Figures: bounds on the approximation error as a function of n

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```
K4 = 9
K3 = K4^(3/4)
lambda3 = 0.621*K3
eps = 0.1
kappa = 0.99
C0 = 1
p = 2

n = ceiling(10^(seq(2,7,by = 0.01)))
```

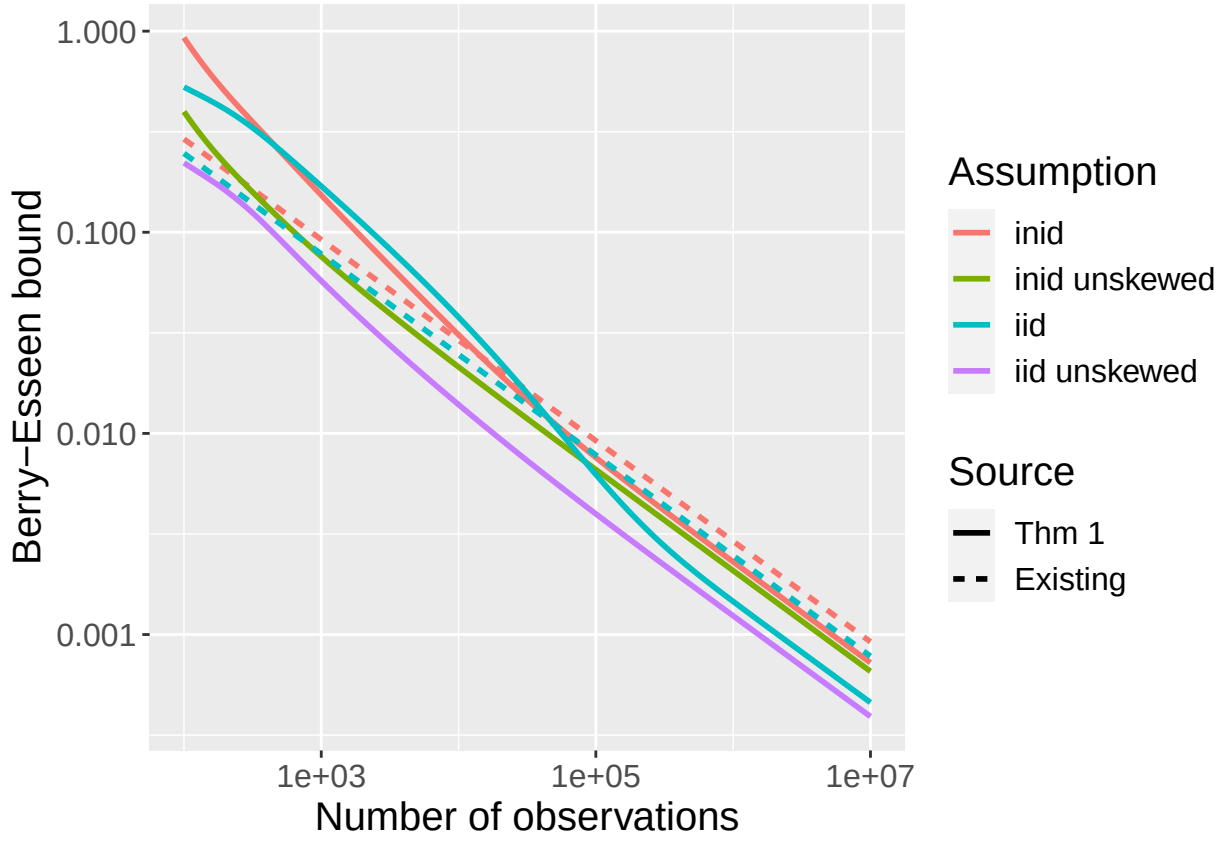
Plotting the bounds under Assumption 2.1 or 2.2

```
df1 = data.frame( x = n ,
                  y = Bound_BE(
                    setup = list(continuity = FALSE, iid = FALSE, no_skewness = FALSE),
                    n = n, K4 = K4, K3 = K3, lambda3 = lambda3,
                    regularity = list(C0 = C0, p = p),
                    eps = 0.1) ,
                  type = "inid", BE = "Thm 1")
df2 = data.frame( x = n ,
                  y = Bound_BE(
                    setup = list(continuity = FALSE, iid = FALSE, no_skewness = TRUE),
                    n = n, K4 = K4, K3 = K3, lambda3 = lambda3,
                    regularity = list(C0 = C0, p = p),
                    eps = 0.1) ,
                  type = "inid unskewed", BE = "Thm 1")
df3 = data.frame( x = n ,
                  y = Bound_BE(
                    setup = list(continuity = FALSE, iid = TRUE, no_skewness = FALSE),
                    n = n, K4 = K4, K3 = K3, lambda3 = lambda3,
                    regularity = list(kappa = kappa),
                    eps = 0.1) ,
                  type = "iid", BE = "Thm 1")
df4 = data.frame( x = n ,
                  y = Bound_BE(
                    setup = list(continuity = FALSE, iid = TRUE, no_skewness = TRUE),
                    n = n, K4 = K4, K3 = K3, lambda3 = lambda3,
                    regularity = list(kappa = kappa),
                    eps = 0.1) ,
                  type = "iid unskewed", BE = "Thm 1")
```

```
df5 = data.frame( x = n , y = 0.56*K3/sqrt(n) ,
                  type = "inid", BE = "Existing")

df6 = data.frame( x = n , y = 0.4748*K3/sqrt(n) ,
                  type = "iid", BE = "Existing")
```

```
df = rbind(df1,df2,df3,df4,df5,df6)

# Reordering the levels
df$BE = factor(df$BE, levels = c("Thm 1", "Existing"))
df$type = factor(df$type, levels = c("inid", "inid unskewed", "iid", "iid unskewed"))
```

```
g = ggplot(df) +
  geom_line(aes(x, y, colour = type, linetype = BE), size = 1) +
  ylab("Berry-Esseen bound") + xlab("Number of observations") +
  scale_x_log10() + scale_y_log10() +
  guides(colour = guide_legend(title = "Assumption") ,
         linetype = guide_legend(title = "Source")) +
  theme(text = element_text(size = 15))

print(g)
```

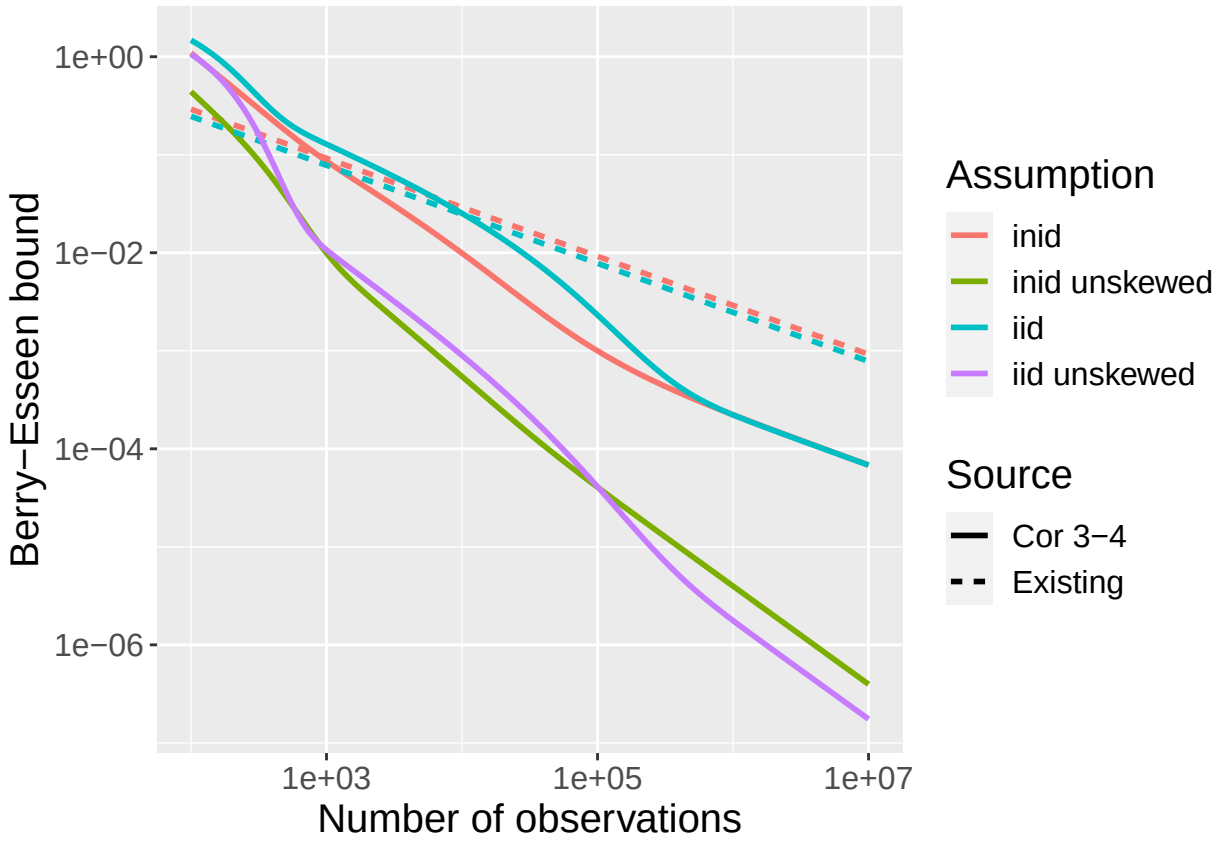



```
ggsave(g, filename = "graph_nocont.pdf", device = cairo_pdf,
       height = 20, width = 25,  units = "cm")
```

Plotting the bounds in Corollaries 3 and 4

```
df1 = data.frame( x = n ,
                  y = Bound_BE(
                    setup = list(continuity = TRUE, iid = FALSE, no_skewness = FALSE),
                    n = n, K4 = K4, K3 = K3, lambda3 = lambda3,
                    regularity = list(C0 = C0, p = p),
                    eps = eps) ,
                  type = "inid", BE = "Cor 3-4")
df2 = data.frame( x = n ,
                  y = Bound_BE(
                    setup = list(continuity = TRUE, iid = FALSE, no_skewness = TRUE),
                    n = n, K4 = K4, K3 = K3, lambda3 = lambda3,
                    regularity = list(C0 = C0, p = p),
                    eps = eps) ,
                  type = "inid unskewed", BE = "Cor 3-4")
df3 = data.frame( x = n ,
                  y = Bound_BE(
                    setup = list(continuity = TRUE, iid = TRUE, no_skewness = FALSE),
                    n = n, K4 = K4, K3 = K3, lambda3 = lambda3,
                    regularity = list(kappa = kappa),
                    eps = eps) ,
                  type = "iid", BE = "Cor 3-4")
df4 = data.frame( x = n ,
                  y = Bound_BE(
                    setup = list(continuity = TRUE, iid = TRUE, no_skewness = TRUE),
                    n = n, K4 = K4, K3 = K3, lambda3 = lambda3,
                    regularity = list(kappa = kappa),
                    eps = eps) ,
                  type = "iid unskewed", BE = "Cor 3-4")

df = rbind(df1,df2,df3,df4,df5,df6)

df$BE = factor(df$BE, levels = c("Cor 3-4", "Existing"))
df$type = factor(df$type, levels = c("inid", "inid unskewed", "iid", "iid unskewed"))
```

```
g = ggplot(df) +
  geom_line(aes(x, y, colour = type, linetype = BE), size = 1) +
  ylab("Berry-Esseen bound") + xlab("Number of observations") +
  scale_x_log10() + scale_y_log10(n.breaks = 6) +
  guides(colour = guide_legend(title = "Assumption") ,
         linetype = guide_legend(title = "Source")) +
  theme(text = element_text(size = 15))

print(g)
```




```
ggsave(g, filename = "graph_cont.pdf", device = cairo_pdf,
       height = 20, width = 25,  units = "cm")
```