Generating plots in the documentation (section Examples)

Emmanuelle Comets

02/02/2021

Objective

Generate the plots for the LaTeX user guide

Setup

loading libraries

Install package in development mode

```
dev_mode() # development mode
```

```
## v Dev mode: ON
```

```
install.packages(pkgs=file.path(libDir,"npde_3.3.tar.gz"),repos=NULL)
```

```
## Installation du package dans '/home/eco/R-dev'
## (car 'lib' n'est pas spécifié)
```

```
## Warning in install.packages(pkgs = file.path(libDir, "npde_3.3.tar.gz"), :
## l'installation du package '/home/eco/work/npde/compileNpde/npde_3.3.tar.gz' a eu
## un statut de sortie non nul
```

```
library(npde)
```

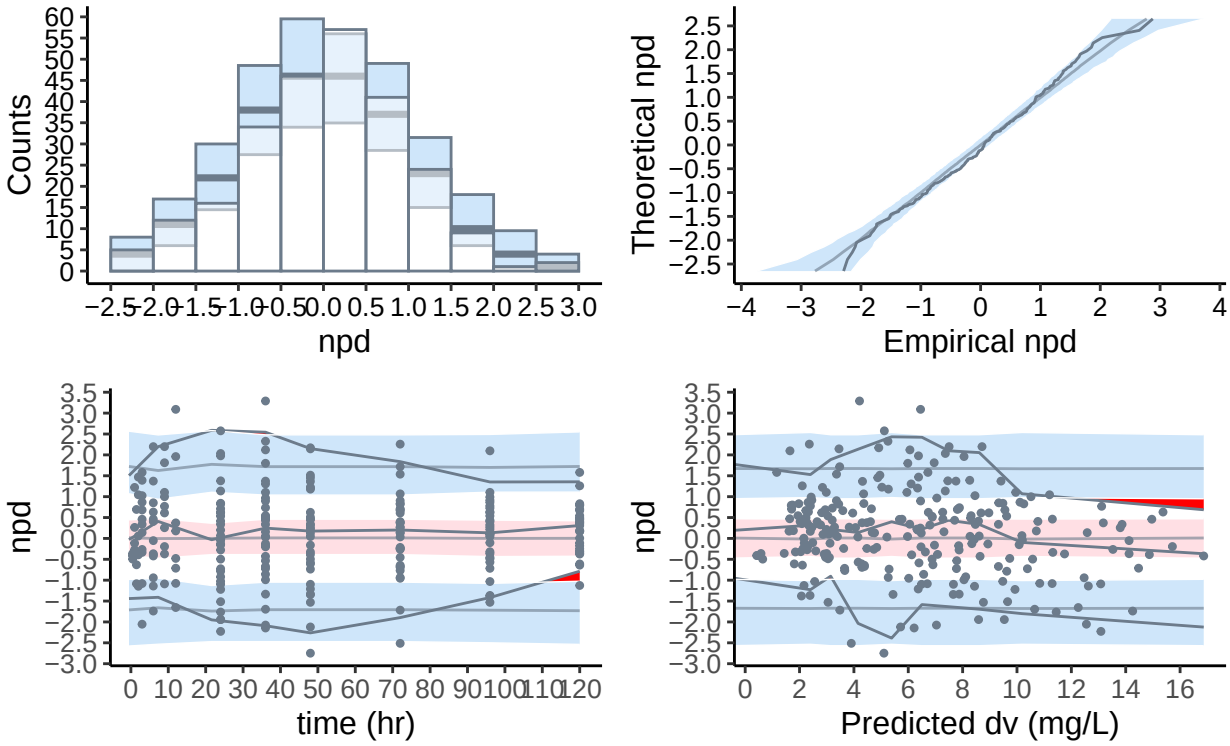
Run examples

- remove warnings (name.ipred empty, etc...) **Romain** fait

```
## ------------------------------------------
## Distribution of npde :
##       nb of obs: 120
##            mean= 0.0668   (SE= 0.095 )
##        variance= 1.074   (SE= 0.14 )
##        skewness= 0.511
##        kurtosis= 0.2912
## ------------------------------------------
## Statistical tests (adjusted p-values):
##   t-test                : 1
##   Fisher variance test  : 1
##   SW test of normality  : 0.00819 **
##   Global test           : 0.00819 **
## ---
## Signif. codes: '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1
## ------------------------------------------
```

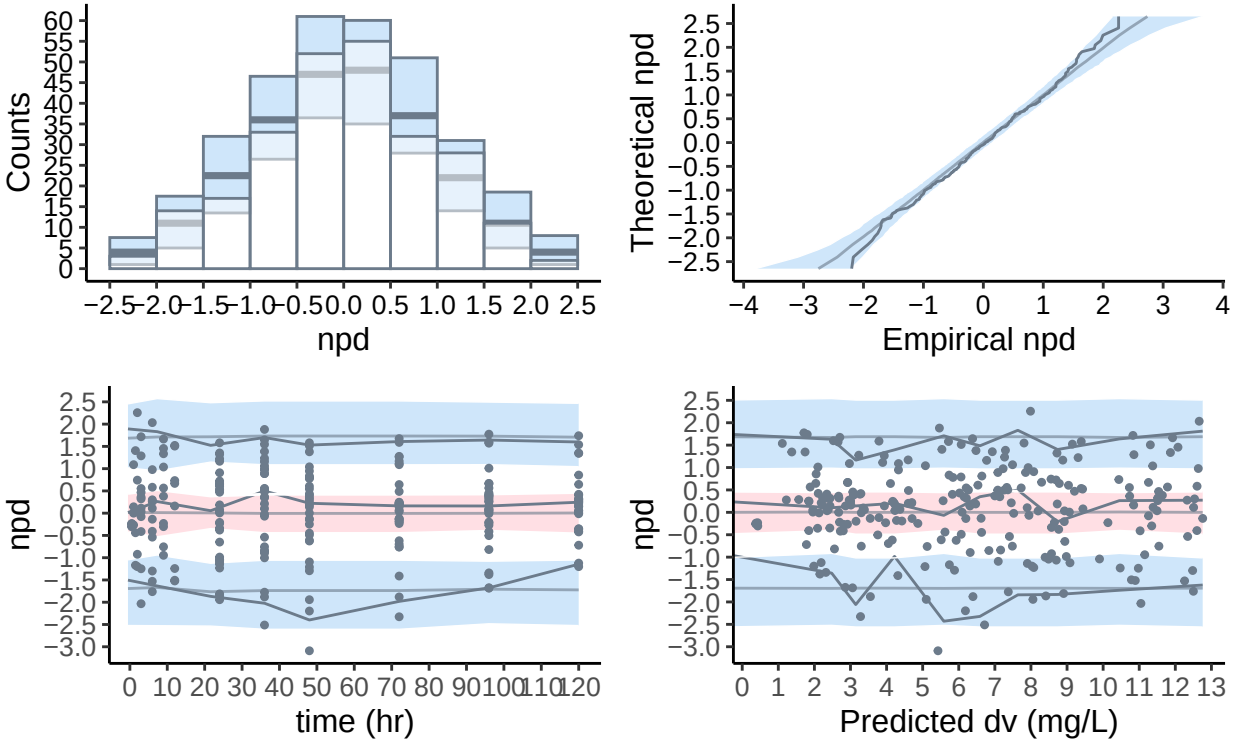
```
## --------------------------------------------
## Distribution of npde :
##       nb of obs: 300
##            mean= -0.07858   (SE= 0.056 )
##        variance= 0.9421   (SE= 0.077 )
##        skewness= -0.04184
##        kurtosis= -0.1008
## --------------------------------------------
## Statistical tests (adjusted p-values):
##   t-test                : 0.486
##   Fisher variance test  : 1
##   SW test of normality  : 1
##   Global test           : 0.486
## ---
## Signif. codes: '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1
## --------------------------------------------

## --------------------------------------------
## Distribution of npde :
##       nb of obs: 169
##            mean= 0.1433   (SE= 0.07 )
##        variance= 0.8186   (SE= 0.089 )
##        skewness= -0.03812
##        kurtosis= -0.3733
## --------------------------------------------
## Statistical tests (adjusted p-values):
##   t-test                : 0.123
##   Fisher variance test  : 0.247
##   SW test of normality  : 1
##   Global test           : 0.123
## ---
## Signif. codes: '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1
## --------------------------------------------

## --------------------------------------------
## Distribution of npde :
##       nb of obs: 300
##            mean= 0.03101   (SE= 0.057 )
##        variance= 0.9715   (SE= 0.079 )
##        skewness= -0.006498
##        kurtosis= 0.8122
## --------------------------------------------
## Statistical tests (adjusted p-values):
##   t-test                : 1
##   Fisher variance test  : 1
##   SW test of normality  : 0.00364 **
##   Global test           : 0.00364 **
## ---
## Signif. codes: '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1
## --------------------------------------------

## --------------------------------------------
## Distribution of npde :
##       nb of obs: 300
##            mean= 0.03058   (SE= 0.062 )
```

```
##         variance= 1.164   (SE= 0.095 )
##         skewness= 0.04433
##         kurtosis= -0.05092
## ---------------------------------------------
## Statistical tests (adjusted p-values):
##   t-test                : 1
##   Fisher variance test  : 0.162
##   SW test of normality  : 1
##   Global test           : 0.162
## ---
## Signif. codes: '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1
## ---------------------------------------------

## ---------------------------------------------
## Distribution of npde :
##       nb of obs: 247
##            mean= 0.03419   (SE= 0.06 )
##         variance= 0.8753   (SE= 0.079 )
##         skewness= -0.1149
##         kurtosis= -0.0497
## ---------------------------------------------
## Statistical tests (adjusted p-values):
##   t-test                : 1
##   Fisher variance test  : 0.471
##   SW test of normality  : 1
##   Global test           : 0.471
## ---
## Signif. codes: '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1
## ---------------------------------------------
```




```
## ---------------------------------------------
```

```
## Distribution of npde :
##       nb of obs: 247
##            mean= 0.02928   (SE= 0.059 )
##        variance= 0.8549   (SE= 0.077 )
##        skewness= -0.07211
##        kurtosis= -0.4172
## ------------------------------------------------
## Statistical tests (adjusted p-values):
##   t-test                : 1
##   Fisher variance test  : 0.288
##   SW test of normality  : 1
##   Global test           : 0.288
## ---
## Signif. codes: '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1
## ------------------------------------------------
```

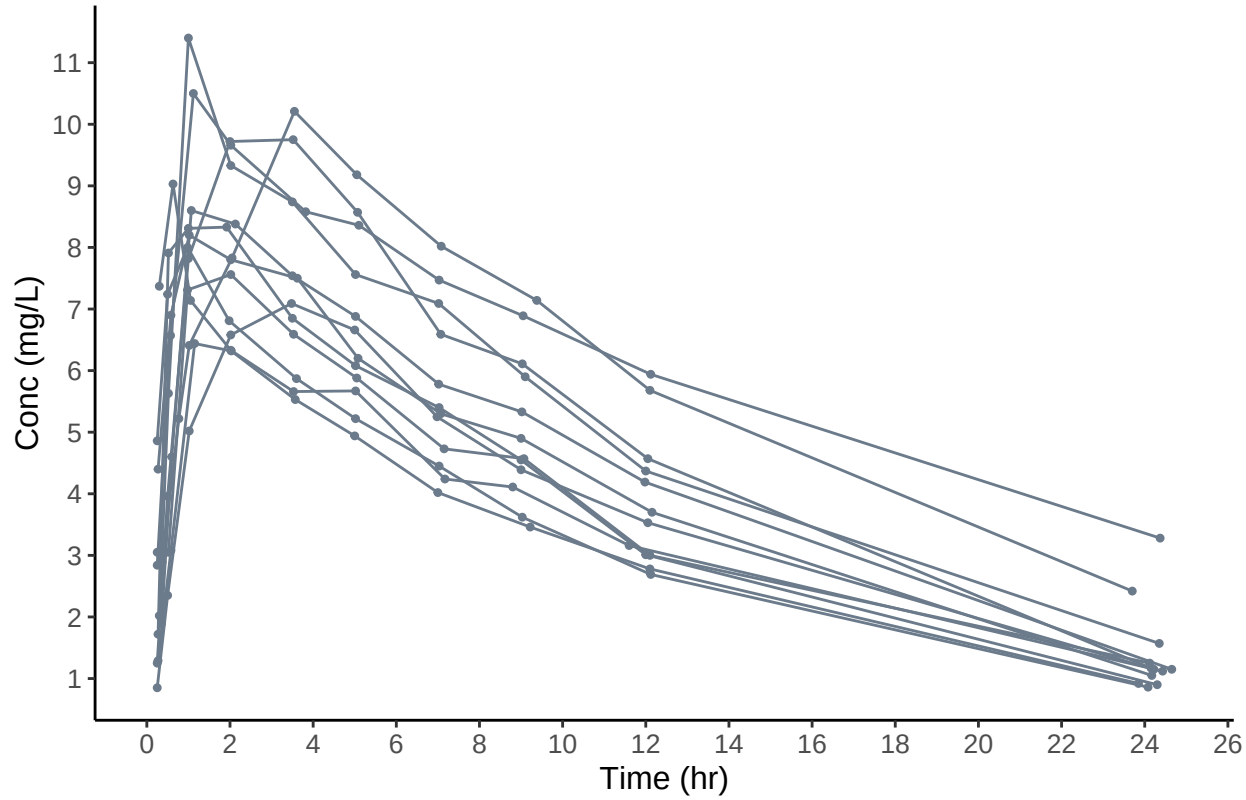


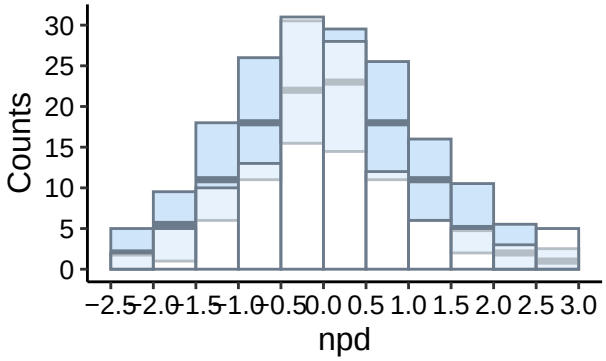
Theophylline example

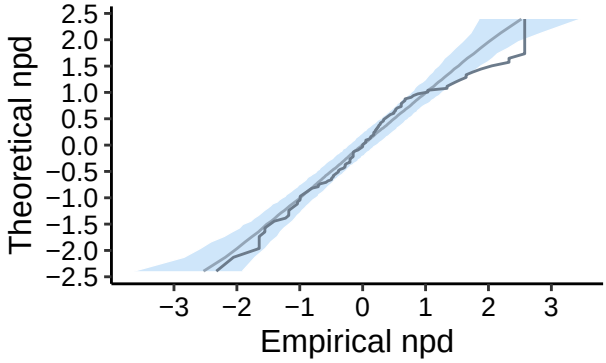
- data
  - le plot(npdeData) ne marche pas **Romain** à faire pour la 3.1 (si possible en essayant d'utiliser le même code de base)
  - pour faire un graphe il faut passer par *plot.type="data"* ou *npde.plot.data()*
- VPC, scatterplot **Eco fait**
  - modifié pour que le tracé des percentiles observés soit fait avec les linetype et size de lobs (pas des bandes), par contre la couleur matche celle de la bande de prédiction correspondante

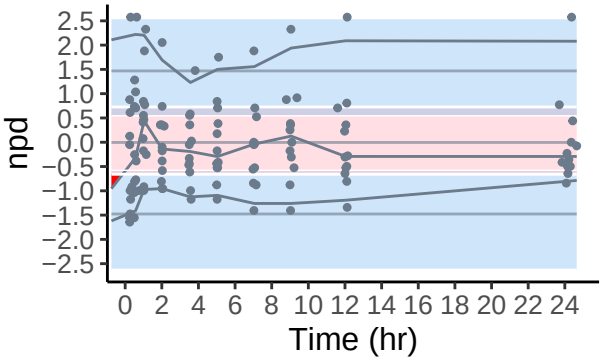
```
## Warning: Removed 12 rows containing missing values (`geom_point()`).
```

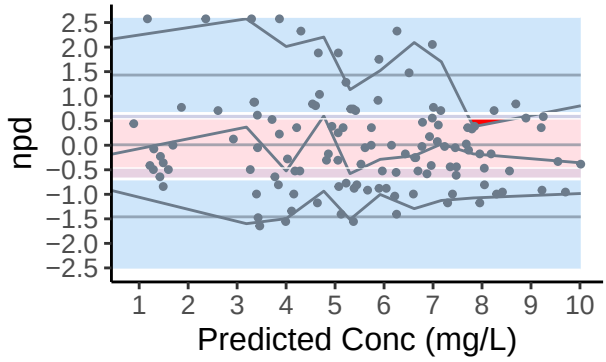
```
## Warning: Removed 12 rows containing missing values (`geom_line()`).
```

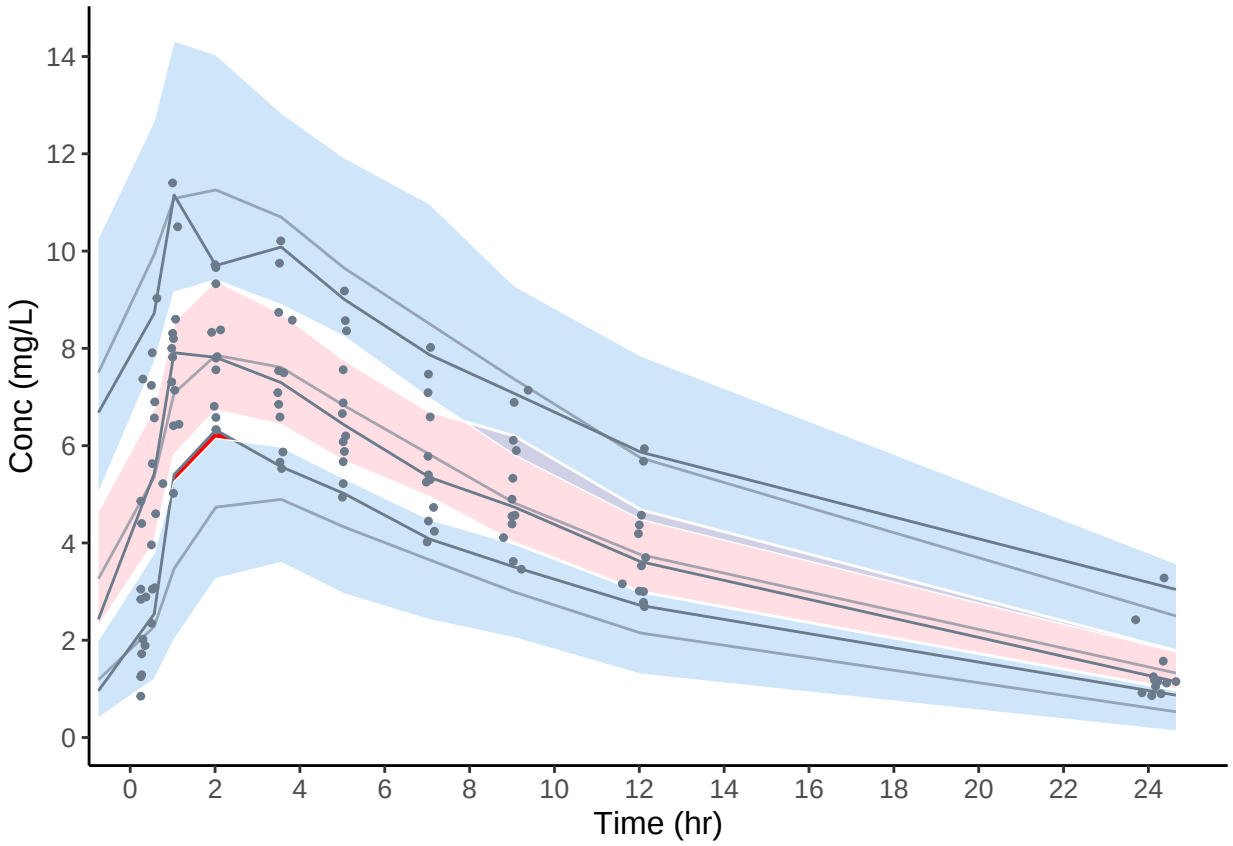

Conc (mg/L)
Time (hr)


Counts
npd


Theoretical npd
Empirical npd

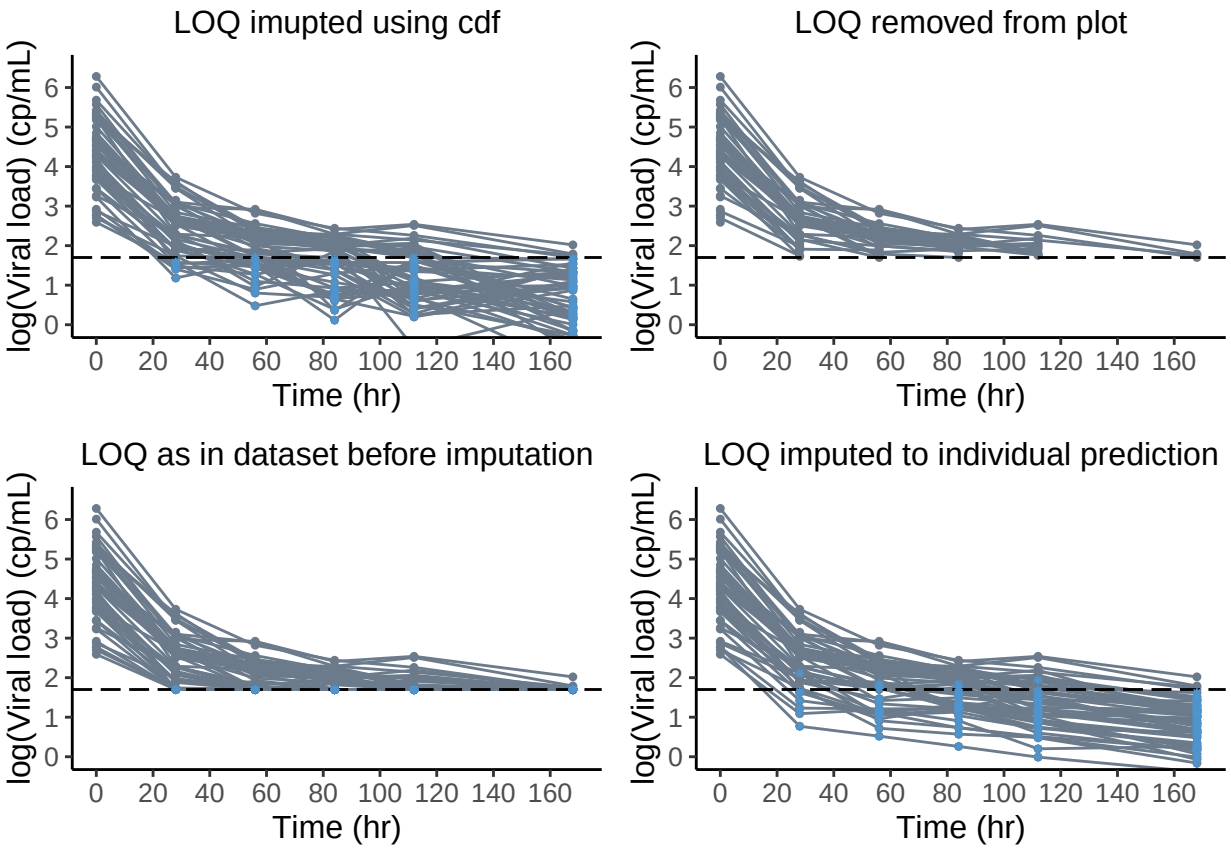

npd
Time (hr)


npd
Predicted Conc (mg/L)

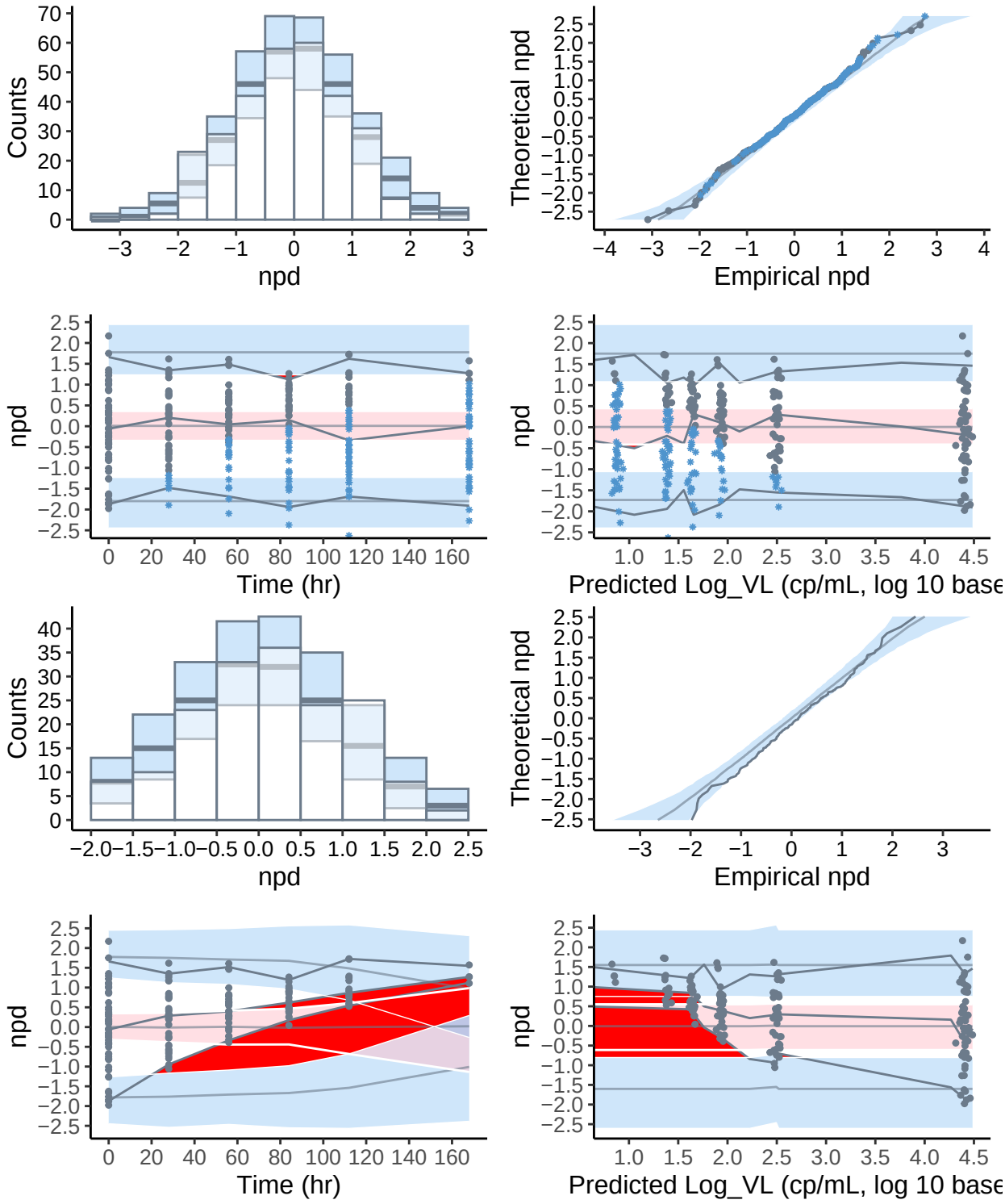


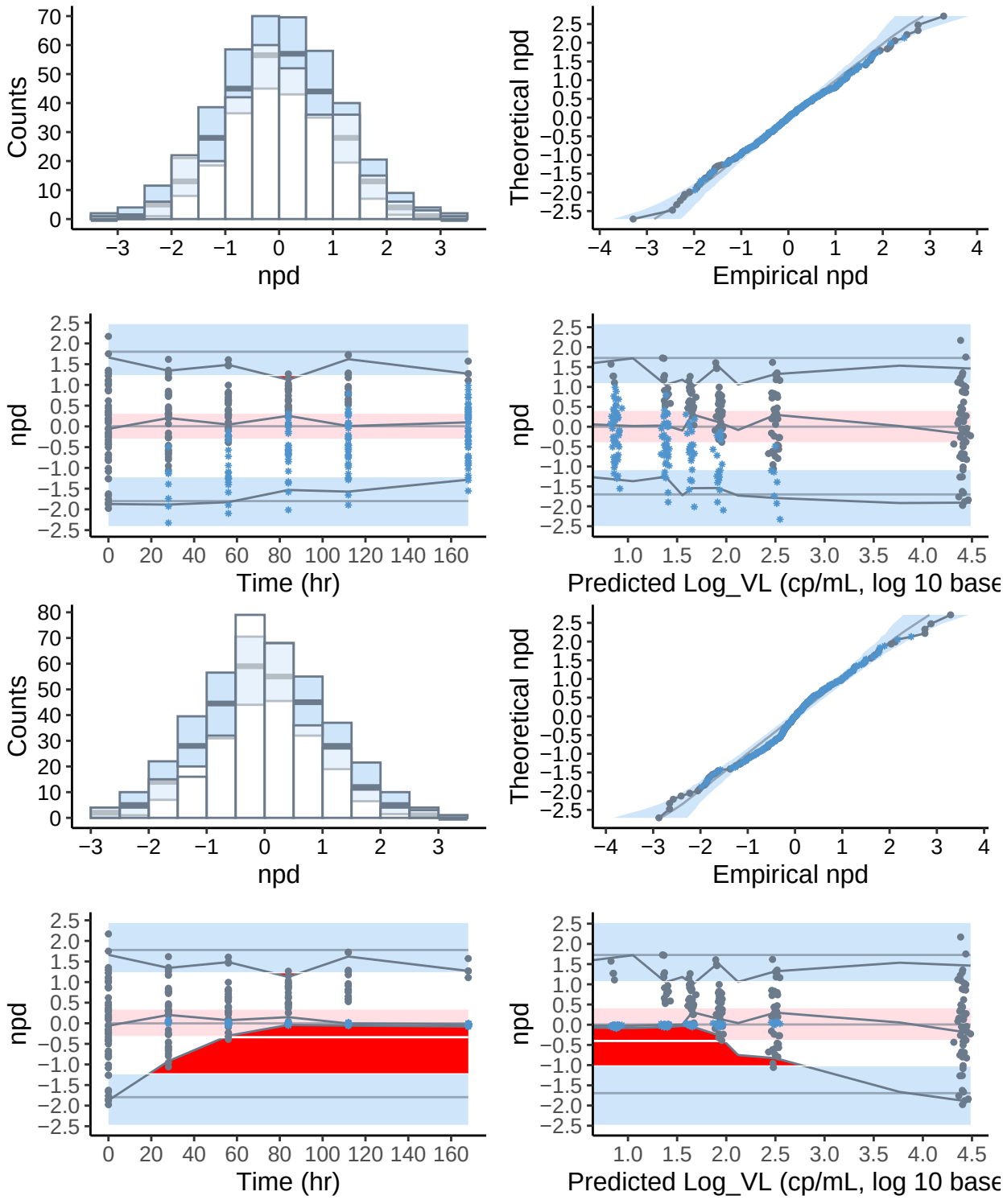
Viral load example

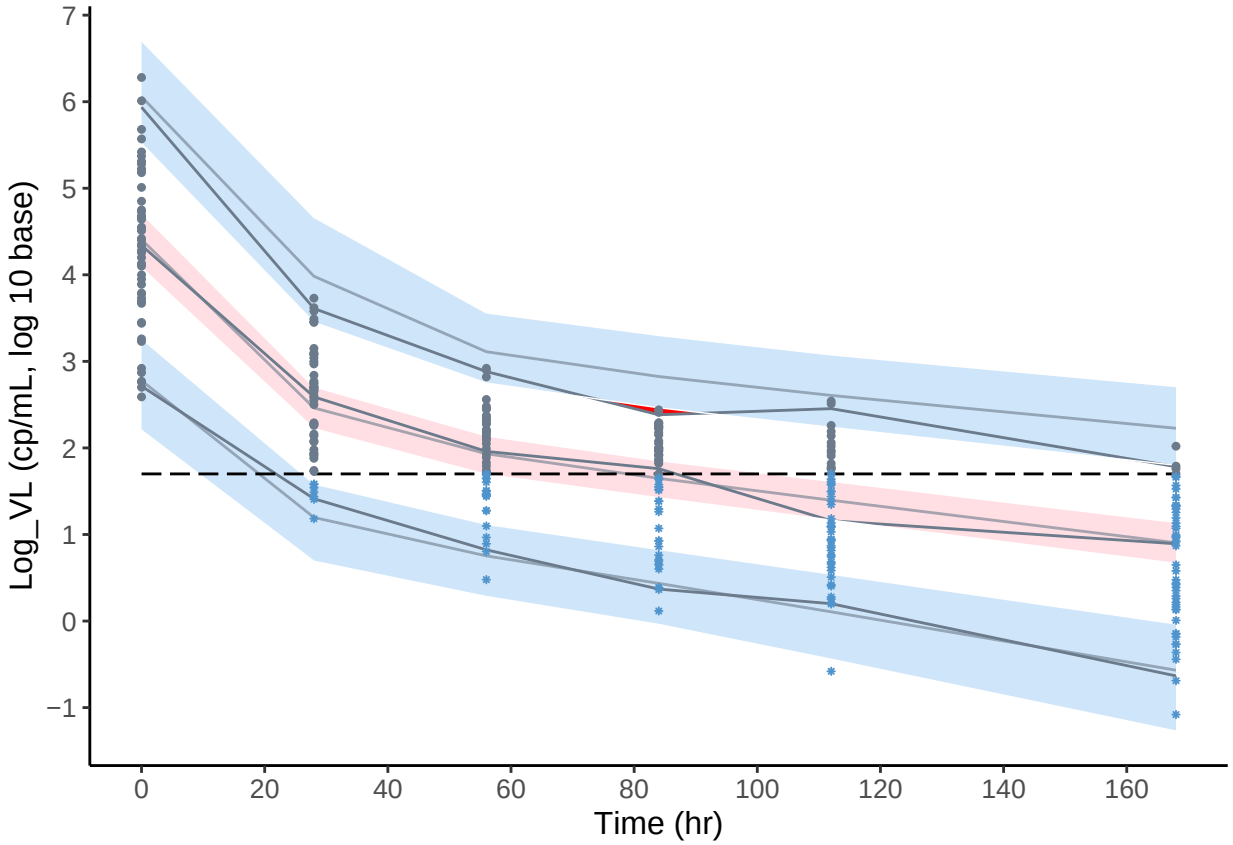
- data
  - mêmes problèmes que plus haut
  - LOQ data should be plotted **Romain**
  - besoin de faire un waffle plot avec les 4 objets data, **Romain TODO** possible ? (sinon sauver 4 graphes)
  - complete data according to the censoring method when an npdeObject is given (plot just the LOQ data when the plot is called directly on a npdeData object) **Romain**

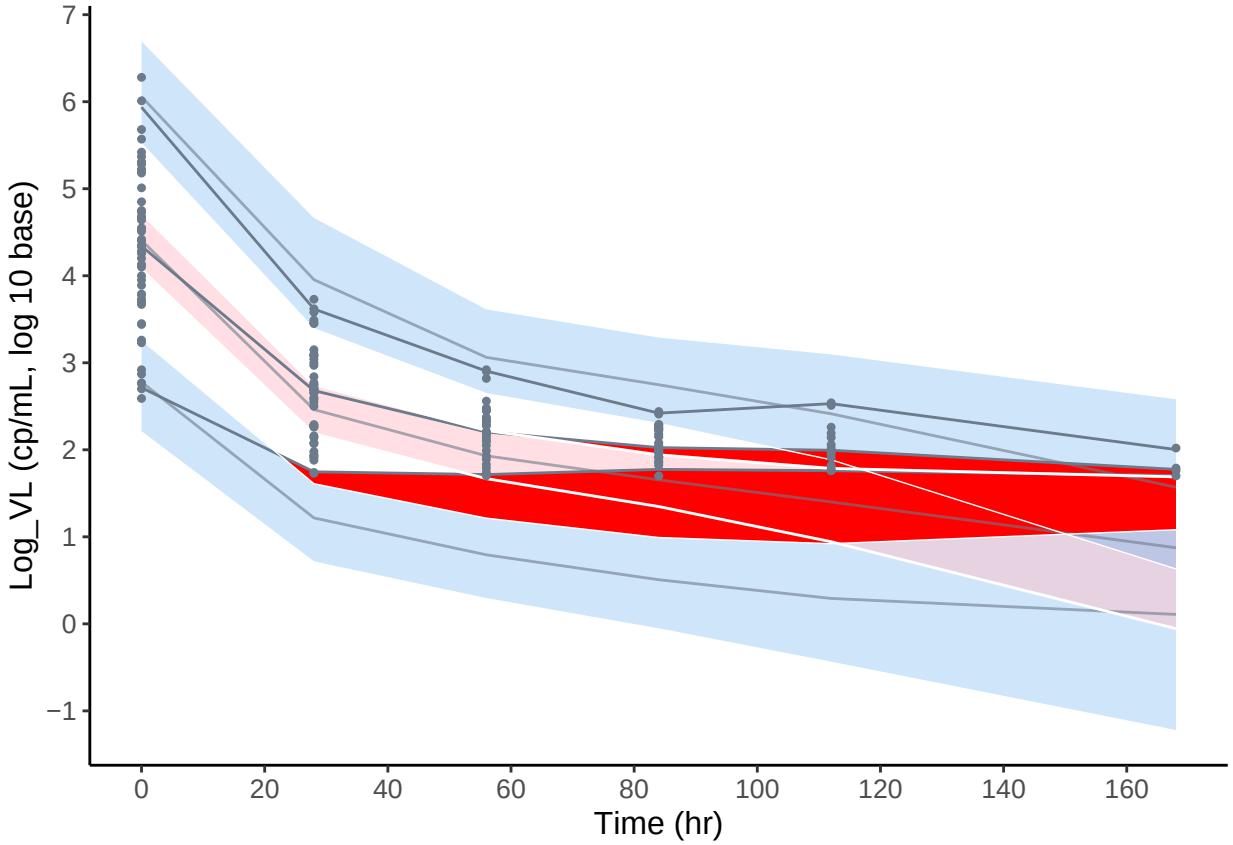


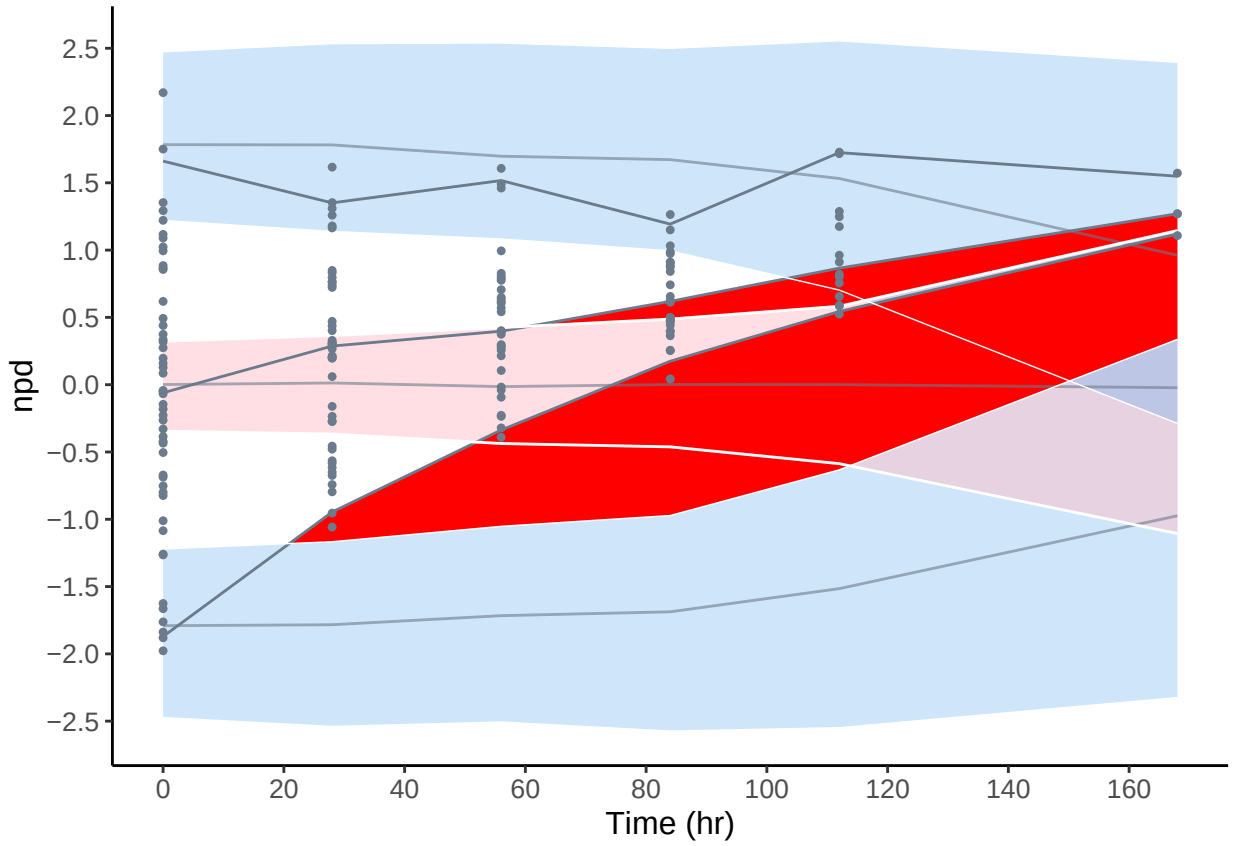
- scatterplots and VPC
  - pb with VPC of x50 **Eco fait**
- possibilité d'utiliser un grid.arrange pour les 2 derniers graphes ? **Romain**
- VPC missing tite on y-axis

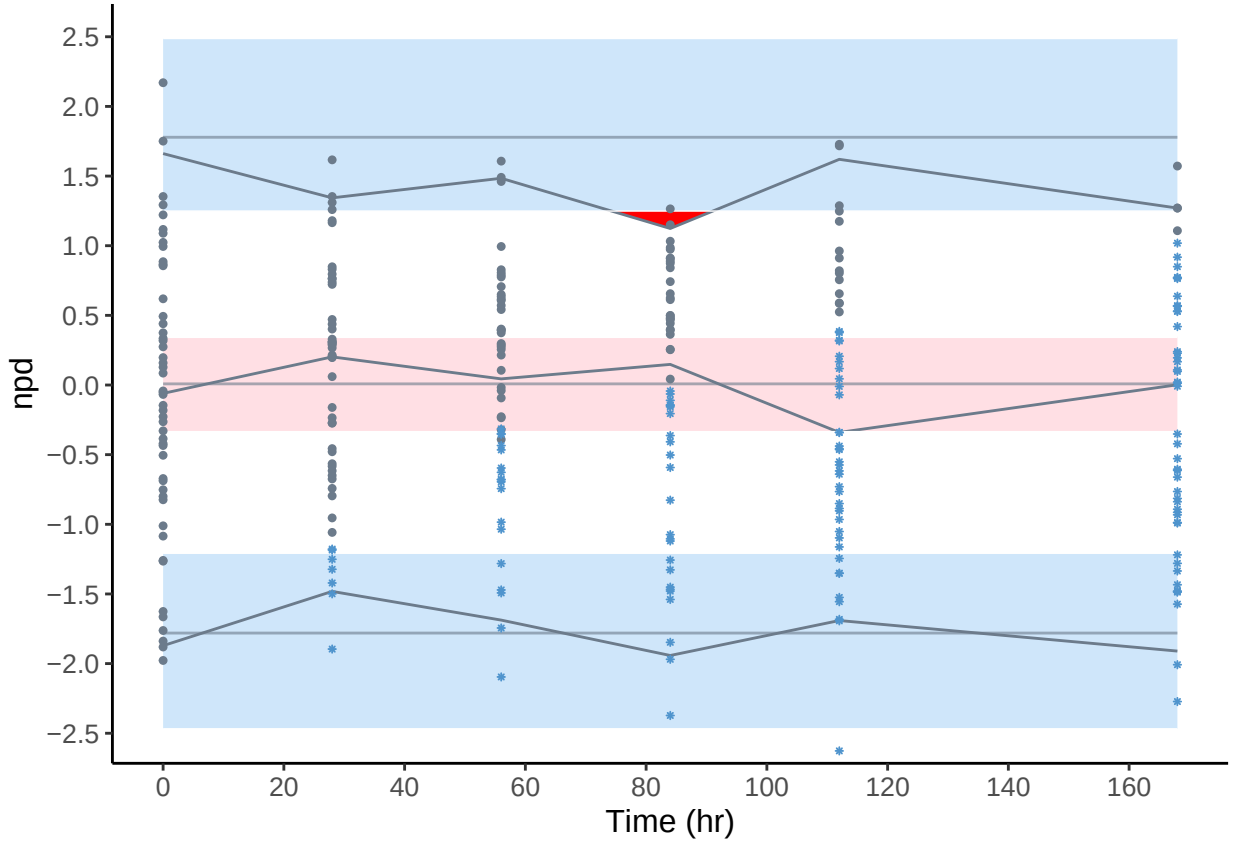

Counts
npd
Theoretical npd
Empirical npd
npd
Time (hr)
npd
Predicted Log_VL (cp/mL, log 10 base
Counts
npd
Theoretical npd
Empirical npd
npd
Time (hr)
npd
Predicted Log_VL (cp/mL, log 10 base

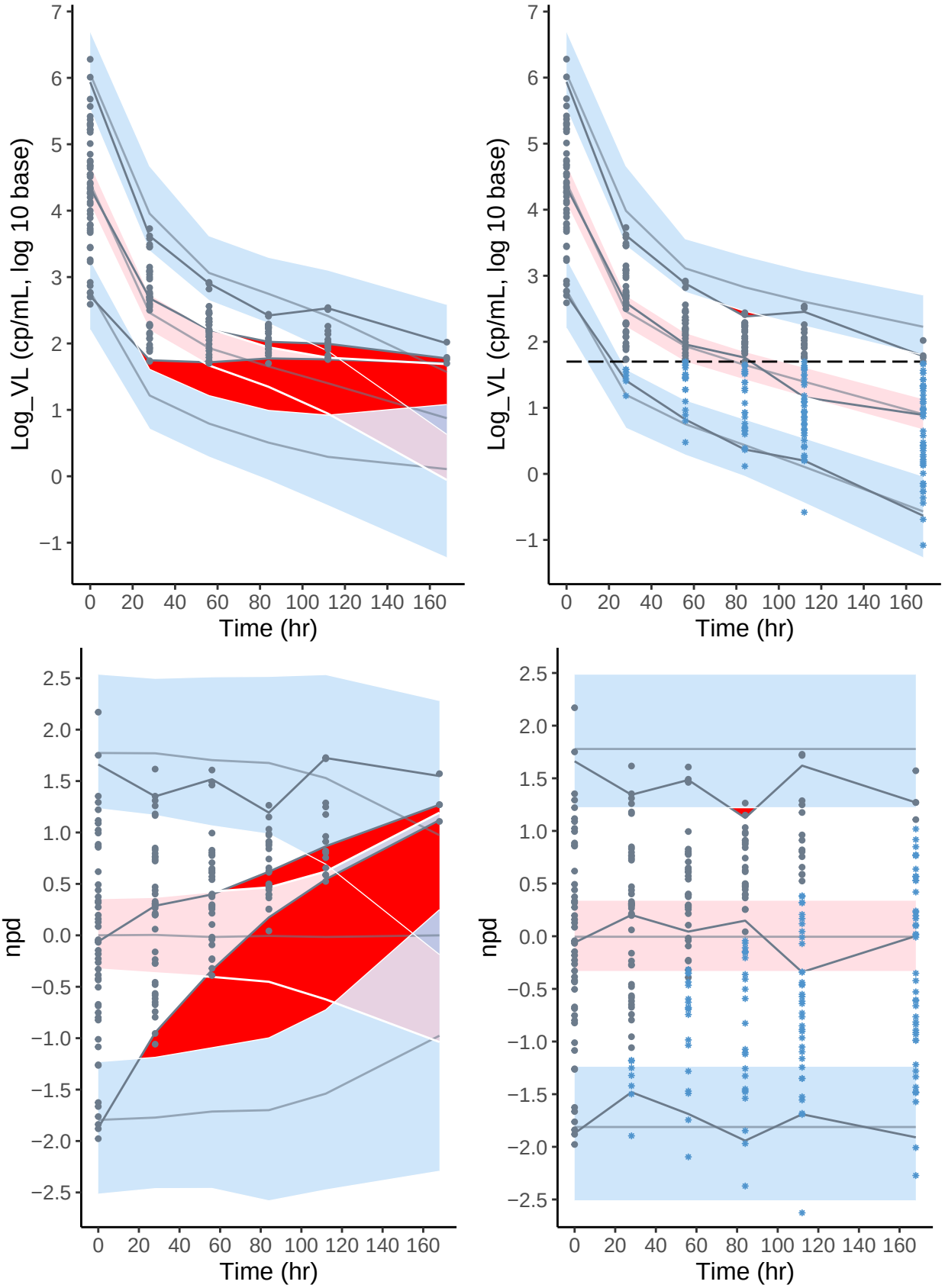

Counts
npd
Theoretical npd
Empirical npd
npd
Time (hr)
npd
Predicted Log_VL (cp/mL, log 10 base
Counts
npd
Theoretical npd
Empirical npd
npd
Time (hr)
npd
Predicted Log_VL (cp/mL, log 10 base


Log_VL (cp/mL, log 10 base)
7
6
5
4
3
2
1
0
−1
0
20
40
60
80
100
120
140
160
Time (hr)

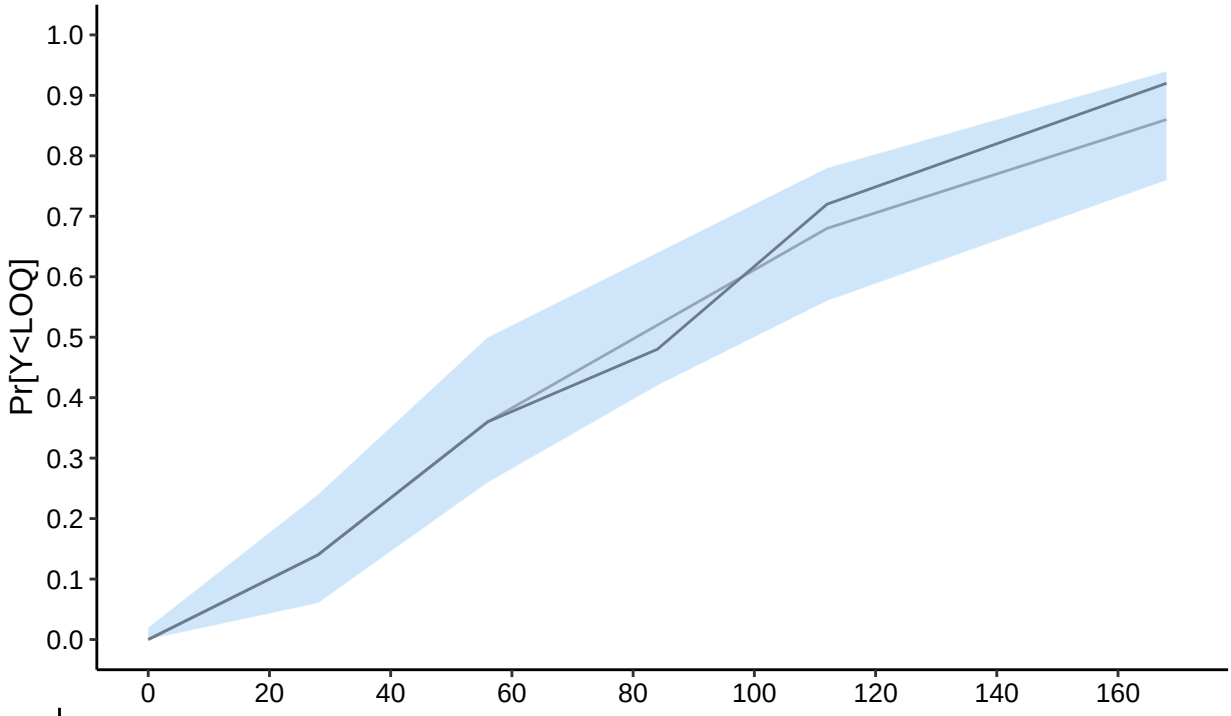

Log_VL (cp/mL, log 10 base)
7
6
5
4
3
2
1
0
−1
0
20
40
60
80
100
120
140
160
Time (hr)

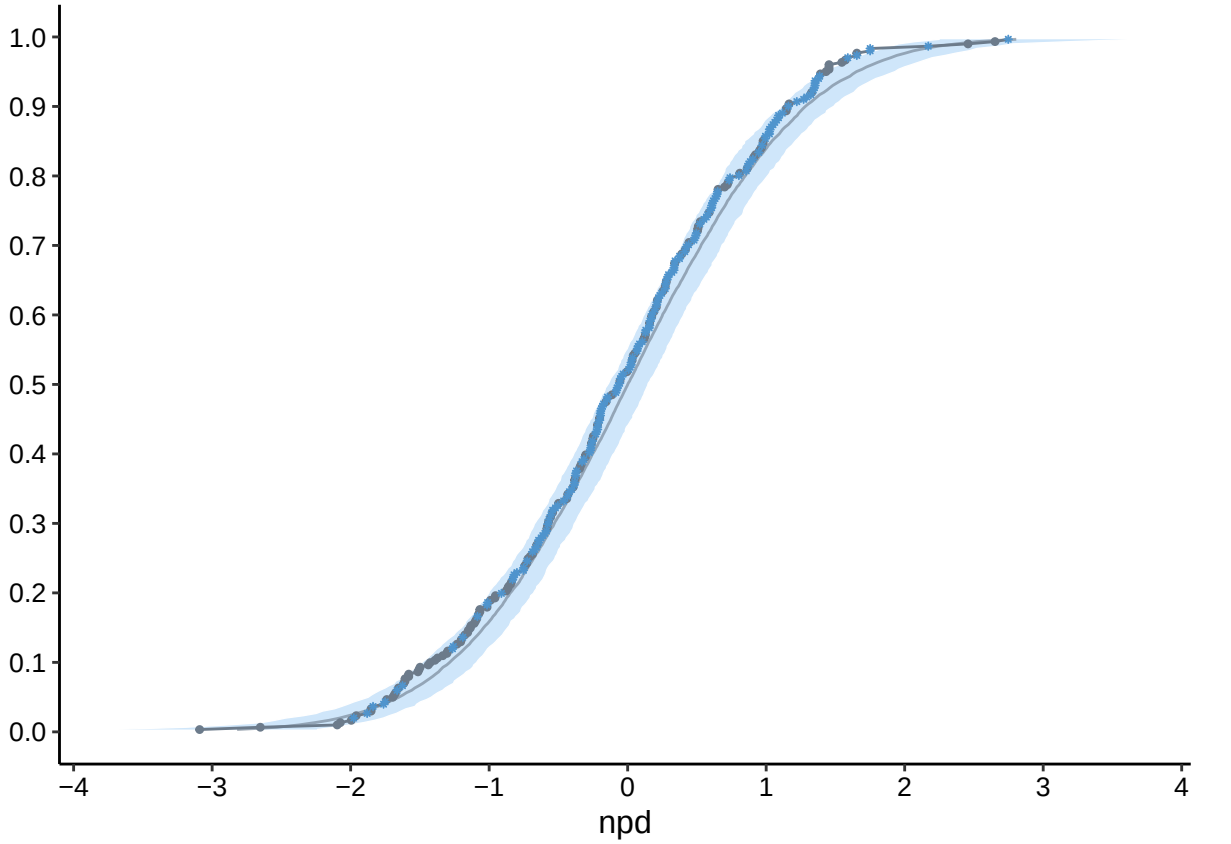

npd
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−2.5
0
20
40
60
80
100
120
140
160
Time (hr)


npd
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−2.5
0
20
40
60
80
100
120
140
160
Time (hr)


Log_VL (cp/mL, log 10 base)
Time (hr)
npd
Time (hr)
Log_VL (cp/mL, log 10 base)
Time (hr)
npd
Time (hr)

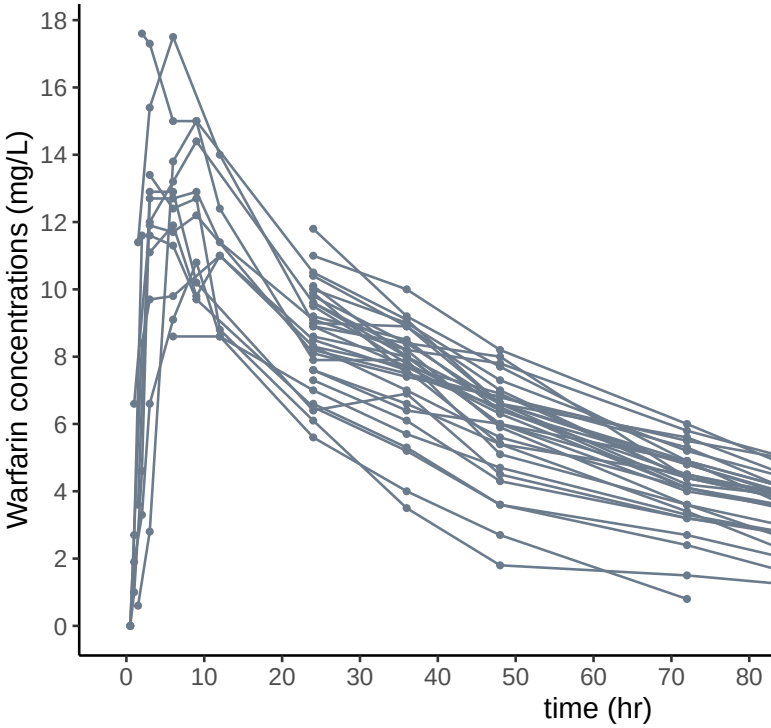
- P(Y<LOQ): changed defaults

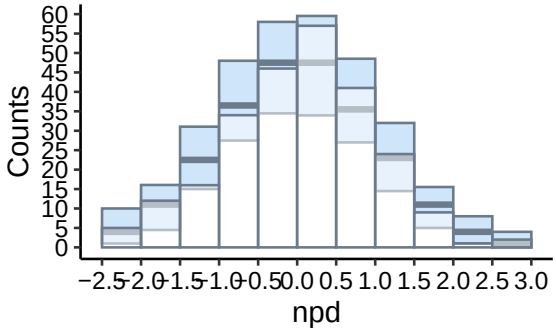


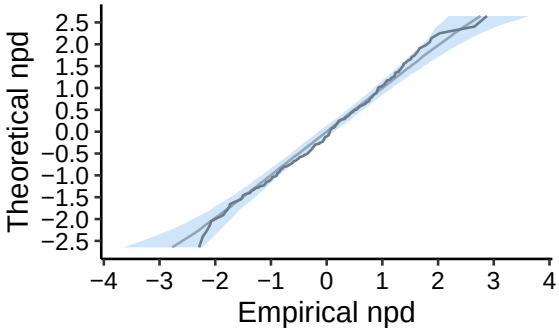


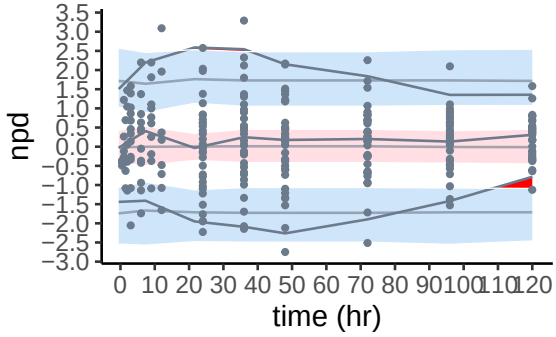
Warfarin

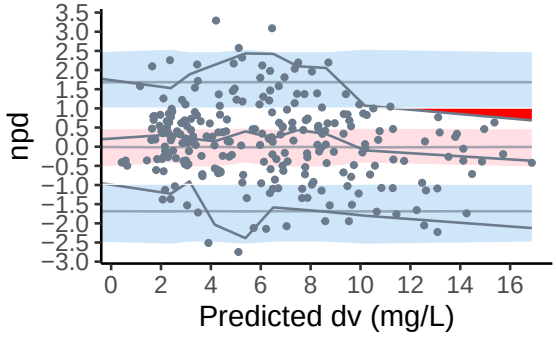
- **TODO:**
  - add to documentation
  - cov.scatter changed to covariates (default plot with covariates as in Brendel et al. 2010)
  - alternative: covsplit applied to the other types of graphs will produce graphs stratified by covariate categories/ranges
  - check npde.plot.scatterplot(wbase, which.x="cov", which.y="npde", which.cov="wt", bin.method="optimal") not rendering anything

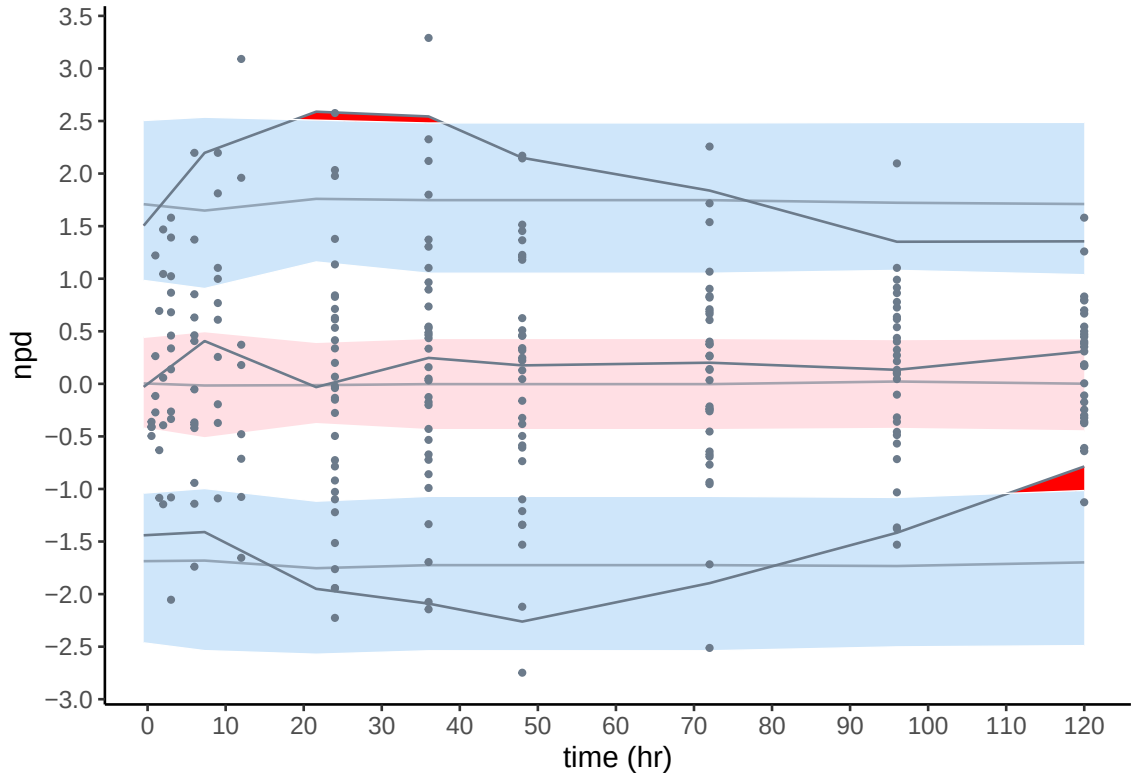


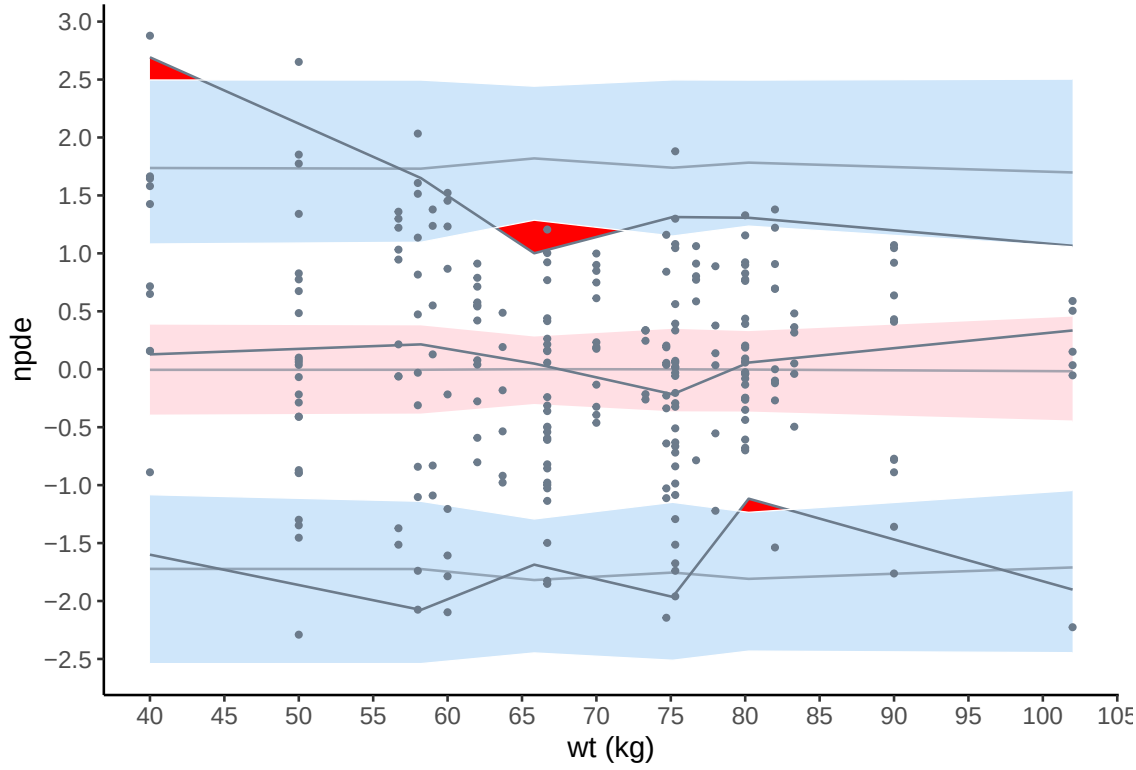


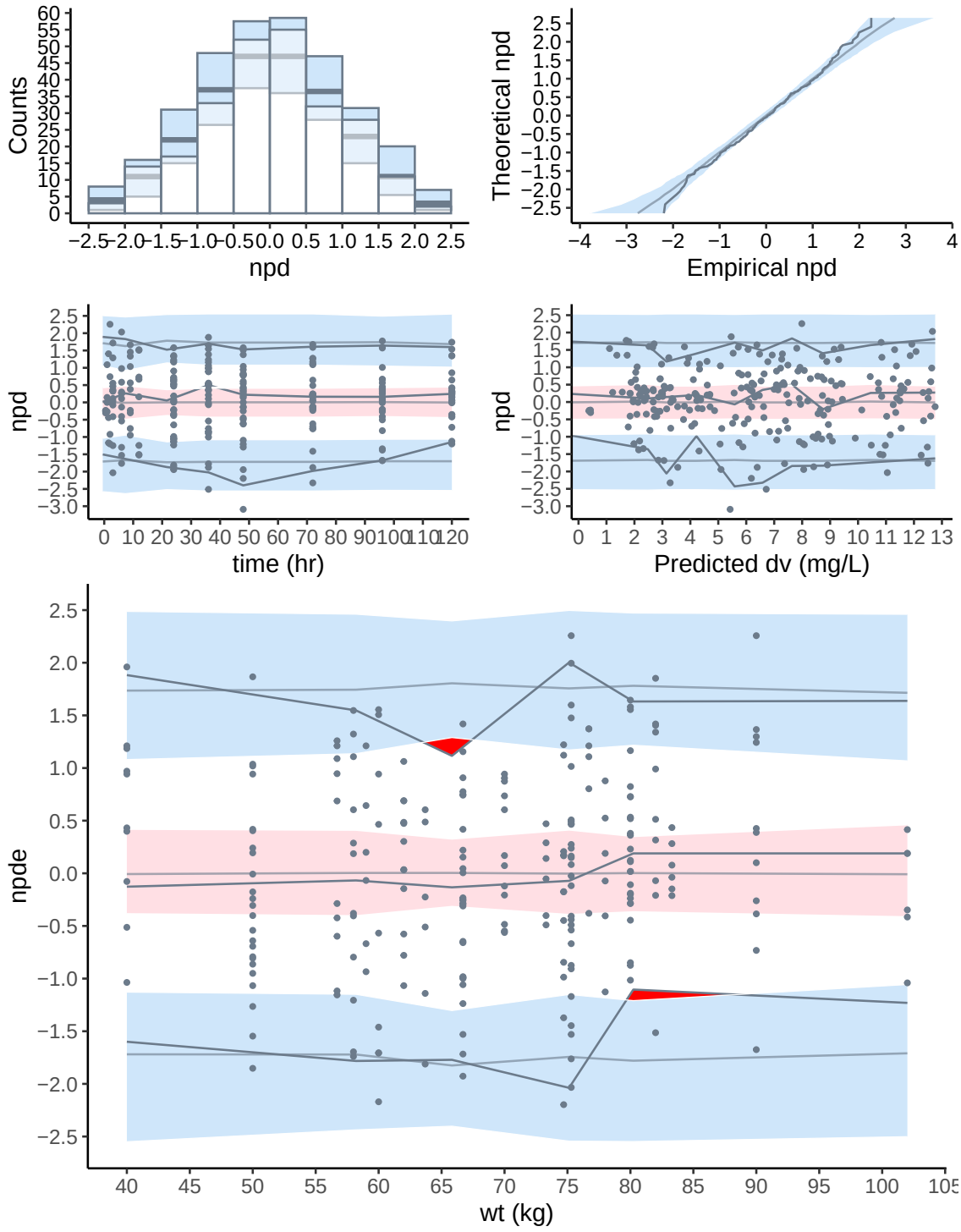






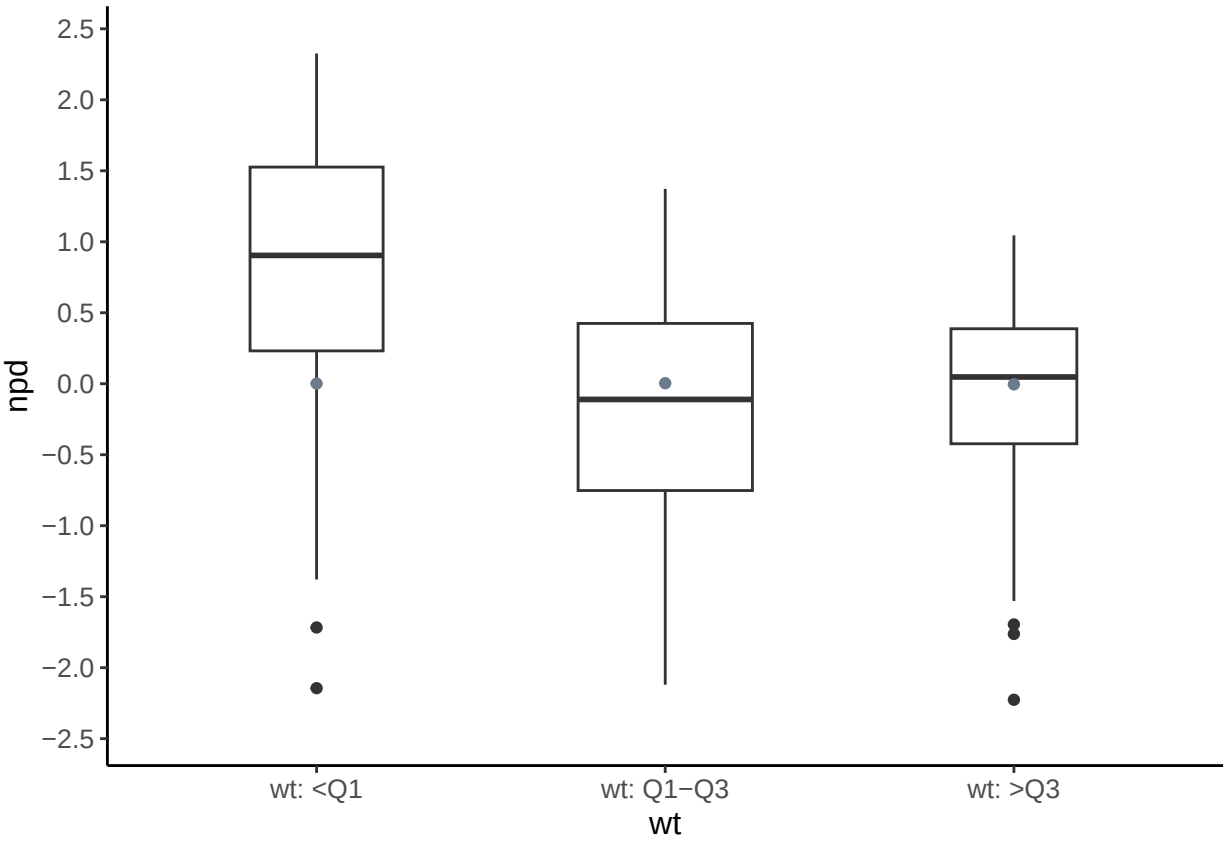

npd
time (hr)


npde
wt (kg)



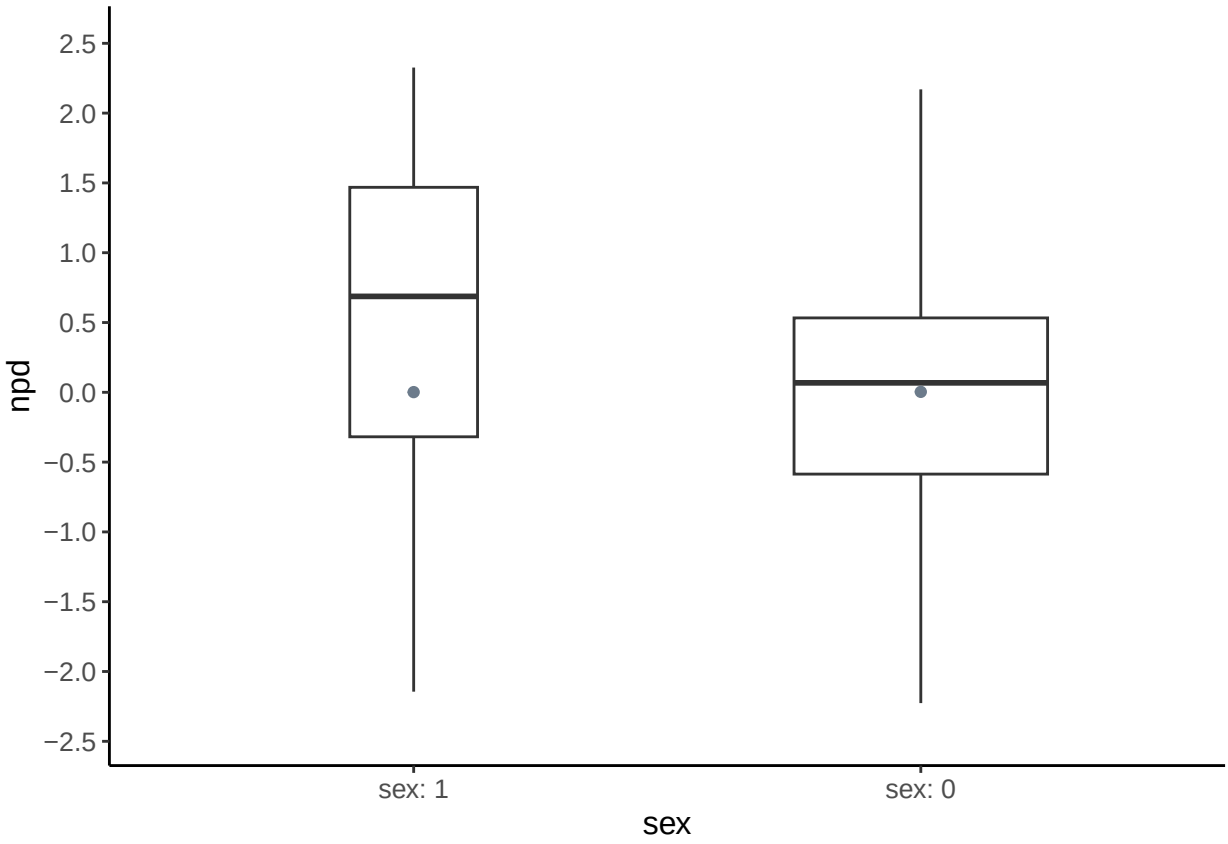

```
## [[1]]
```

```
## Warning: Removed 5 rows containing non-finite values (`stat_boxplot()`).
```



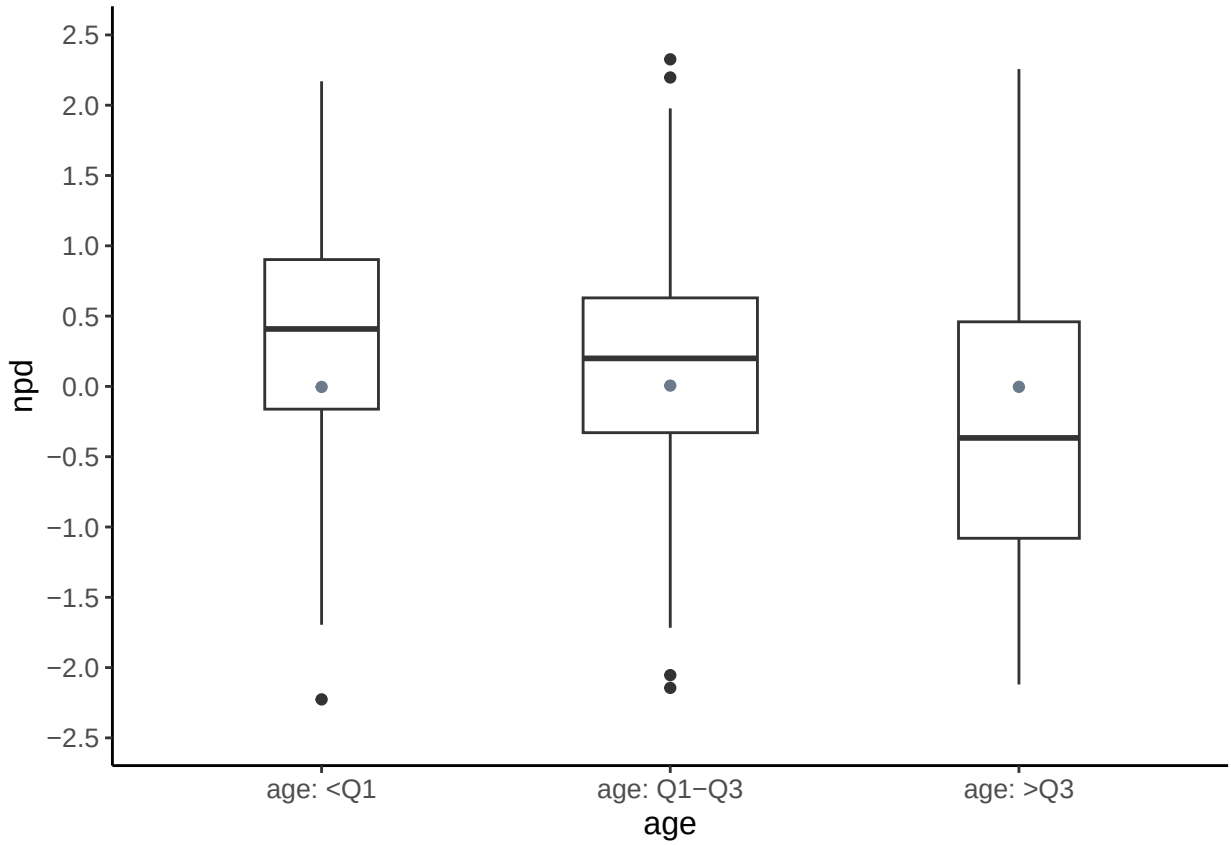

```
## [[1]]
```

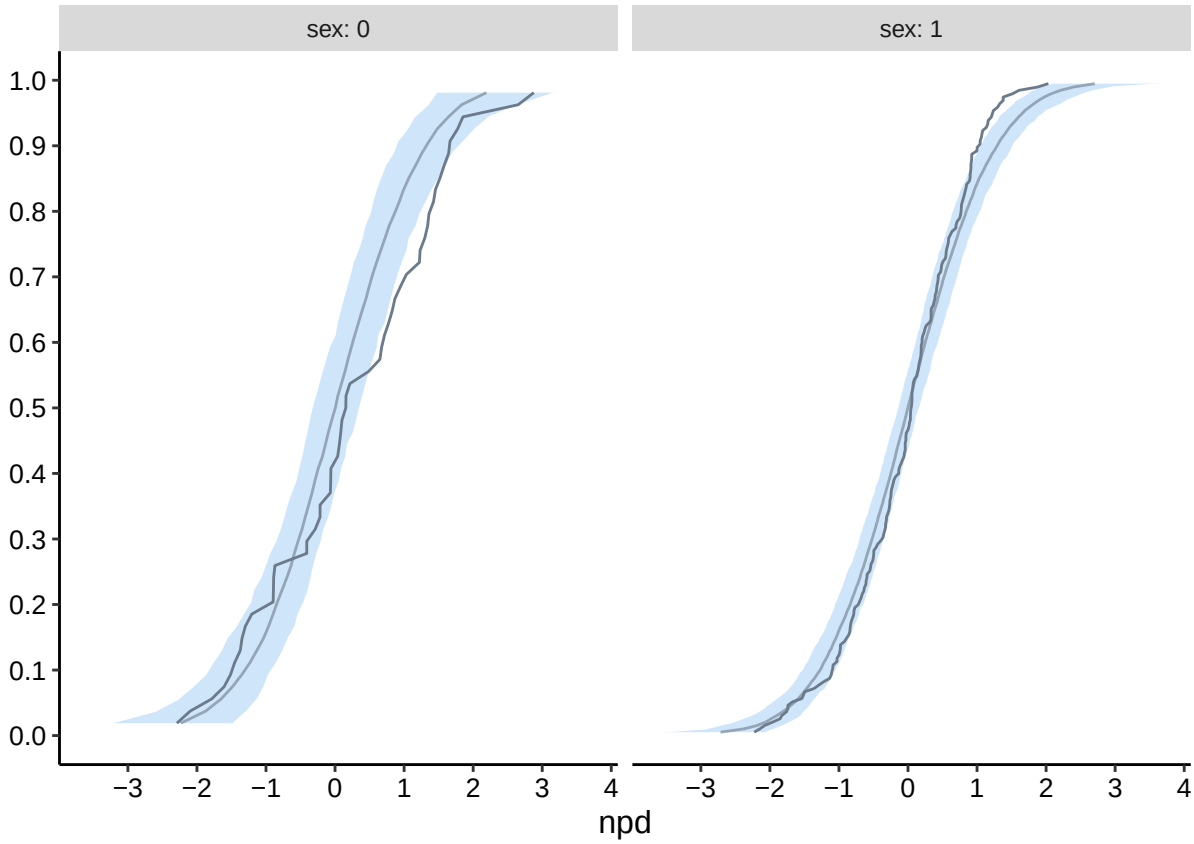
```
## Warning: Removed 5 rows containing non-finite values (`stat_boxplot()`).
```

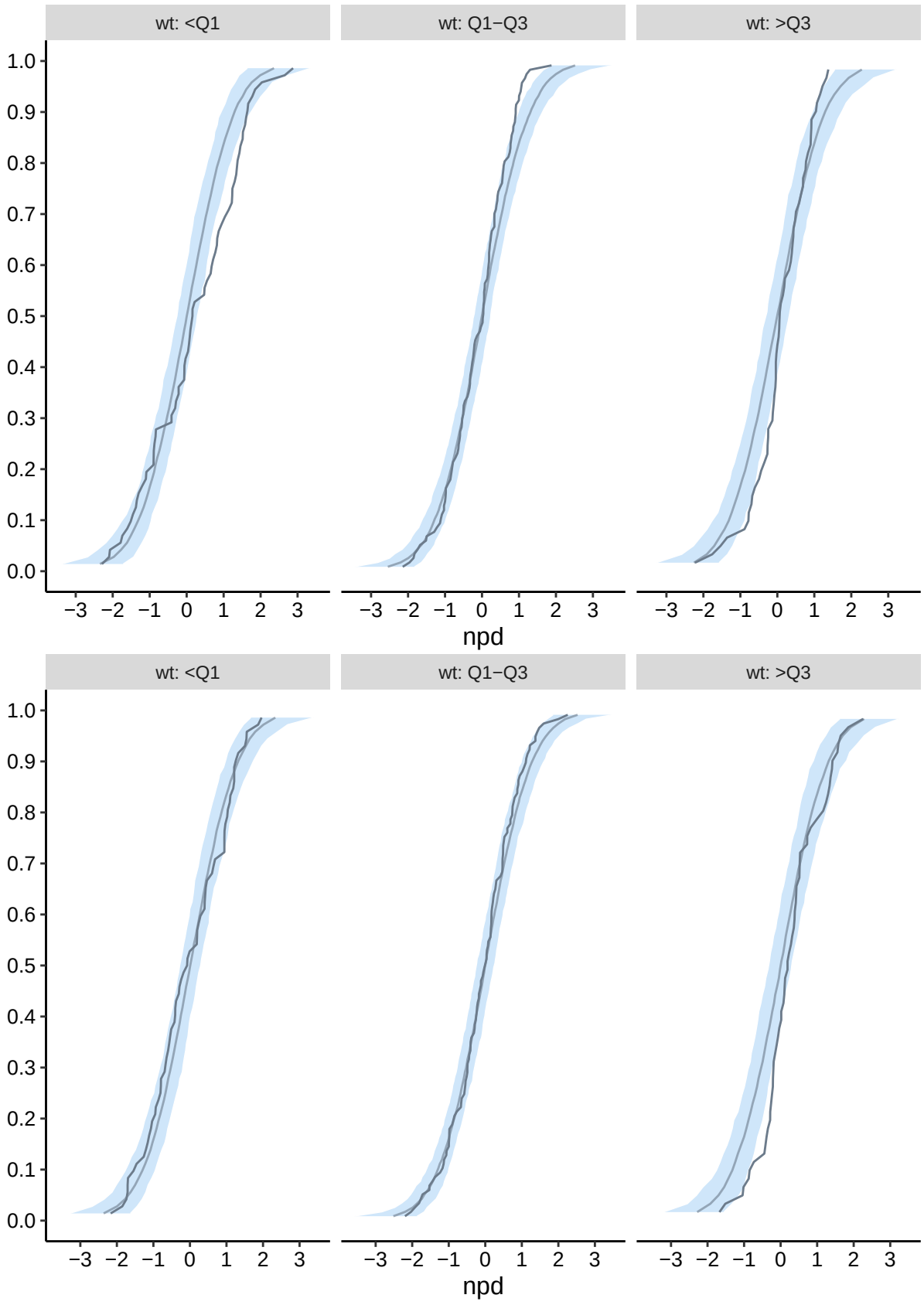


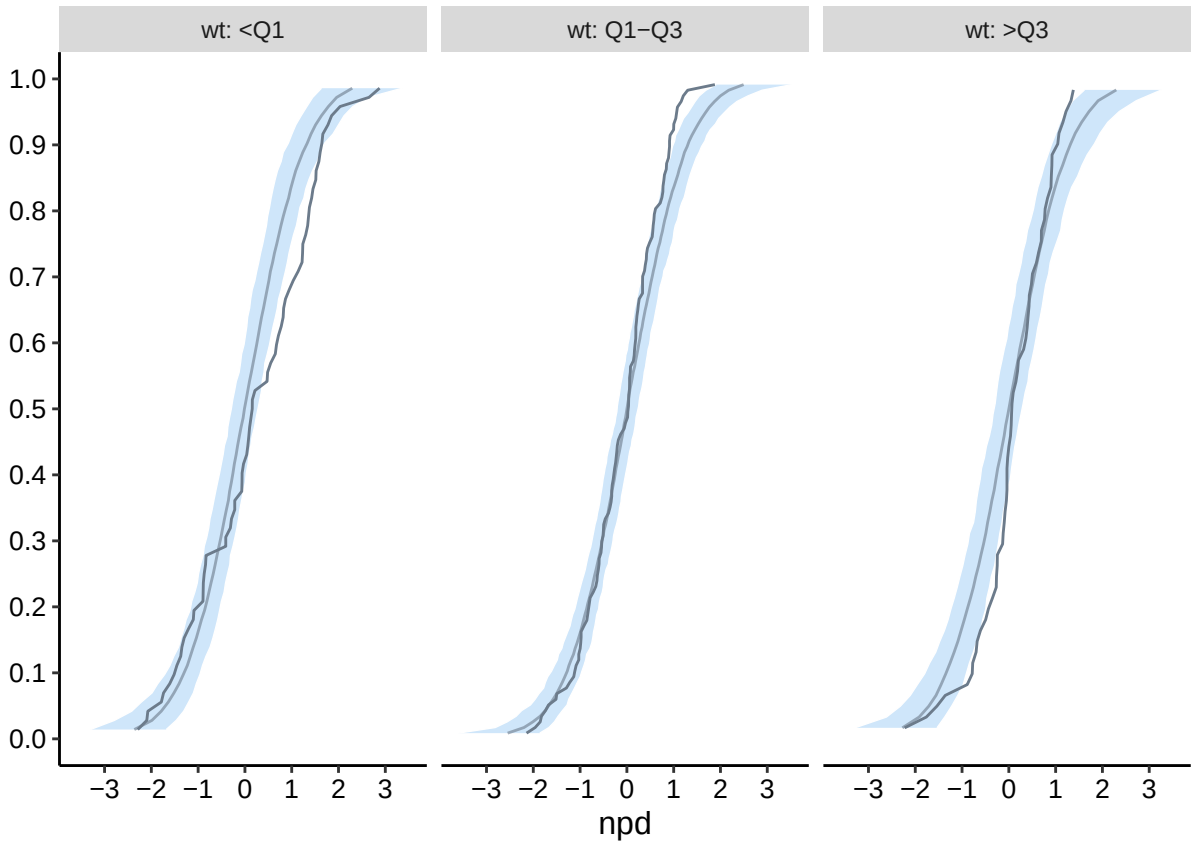

```
## [[1]]
```

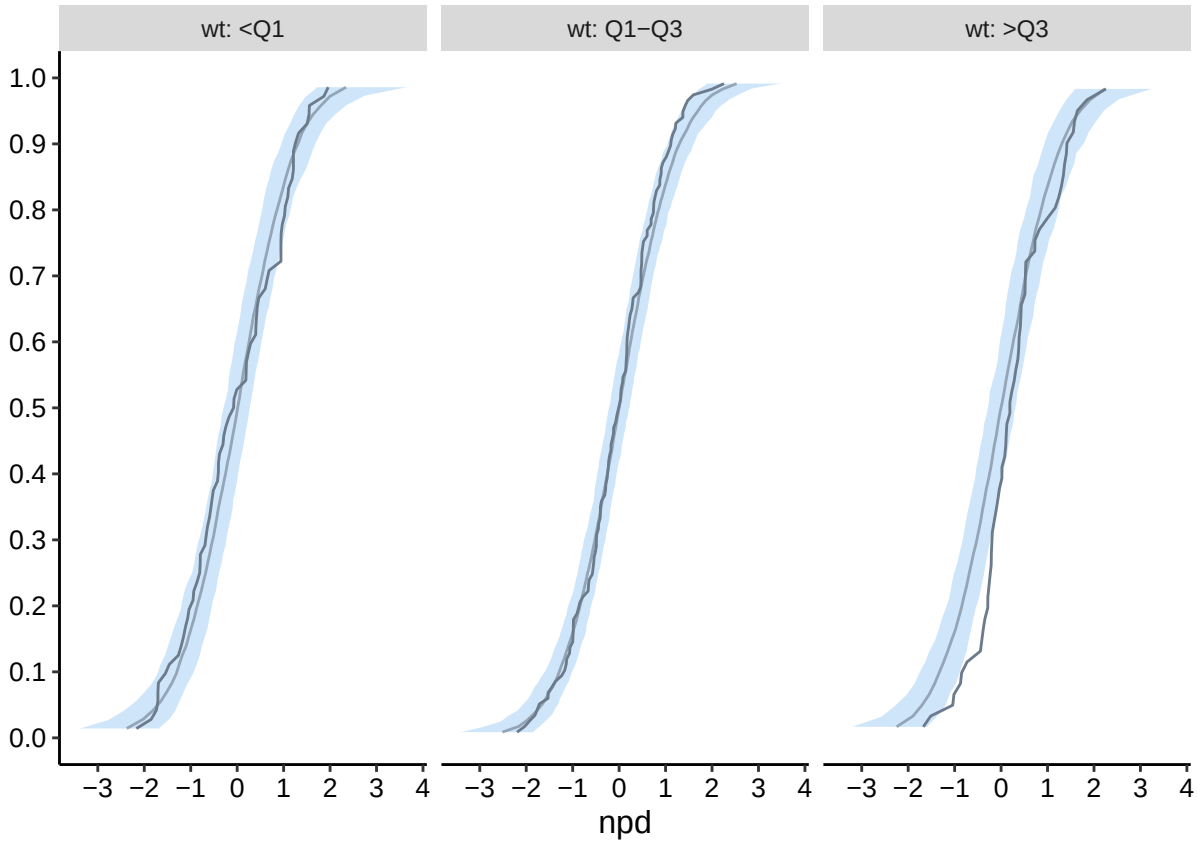
```
## Warning: Removed 5 rows containing non-finite values (`stat_boxplot()`).
```

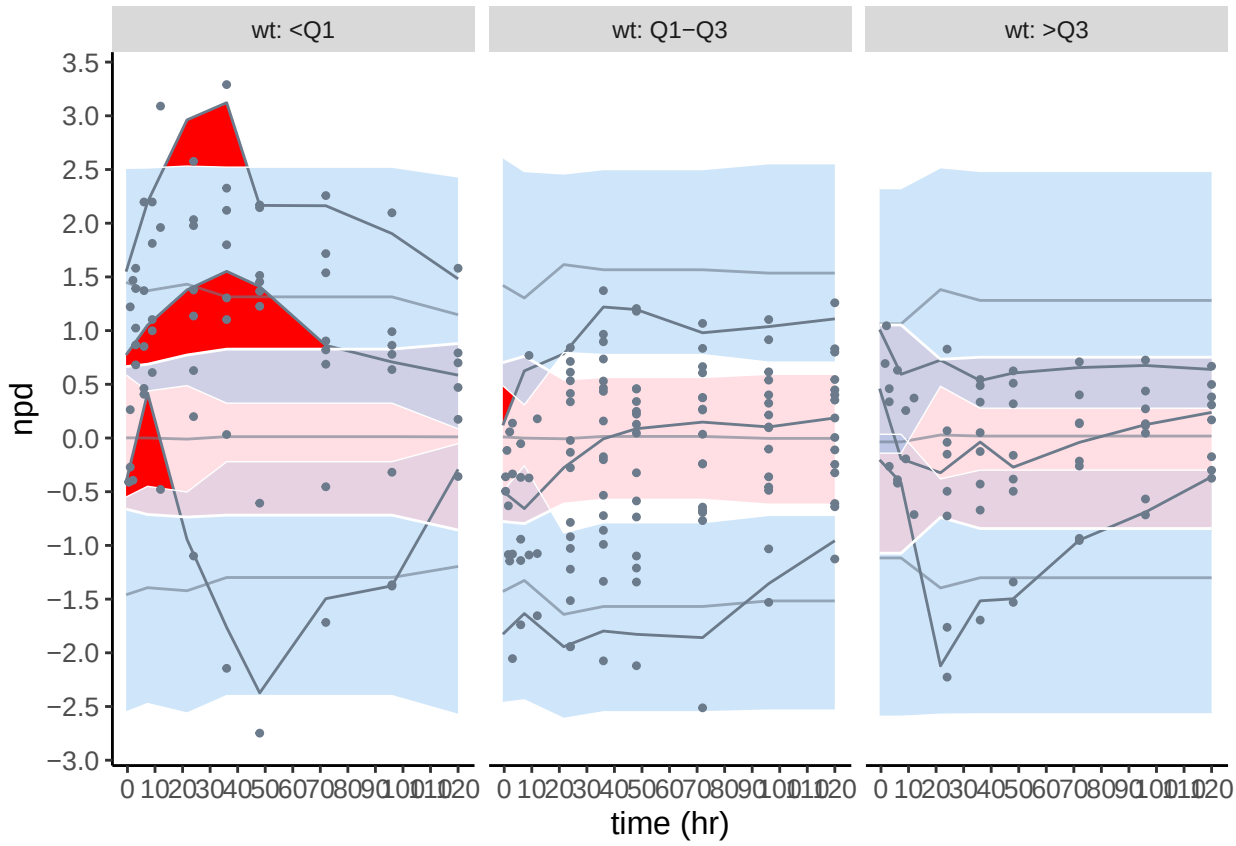

2.5
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−2.5
npd
age: <Q1
age: Q1−Q3
age: >Q3
age

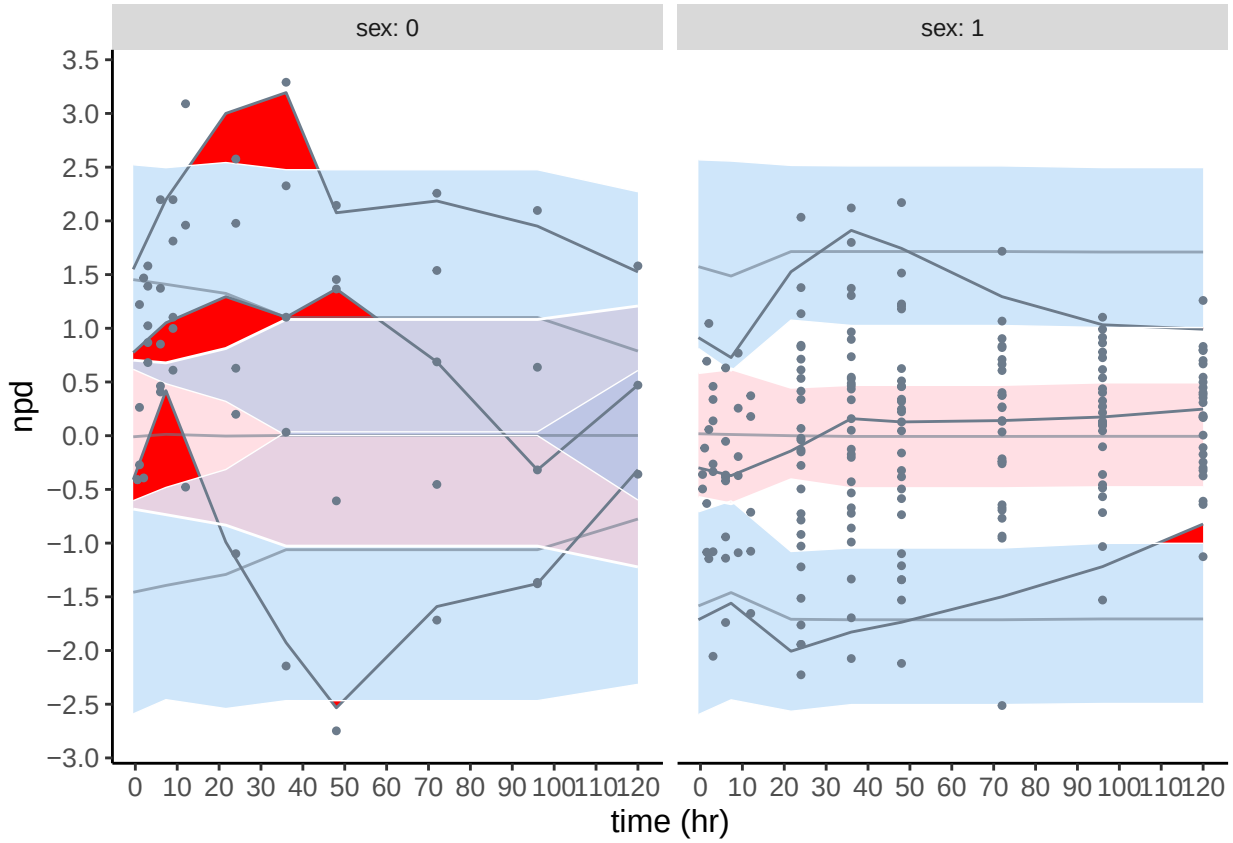

sex: 0
sex: 1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
−3
−2
−1
0
1
2
3
4
npd

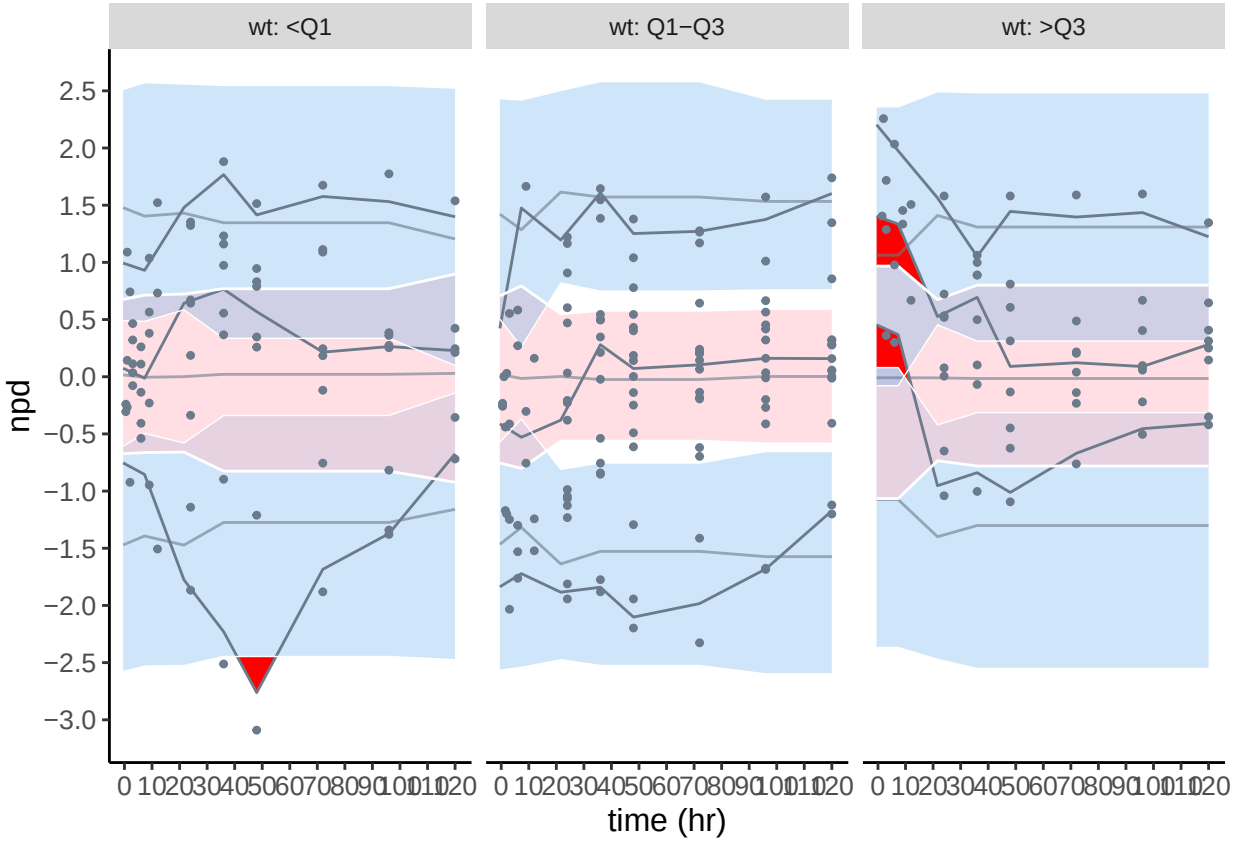

wt: <Q1
wt: Q1−Q3
wt: >Q3
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
−3 −2 −1 0 1 2 3
npd
wt: <Q1
wt: Q1−Q3
wt: >Q3
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
−3 −2 −1 0 1 2 3
npd

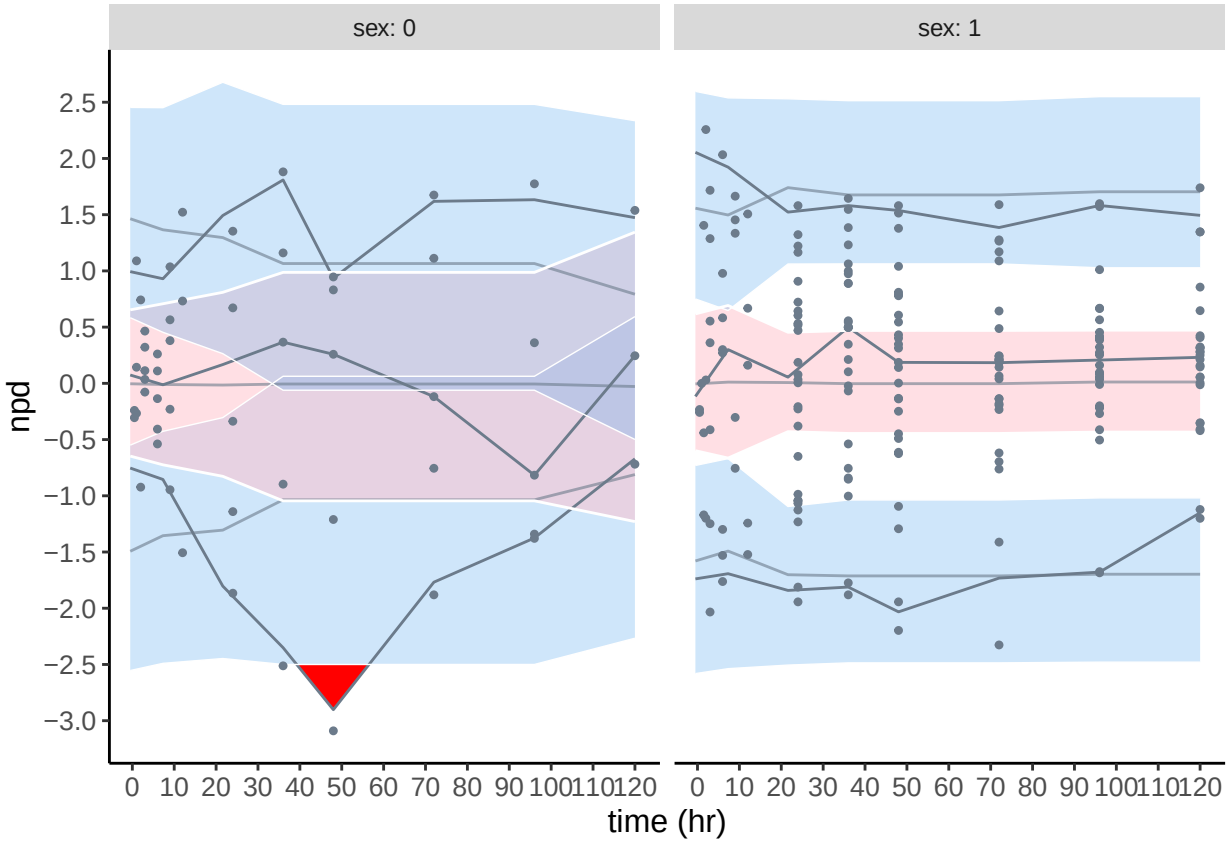

wt: <Q1
wt: Q1−Q3
wt: >Q3
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
−3 −2 −1 0 1 2 3
npd


wt: <Q1
wt: Q1−Q3
wt: >Q3
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
−3 −2 −1 0 1 2 3 4
npd

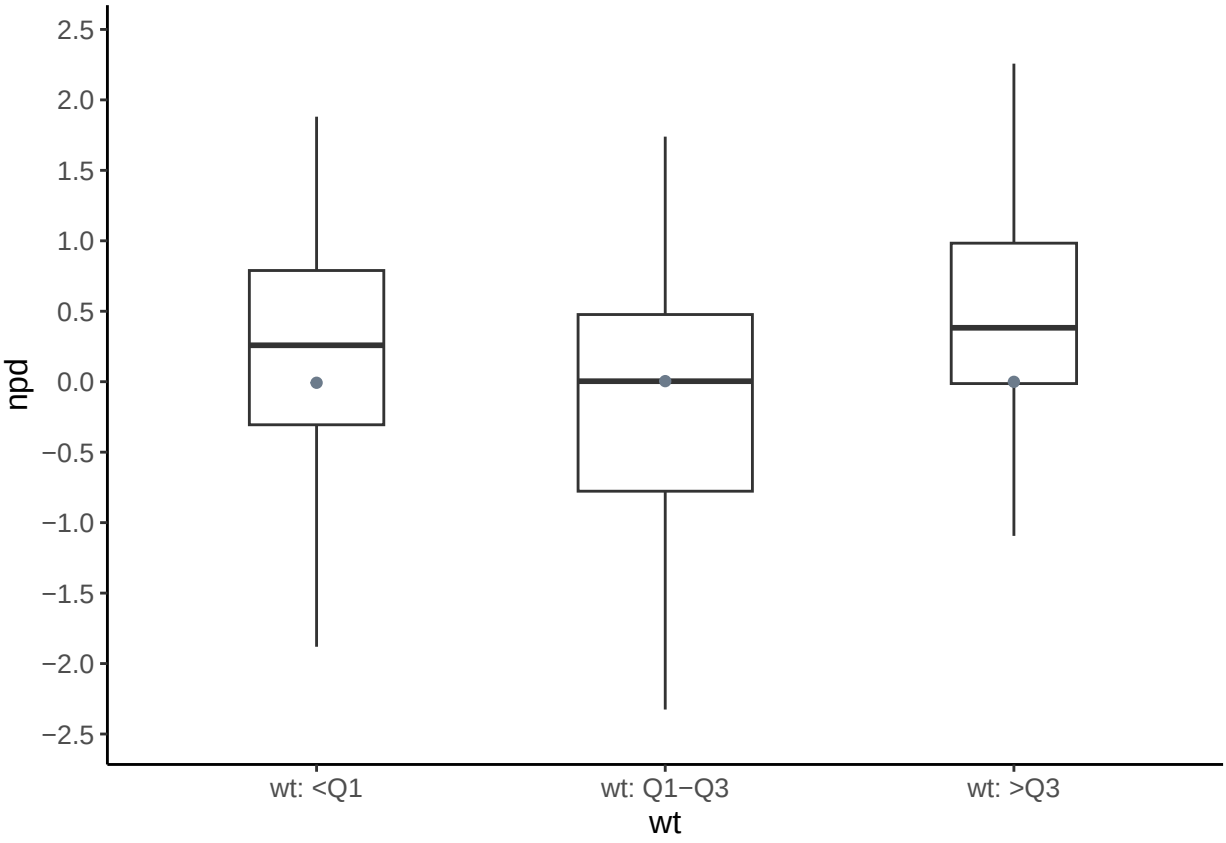

wt: <Q1
wt: Q1−Q3
wt: >Q3
npd
time (hr)

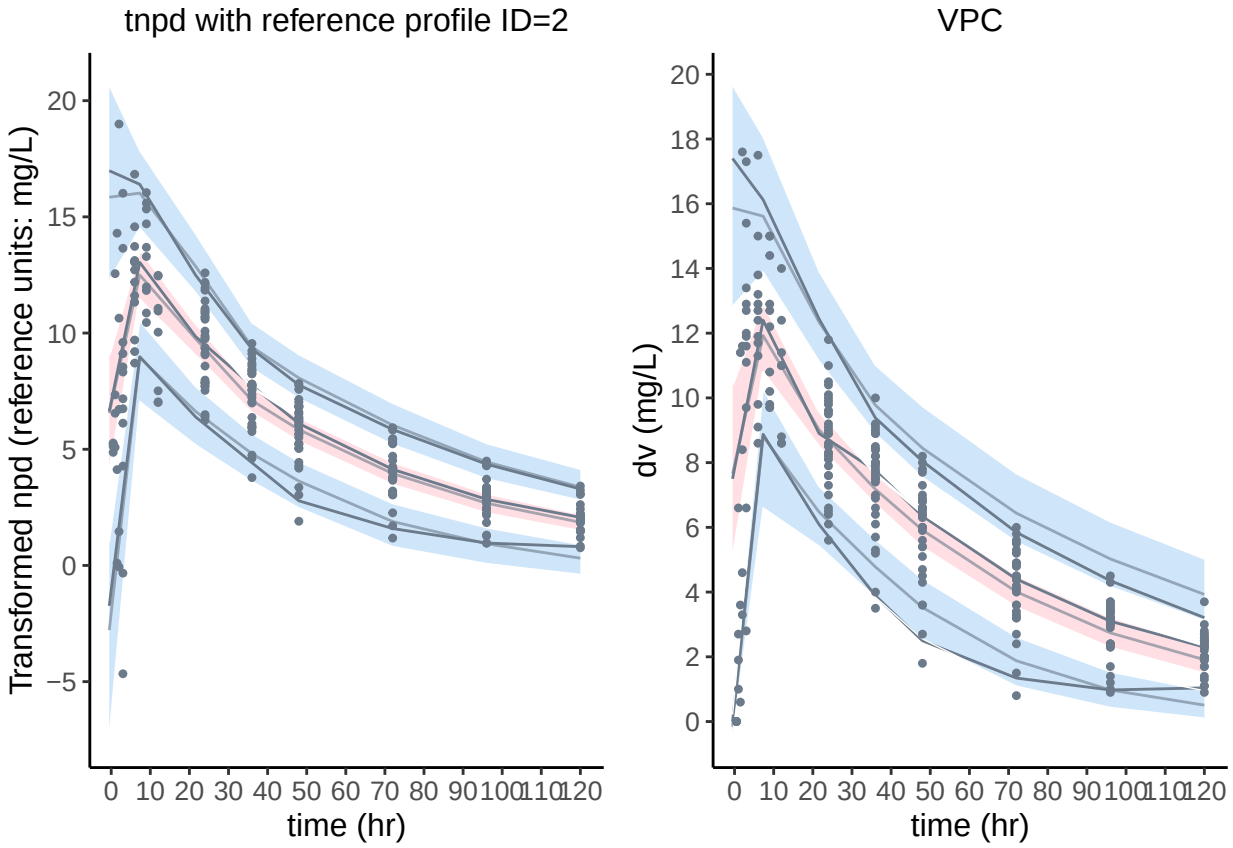

sex: 0
sex: 1
npd
time (hr)


wt: <Q1
wt: Q1−Q3
wt: >Q3
npd
time (hr)


sex: 0
sex: 1
npd
time (hr)

```
## [[1]]
## Warning: Removed 2 rows containing non-finite values (`stat_boxplot()`).
```





Remifentanil (data will be on website)

Remove from documentation ?

Saving

(not sure where this goes in dev_mode. . .)

TODO test different output formats using ggsave + an example with cairo_ps() loading library Cairo

namfile<-"output.eps" cairo_ps(file = namfile, onefile = TRUE, fallback_resolution = 600, height=8.27, width=11.69) plot(x) dev.off()

End of file, deactivating development mode

```
## v Dev mode: OFF
```