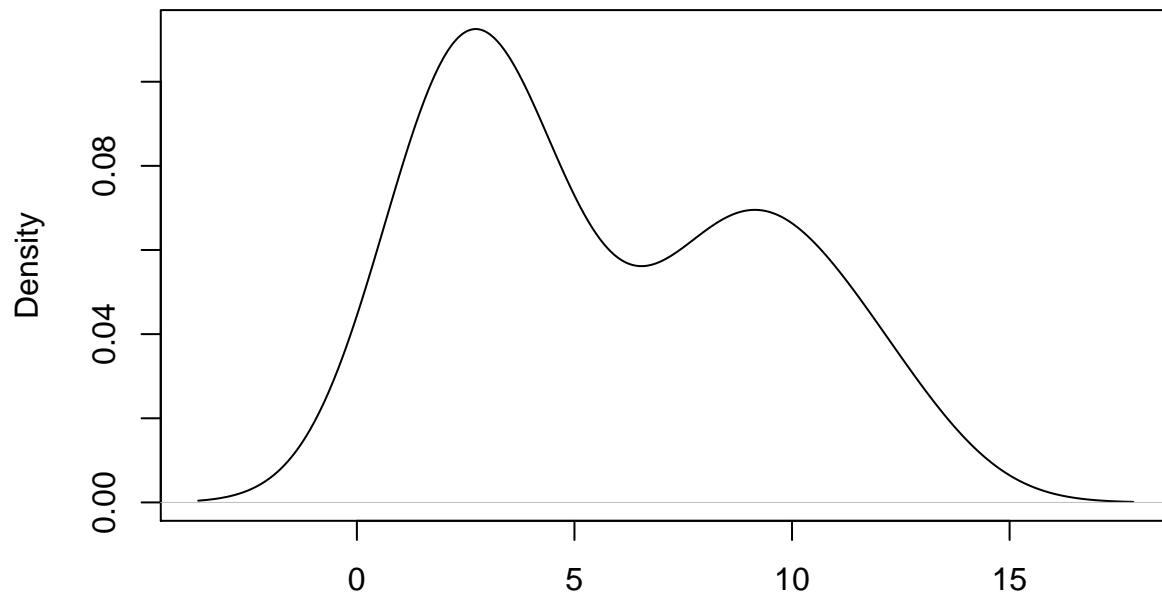

N = 29   Bandwidth = 30.2

2 wk ahead − 41

Lag
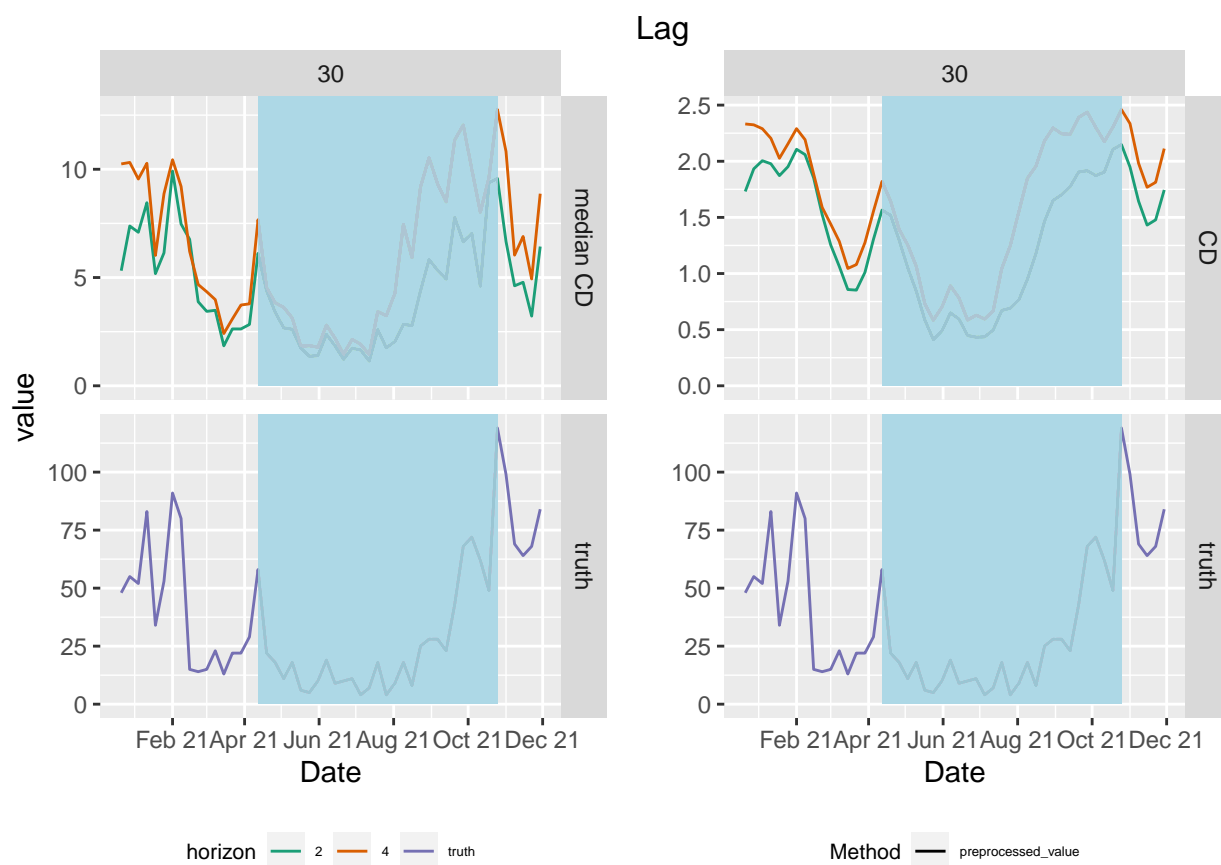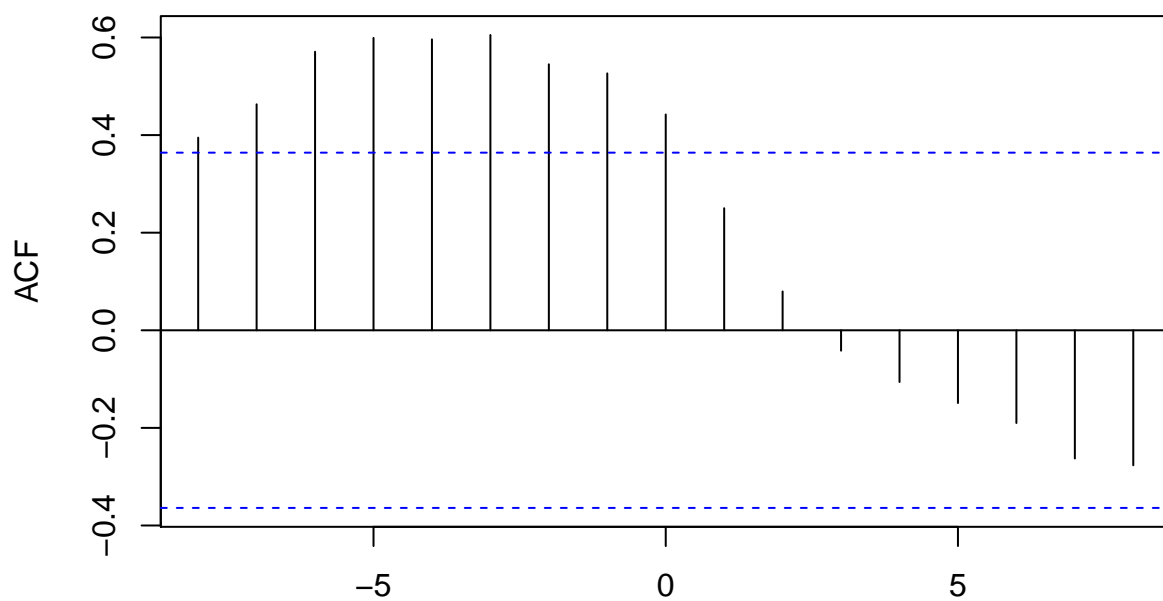
4 wk ahead − 41

density.default(x = pxt$value)

N = 29   Bandwidth = 1.696

density.default(x = py$value)

N = 29   Bandwidth = 6.507

2 wk ahead − 30

4 wk ahead − 30

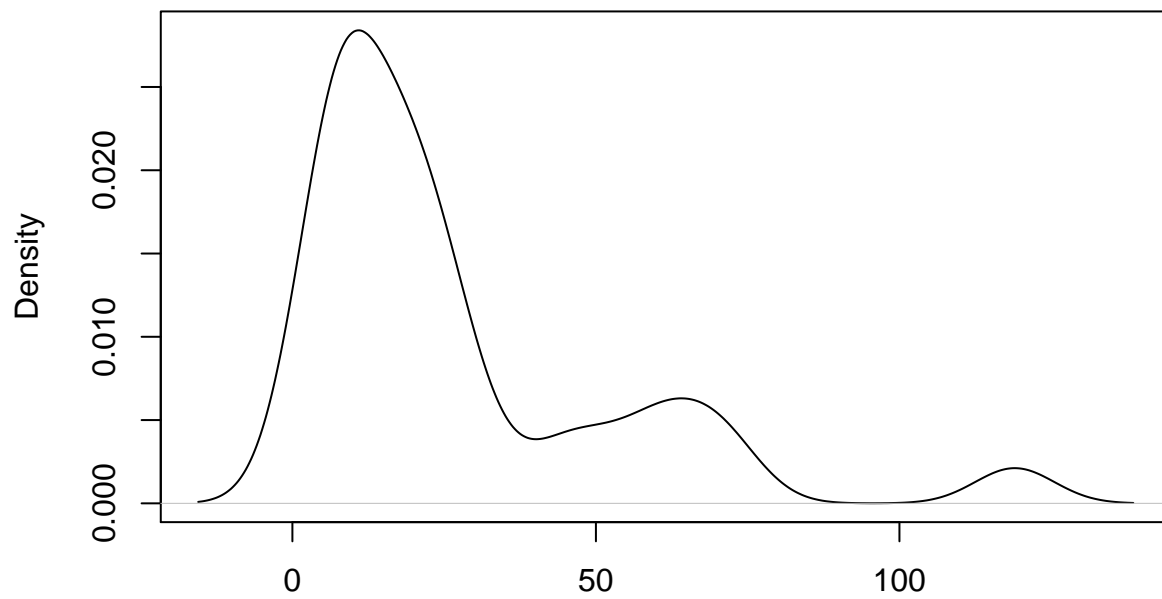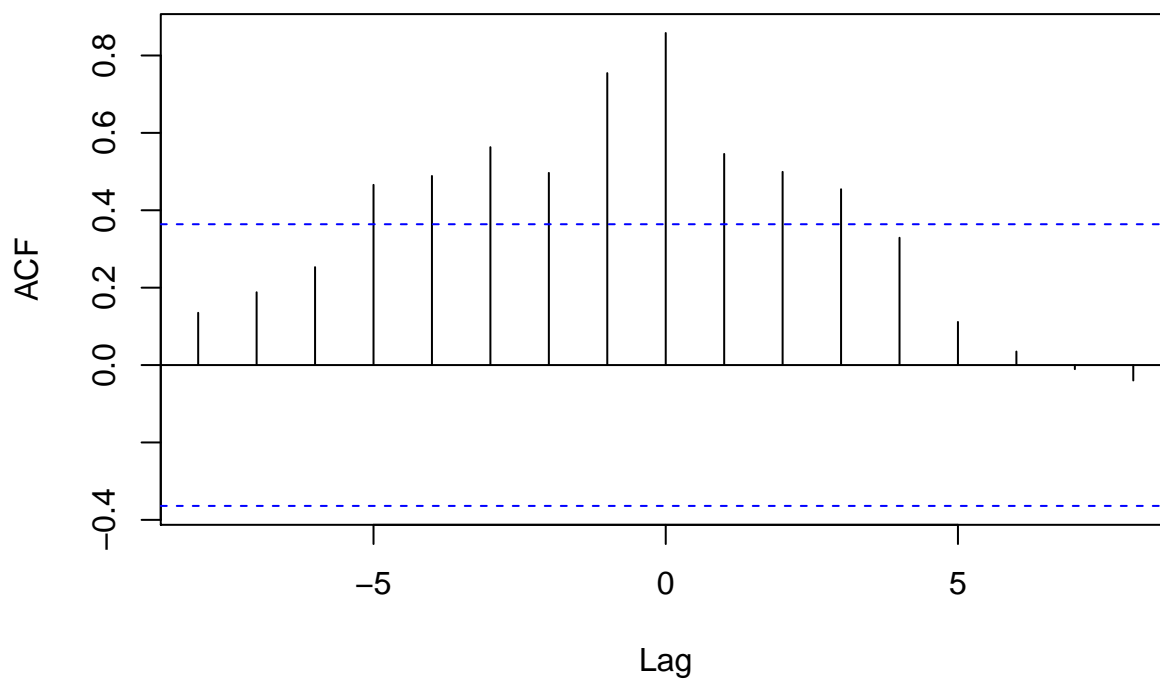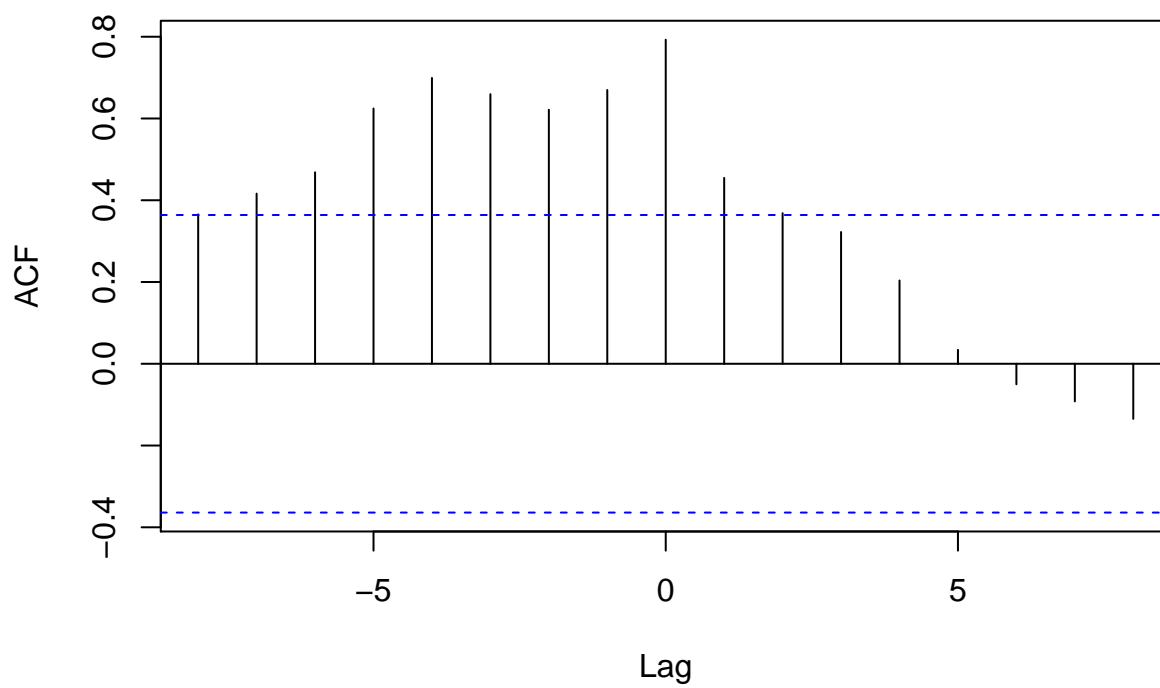**density.default(x = pxt$value)**

N = 29   Bandwidth = 1.656

density.default(x = py$value)
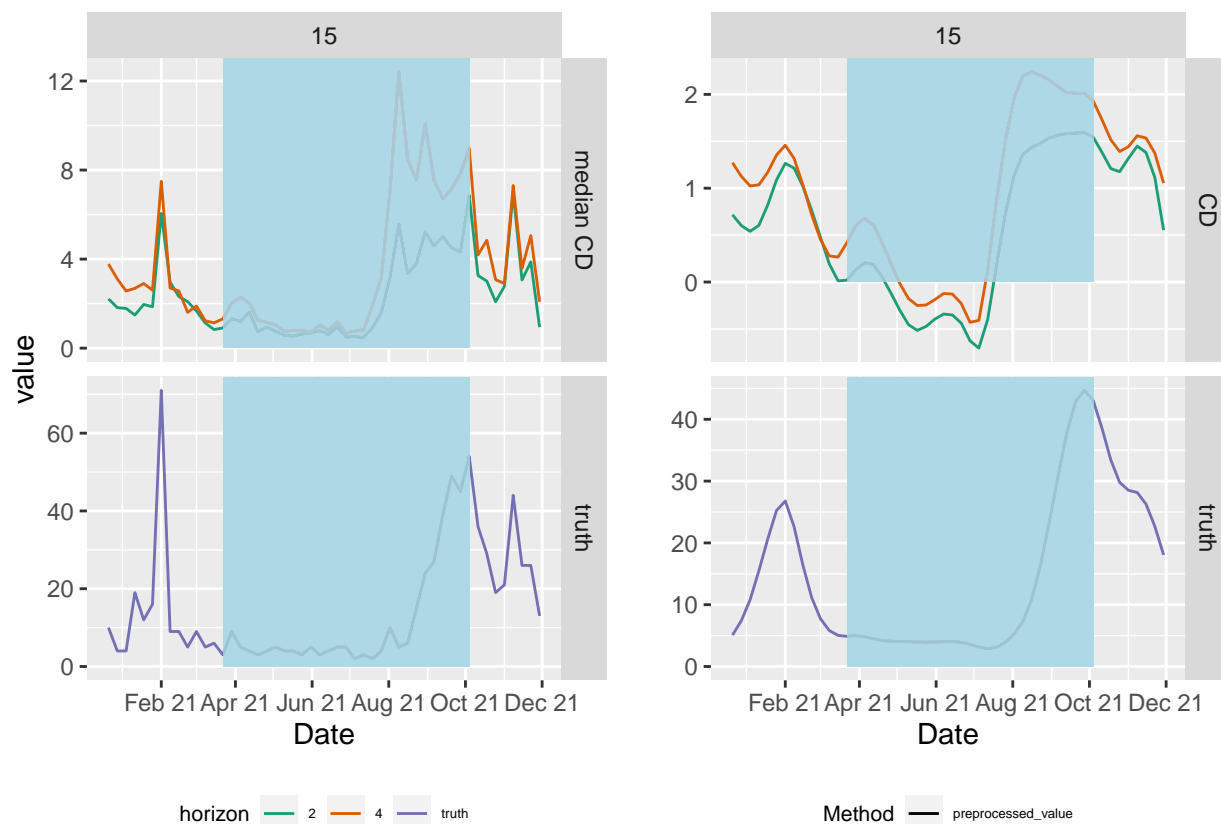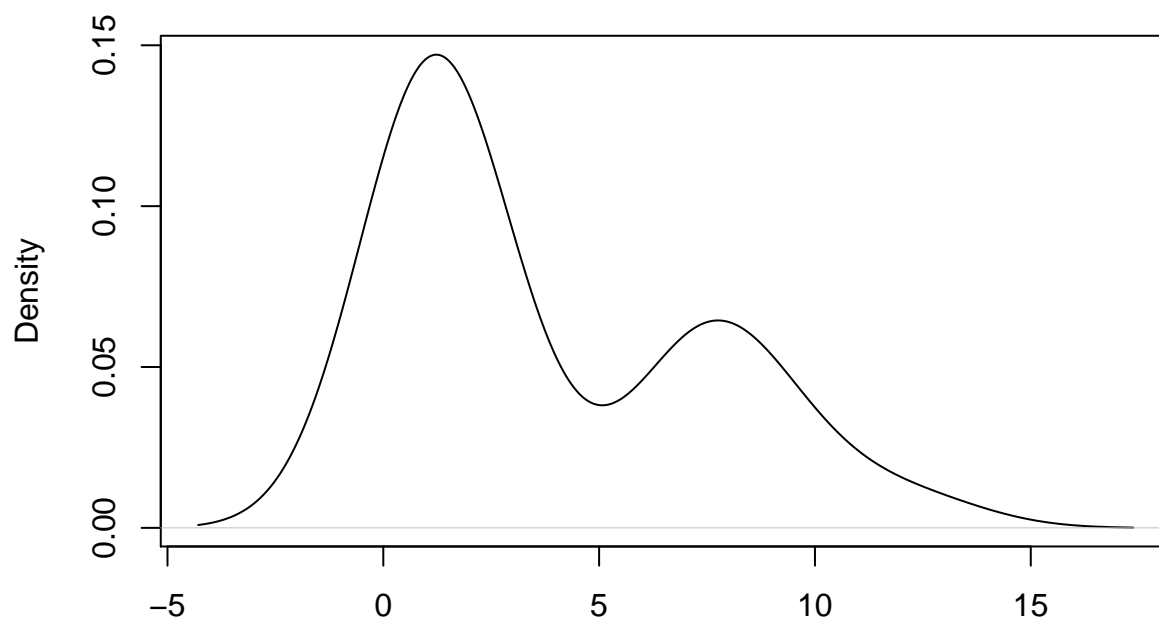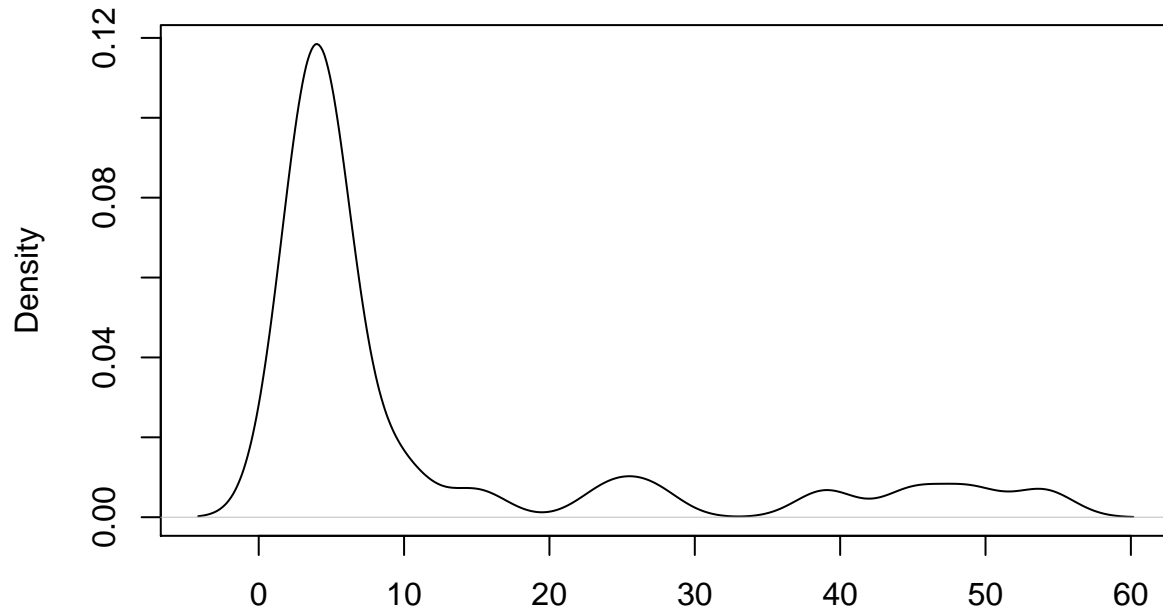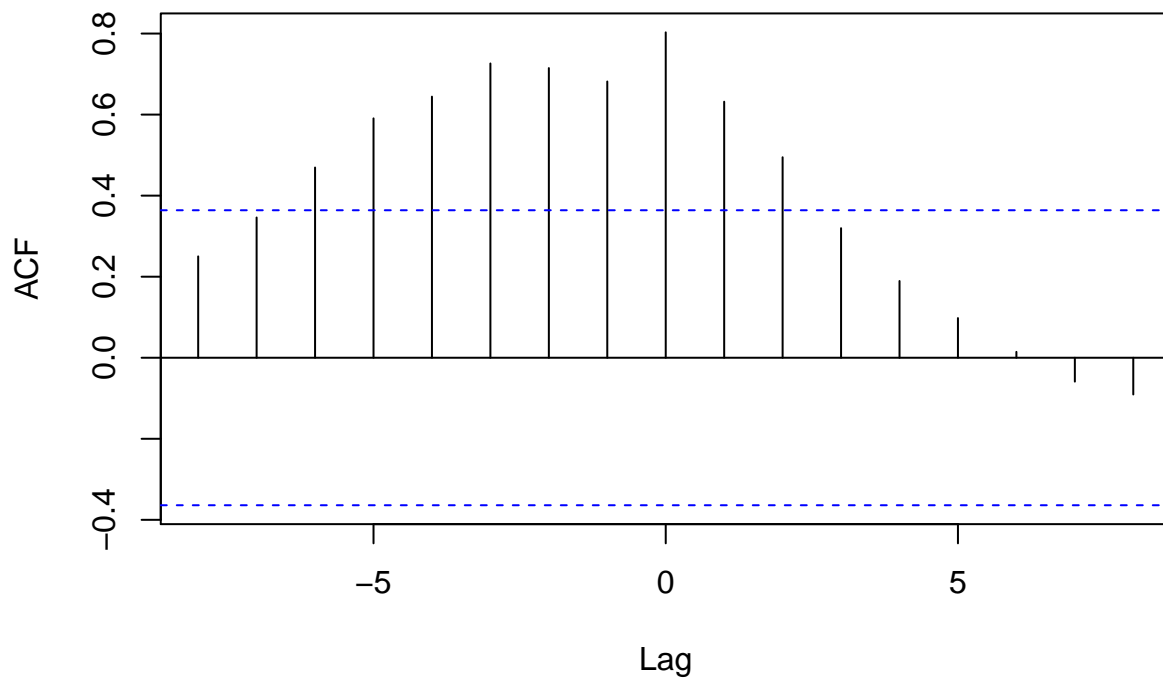

N = 29   Bandwidth = 2.055

2 wk ahead − 15

Lag

4 wk ahead − 15