**bfast (R package)**

$x(t) = a + b_x\, x(t\text{-}1) + \delta(t)$

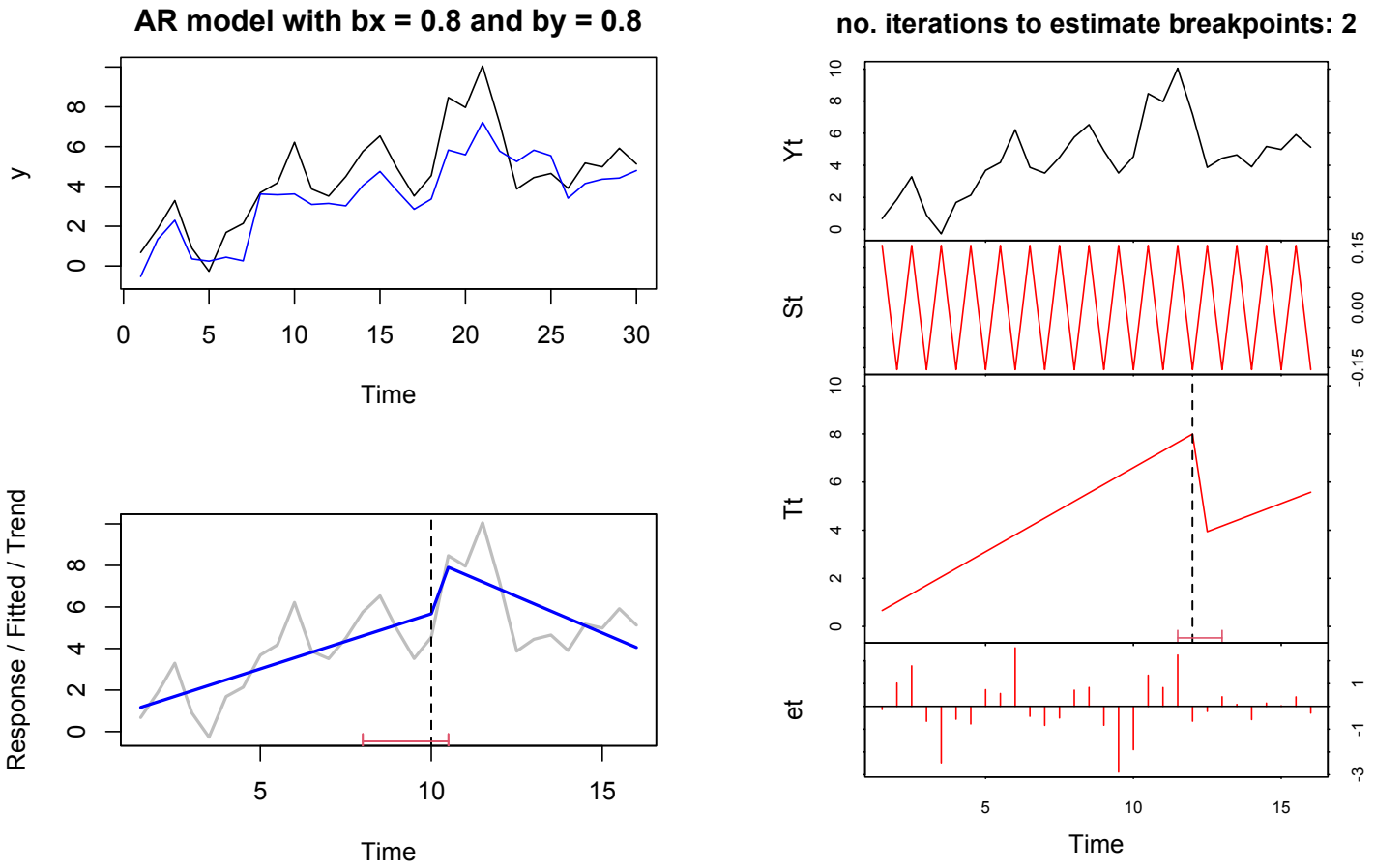
Regression with autocorrelated residuals

$y(t) = a + c\, x(t) + \varepsilon(t)$
$\varepsilon(t) = b_y\, \varepsilon(t\text{–}1) + \delta(t)$

Conditional regression

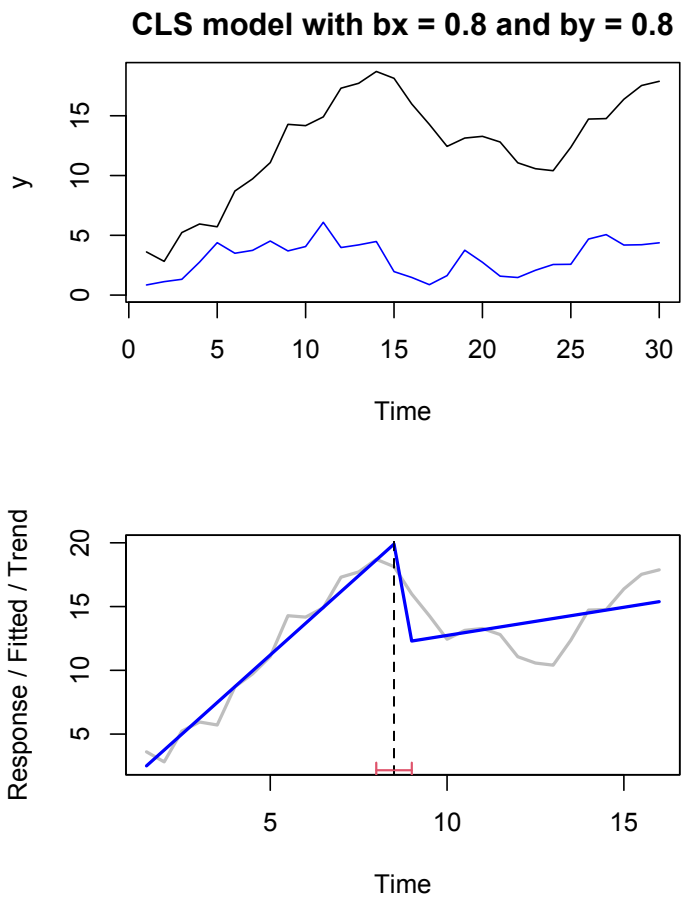
$y(t) = a + b_y\, (t\text{-}1) + c\, x(t\text{-}1) + \delta(t)$

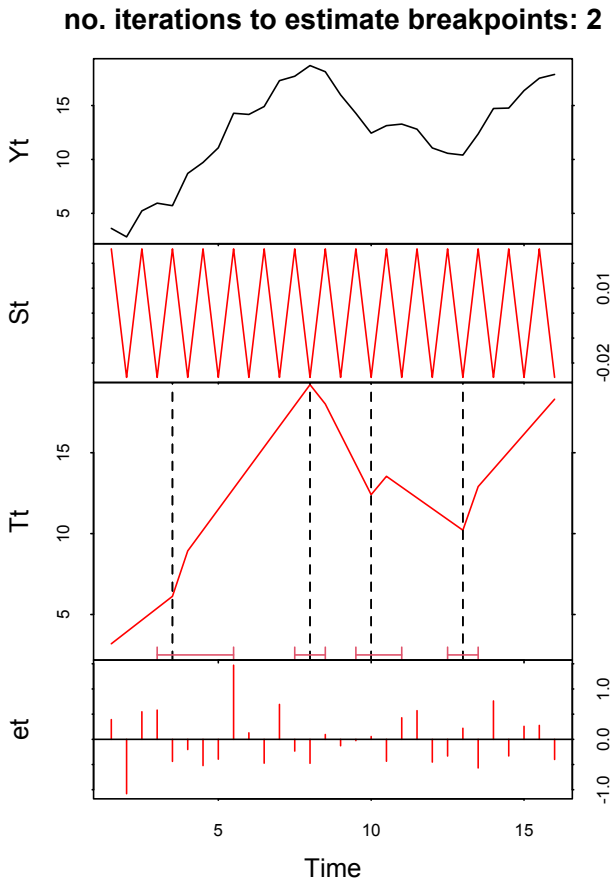
# bfast (R package)




| Type I errors ($\alpha$=0.05) | bfast01 | bfast |
|---|---|---|
| | 0.26 | 0.21 |

# bfast (R package)




| Type I errors ($\alpha$=0.05) | bfast01 | bfast |
|---|---|---|
| | 0.148 | 0.097 |

Does this only apply to linear trends?

e.g., abrupt change in Fig. 2 with LandTrendr

1. Inflated type I errors are really common in breakpoint methods, but BFAST is pretty good

2. It is not clear to me what a breakpoint is biologically

3. In a spatial context, there are likely to be all kinds of troubles having to do with non-independence of "nearby" pixels