- m : elecsales

, , . elecsales m-MA .

3-MA Figure 1 .

```r
autoplot(elecsales, series = "Data") +
  autolayer(ma(elecsales, 3), series = "3-MA") +
  scale_color_manual(values = c("Data" = "blue",
                                "3-MA" = "red")) +
  labs(title = "3-MA", color = NULL, y = NULL)
```
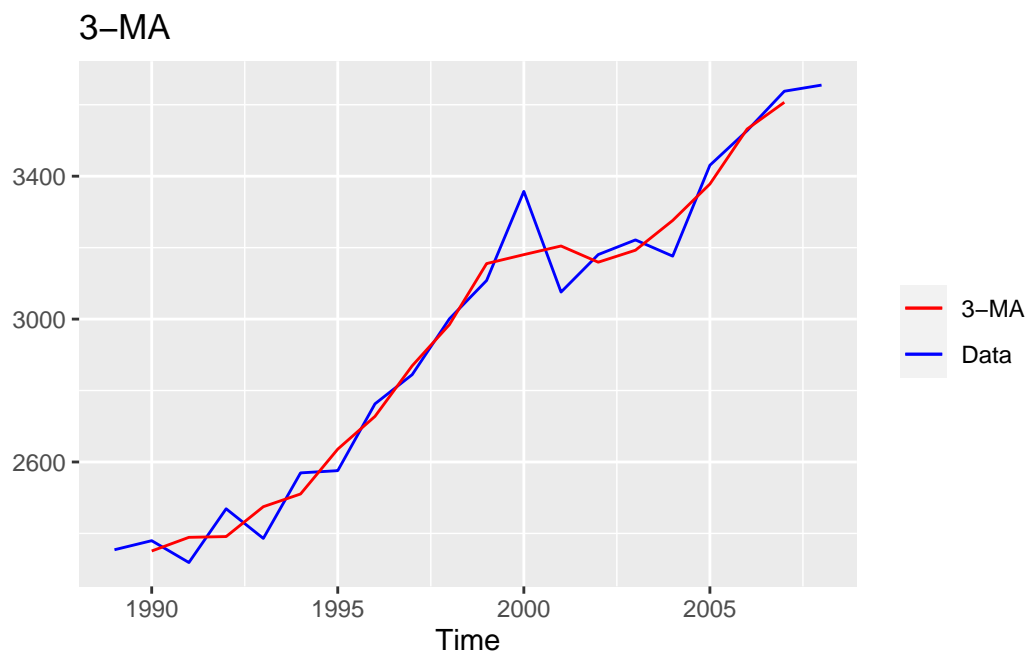

Figure 1: `elecsales` 3-MA

3-MA . m Figure 2 .

```r
library(patchwork)
p1 <- autoplot(elecsales) + autolayer(ma(elecsales, 3), size = .8, color = "red") +
  labs(y = NULL, title = "3-MA")
p2 <- autoplot(elecsales) + autolayer(ma(elecsales, 5), size = .8, color = "red") +
  labs(y = NULL, title = "5-MA")
p3 <- autoplot(elecsales) + autolayer(ma(elecsales, 7), size = .8, color = "red") +
  labs(y = NULL, title = "7-MA")
p4 <- autoplot(elecsales) + autolayer(ma(elecsales, 9), size = .8, color = "red") +
  labs(y = NULL, title = "9-MA")
(p1+p2)/(p3+p4)
```
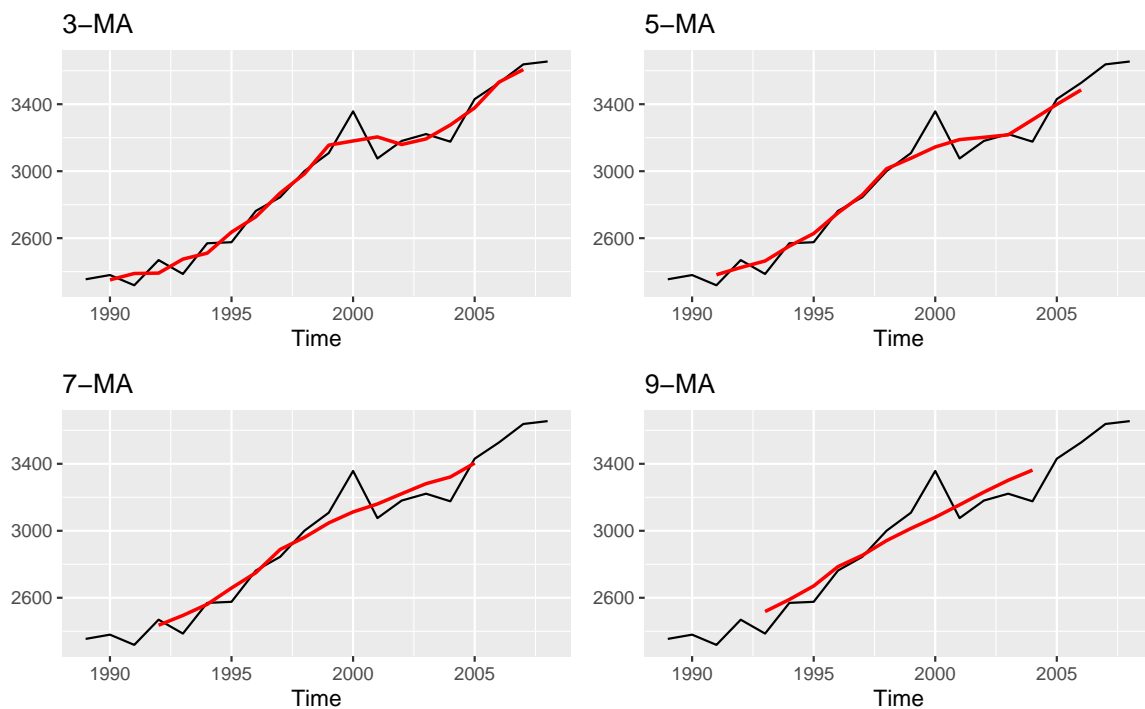

Figure 2: `elecsales` m

1956 2010 `ausbeer` $2 \times m$-MA Figure 3 .

```r
library(patchwork)
p1 <- autoplot(ausbeer) + autolayer(ma(ausbeer, 4), size = .8, color = "red") +
  labs(y = NULL, title = "4-MA")
```

```r
p2 <- autoplot(ausbeer) + autolayer(ma(ausbeer, 8), size = .8, color = "red") +
  labs(y = NULL, title = "8-MA")
p3 <- autoplot(ausbeer) + autolayer(ma(ausbeer, 12), size = .8, color = "red") +
  labs(y = NULL, title = "12-MA")
p4 <- autoplot(ausbeer) + autolayer(ma(ausbeer, 24), size = .8, color = "red") +
  labs(y = NULL, title = "24-MA")
(p1+p2)/(p3+p4)
```
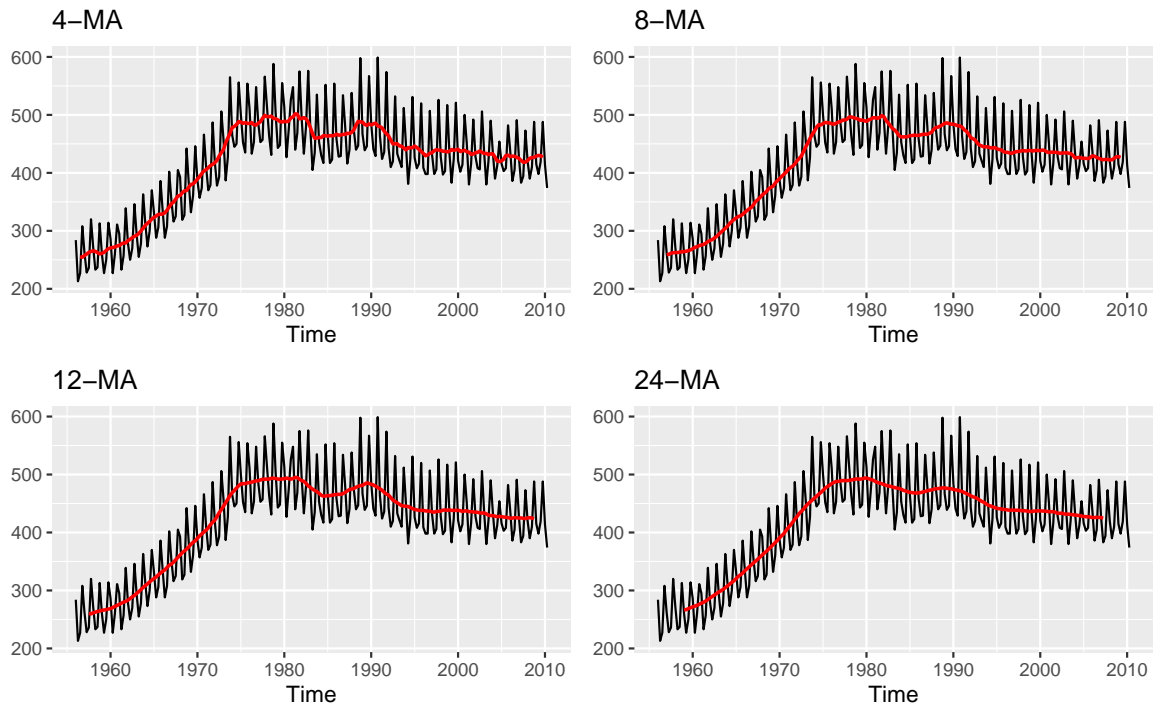

Figure 3: `ausbeer`　　　m

- 　　　　　: `fpp2::elecequip`

```r
decompose(elecequip) %>%
  autoplot()
```

Figure 4: `elecequip`

, . .

6 NA , .

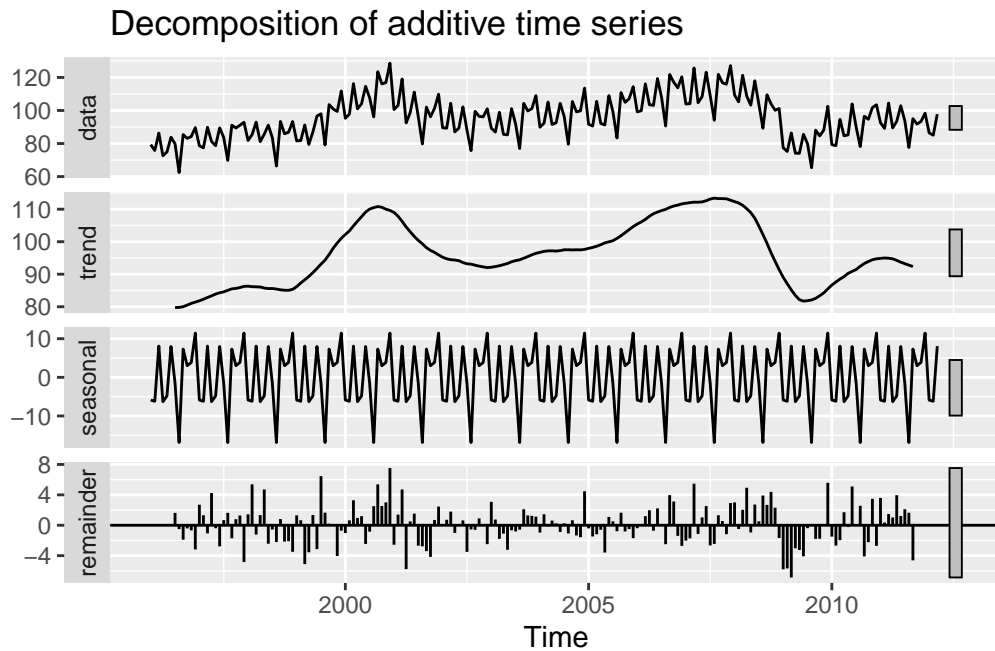## STL

- STL : `fpp2::elecequip`

```
library(patchwork)
p1 <- stl(elecequip, s.window = "periodic") %>%
  autoplot() + labs(title = "s.window = 'periodic'")
p2 <- stl(elecequip, s.window = 5) %>%
  autoplot() + labs(title = "s.window = 5")
p1 + p2
```

Figure 5: `elecequip`   STL   : `s.window`

```
library(patchwork)
p3 <- stl(elecequip, s.window = "periodic", t.window = 7) %>%
  autoplot() + labs(title = "t.window = 7")
p4 <- stl(elecequip, s.window = "periodic", t.window = 11) %>%
  autoplot() + labs(title = "t.window = 11")
p3 + p4
```
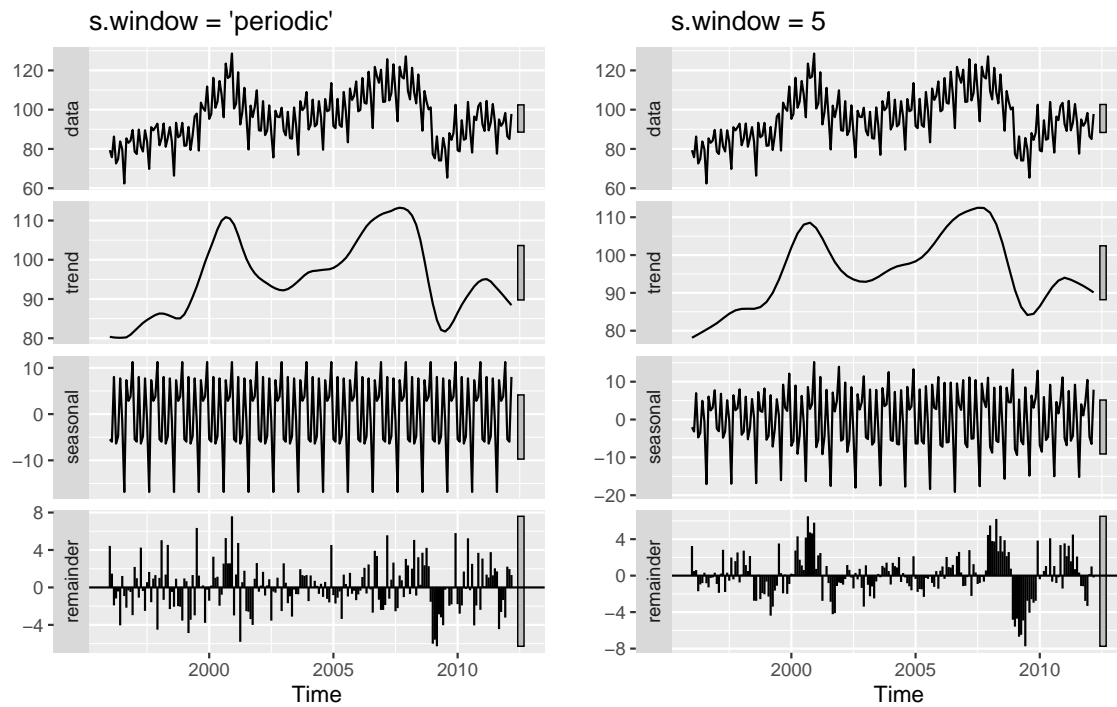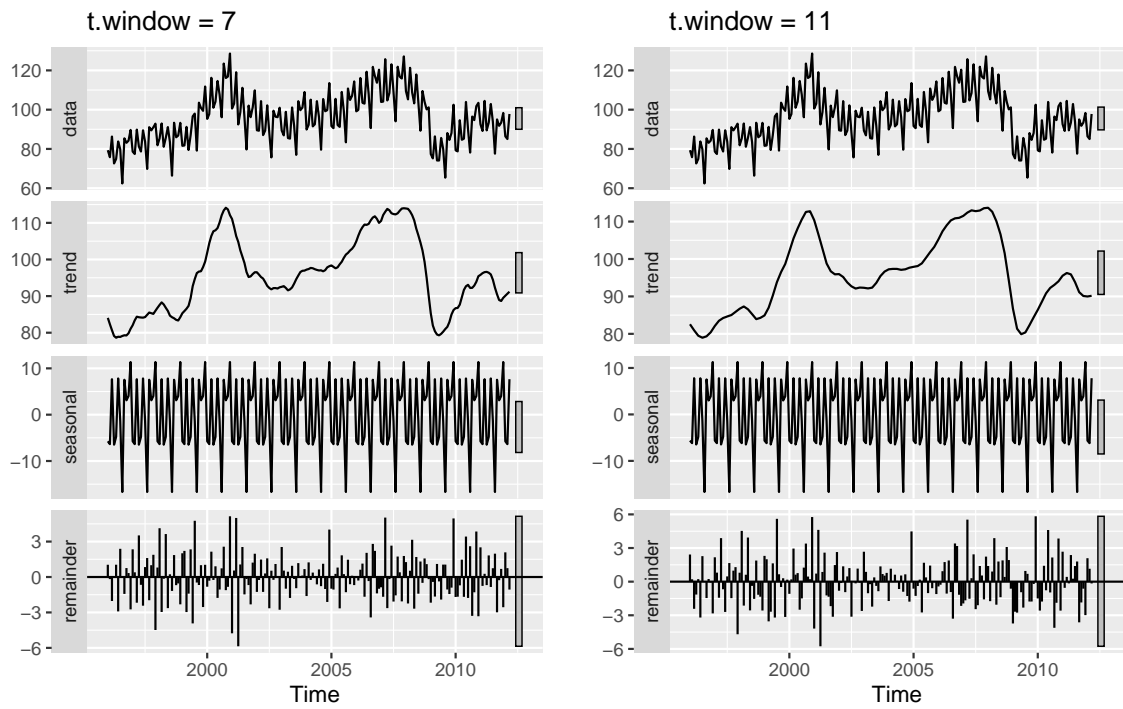
Figure 6: `elecequip`   STL   : `t.window`