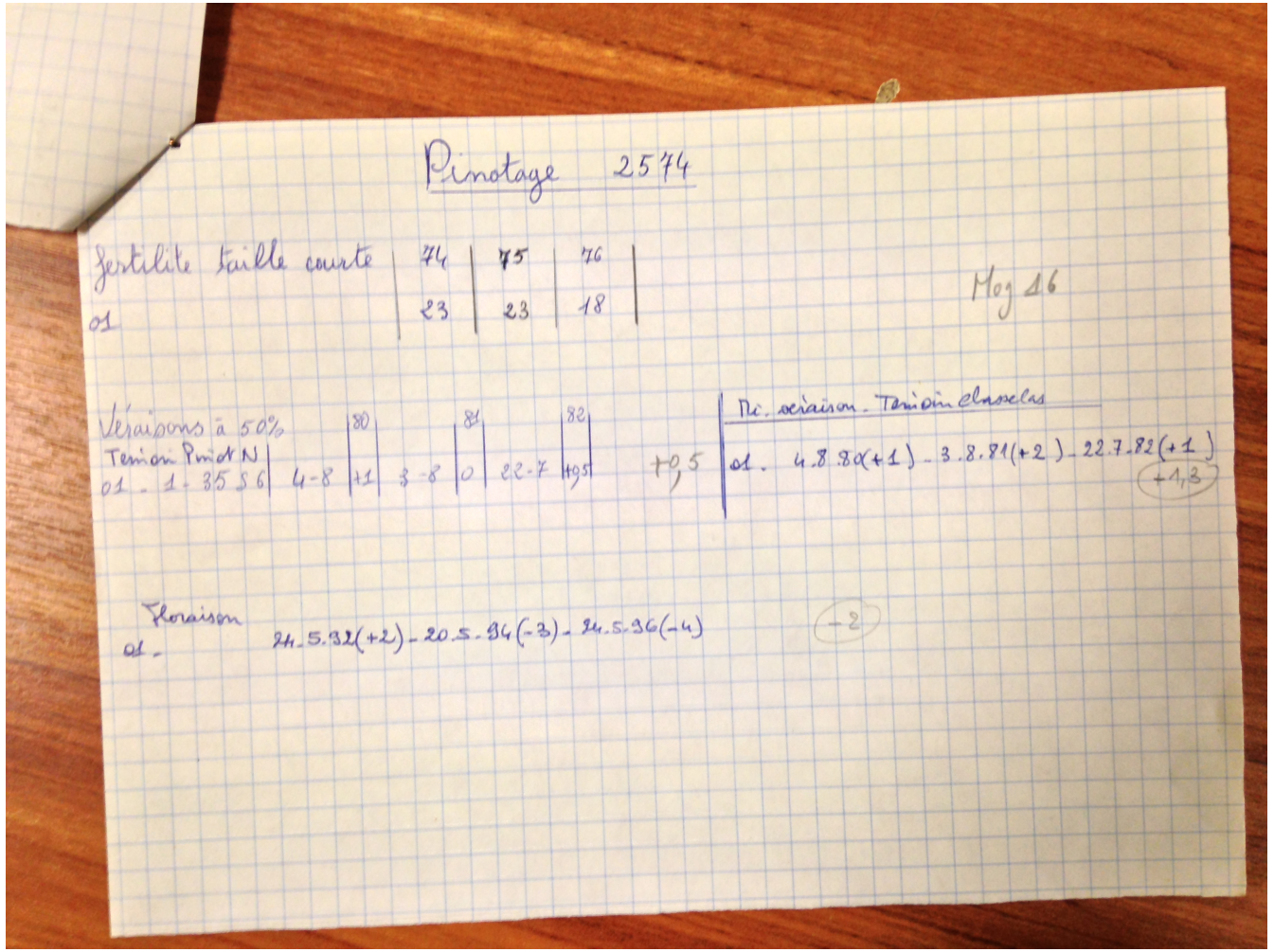
Duration of interphenophases in winegrapes

Domaine de Vassal

- Research vineyard in France
- Plant many varieties and clones for experiments and data collection
- Vines are planted for 5 years
- Except Chasselas

- Chasselas is continually grown as the baseline variety
- Phenology is measured relative to Chesselas
- If budbreak for Chasselas is April 15, then
  - April 15 = 0
  - April 14 = -1
  - April 16 = +1



Question:

- Has the duration of interphenophases changed since the 1980s?
- If so, does the change differ between varieties?
- Interphenophase = time between phenophases (budburst to flowering)

Model

Duration ~ N(mu, sigma)

$mu = a_{var} + B*year$

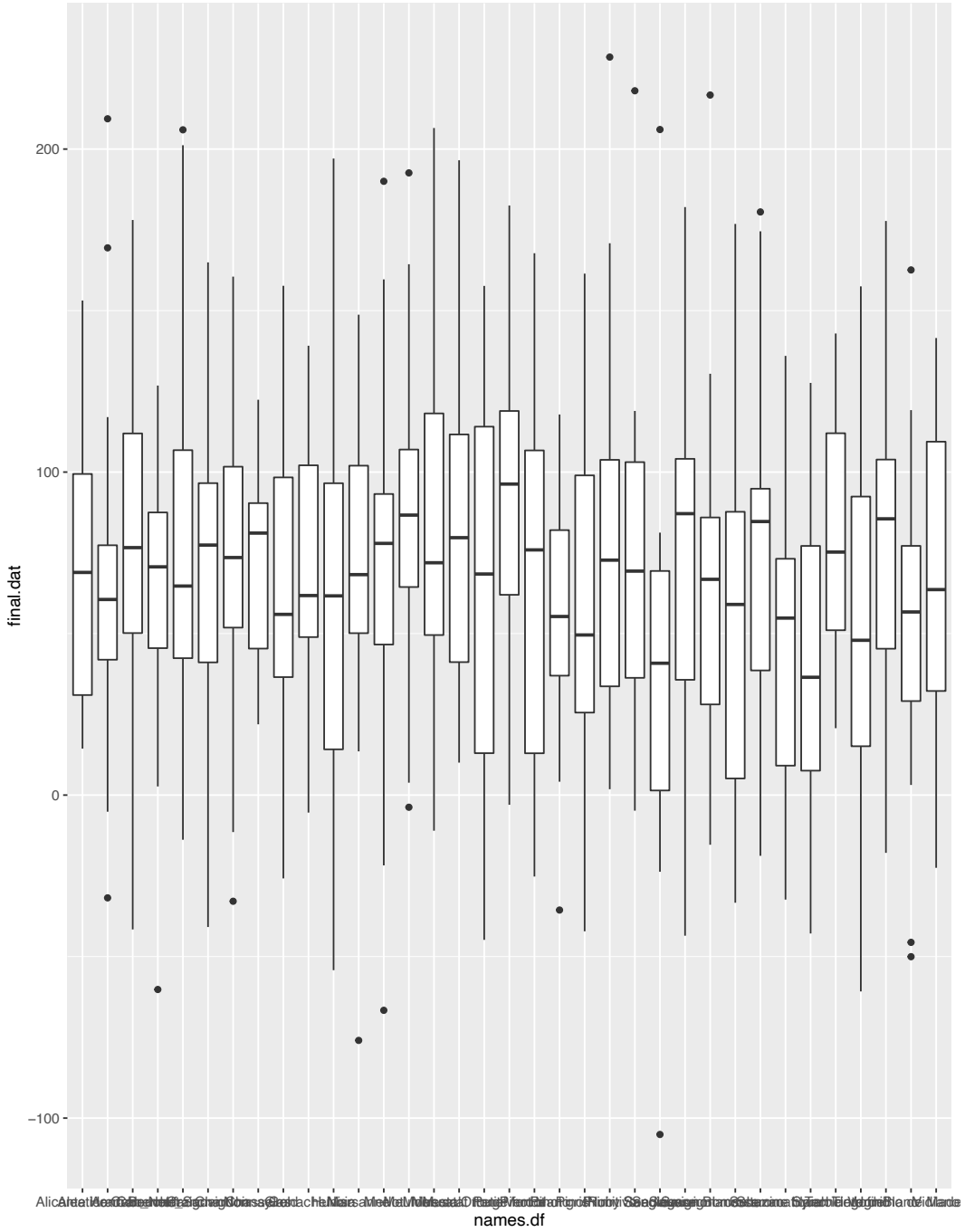
$a_{var} \sim N(mu_{var}, sigma_{var})$

$B \sim N(mu_B, sigma_B)$

$e \sim U(0, 20)$

$Duration = a_{var} + B*year + e$

- So each variety has unique intercept but same slope (for now)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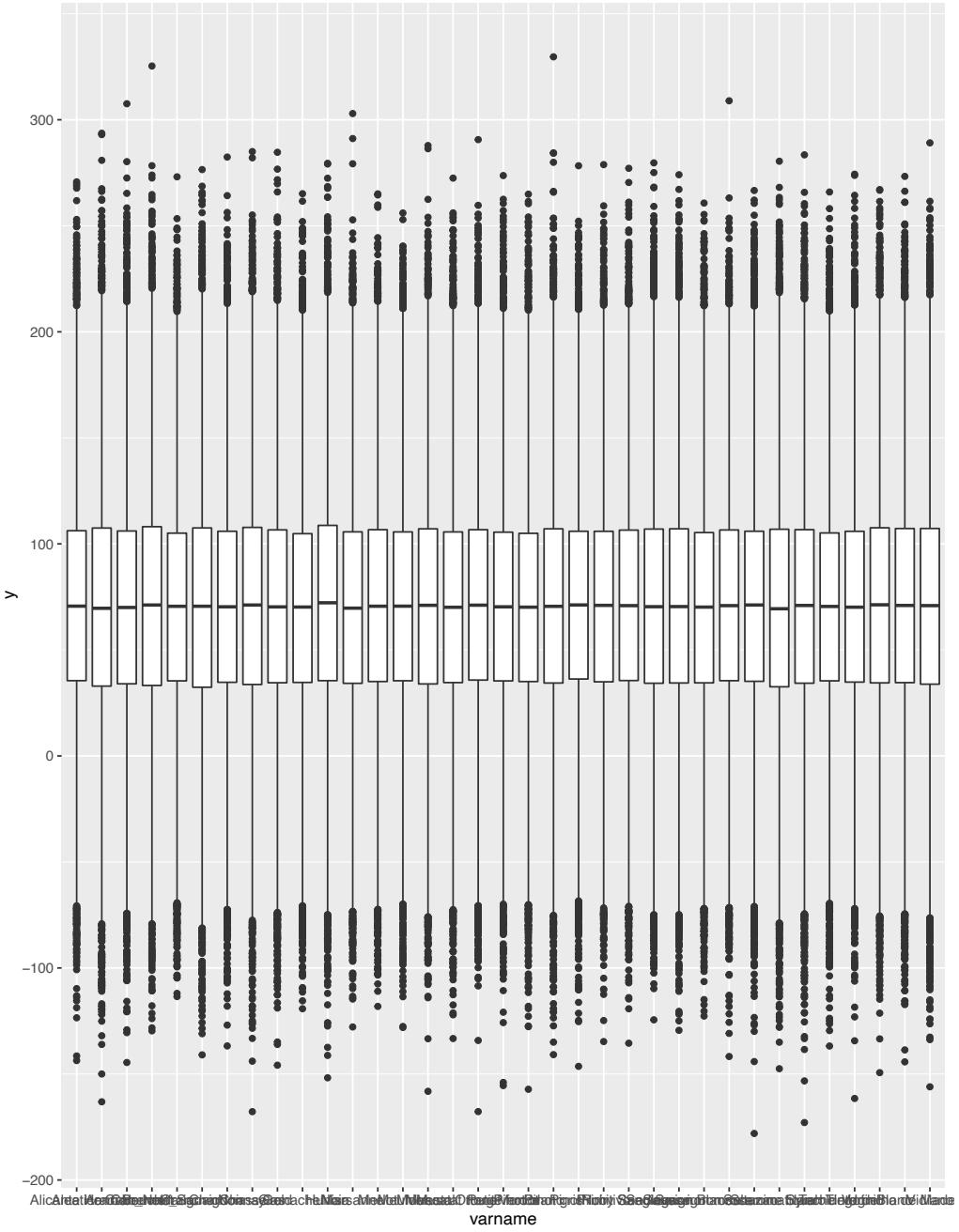
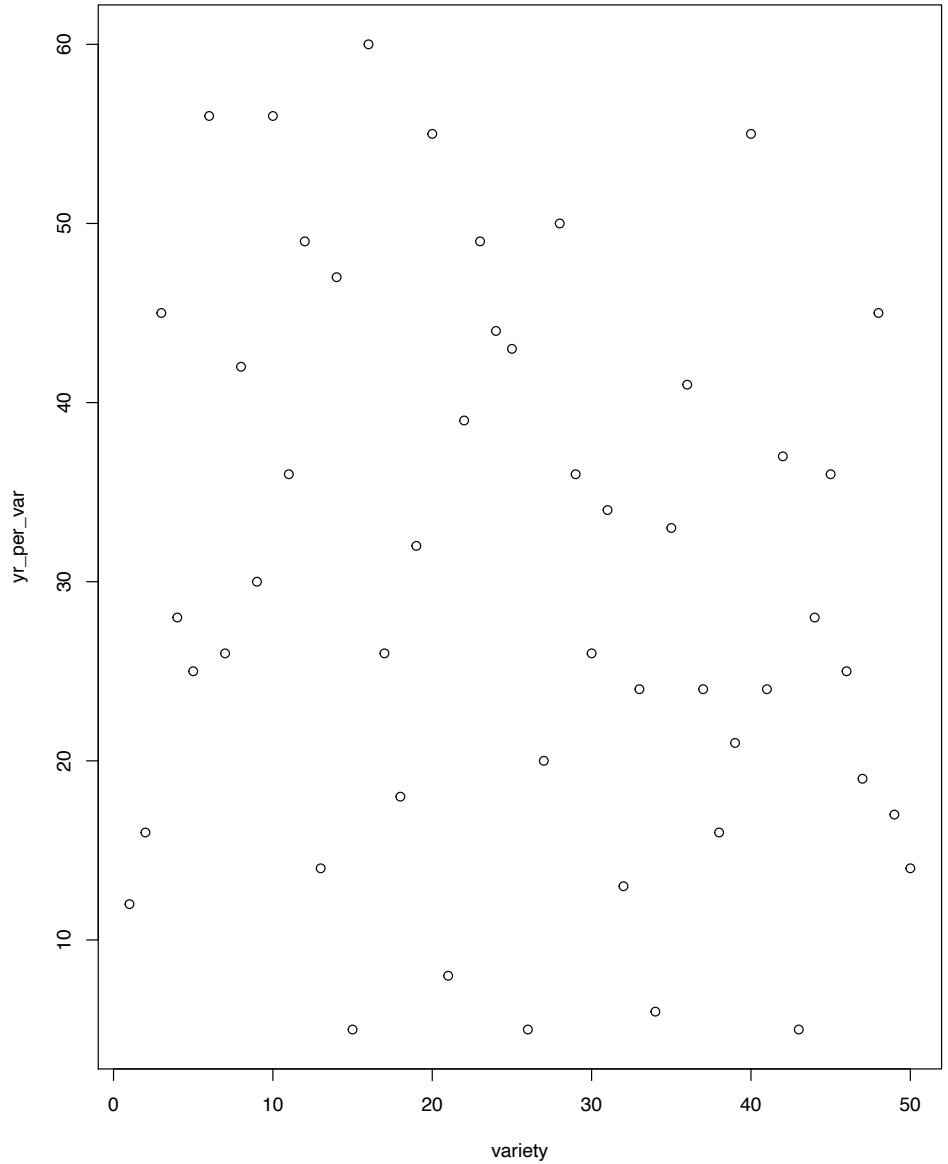
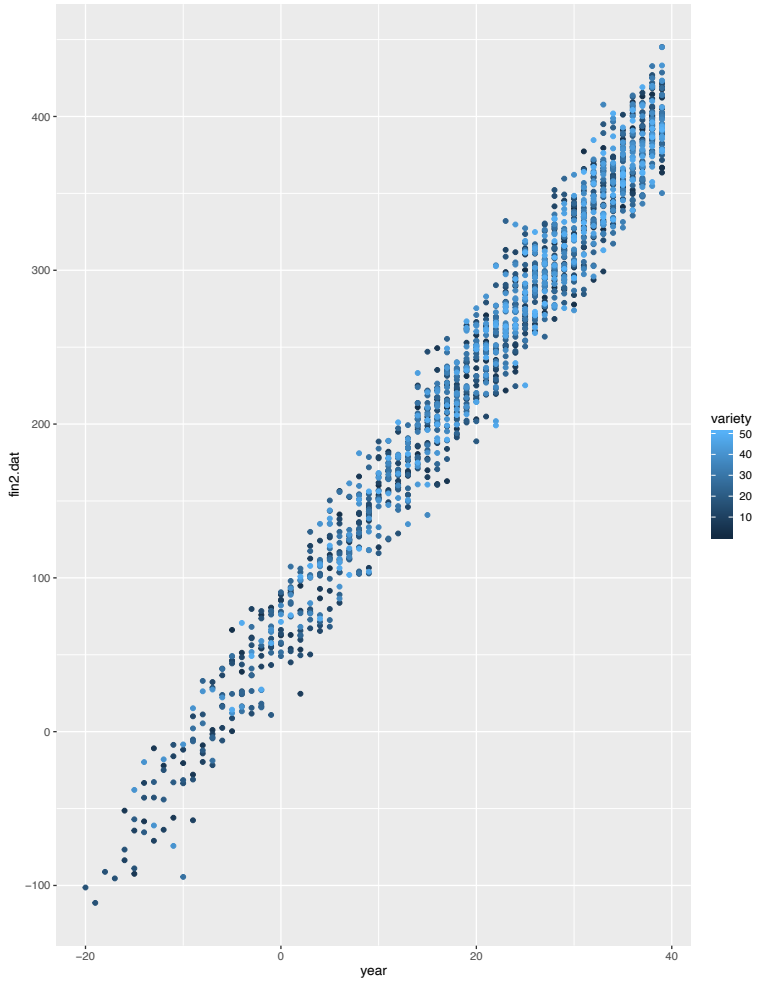
200
100
0
−100
names.df


y
300
200
100
0
−100
−200
varname


yr_per_var
10
20
30
40
50
60
0
10
20
30
40
50
variety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variety
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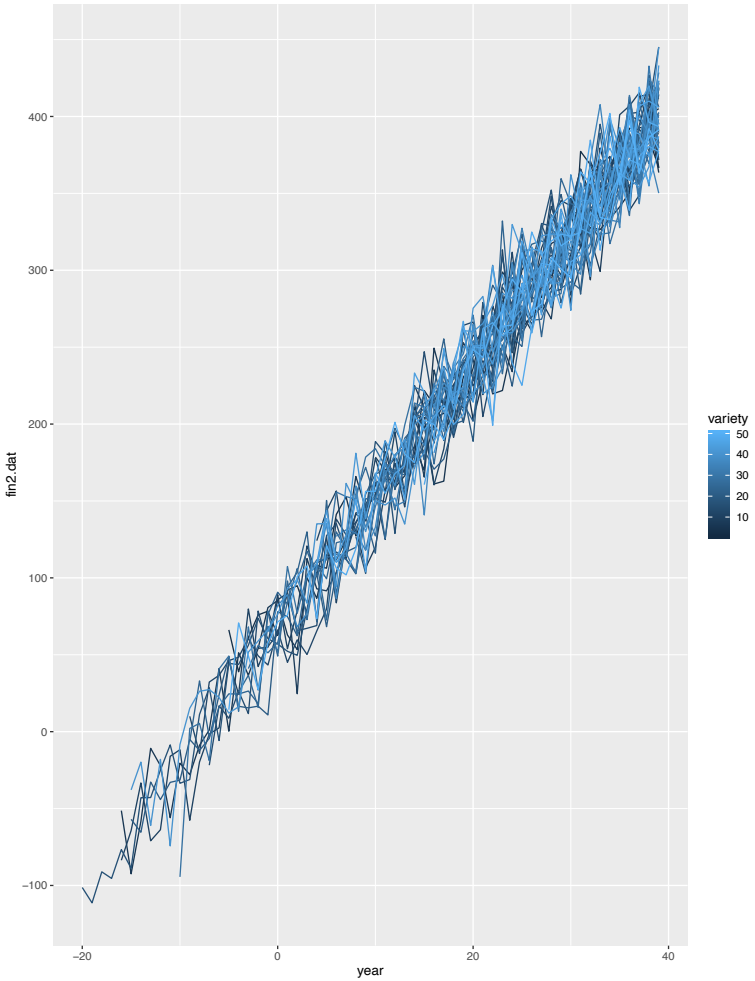
40
30
20
10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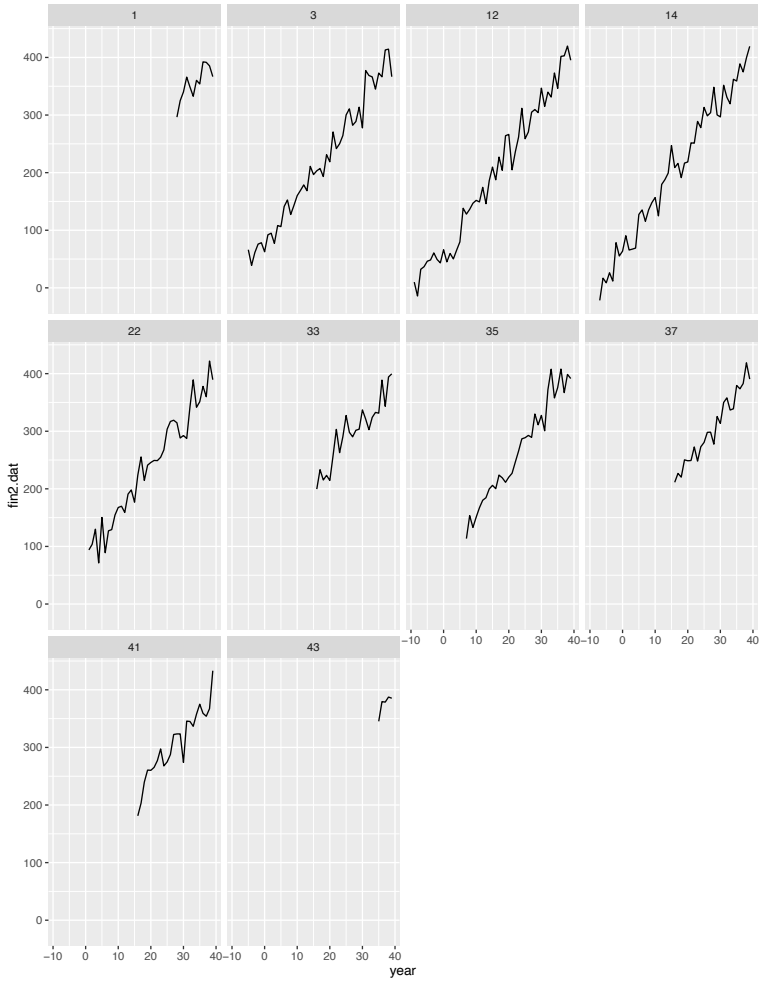
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3
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43
fin2.dat
year