LB Facets

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Contents

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```
library(tidyverse)
```

```
##   Attaching packages
tidyverse 1.3.0
```

```
##   ggplot2 3.3.3       purrr   0.3.4
##   tibble  3.1.1       dplyr   1.0.5
##   tidyr   1.1.3       stringr 1.4.0
##   readr   1.4.0       forcats 0.5.1
```

```
##   Conflicts                                   tidyverse_conflicts()
##   dplyr::filter() masks stats::filter()
##   dplyr::lag()    masks stats::lag()
```

```
# Simulated adlb
adlb <- expand.grid(
  USUBJID = paste("subj", 1:50),
  AVISITN = 0:10,
  ARMCD = paste("Arm", c("A", "B")),
  PARAMCD = "prm 1"
)
```

```
adlb$AVISIT <- paste("VST", adlb$AVISIT)
adlb <- do.call(
  rbind,
  lapply(
    X = split(adlb, f = adlb$AVISITN),
    FUN = function(x) {
      x$AVAL <- rbeta(nrow(x), (unique(x$AVISITN) + 2)*0.5, 4) + 1
      x
    })
)

adlb <- rbind(
  adlb,
  within(adlb, {PARAMCD = "prm 2"; AVAL = 0.2 * AVAL}),
  within(adlb, {PARAMCD = "prm 3"; AVAL = 0.5 * AVAL}),
  within(adlb, {PARAMCD = "prm 4"; AVAL = 0.8 * AVAL})
)
```

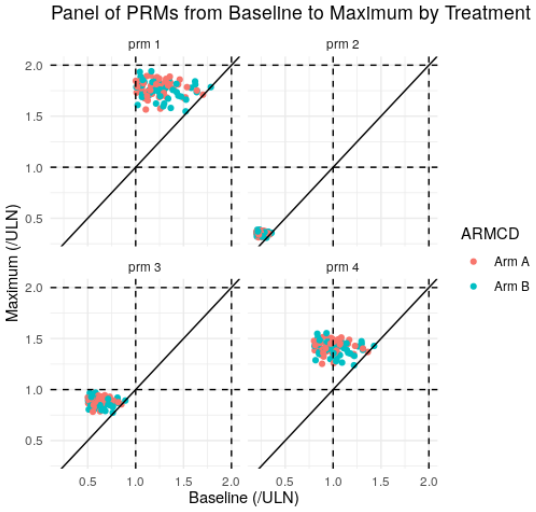
Proposed preprocessing

```
## Identify Max visit if not already done in ADLB
lb_max <- adlb %>%
  group_by(USUBJID, PARAMCD, ARMCD) %>%
  slice(which.max(AVAL)) %>%
  mutate(AVISIT = "MAX") %>%
  ungroup()

## Identify Baseline visit if not already done in ADLB
lb_bl <- adlb %>%
  group_by(USUBJID, ARMCD) %>%
  filter(AVISITN == 0) %>% # Change if Baseline differently identifed e.g. ABLFL
  mutate(AVISIT = "BL") %>%
  ungroup()

## Combine baseline and max in Analysis DataSet [ads]
ads <- bind_rows(lb_max, lb_bl)
```

Graph

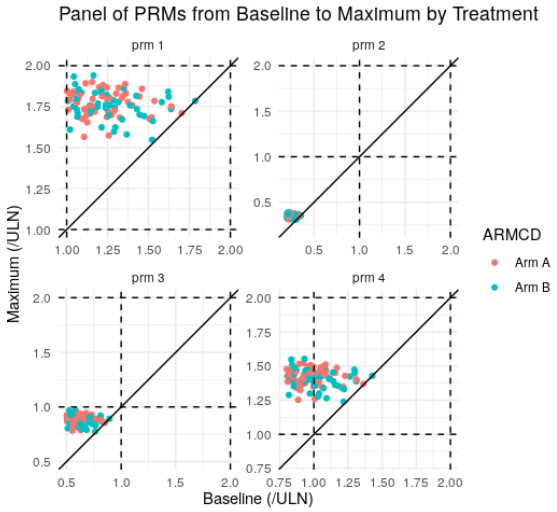
```
## Simple
ads_plot <- pivot_wider(ads, names_from = AVISIT, values_from = AVAL, -AVISITN)

gg <- ggplot(data = ads_plot, mapping = aes(x = BL, y = MAX, color = ARMCD)) +
```

```
  geom_point() +
  geom_abline(intercept = 0, slope = 1) +
  geom_hline(yintercept = 1:2, lty = 2) +
  geom_vline(xintercept = 1:2, lty = 2) +
  facet_wrap(. ~ PARAMCD) +
  ggtitle("Panel of PRMs from Baseline to Maximum by Treatment") +
  xlab("Baseline (/ULN)") +
  ylab("Maximum (/ULN)") +
  theme_minimal() +
  theme(asp = 1)
gg
```




```
## Independent scales in facets

### Identify Min / Max values in ads to keep asp = 1
ads_lim <- split(ads, f = ads[c("ARMCD", "PARAMCD")])
ads_lim <- lapply(
  X = ads_lim,
  FUN = function(x) {
    df <- unique(x[c("ARMCD", "PARAMCD")])
    row.names(df) <- NULL
    cbind(
      df,
      AVISIT = unname(rep(unique(x$AVISIT), 2)),
      range = rep(c("min", "max"), each = 2) ,
      AVAL = rep(range(x$AVAL), each = 2)
    )
```

```
  }
)
ads_lim <- do.call(bind_rows, ads_lim) %>%
  pivot_wider(names_from = AVISIT, values_from = AVAL)

### Update figure
gg <- ggplot(data = ads_lim, mapping = aes(x = BL, y = MAX, color = ARMCD)) +
  geom_blank() +
  geom_point(data = ads_plot, mapping = aes(x = BL, y = MAX, color = ARMCD)) +
  geom_abline(intercept = 0, slope = 1) +
  geom_hline(yintercept = 1:2, lty = 2) +
  geom_vline(xintercept = 1:2, lty = 2) +
  facet_wrap(. ~ PARAMCD, scales = "free") +
  ggtitle("Panel of PRMs from Baseline to Maximum by Treatment") +
  xlab("Baseline (/ULN)") +
  ylab("Maximum (/ULN)") +
  theme_minimal() +
  theme(asp = 1)
gg
```




```
sessionInfo()
```

```
## R version 4.0.4 (2021-02-15)
## Platform: x86_64-pc-linux-gnu (64-bit)
## Running under: Debian GNU/Linux 10 (buster)
##
```

```
## Matrix products: default
## BLAS:   /usr/lib/x86_64-linux-gnu/openblas/libblas.so.3
## LAPACK: /usr/lib/x86_64-linux-gnu/libopenblasp-r0.3.5.so
##
## locale:
##  [1] LC_CTYPE=en_GB.UTF-8       LC_NUMERIC=C
##  [3] LC_TIME=en_GB.UTF-8        LC_COLLATE=en_GB.UTF-8
##  [5] LC_MONETARY=en_GB.UTF-8    LC_MESSAGES=en_GB.UTF-8
##  [7] LC_PAPER=en_GB.UTF-8       LC_NAME=C
##  [9] LC_ADDRESS=C               LC_TELEPHONE=C
## [11] LC_MEASUREMENT=en_GB.UTF-8 LC_IDENTIFICATION=C
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets
methods   base
##
## other attached packages:
## [1] forcats_0.5.1   stringr_1.4.0   dplyr_1.0.5
purrr_0.3.4
## [5] readr_1.4.0     tidyr_1.1.3     tibble_3.1.1
ggplot2_3.3.3
## [9] tidyverse_1.3.0
##
## loaded via a namespace (and not attached):
##  [1] tidyselect_1.1.1  xfun_0.22         haven_2.4.1
colorspace_2.0-1
##  [5] vctrs_0.3.8       generics_0.1.0    htmltools_0.5.1.1 yaml_2.2.1
##  [9] utf8_1.2.1        rlang_0.4.11      pillar_1.6.0
withr_2.4.1
## [13] glue_1.4.2        DBI_1.1.1         dbplyr_2.0.0
modelr_0.1.8
## [17] readxl_1.3.1      lifecycle_1.0.0   munsell_0.5.0
gtable_0.3.0
## [21] cellranger_1.1.0  rvest_1.0.0       evaluate_0.14
labeling_0.4.2
## [25] knitr_1.33        ps_1.6.0          fansi_0.4.2
highr_0.9
## [29] broom_0.7.6       Rcpp_1.0.6        scales_1.1.1
backports_1.2.1
## [33] jsonlite_1.7.2    farver_2.1.0      fs_1.5.0
hms_1.0.0
## [37] digest_0.6.27     stringi_1.5.3     grid_4.0.4
cli_2.5.0
## [41] tools_4.0.4       magrittr_2.0.1    crayon_1.4.1
pkgconfig_2.0.3
## [45] ellipsis_0.3.2    xml2_1.3.2        reprex_1.0.0
```

```
lubridate_1.7.10
## [49] assertthat_0.2.1   rmarkdown_2.6      httr_1.4.2
rstudioapi_0.13
## [53] R6_2.5.0           compiler_4.0.4
```