Arbeidskrav 5

Kristoffer Solum

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library(tidyverse)  
dat <- dxadata %>%  
 select(participant:include, lean.left\_leg, lean.right\_leg) %>%  
 pivot\_longer(names\_to = "leg",   
 values\_to = "lean.mass",   
 cols = lean.left\_leg:lean.right\_leg) %>%  
 mutate(leg = if\_else(leg == "lean.left\_leg", "L", "R"),   
 sets = if\_else(multiple == leg, "multiple", "single")) %>%  
 select(participant, time, sets, sex, leg, lean.mass) %>%  
   
 pivot\_wider(names\_from = time,  
 values\_from = lean.mass) %>%  
 mutate(lbm.change = post - pre) %>%  
 mutate(pre.mc = pre - mean(pre)) %>%   
 mutate(prosentvis.endring = ((post - pre) / pre) \* 100) %>%  
 filter(!is.na(lbm.change)) %>%  
  
   
 print()

## # A tibble: 78 x 9  
## participant sets sex leg pre post lbm.change pre.mc prosentvis.endr~  
## <chr> <chr> <chr> <chr> <dbl> <dbl> <dbl> <dbl> <dbl>  
## 1 FP28 mult~ fema~ L 7059 7273 214 -1658. 3.03   
## 2 FP28 sing~ fema~ R 7104 7227 123 -1613. 1.73   
## 3 FP40 sing~ fema~ L 7190 7192 2 -1527. 0.0278  
## 4 FP40 mult~ fema~ R 7506 7437 -69 -1211. -0.919   
## 5 FP21 sing~ male L 10281 10470 189 1564. 1.84   
## 6 FP21 mult~ male R 10200 10819 619 1483. 6.07   
## 7 FP34 sing~ fema~ L 6014 6326 312 -2703. 5.19   
## 8 FP34 mult~ fema~ R 6009 6405 396 -2708. 6.59   
## 9 FP23 sing~ male L 8242 8687 445 -475. 5.40   
## 10 FP23 mult~ male R 8685 8480 -205 -32.4 -2.36   
## # ... with 68 more rows

dat %>%  
 group\_by(sets) %>%  
 summarise(m = mean(prosentvis.endring),  
 sd = sd(prosentvis.endring)) %>%  
  
print()

## # A tibble: 2 x 3  
## sets m sd  
## <chr> <dbl> <dbl>  
## 1 multiple 3.32 4.39  
## 2 single 2.04 3.71

library(lme4)

## Loading required package: Matrix

##   
## Attaching package: 'Matrix'

## The following objects are masked from 'package:tidyr':  
##   
## expand, pack, unpack

library(lmerTest)

##   
## Attaching package: 'lmerTest'

## The following object is masked from 'package:lme4':  
##   
## lmer

## The following object is masked from 'package:stats':  
##   
## step

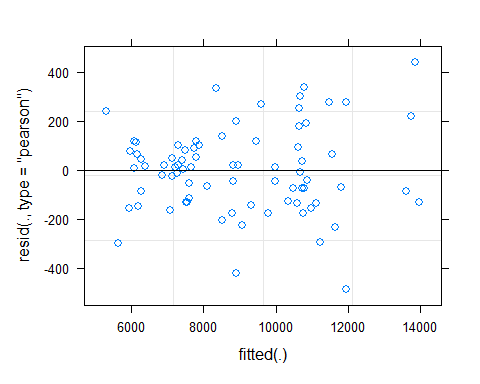
m0 <- lm(post ~ pre + sex + sets, data = dat)  
m1 <- lmerTest::lmer(post ~ pre + sets + (1|participant), data = dat)

## Warning: Some predictor variables are on very different scales: consider  
## rescaling  
  
## Warning: Some predictor variables are on very different scales: consider  
## rescaling

m2 <- lme4::lmer(post ~ pre + sex + sets + (1|participant), data = dat)

## Warning: Some predictor variables are on very different scales: consider  
## rescaling

plot(m2)



summary(m0)

##   
## Call:  
## lm(formula = post ~ pre + sex + sets, data = dat)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -1383.20 -206.33 3.24 208.48 1004.52   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 210.05961 277.25343 0.758 0.451   
## pre 1.00339 0.03768 26.629 <2e-16 \*\*\*  
## sexmale 100.78105 156.25812 0.645 0.521   
## setssingle -114.55410 87.29173 -1.312 0.193   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 385.5 on 74 degrees of freedom  
## Multiple R-squared: 0.9697, Adjusted R-squared: 0.9684   
## F-statistic: 788.3 on 3 and 74 DF, p-value: < 2.2e-16

summary(m1)

## Linear mixed model fit by REML. t-tests use Satterthwaite's method [  
## lmerModLmerTest]  
## Formula: post ~ pre + sets + (1 | participant)  
## Data: dat  
##   
## REML criterion at convergence: 1111.5  
##   
## Scaled residuals:   
## Min 1Q Median 3Q Max   
## -2.24819 -0.56823 0.01947 0.41175 1.91556   
##   
## Random effects:  
## Groups Name Variance Std.Dev.  
## participant (Intercept) 97224 311.8   
## Residual 51703 227.4   
## Number of obs: 78, groups: participant, 39  
##   
## Fixed effects:  
## Estimate Std. Error df t value Pr(>|t|)   
## (Intercept) 145.40330 244.28568 38.43366 0.595 0.5552   
## pre 1.01638 0.02698 37.63886 37.669 <2e-16 \*\*\*  
## setssingle -114.61404 51.49202 37.77695 -2.226 0.0321 \*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Correlation of Fixed Effects:  
## (Intr) pre   
## pre -0.967   
## setssingle -0.103 -0.002  
## fit warnings:  
## Some predictor variables are on very different scales: consider rescaling

summary(m2)

## Linear mixed model fit by REML ['lmerMod']  
## Formula: post ~ pre + sex + sets + (1 | participant)  
## Data: dat  
##   
## REML criterion at convergence: 1098.3  
##   
## Scaled residuals:   
## Min 1Q Median 3Q Max   
## -2.16463 -0.57619 0.03941 0.44008 1.95883   
##   
## Random effects:  
## Groups Name Variance Std.Dev.  
## participant (Intercept) 101459 318.5   
## Residual 50542 224.8   
## Number of obs: 78, groups: participant, 39  
##   
## Fixed effects:  
## Estimate Std. Error t value  
## (Intercept) 375.74770 353.43714 1.063  
## pre 0.98000 0.04848 20.215  
## sexmale 181.21652 201.99100 0.897  
## setssingle -114.44615 50.91098 -2.248  
##   
## Correlation of Fixed Effects:  
## (Intr) pre sexmal  
## pre -0.972   
## sexmale 0.713 -0.825   
## setssingle -0.068 -0.004 0.004  
## fit warnings:  
## Some predictor variables are on very different scales: consider rescaling

confint(m2)

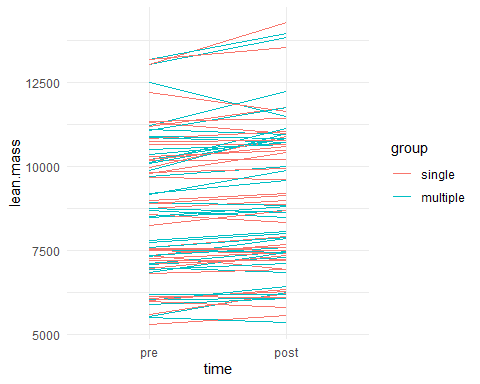
## Computing profile confidence intervals ...

## 2.5 % 97.5 %  
## .sig01 223.4660349 407.611102  
## .sigma 180.0741108 282.474938  
## (Intercept) -309.7456948 1079.032810  
## pre 0.8833748 1.074071  
## sexmale -209.2788314 580.751493  
## setssingle -215.4777151 -13.452514

modeldat <- dxadata %>%  
 select(participant:include, lean.left\_leg, lean.right\_leg) %>%  
 pivot\_longer(names\_to = "leg",   
 values\_to = "lean.mass",   
 cols = lean.left\_leg:lean.right\_leg) %>%  
 mutate(leg = if\_else(leg == "lean.left\_leg", "L", "R"),   
 sets = if\_else(multiple == leg, "multiple", "single")) %>%  
 select(participant, time, sets, sex, leg, lean.mass) %>%  
 group\_by(participant) %>%  
 mutate(n = n(), group = factor(sets, levels = c("single", "multiple")), time = factor(time, levels = c("pre", "post"))) %>%  
   
 print()

## # A tibble: 160 x 8  
## # Groups: participant [41]  
## participant time sets sex leg lean.mass n group   
## <chr> <fct> <chr> <chr> <chr> <dbl> <int> <fct>   
## 1 FP28 pre multiple female L 7059 4 multiple  
## 2 FP28 pre single female R 7104 4 single   
## 3 FP40 pre single female L 7190 4 single   
## 4 FP40 pre multiple female R 7506 4 multiple  
## 5 FP21 pre single male L 10281 4 single   
## 6 FP21 pre multiple male R 10200 4 multiple  
## 7 FP34 pre single female L 6014 4 single   
## 8 FP34 pre multiple female R 6009 4 multiple  
## 9 FP23 pre single male L 8242 4 single   
## 10 FP23 pre multiple male R 8685 4 multiple  
## # ... with 150 more rows

modeldat %>%  
 ggplot(aes(time, lean.mass, group = paste(participant, group), color = group)) + geom\_line() + theme\_minimal()



styrke1 <- strengthvolume %>%  
 filter(!is.na(load)) %>%  
 group\_by(exercise) %>%  
 mutate(scaled.load = load / max(load, na.rm = TRUE)) %>%  
 group\_by(participant, time, sex, sets) %>%  
 summarise(combined.load = mean(scaled.load, na.rm = TRUE)) %>%  
 ungroup() %>%  
   
   
 pivot\_wider(names\_from = time,  
 values\_from = combined.load) %>%  
 mutate(prosentvis.endring = ((post - pre) / pre) \* 100) %>%  
   
 print()

## `summarise()` has grouped output by 'participant', 'time', 'sex'. You can override using the `.groups` argument.

## # A tibble: 78 x 10  
## participant sex sets post pre session1 week2 week5 week9  
## <chr> <chr> <chr> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>  
## 1 FP1 male multiple 0.696 0.560 0.541 0.572 0.626 0.715  
## 2 FP1 male single 0.687 0.603 0.628 0.674 0.693 0.722  
## 3 FP11 male multiple 0.776 0.604 0.594 0.711 0.772 0.737  
## 4 FP11 male single 0.708 0.568 0.570 0.637 0.693 0.644  
## 5 FP12 female multiple 0.757 0.601 0.627 0.652 0.637 0.715  
## 6 FP12 female single 0.729 0.559 0.600 0.634 0.597 0.680  
## 7 FP13 male multiple 0.732 0.512 0.528 0.600 0.660 0.698  
## 8 FP13 male single 0.757 0.531 0.541 0.597 0.673 0.711  
## 9 FP14 female multiple 0.518 0.364 0.324 0.440 0.448 0.511  
## 10 FP14 female single 0.490 0.395 0.382 0.431 0.445 0.470  
## # ... with 68 more rows, and 1 more variable: prosentvis.endring <dbl>

styrke1 %>%   
 filter(!is.na(post)) %>%  
 group\_by(sets) %>%  
 summarise(m = mean(prosentvis.endring),  
 sd = sd(prosentvis.endring)) %>%  
  
print()

## # A tibble: 2 x 3  
## sets m sd  
## <chr> <dbl> <dbl>  
## 1 multiple 31.0 14.2  
## 2 single 24.5 12.9

styrkemodell <- strengthvolume %>%  
 group\_by(exercise) %>%  
 mutate(scaled.load = load / max(load, na.rm = TRUE)) %>%  
 group\_by(participant, time, sex, sets) %>%  
 summarise(combined.load = mean(scaled.load, na.rm = TRUE)) %>%  
 ungroup() %>%  
   
 print()

## `summarise()` has grouped output by 'participant', 'time', 'sex'. You can override using the `.groups` argument.

## # A tibble: 468 x 5  
## participant time sex sets combined.load  
## <chr> <chr> <chr> <chr> <dbl>  
## 1 FP1 post male multiple 0.696  
## 2 FP1 post male single 0.687  
## 3 FP1 pre male multiple 0.560  
## 4 FP1 pre male single 0.603  
## 5 FP1 session1 male multiple 0.541  
## 6 FP1 session1 male single 0.628  
## 7 FP1 week2 male multiple 0.572  
## 8 FP1 week2 male single 0.674  
## 9 FP1 week5 male multiple 0.626  
## 10 FP1 week5 male single 0.693  
## # ... with 458 more rows

styrkemodell %>%  
 filter(!is.na(combined.load), time == factor(time, levels = c("pre", "post"))) %>%  
 mutate(time = factor(time, levels = c("pre", "post")),  
 group = factor(sets, levels = c("single", "multiple"))) %>%  
 ggplot(aes(time, combined.load, group = paste(participant, sets), color = sets)) + geom\_line() + theme\_minimal() %>%  
  
print()

## List of 93  
## $ line :List of 6  
## ..$ colour : chr "black"  
## ..$ size : num 0.5  
## ..$ linetype : num 1  
## ..$ lineend : chr "butt"  
## ..$ arrow : logi FALSE  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_line" "element"  
## $ rect :List of 5  
## ..$ fill : chr "white"  
## ..$ colour : chr "black"  
## ..$ size : num 0.5  
## ..$ linetype : num 1  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_rect" "element"  
## $ text :List of 11  
## ..$ family : chr ""  
## ..$ face : chr "plain"  
## ..$ colour : chr "black"  
## ..$ size : num 11  
## ..$ hjust : num 0.5  
## ..$ vjust : num 0.5  
## ..$ angle : num 0  
## ..$ lineheight : num 0.9  
## ..$ margin : 'margin' num [1:4] 0points 0points 0points 0points  
## .. ..- attr(\*, "unit")= int 8  
## ..$ debug : logi FALSE  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ title : NULL  
## $ aspect.ratio : NULL  
## $ axis.title : NULL  
## $ axis.title.x :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : NULL  
## ..$ hjust : NULL  
## ..$ vjust : num 1  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : 'margin' num [1:4] 2.75points 0points 0points 0points  
## .. ..- attr(\*, "unit")= int 8  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ axis.title.x.top :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : NULL  
## ..$ hjust : NULL  
## ..$ vjust : num 0  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : 'margin' num [1:4] 0points 0points 2.75points 0points  
## .. ..- attr(\*, "unit")= int 8  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ axis.title.x.bottom : NULL  
## $ axis.title.y :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : NULL  
## ..$ hjust : NULL  
## ..$ vjust : num 1  
## ..$ angle : num 90  
## ..$ lineheight : NULL  
## ..$ margin : 'margin' num [1:4] 0points 2.75points 0points 0points  
## .. ..- attr(\*, "unit")= int 8  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ axis.title.y.left : NULL  
## $ axis.title.y.right :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : NULL  
## ..$ hjust : NULL  
## ..$ vjust : num 0  
## ..$ angle : num -90  
## ..$ lineheight : NULL  
## ..$ margin : 'margin' num [1:4] 0points 0points 0points 2.75points  
## .. ..- attr(\*, "unit")= int 8  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ axis.text :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : chr "grey30"  
## ..$ size : 'rel' num 0.8  
## ..$ hjust : NULL  
## ..$ vjust : NULL  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : NULL  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ axis.text.x :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : NULL  
## ..$ hjust : NULL  
## ..$ vjust : num 1  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : 'margin' num [1:4] 2.2points 0points 0points 0points  
## .. ..- attr(\*, "unit")= int 8  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ axis.text.x.top :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : NULL  
## ..$ hjust : NULL  
## ..$ vjust : num 0  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : 'margin' num [1:4] 0points 0points 2.2points 0points  
## .. ..- attr(\*, "unit")= int 8  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ axis.text.x.bottom : NULL  
## $ axis.text.y :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : NULL  
## ..$ hjust : num 1  
## ..$ vjust : NULL  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : 'margin' num [1:4] 0points 2.2points 0points 0points  
## .. ..- attr(\*, "unit")= int 8  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ axis.text.y.left : NULL  
## $ axis.text.y.right :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : NULL  
## ..$ hjust : num 0  
## ..$ vjust : NULL  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : 'margin' num [1:4] 0points 0points 0points 2.2points  
## .. ..- attr(\*, "unit")= int 8  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ axis.ticks : list()  
## ..- attr(\*, "class")= chr [1:2] "element\_blank" "element"  
## $ axis.ticks.x : NULL  
## $ axis.ticks.x.top : NULL  
## $ axis.ticks.x.bottom : NULL  
## $ axis.ticks.y : NULL  
## $ axis.ticks.y.left : NULL  
## $ axis.ticks.y.right : NULL  
## $ axis.ticks.length : 'simpleUnit' num 2.75points  
## ..- attr(\*, "unit")= int 8  
## $ axis.ticks.length.x : NULL  
## $ axis.ticks.length.x.top : NULL  
## $ axis.ticks.length.x.bottom: NULL  
## $ axis.ticks.length.y : NULL  
## $ axis.ticks.length.y.left : NULL  
## $ axis.ticks.length.y.right : NULL  
## $ axis.line : list()  
## ..- attr(\*, "class")= chr [1:2] "element\_blank" "element"  
## $ axis.line.x : NULL  
## $ axis.line.x.top : NULL  
## $ axis.line.x.bottom : NULL  
## $ axis.line.y : NULL  
## $ axis.line.y.left : NULL  
## $ axis.line.y.right : NULL  
## $ legend.background : list()  
## ..- attr(\*, "class")= chr [1:2] "element\_blank" "element"  
## $ legend.margin : 'margin' num [1:4] 5.5points 5.5points 5.5points 5.5points  
## ..- attr(\*, "unit")= int 8  
## $ legend.spacing : 'simpleUnit' num 11points  
## ..- attr(\*, "unit")= int 8  
## $ legend.spacing.x : NULL  
## $ legend.spacing.y : NULL  
## $ legend.key : list()  
## ..- attr(\*, "class")= chr [1:2] "element\_blank" "element"  
## $ legend.key.size : 'simpleUnit' num 1.2lines  
## ..- attr(\*, "unit")= int 3  
## $ legend.key.height : NULL  
## $ legend.key.width : NULL  
## $ legend.text :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : 'rel' num 0.8  
## ..$ hjust : NULL  
## ..$ vjust : NULL  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : NULL  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ legend.text.align : NULL  
## $ legend.title :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : NULL  
## ..$ hjust : num 0  
## ..$ vjust : NULL  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : NULL  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ legend.title.align : NULL  
## $ legend.position : chr "right"  
## $ legend.direction : NULL  
## $ legend.justification : chr "center"  
## $ legend.box : NULL  
## $ legend.box.just : NULL  
## $ legend.box.margin : 'margin' num [1:4] 0cm 0cm 0cm 0cm  
## ..- attr(\*, "unit")= int 1  
## $ legend.box.background : list()  
## ..- attr(\*, "class")= chr [1:2] "element\_blank" "element"  
## $ legend.box.spacing : 'simpleUnit' num 11points  
## ..- attr(\*, "unit")= int 8  
## $ panel.background : list()  
## ..- attr(\*, "class")= chr [1:2] "element\_blank" "element"  
## $ panel.border : list()  
## ..- attr(\*, "class")= chr [1:2] "element\_blank" "element"  
## $ panel.spacing : 'simpleUnit' num 5.5points  
## ..- attr(\*, "unit")= int 8  
## $ panel.spacing.x : NULL  
## $ panel.spacing.y : NULL  
## $ panel.grid :List of 6  
## ..$ colour : chr "grey92"  
## ..$ size : NULL  
## ..$ linetype : NULL  
## ..$ lineend : NULL  
## ..$ arrow : logi FALSE  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_line" "element"  
## $ panel.grid.major : NULL  
## $ panel.grid.minor :List of 6  
## ..$ colour : NULL  
## ..$ size : 'rel' num 0.5  
## ..$ linetype : NULL  
## ..$ lineend : NULL  
## ..$ arrow : logi FALSE  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_line" "element"  
## $ panel.grid.major.x : NULL  
## $ panel.grid.major.y : NULL  
## $ panel.grid.minor.x : NULL  
## $ panel.grid.minor.y : NULL  
## $ panel.ontop : logi FALSE  
## $ plot.background : list()  
## ..- attr(\*, "class")= chr [1:2] "element\_blank" "element"  
## $ plot.title :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : 'rel' num 1.2  
## ..$ hjust : num 0  
## ..$ vjust : num 1  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : 'margin' num [1:4] 0points 0points 5.5points 0points  
## .. ..- attr(\*, "unit")= int 8  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ plot.title.position : chr "panel"  
## $ plot.subtitle :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : NULL  
## ..$ hjust : num 0  
## ..$ vjust : num 1  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : 'margin' num [1:4] 0points 0points 5.5points 0points  
## .. ..- attr(\*, "unit")= int 8  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ plot.caption :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : 'rel' num 0.8  
## ..$ hjust : num 1  
## ..$ vjust : num 1  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : 'margin' num [1:4] 5.5points 0points 0points 0points  
## .. ..- attr(\*, "unit")= int 8  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ plot.caption.position : chr "panel"  
## $ plot.tag :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : 'rel' num 1.2  
## ..$ hjust : num 0.5  
## ..$ vjust : num 0.5  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : NULL  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ plot.tag.position : chr "topleft"  
## $ plot.margin : 'margin' num [1:4] 5.5points 5.5points 5.5points 5.5points  
## ..- attr(\*, "unit")= int 8  
## $ strip.background : list()  
## ..- attr(\*, "class")= chr [1:2] "element\_blank" "element"  
## $ strip.background.x : NULL  
## $ strip.background.y : NULL  
## $ strip.placement : chr "inside"  
## $ strip.text :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : chr "grey10"  
## ..$ size : 'rel' num 0.8  
## ..$ hjust : NULL  
## ..$ vjust : NULL  
## ..$ angle : NULL  
## ..$ lineheight : NULL  
## ..$ margin : 'margin' num [1:4] 4.4points 4.4points 4.4points 4.4points  
## .. ..- attr(\*, "unit")= int 8  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ strip.text.x : NULL  
## $ strip.text.y :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : NULL  
## ..$ hjust : NULL  
## ..$ vjust : NULL  
## ..$ angle : num -90  
## ..$ lineheight : NULL  
## ..$ margin : NULL  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## $ strip.switch.pad.grid : 'simpleUnit' num 2.75points  
## ..- attr(\*, "unit")= int 8  
## $ strip.switch.pad.wrap : 'simpleUnit' num 2.75points  
## ..- attr(\*, "unit")= int 8  
## $ strip.text.y.left :List of 11  
## ..$ family : NULL  
## ..$ face : NULL  
## ..$ colour : NULL  
## ..$ size : NULL  
## ..$ hjust : NULL  
## ..$ vjust : NULL  
## ..$ angle : num 90  
## ..$ lineheight : NULL  
## ..$ margin : NULL  
## ..$ debug : NULL  
## ..$ inherit.blank: logi TRUE  
## ..- attr(\*, "class")= chr [1:2] "element\_text" "element"  
## - attr(\*, "class")= chr [1:2] "theme" "gg"  
## - attr(\*, "complete")= logi TRUE  
## - attr(\*, "validate")= logi TRUE

