

Wk 5 Class 5 Data Visualization lab

Chantal Rabay (PID A14528642)

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```
# Week 5 Class 5 Data Visualization lab
r = getOption("repos")
r["CRAN"] = "http://cran.us.r-project.org"
options(repos = r)
#One time only install
install.packages("ggplot2")

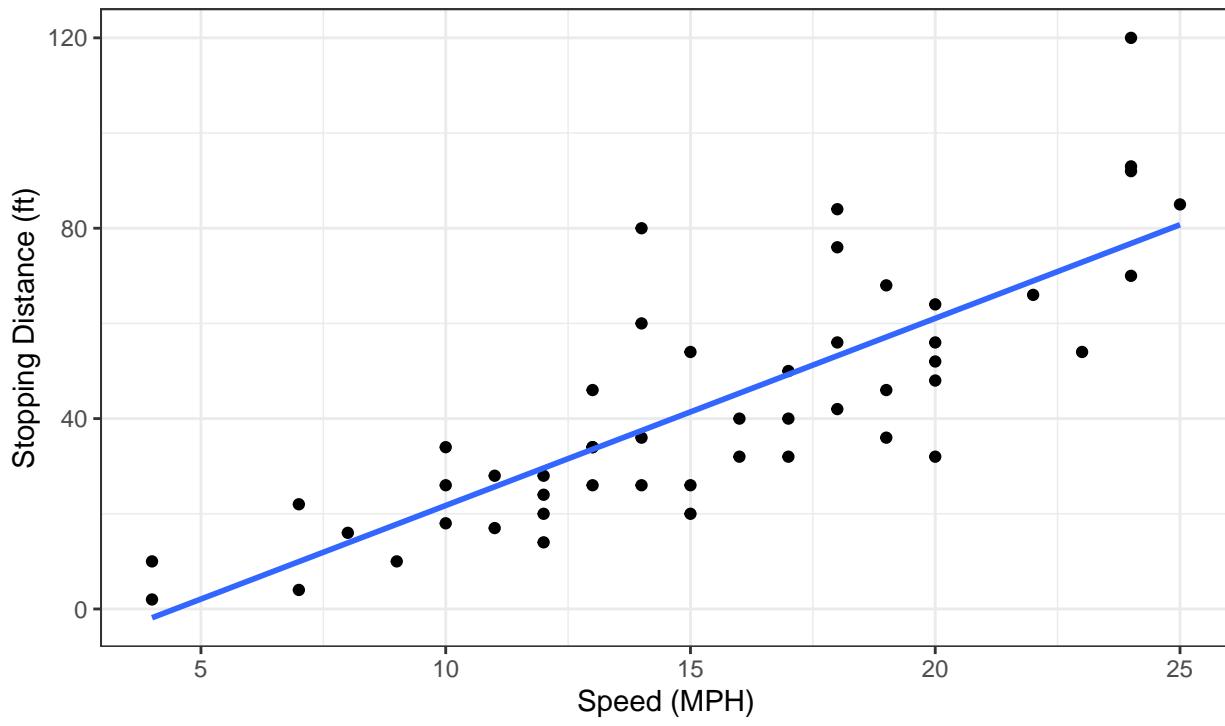
##
## The downloaded binary packages are in
## /var/folders/9r/2f14lwsd285gxhxcsztcvzp40000gn/T//RtmpgBeGAV downloaded_packages

#Load this every time a new session is started and ggplot is needed
library(ggplot2)
ggplot(cars) +
  aes(x=speed, y=dist) +
  geom_point() +
  labs(title="Speed and Stopping Distances of Cars",
       x="Speed (MPH)",
       y="Stopping Distance (ft)",
       subtitle = "Your informative subtitle text here",
       caption="Dataset: 'cars'") +
  geom_smooth(method="lm", se=FALSE) +
  theme_bw()

## 'geom_smooth()' using formula 'y ~ x'
```

Speed and Stopping Distances of Cars

Your informative subtitle here



```
url<- "https://bioboot.github.io/bimm143_S20/class-material/up_down_expression.txt"
genes<-read.delim(url)
head(genes)
```

```
##           Gene Condition1 Condition2      State
## 1      A4GNT -3.6808610 -3.4401355 unchanging
## 2       AAAS  4.5479580  4.3864126 unchanging
## 3      AASDH  3.7190695  3.4787276 unchanging
## 4       AATF  5.0784720  5.0151916 unchanging
## 5       AATK  0.4711421  0.5598642 unchanging
## 6 AB015752.4 -3.6808610 -3.5921390 unchanging
```

```
nrow(genes)
```

```
## [1] 5196
```

```
colnames(genes)
```

```
## [1] "Gene"          "Condition1" "Condition2" "State"
```

```
ncol(genes)
```

```
## [1] 4
```

```

table(genes$State)

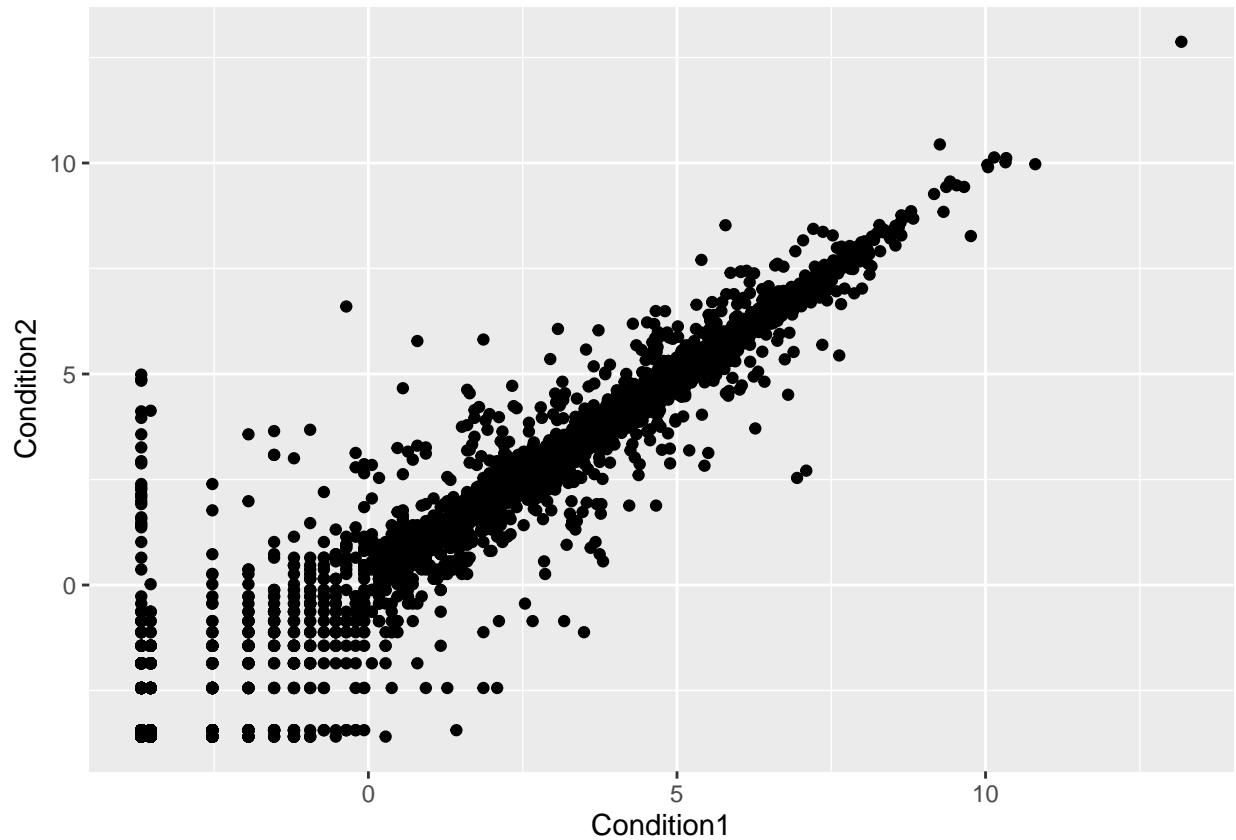
##
##      down unchanged       up
##      72        4997      127

round( table(genes$State)/nrow(genes)*100, 2 )

##
##      down unchanged       up
##      1.39        96.17     2.44

ggplot(genes) +
  aes(x=Condition1, y=Condition2) +
  geom_point()

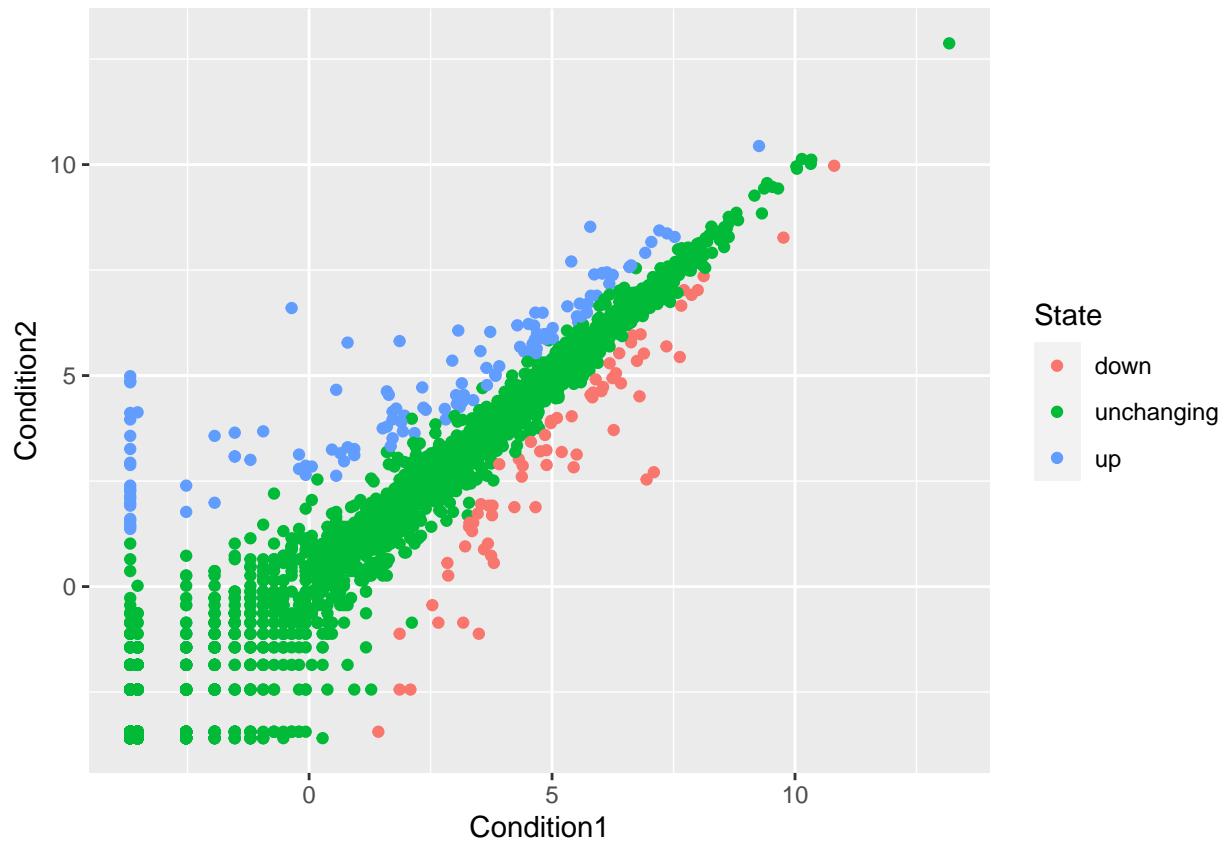
```



```

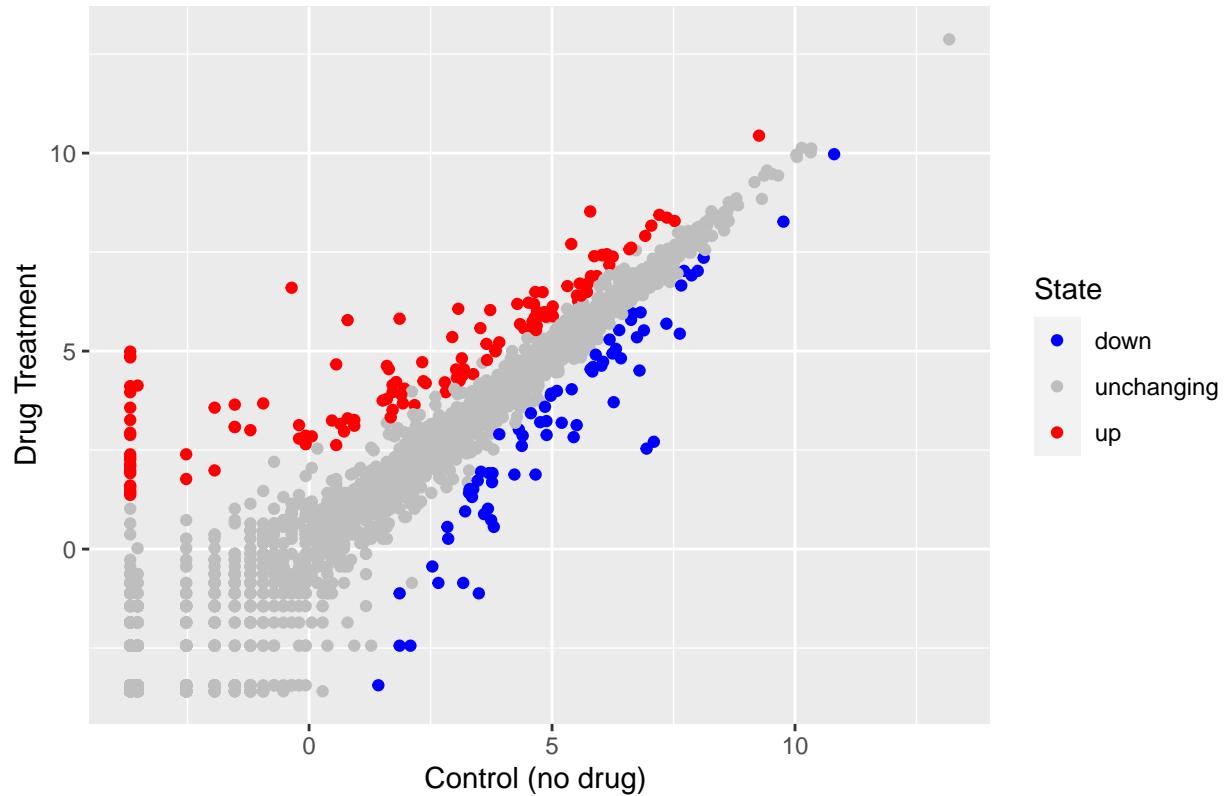
p<- ggplot(genes) +
  aes(x=Condition1, y=Condition2, col=State) +
  geom_point()
p

```



```
p + scale_colour_manual(values=c("blue","gray","red"))+
  labs(title="Gene Expression Changes Upon Drug Treatment",
       x="Control (no drug) ",
       y="Drug Treatment")
```

Gene Expression Changes Upon Drug Treatment



```
install.packages("gifski")
## 
## The downloaded binary packages are in
## /var/folders/9r/2f14lwsd285gxhxcsztcvzp40000gn/T//RtmpgBeGAV downloaded_packages

install.packages("gganimate")
## 
## The downloaded binary packages are in
## /var/folders/9r/2f14lwsd285gxhxcsztcvzp40000gn/T//RtmpgBeGAV downloaded_packages

install.packages("gapminder")
## 
## The downloaded binary packages are in
## /var/folders/9r/2f14lwsd285gxhxcsztcvzp40000gn/T//RtmpgBeGAV downloaded_packages

library(gapminder)
## 
## Attaching package: 'gapminder'
## The following object is masked by '.GlobalEnv':
##
```

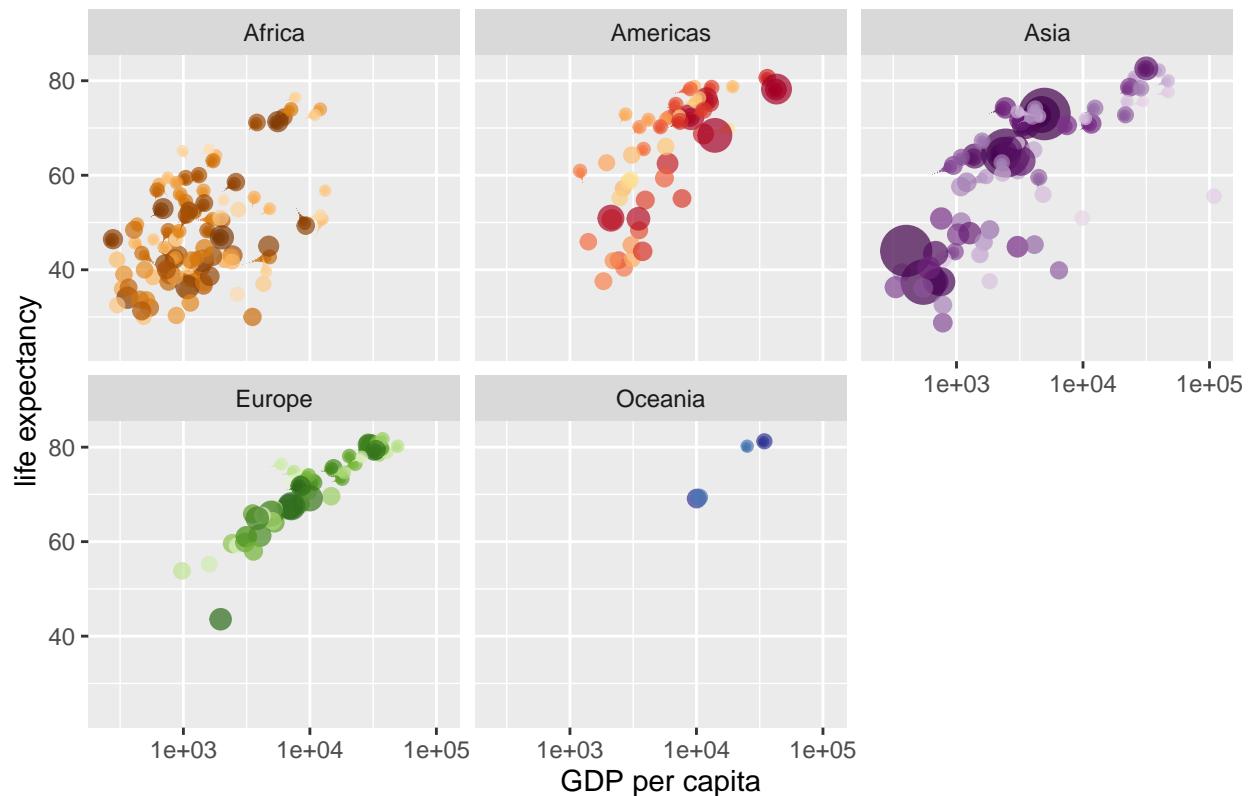
```

##      gapminder
library(gganimate)

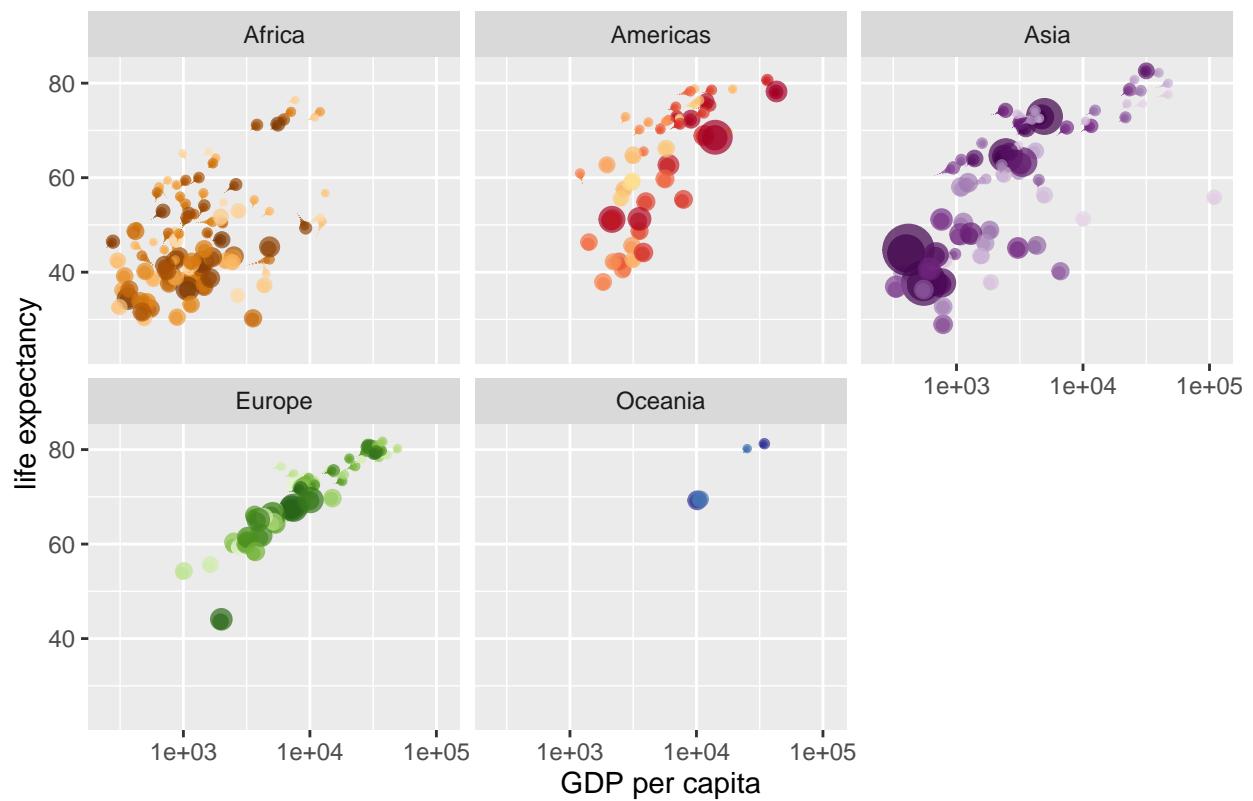
# Setup nice regular ggplot of the gapminder data
ggplot(gapminder, aes(gdpPercap, lifeExp, size = pop, colour = country)) +
  geom_point(alpha = 0.7, show.legend = FALSE) +
  scale_colour_manual(values = country_colors) +
  scale_size(range = c(2, 12)) +
  scale_x_log10() +
  # Facet by continent
  facet_wrap(~continent) +
  # Here comes the gganimate specific bits
  labs(title = 'Year: {frame_time}', x = 'GDP per capita', y = 'life expectancy') +
  transition_time(year) +
  shadow_wake(wake_length = 0.1, alpha = FALSE)

```

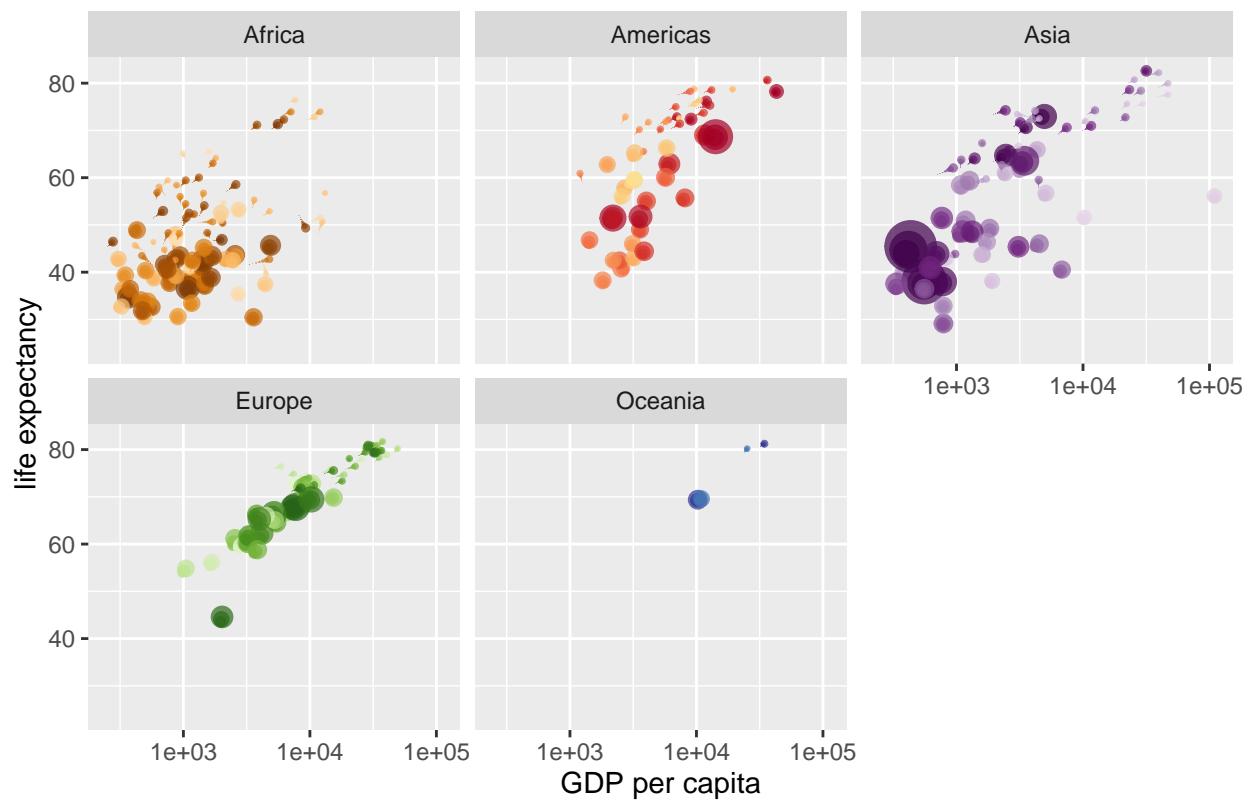
Year: 1952



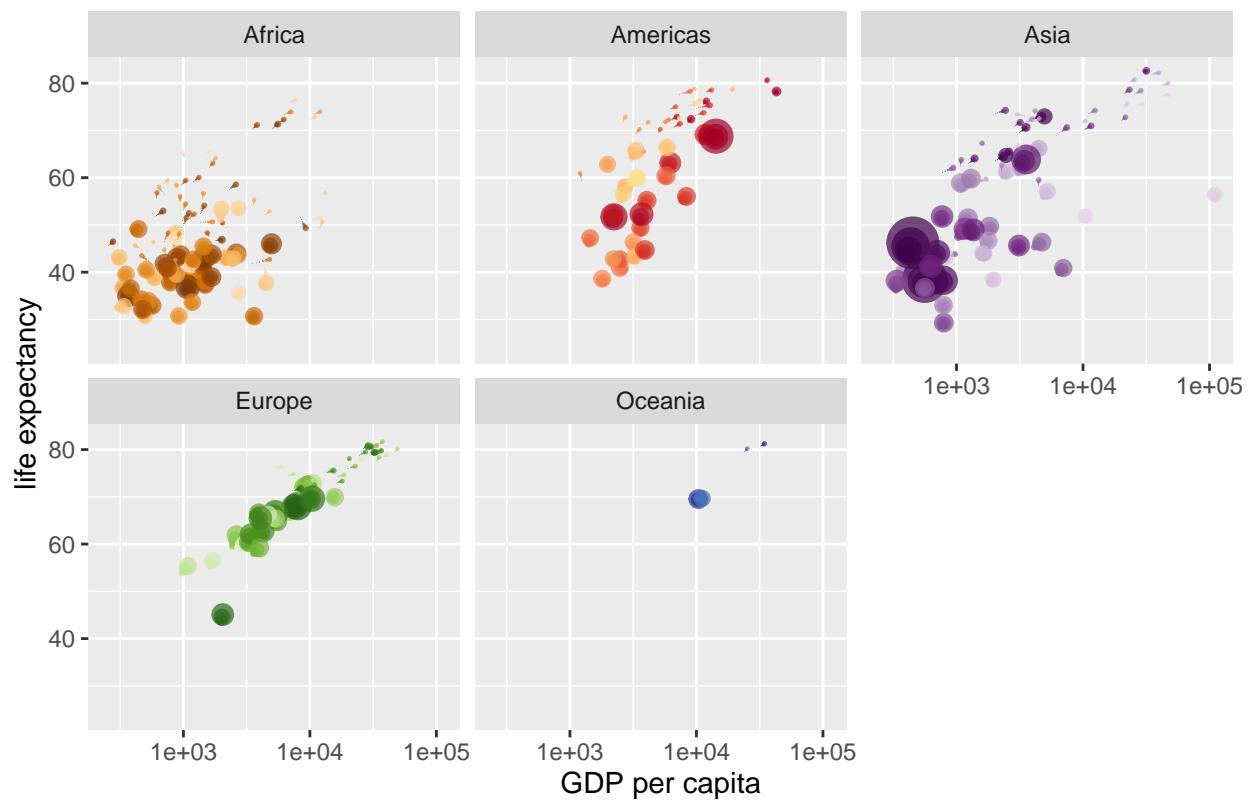
Year: 1953



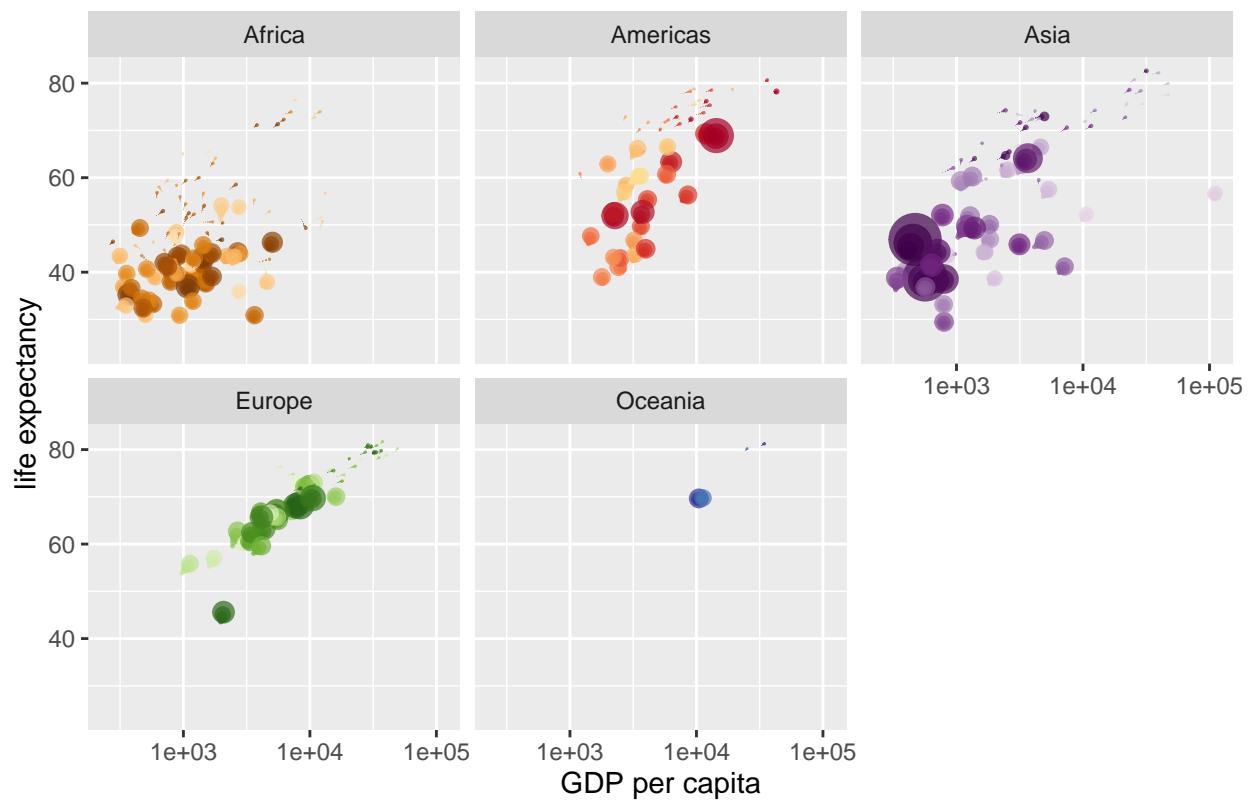
Year: 1953



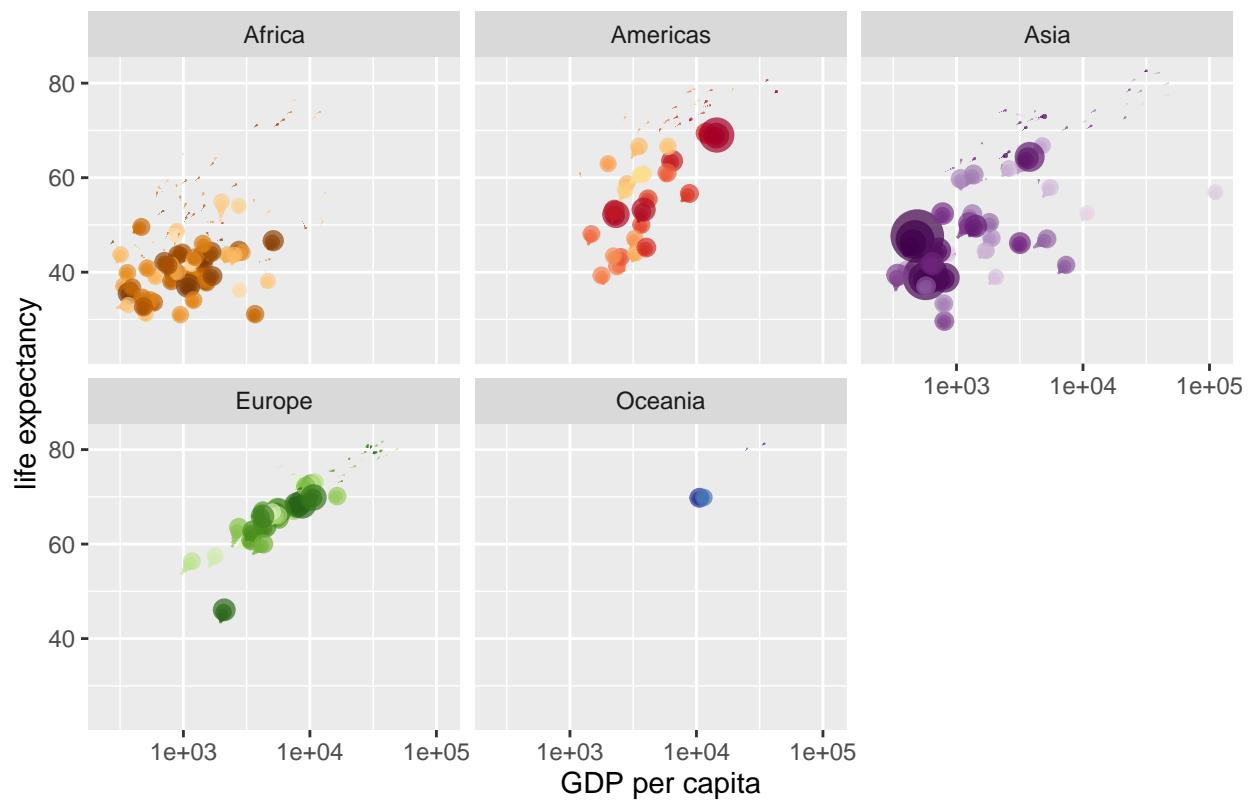
Year: 1954



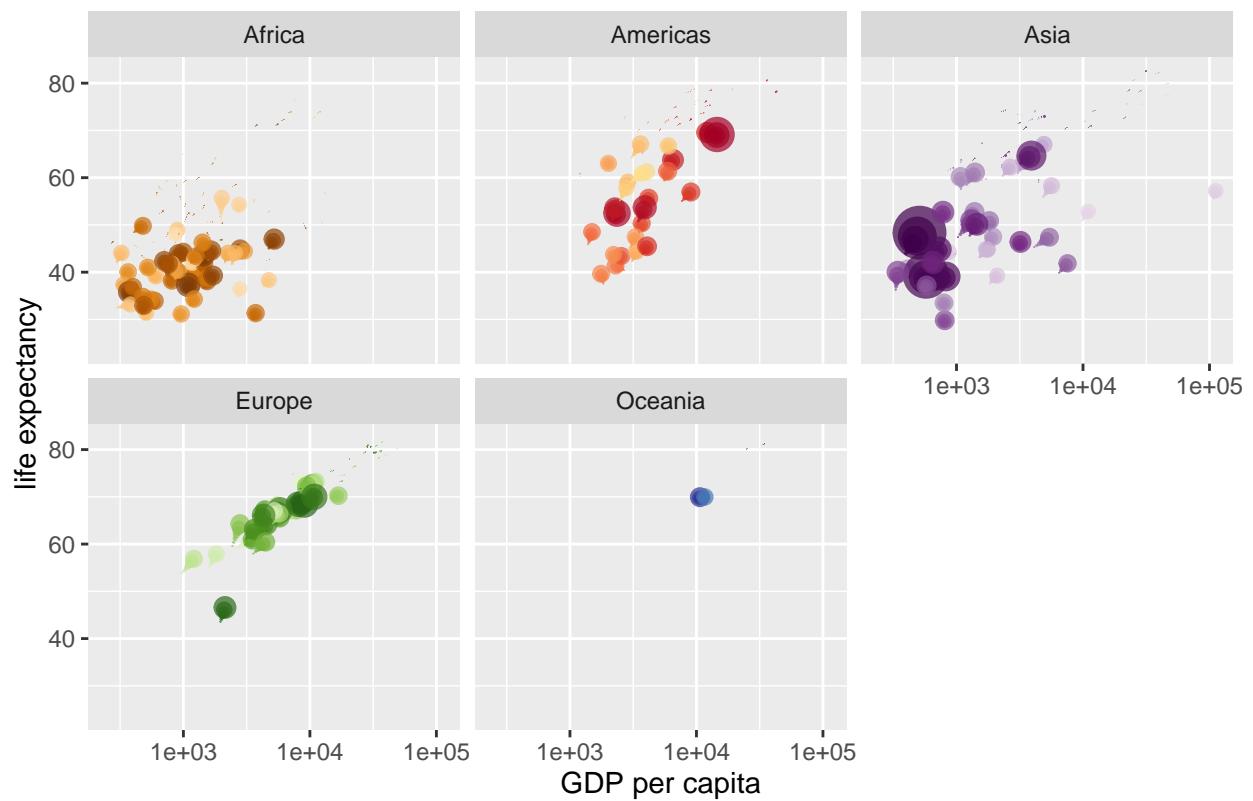
Year: 1954



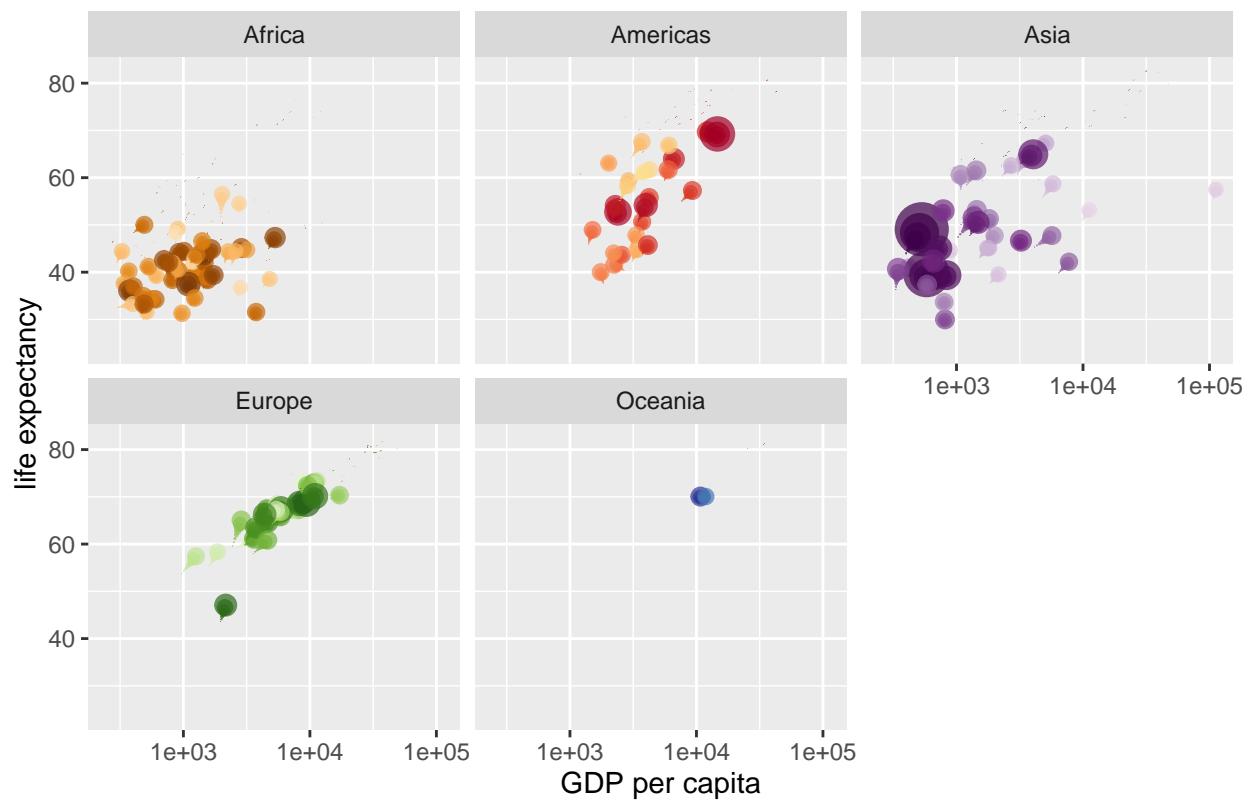
Year: 1955



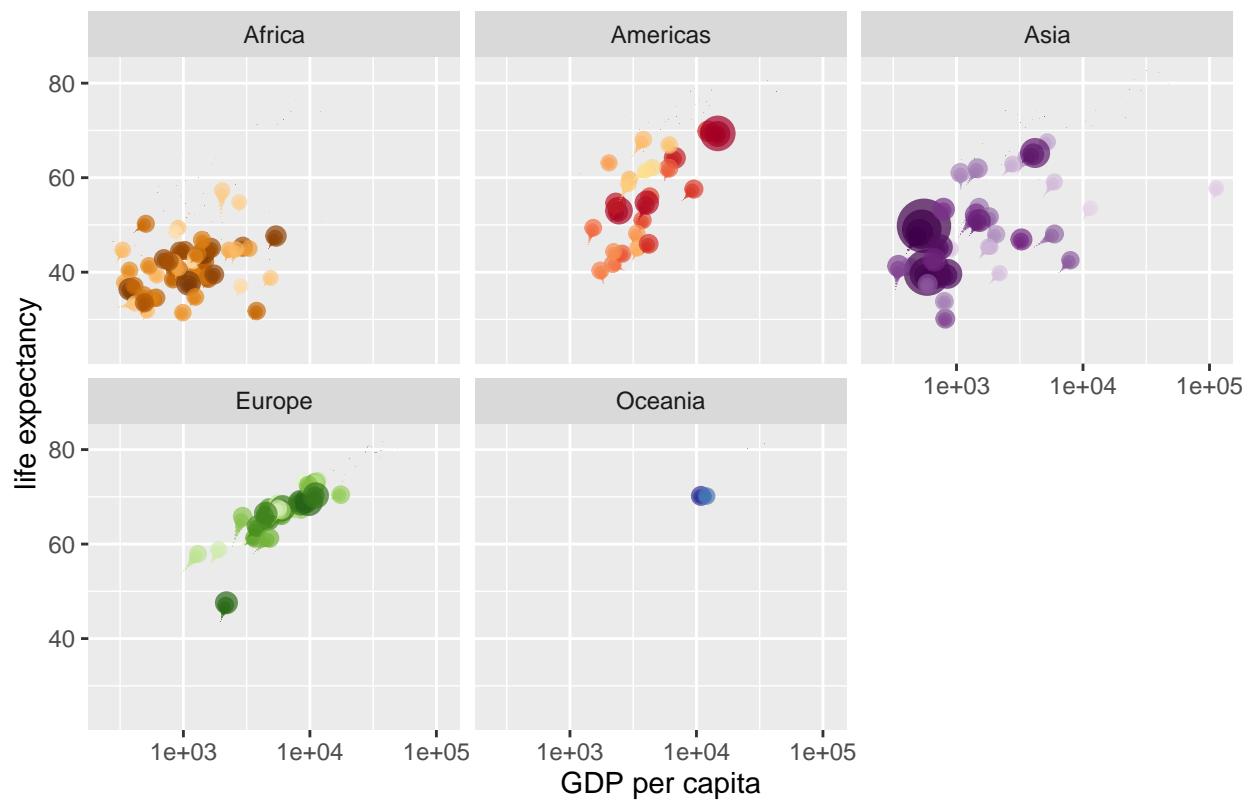
Year: 1955



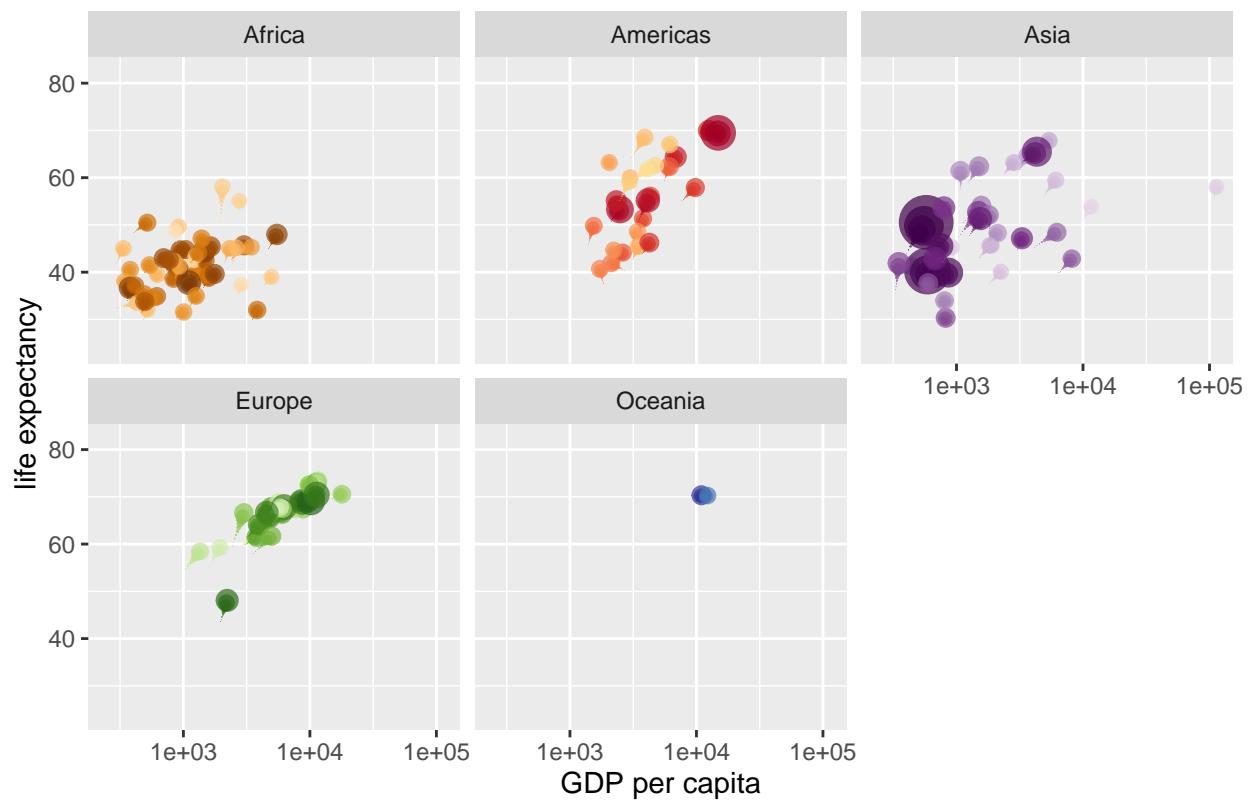
Year: 1956



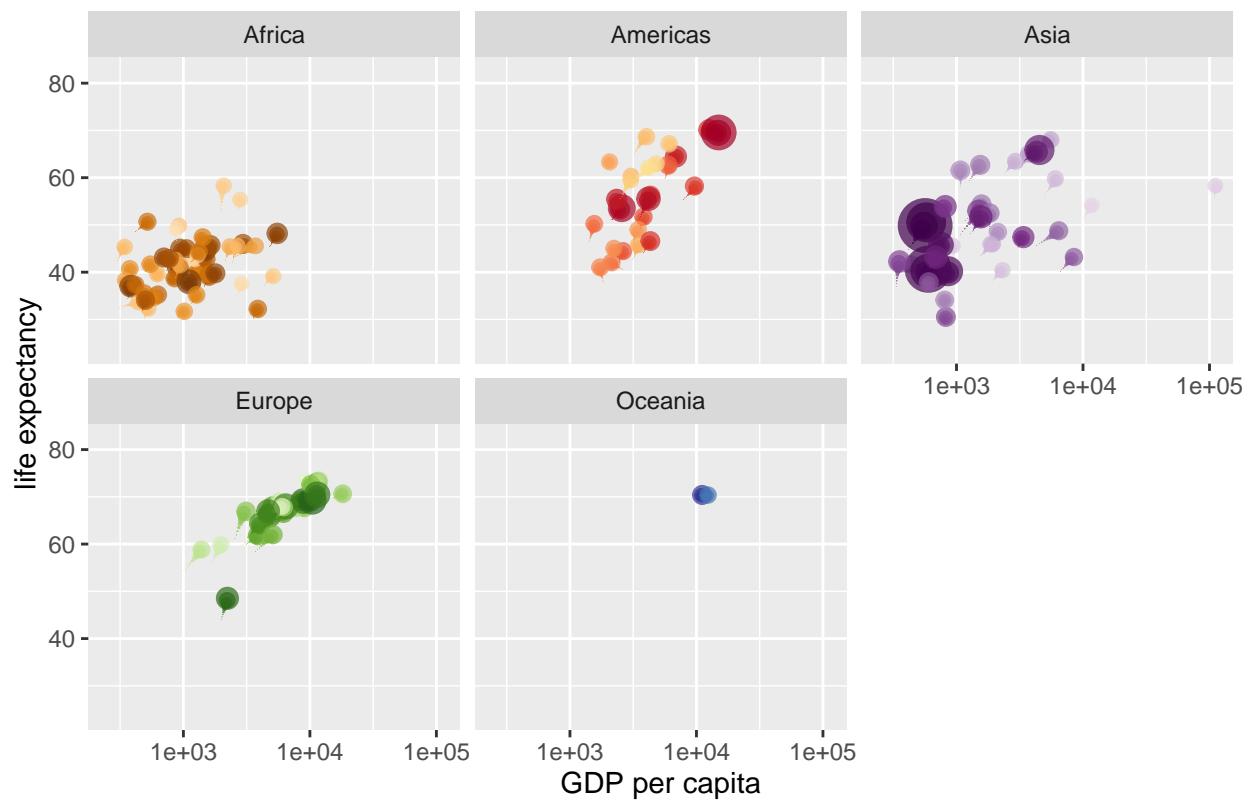
Year: 1956



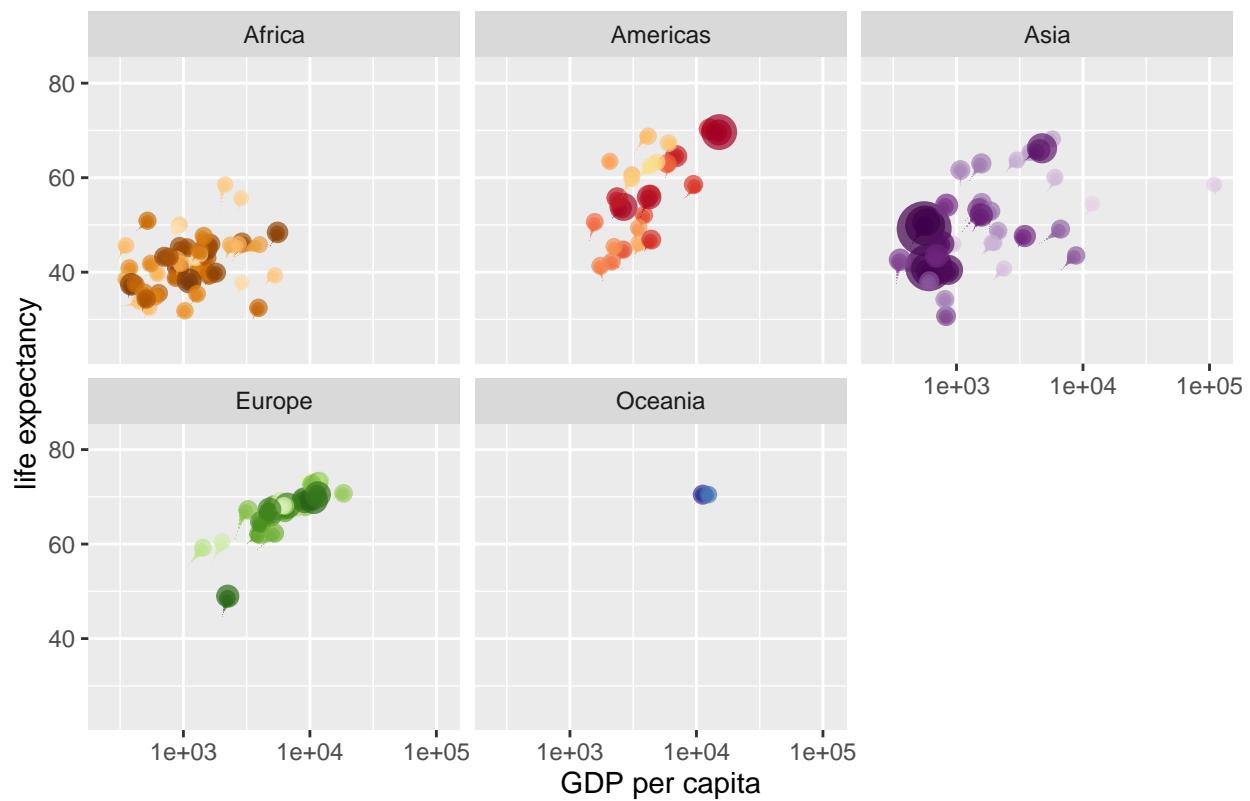
Year: 1957



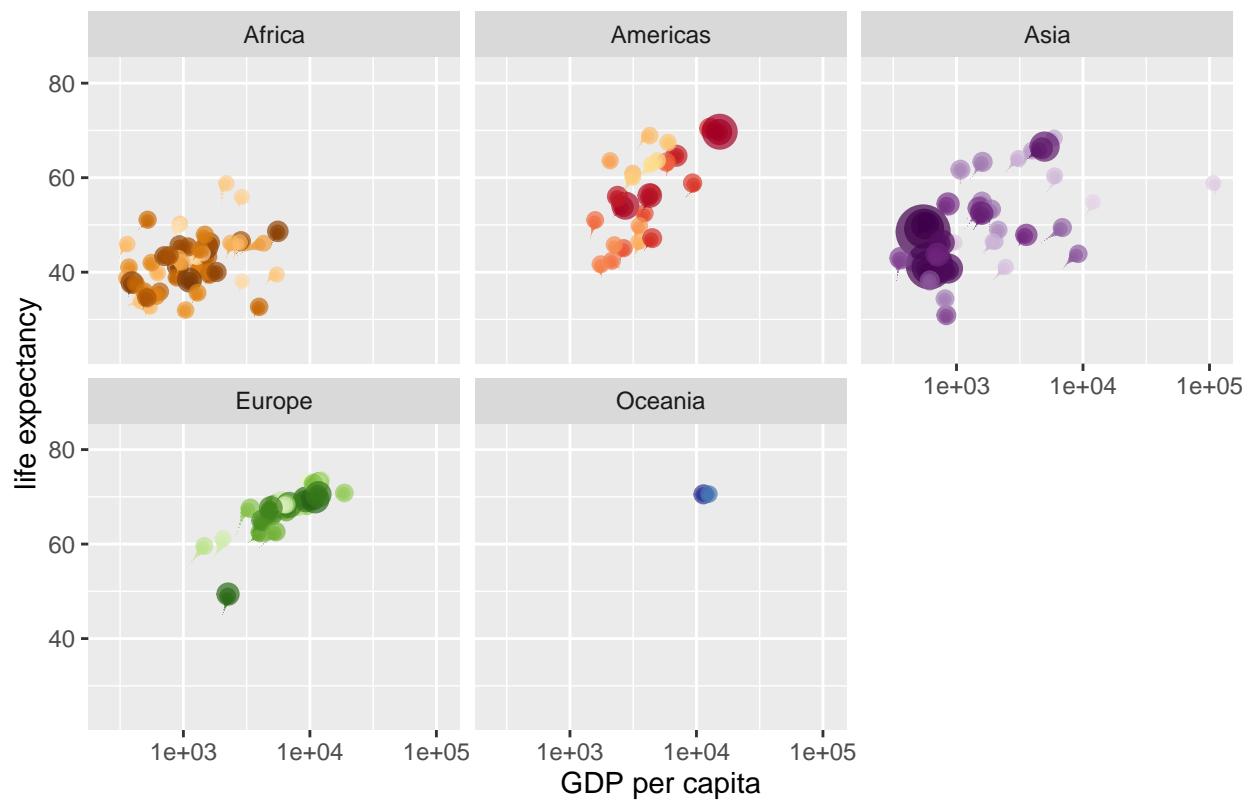
Year: 1958



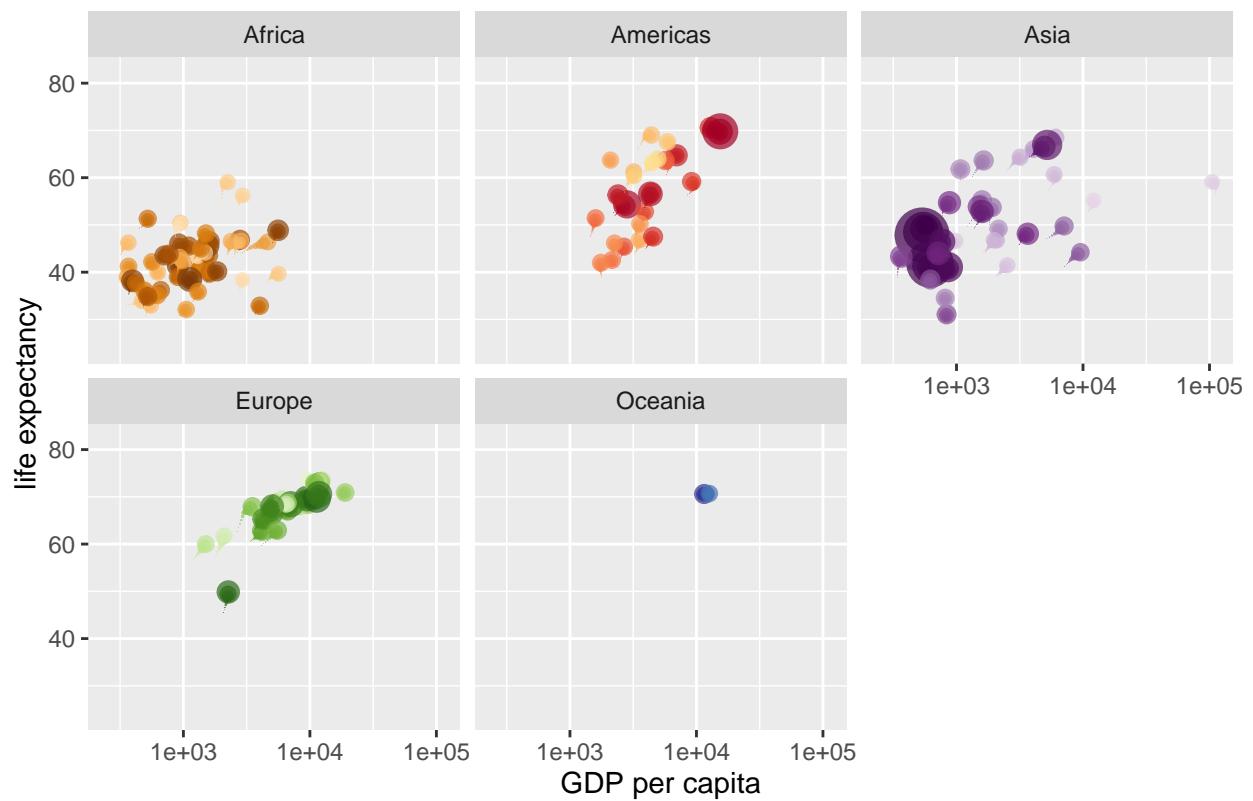
Year: 1958



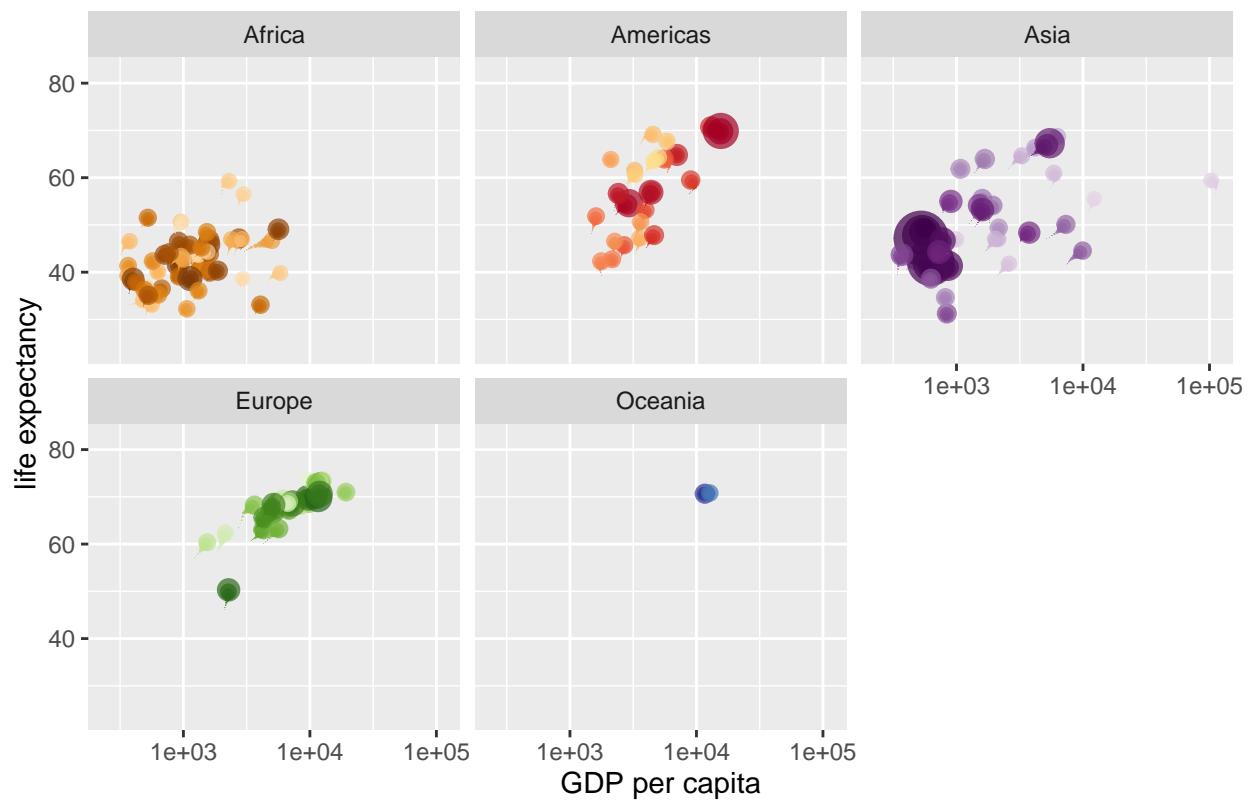
Year: 1959



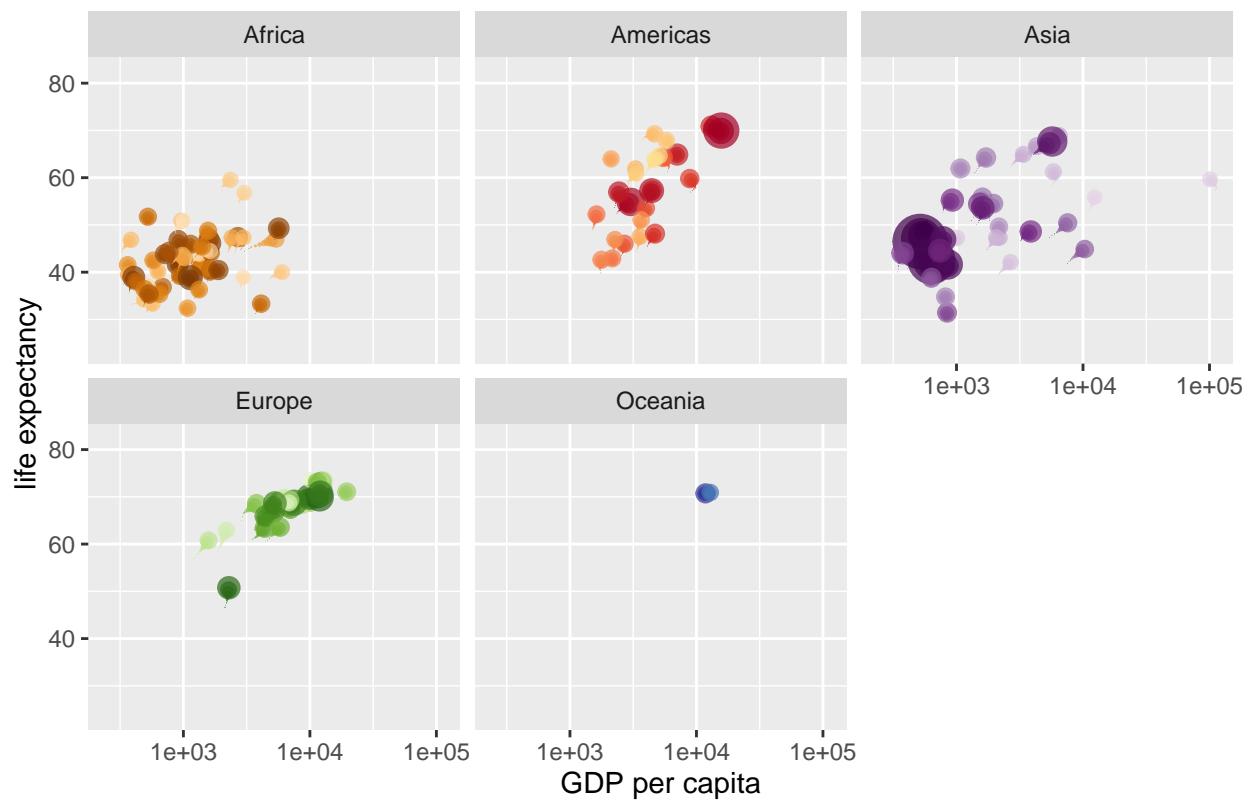
Year: 1959



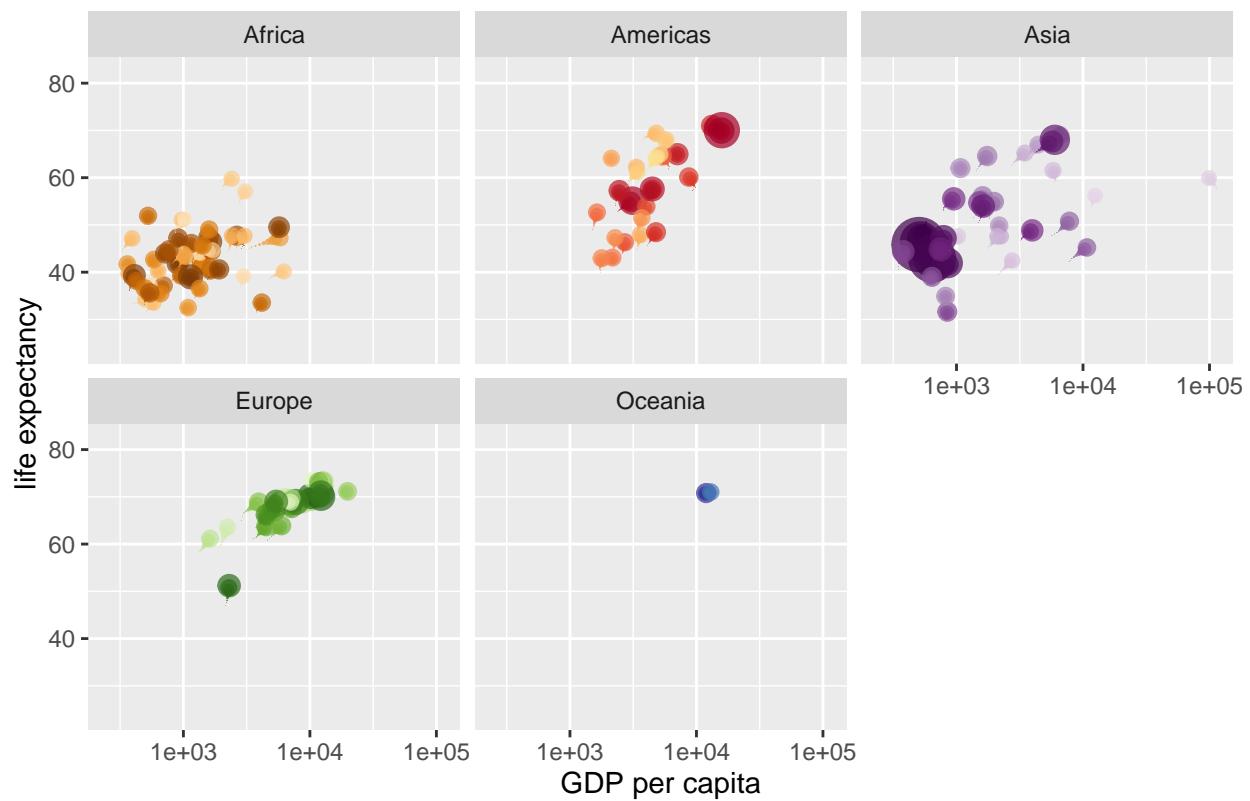
Year: 1960



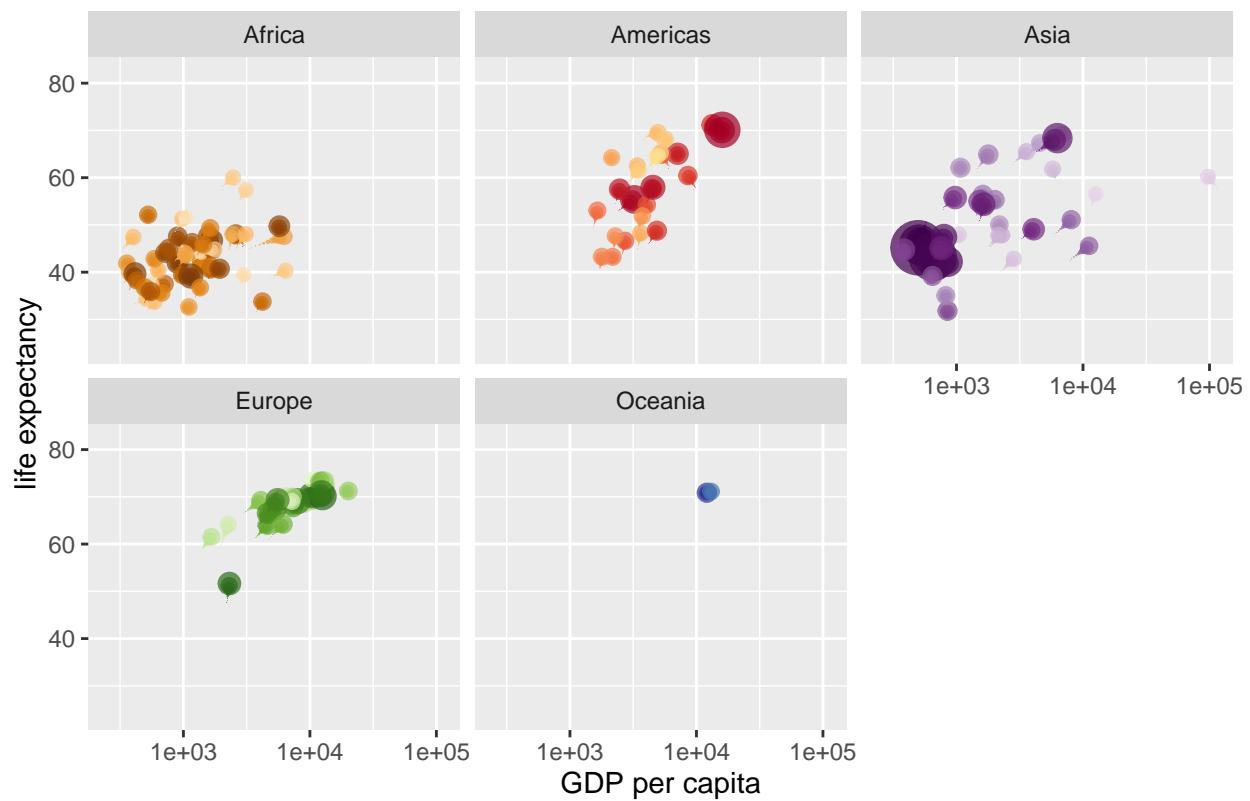
Year: 1960



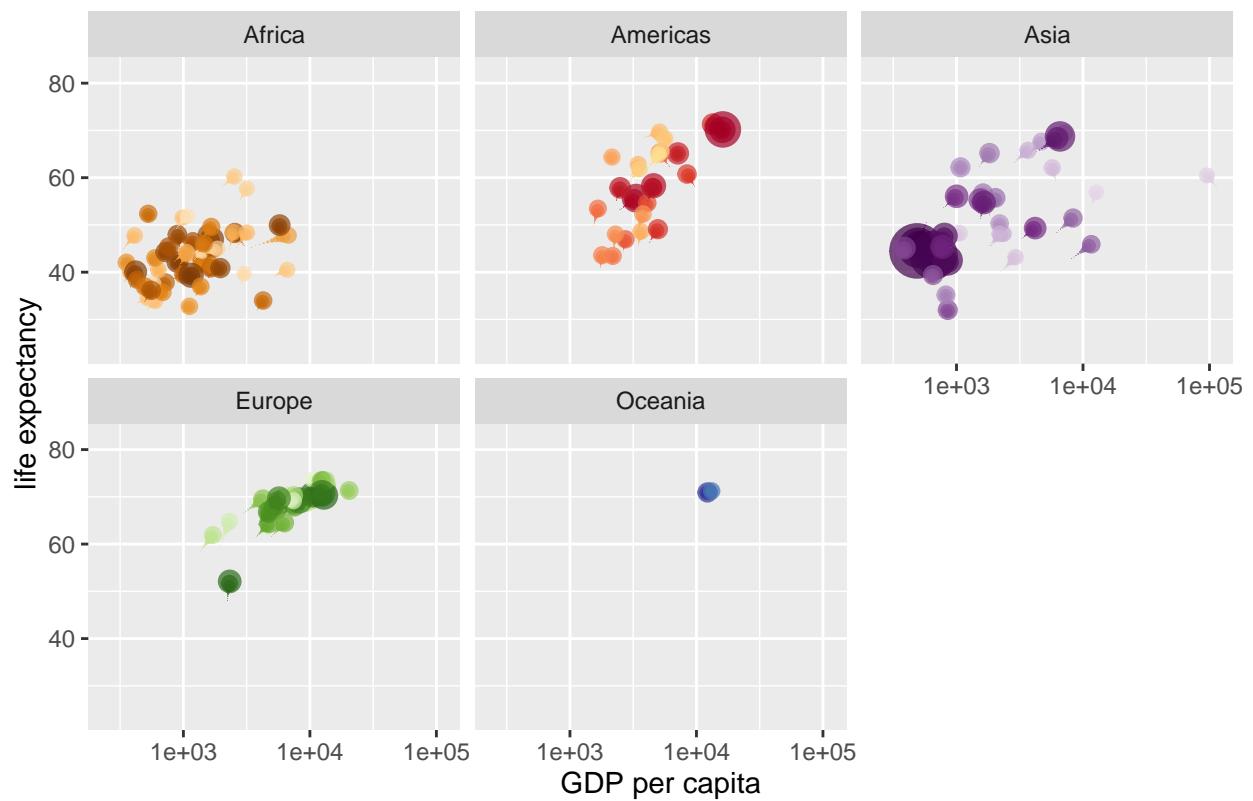
Year: 1961



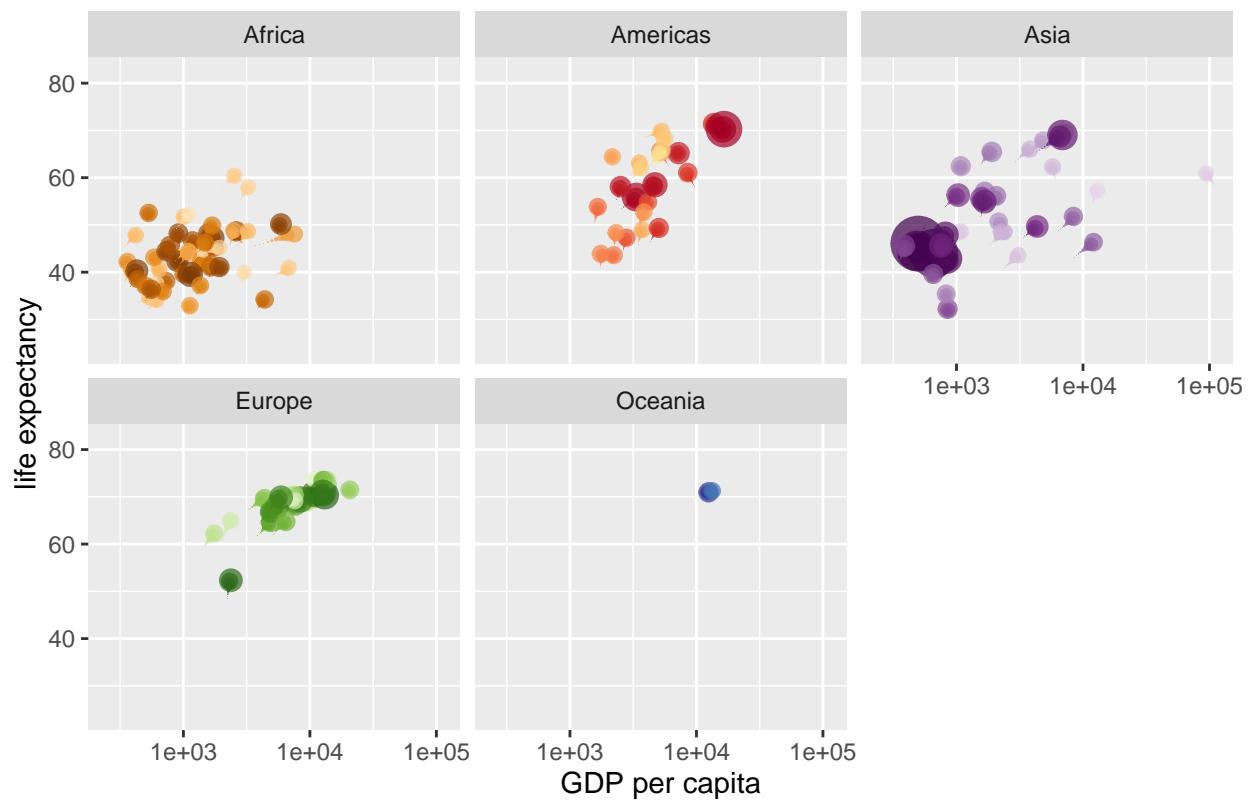
Year: 1961



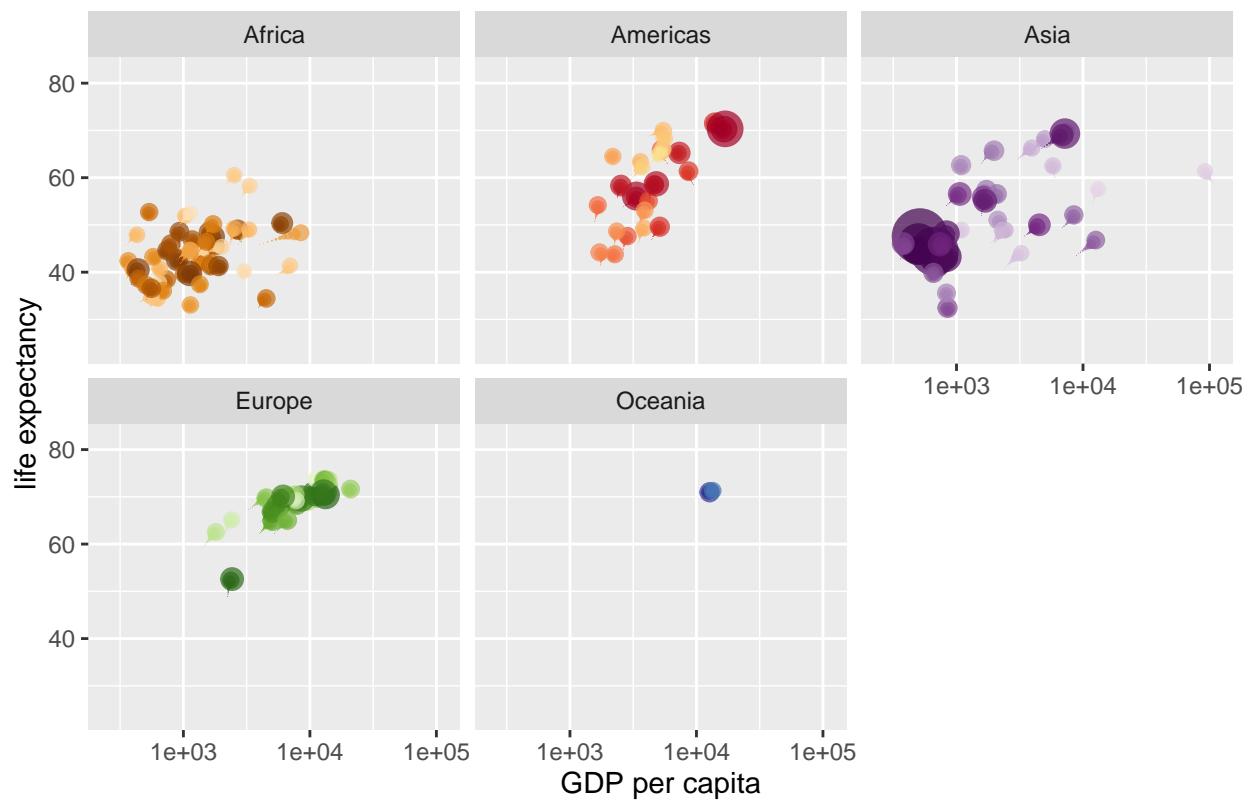
Year: 1962



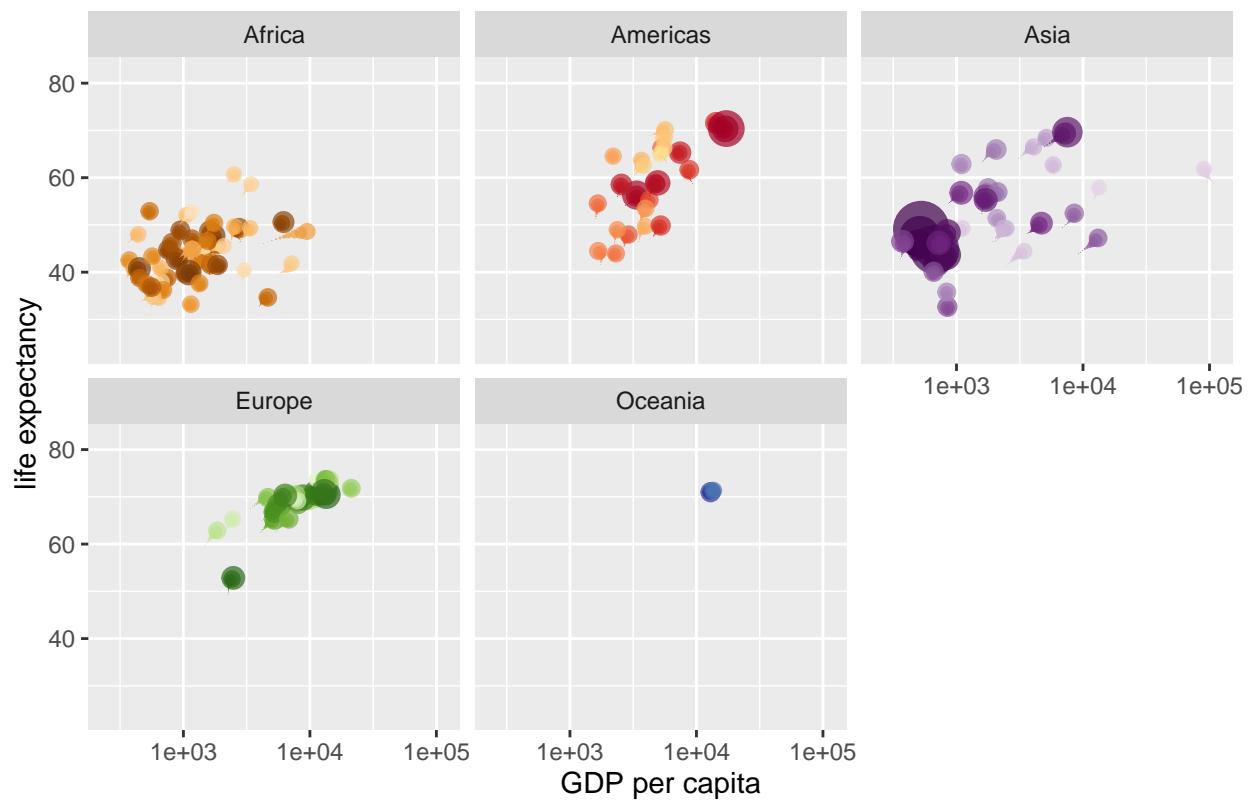
Year: 1963



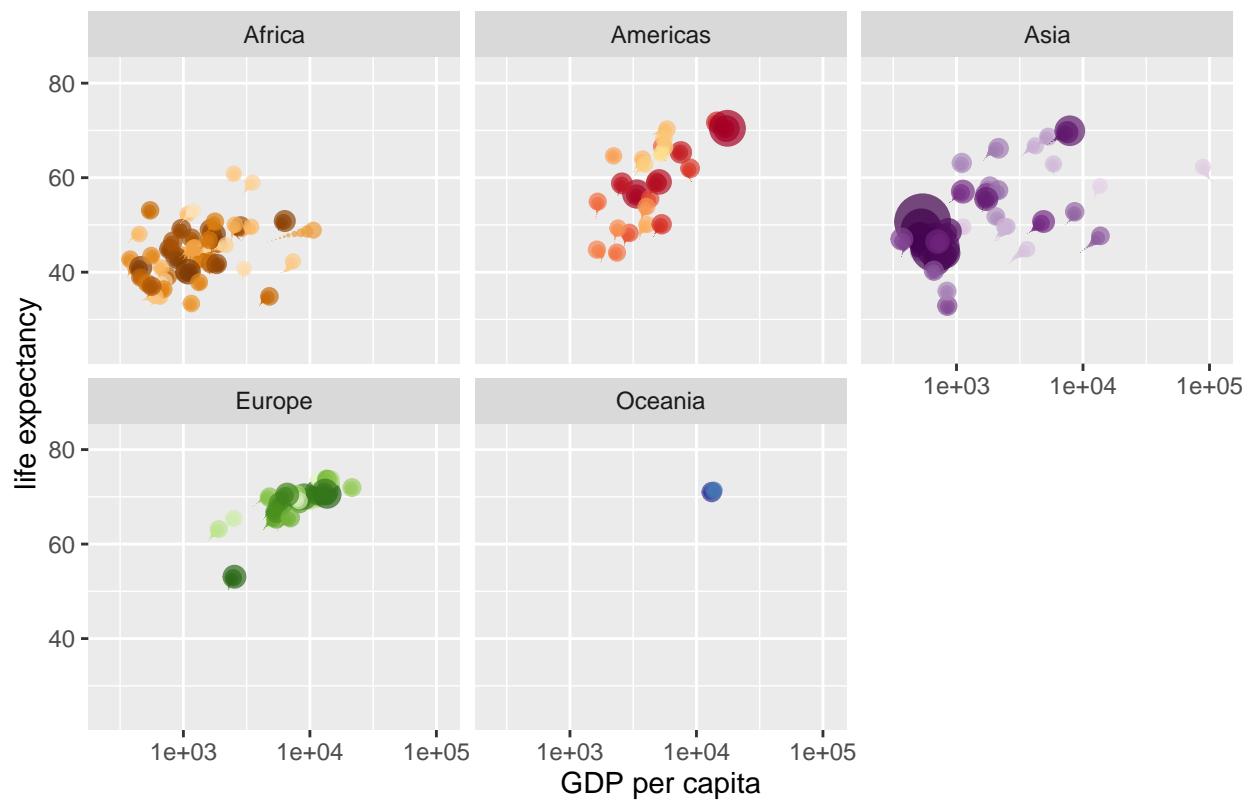
Year: 1963



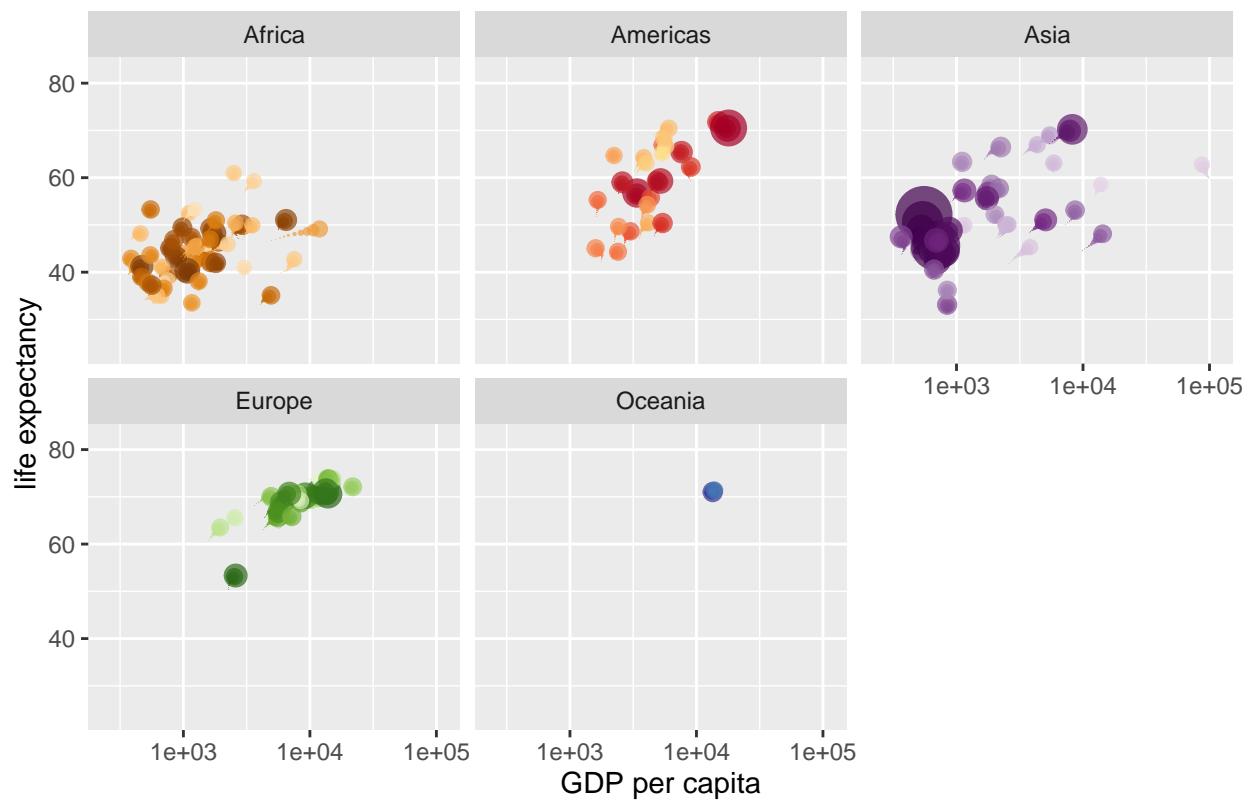
Year: 1964



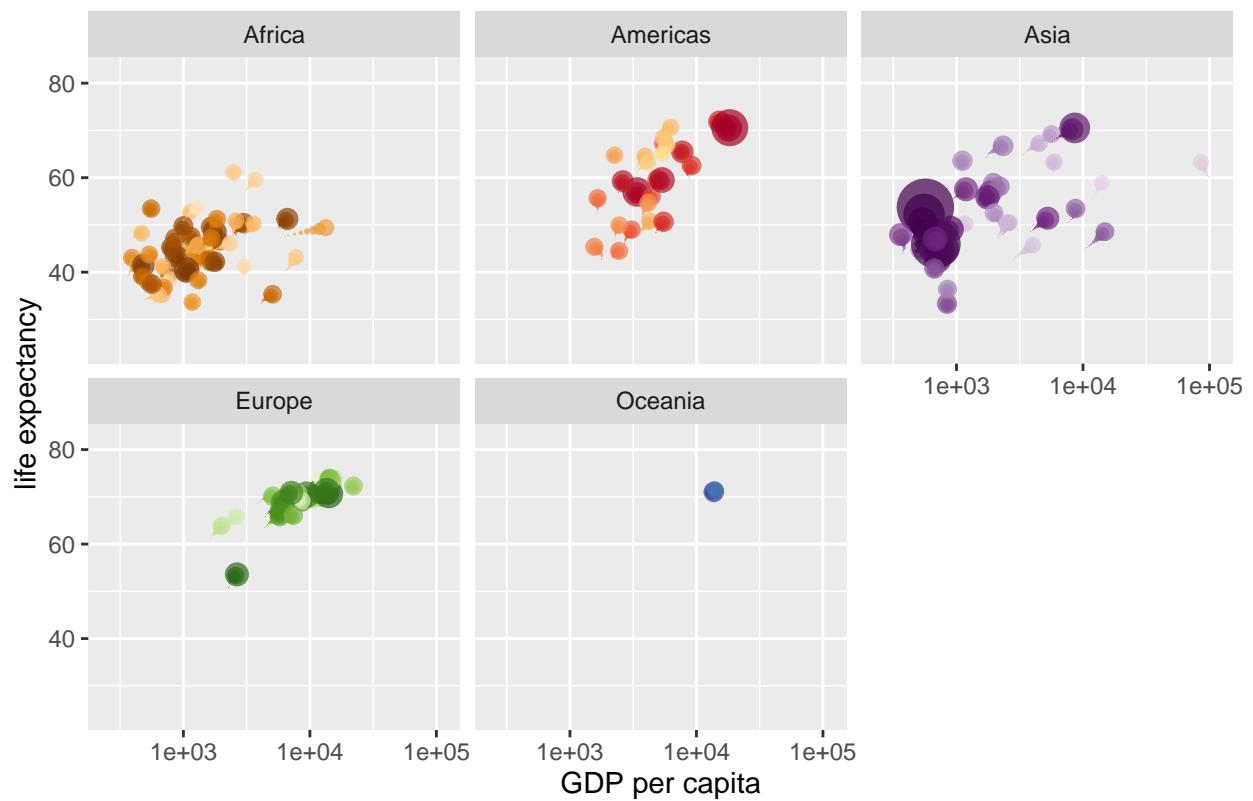
Year: 1964



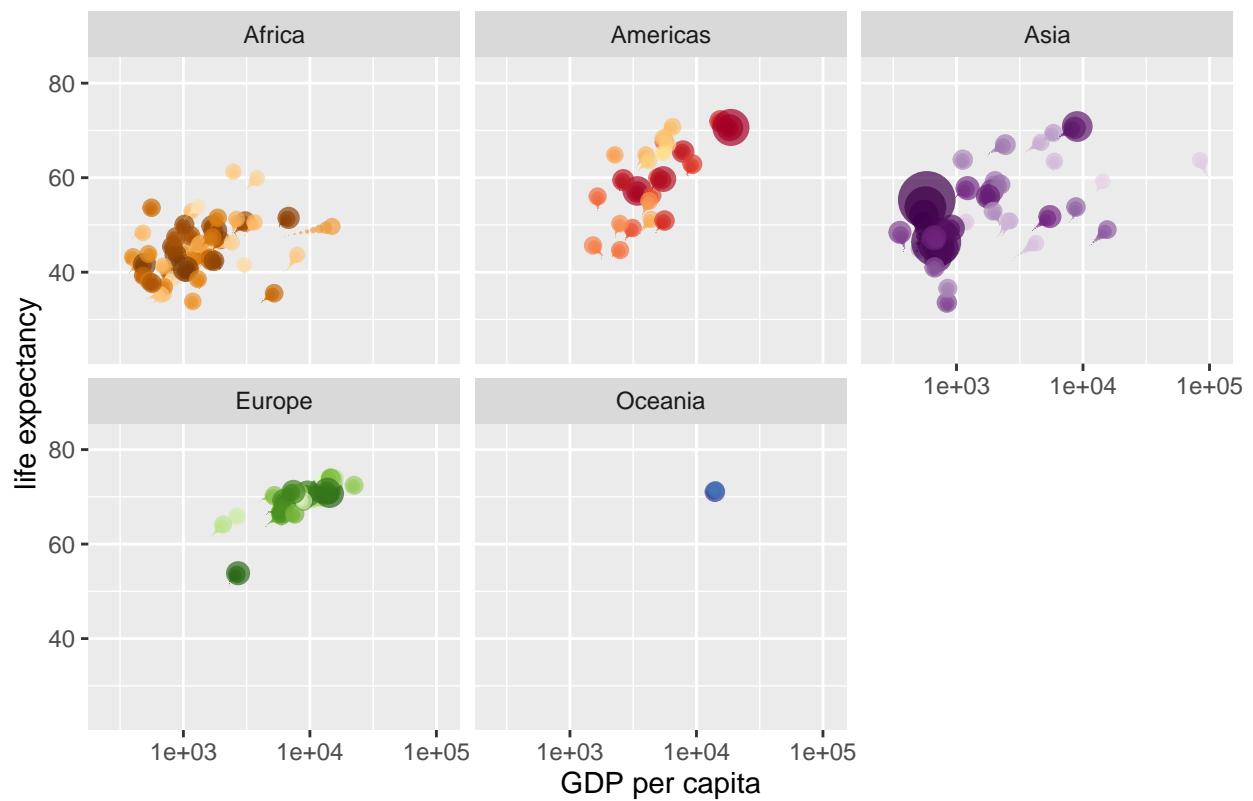
Year: 1965



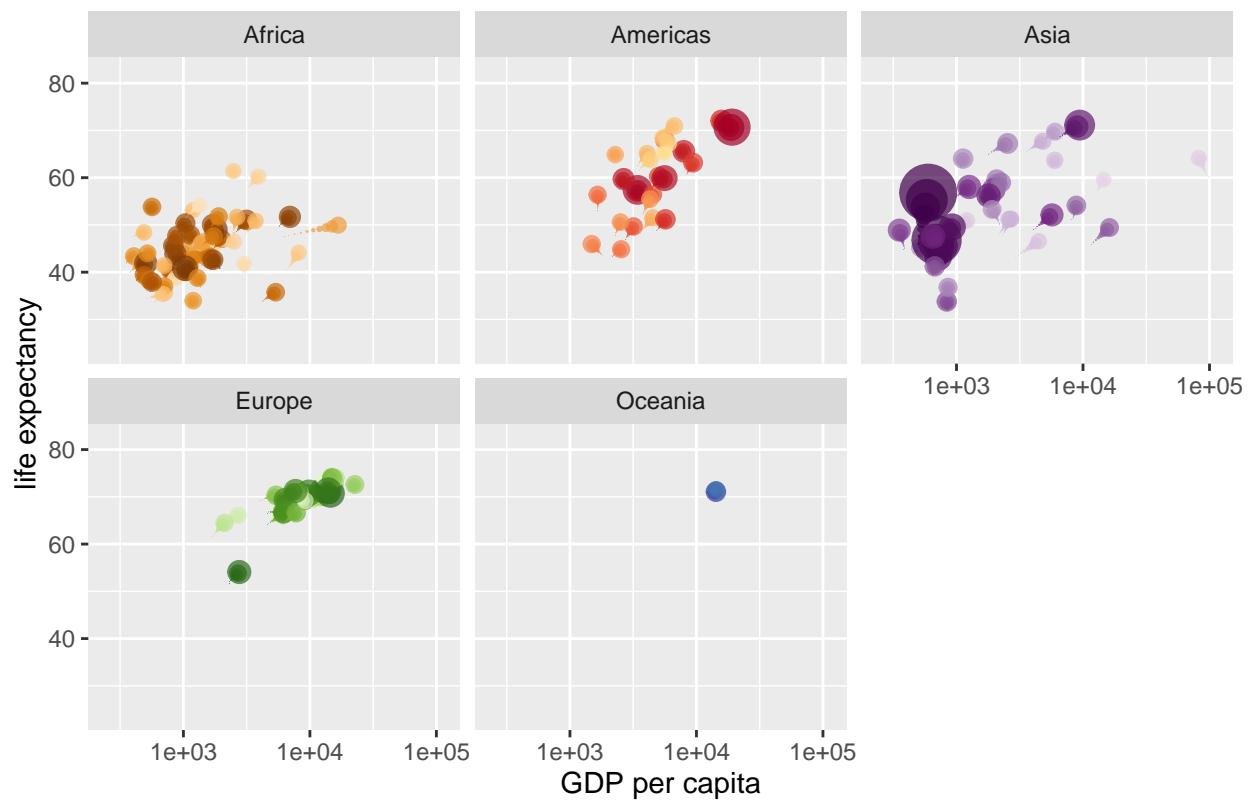
Year: 1965



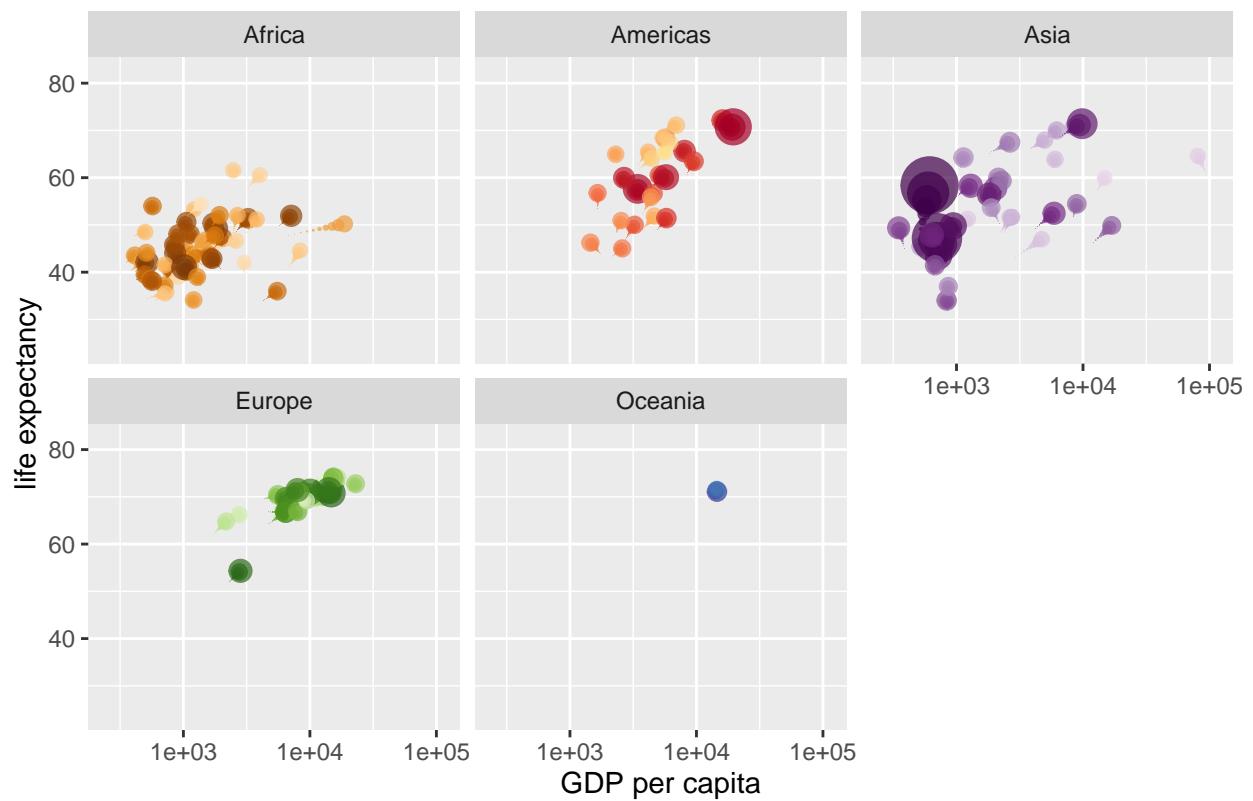
Year: 1966



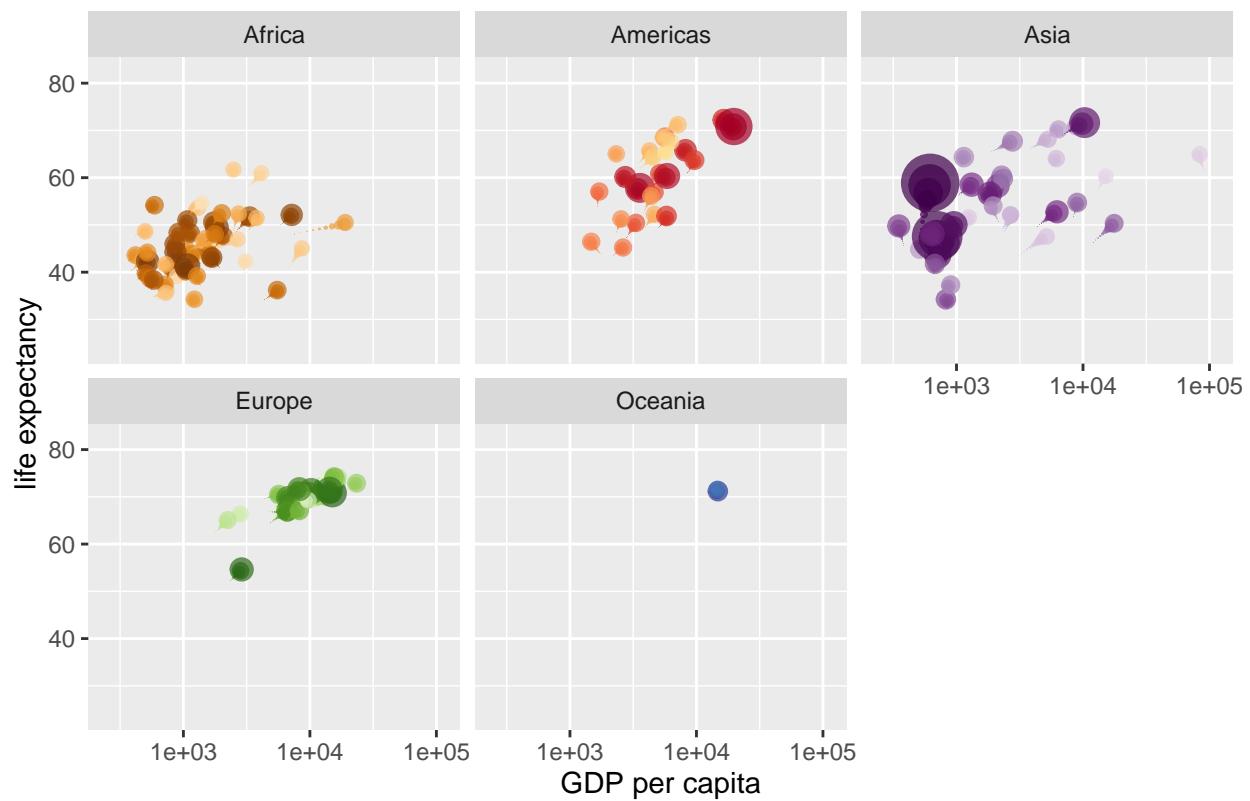
Year: 1966



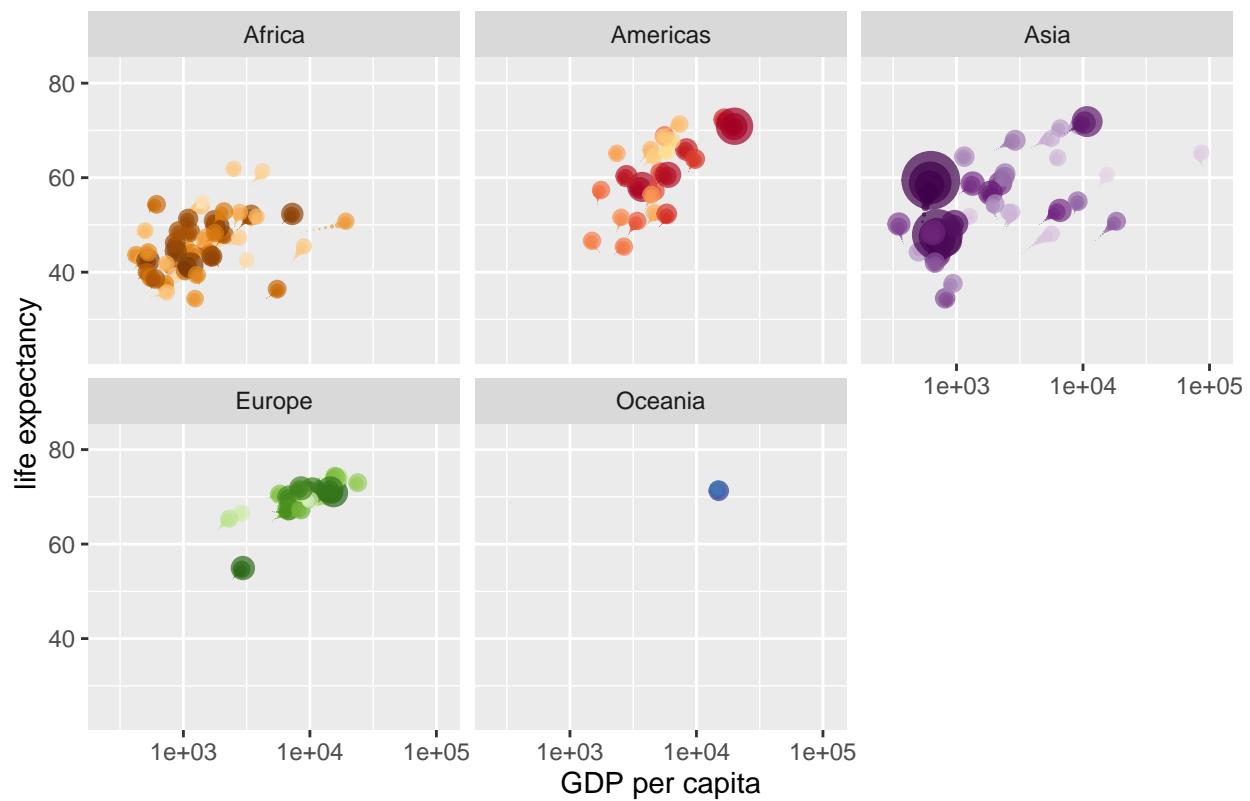
Year: 1967



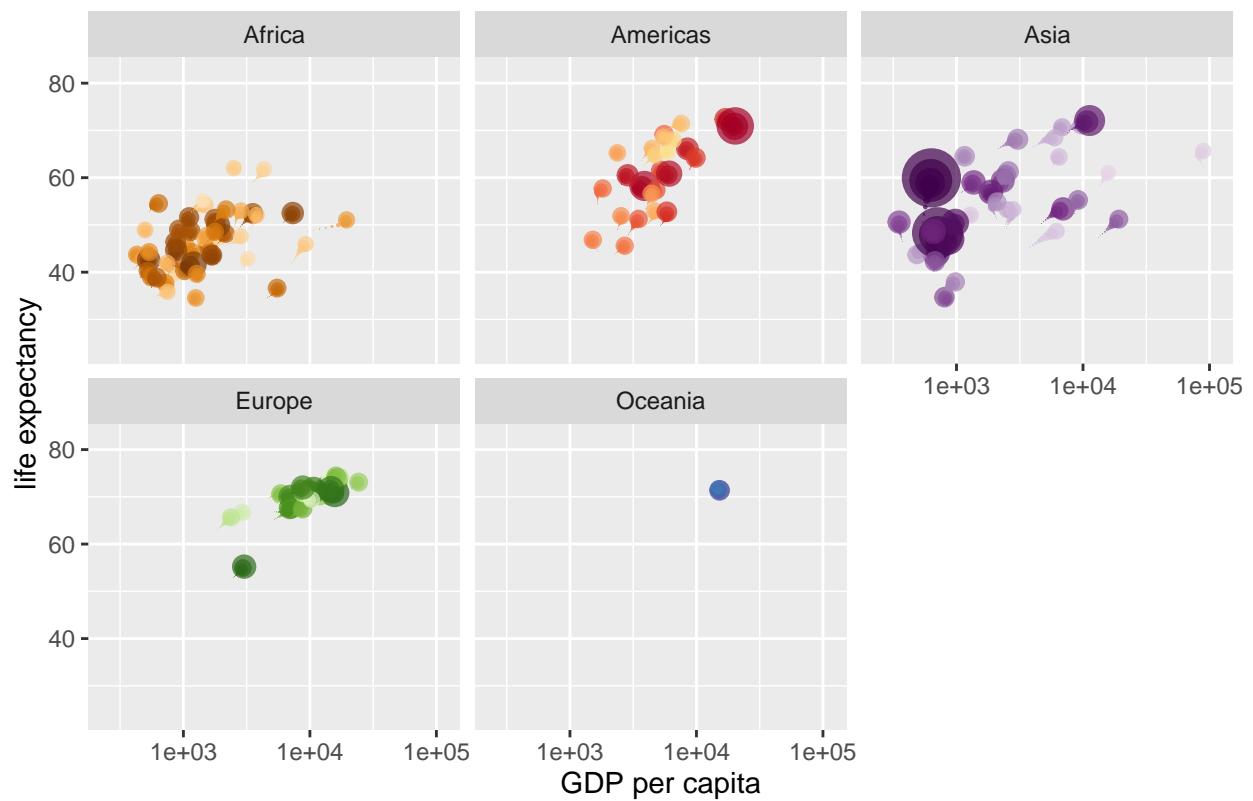
Year: 1968



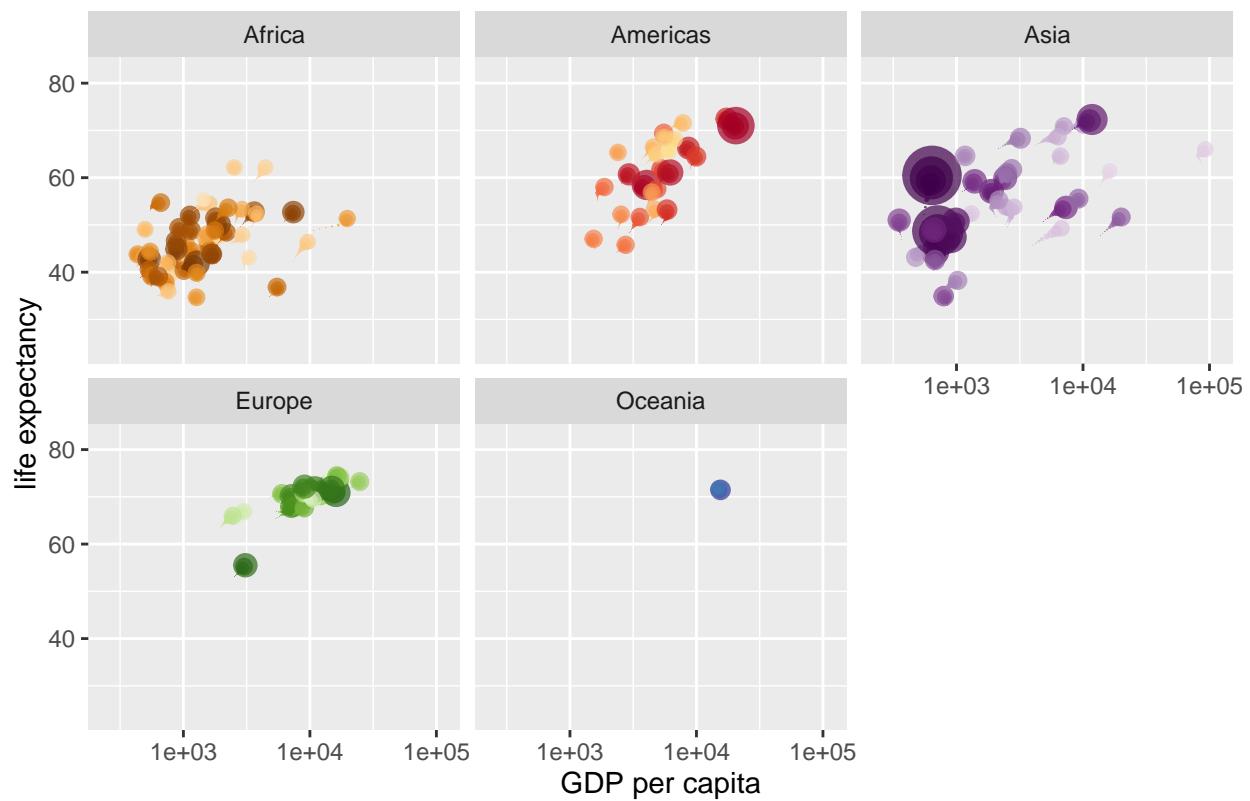
Year: 1968



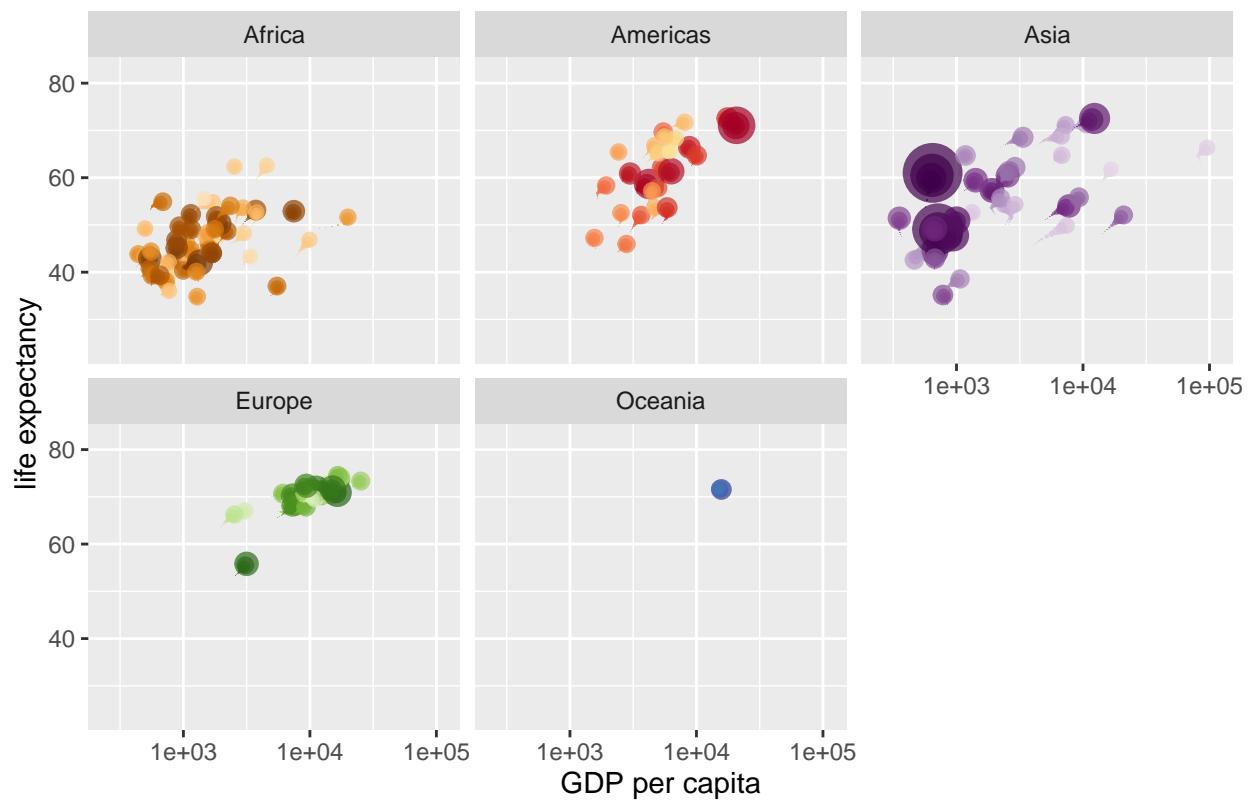
Year: 1969



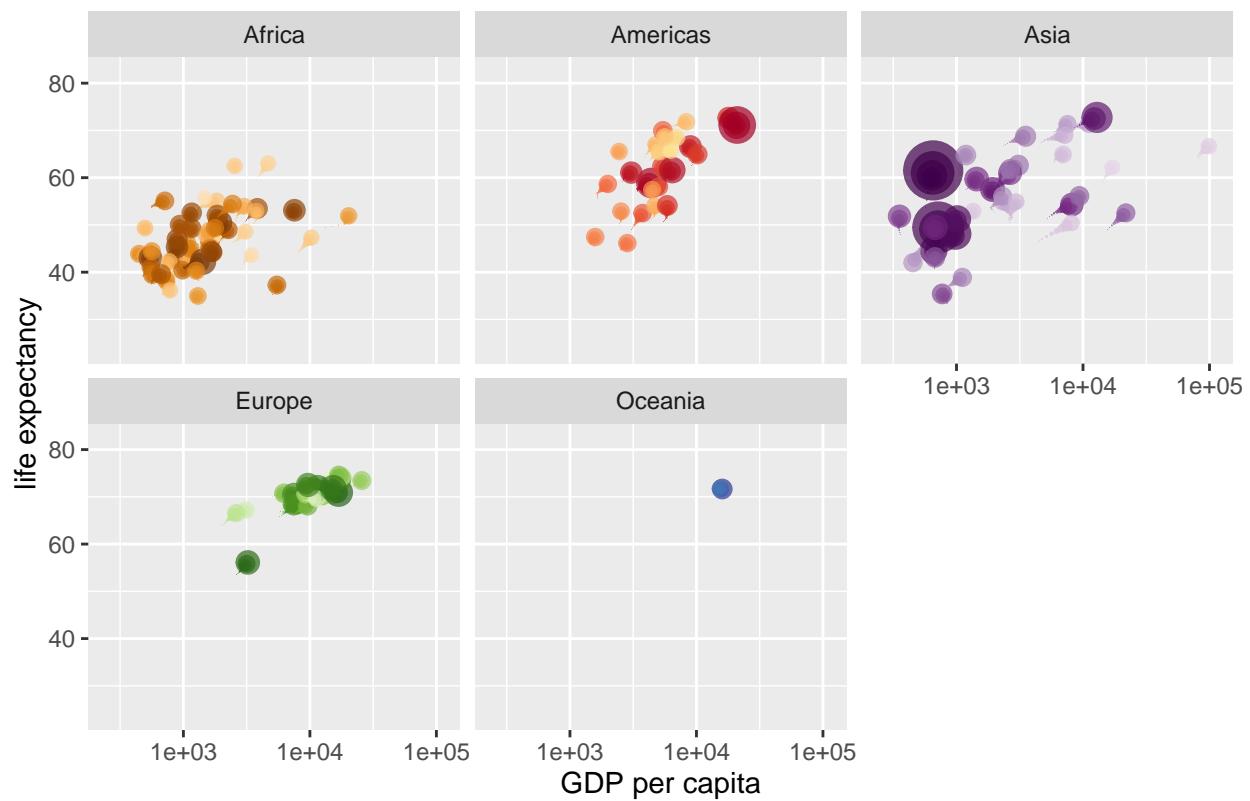
Year: 1969



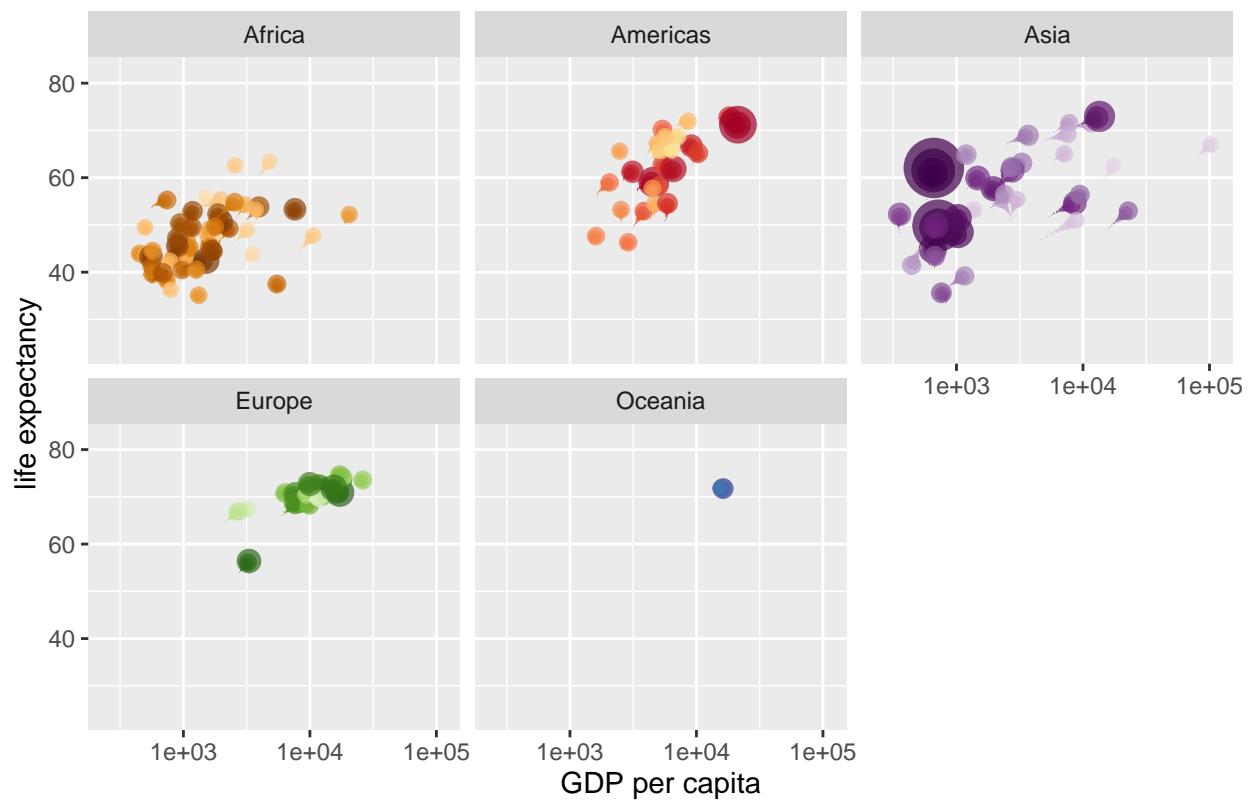
Year: 1970



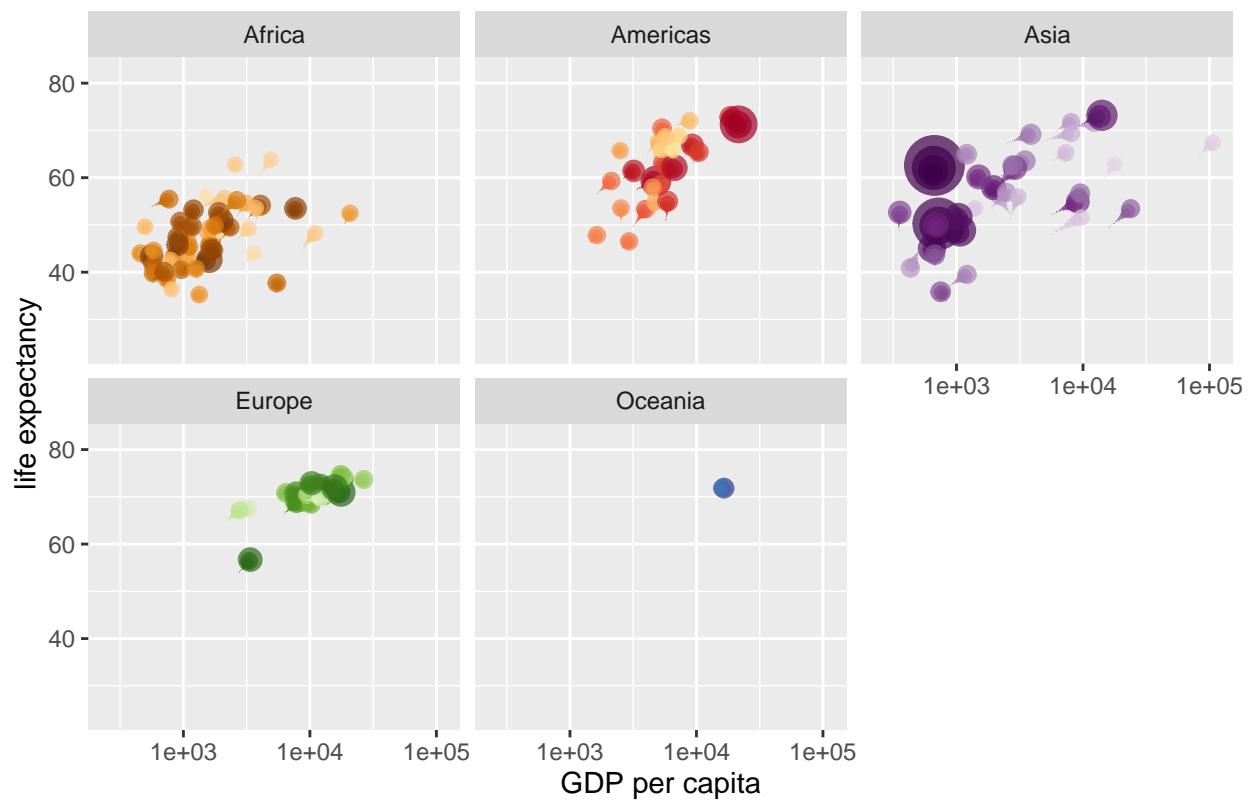
Year: 1970



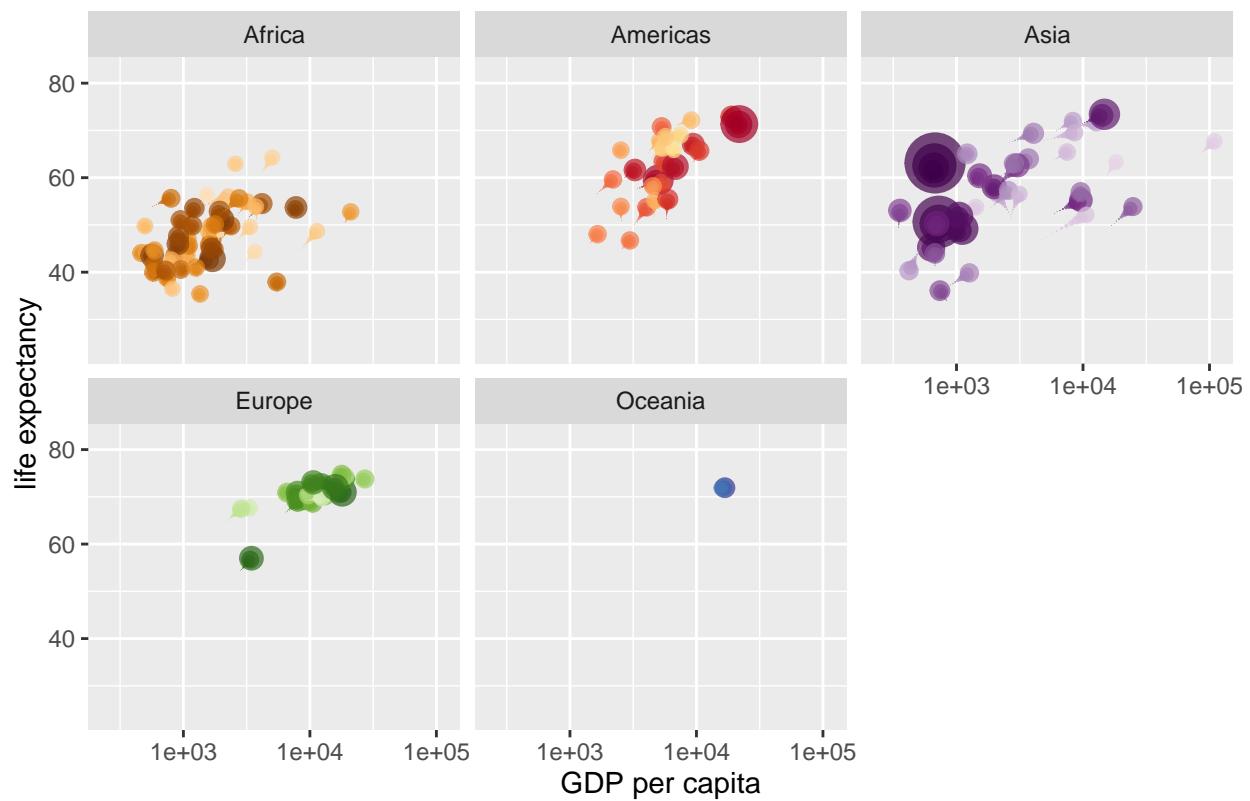
Year: 1971



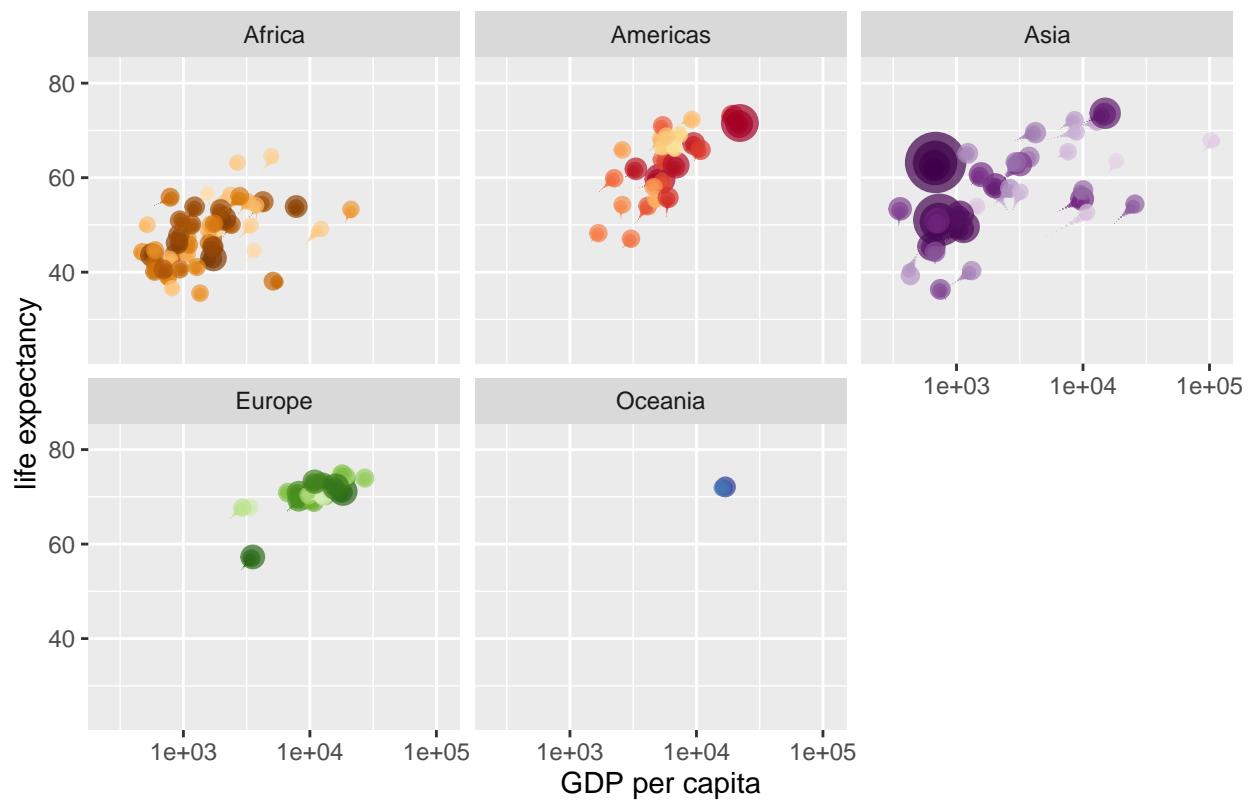
Year: 1971



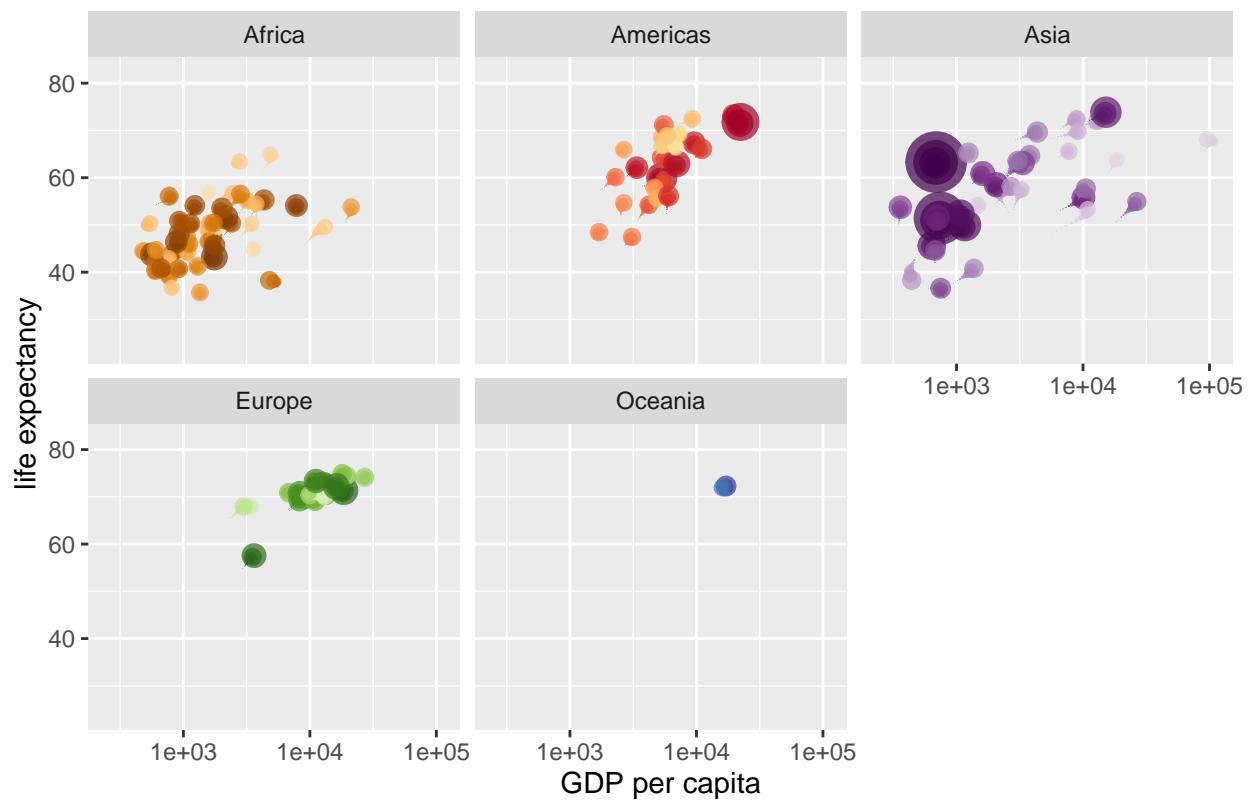
Year: 1972



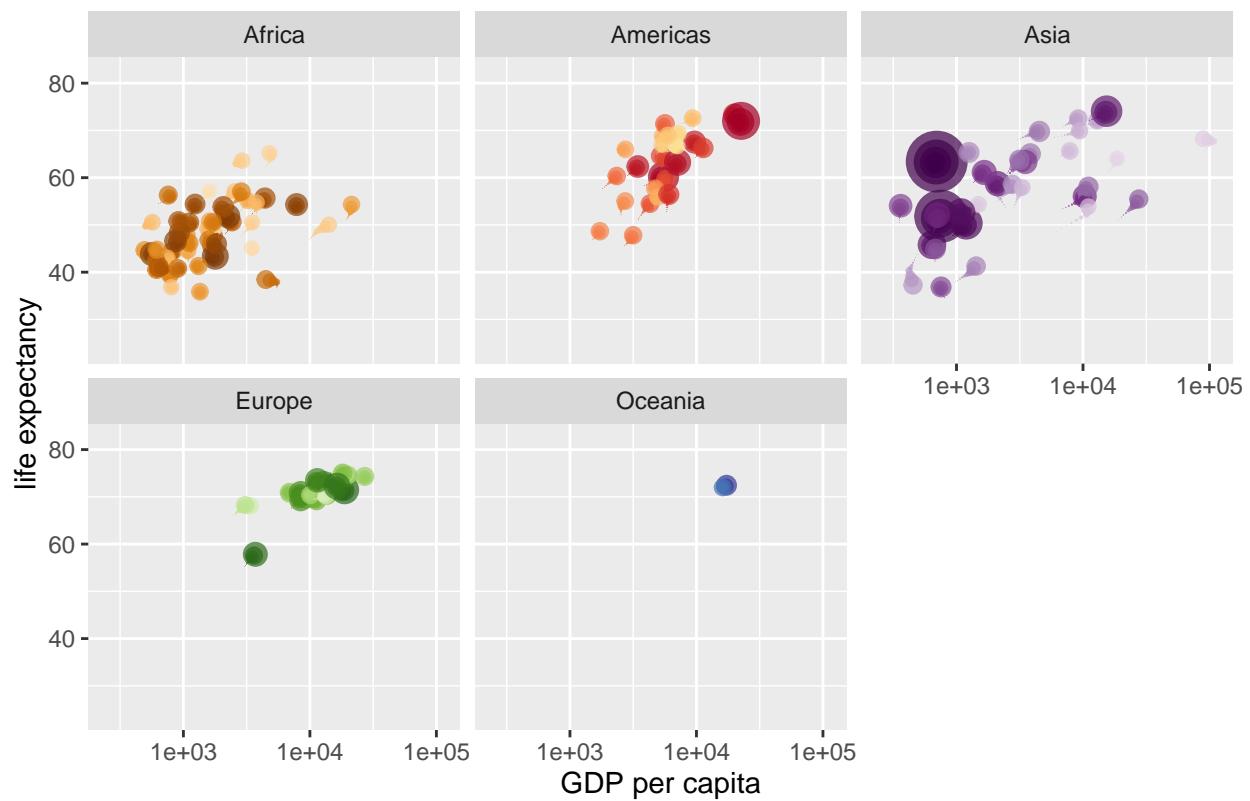
Year: 1973



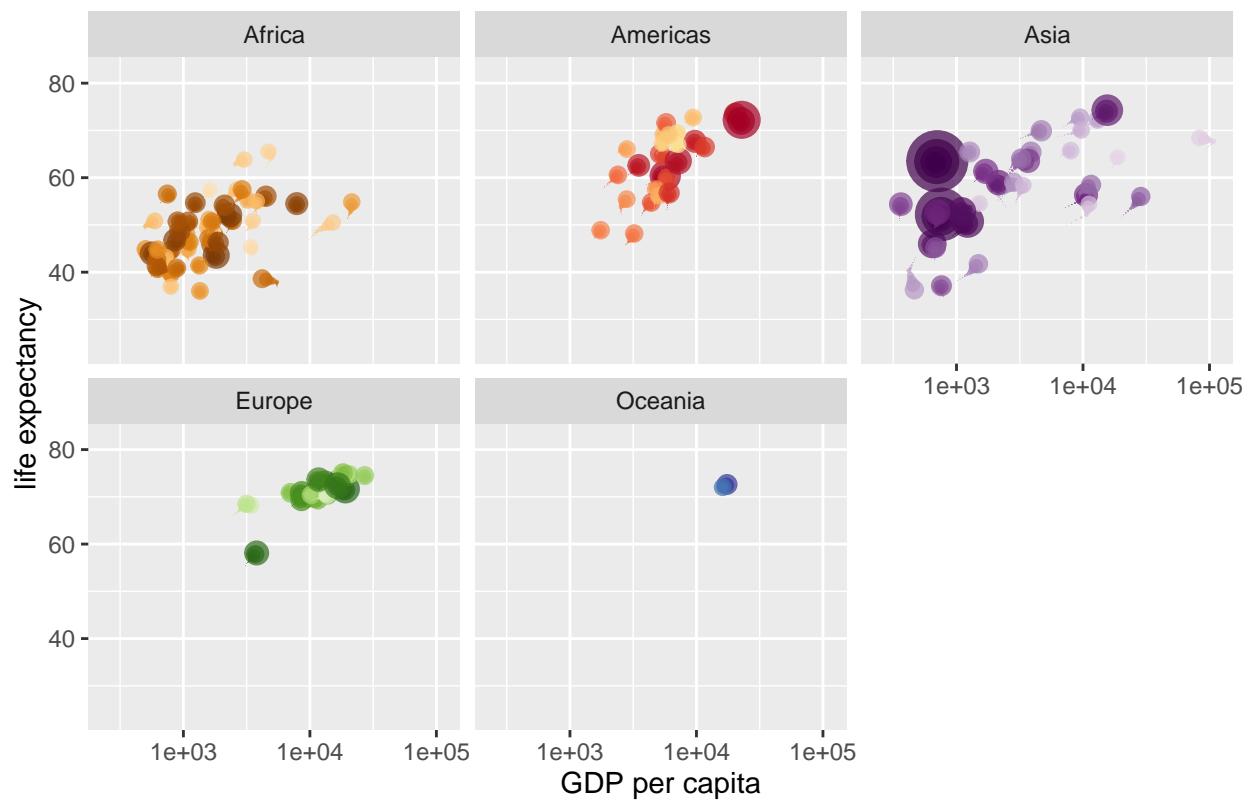
Year: 1973



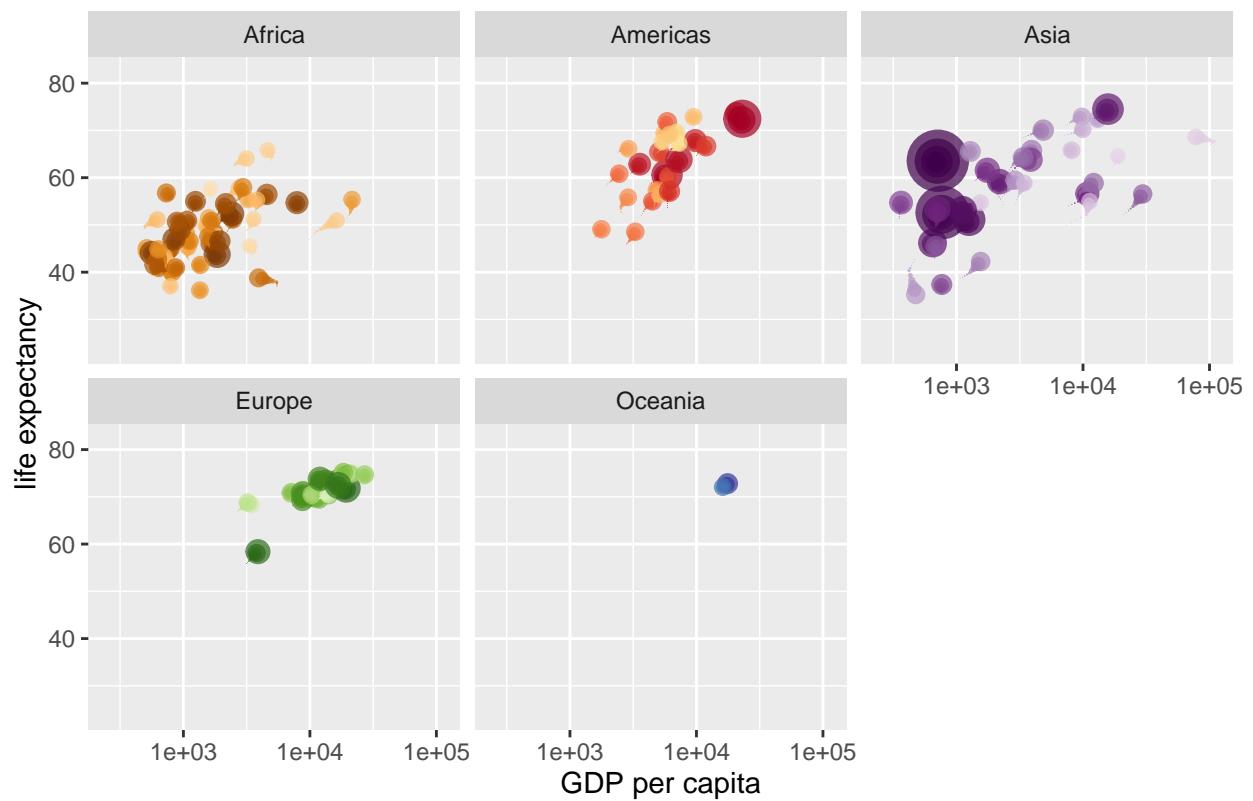
Year: 1974



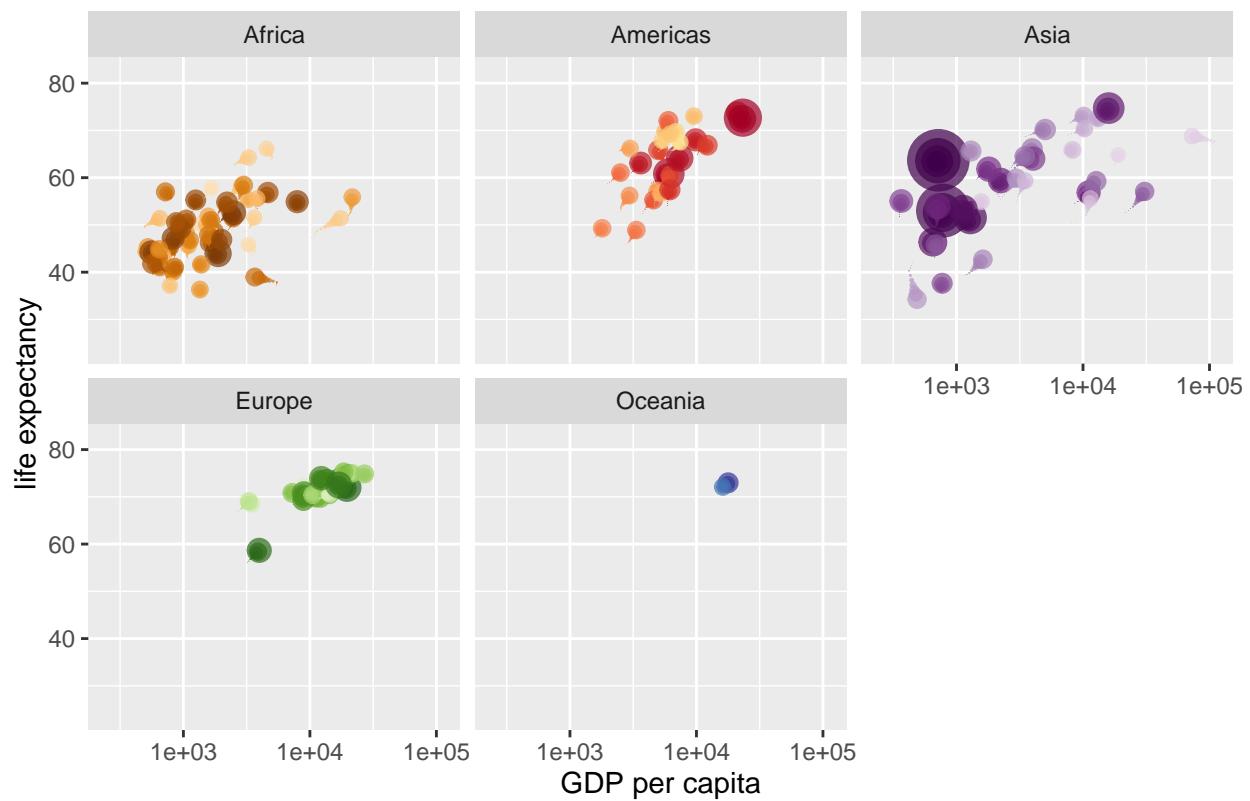
Year: 1974



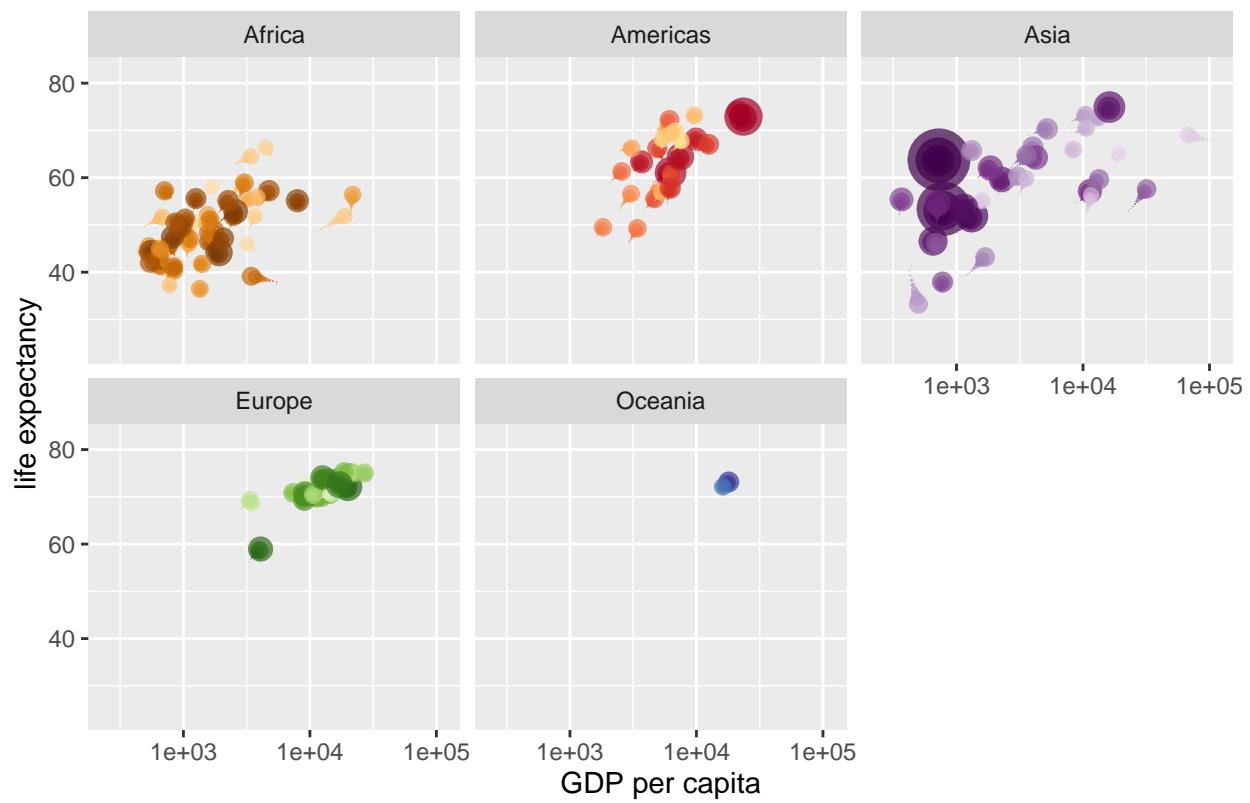
Year: 1975



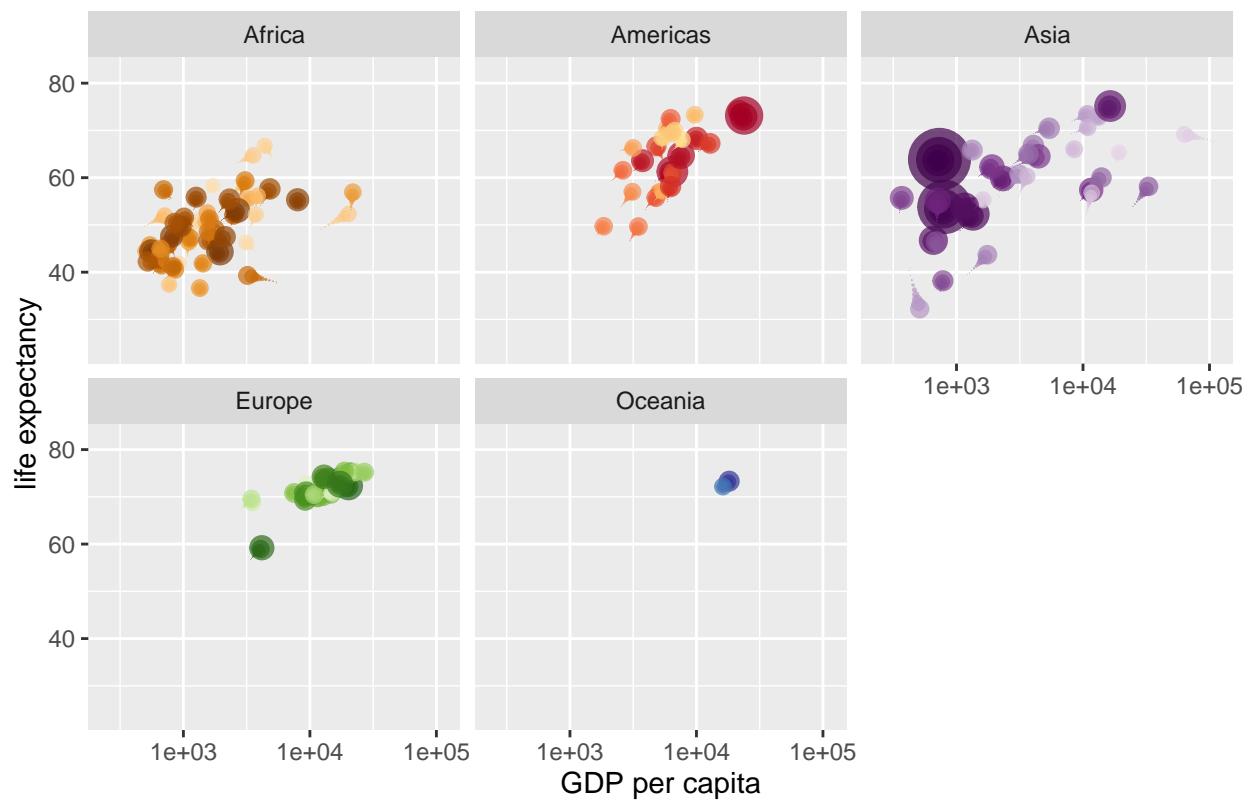
Year: 1975



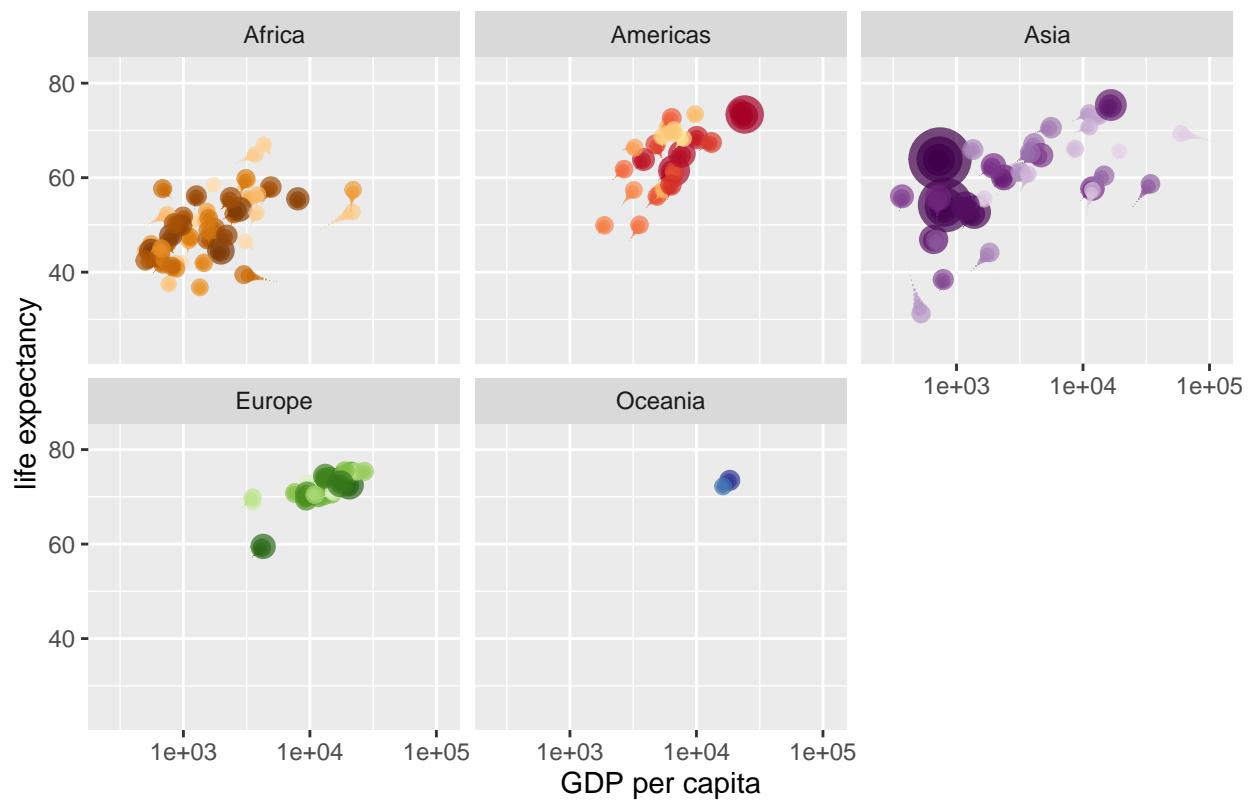
Year: 1976



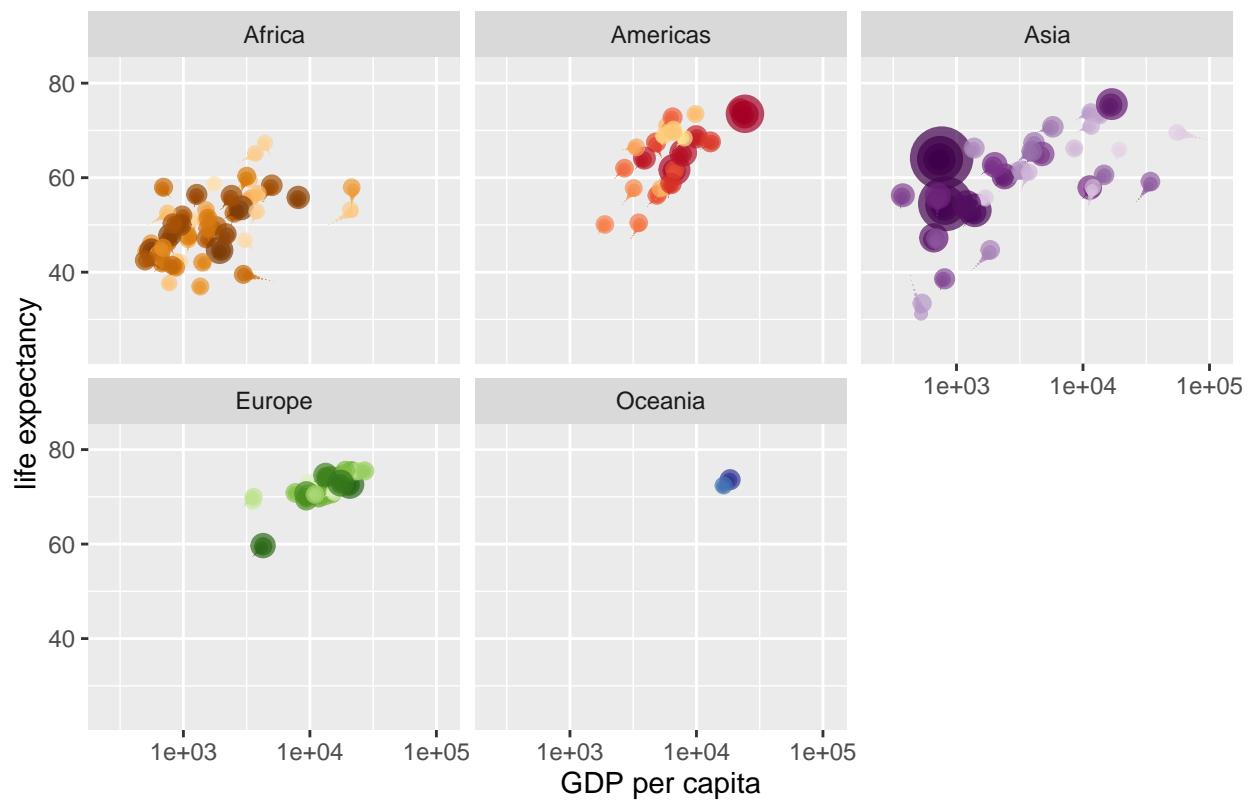
Year: 1976



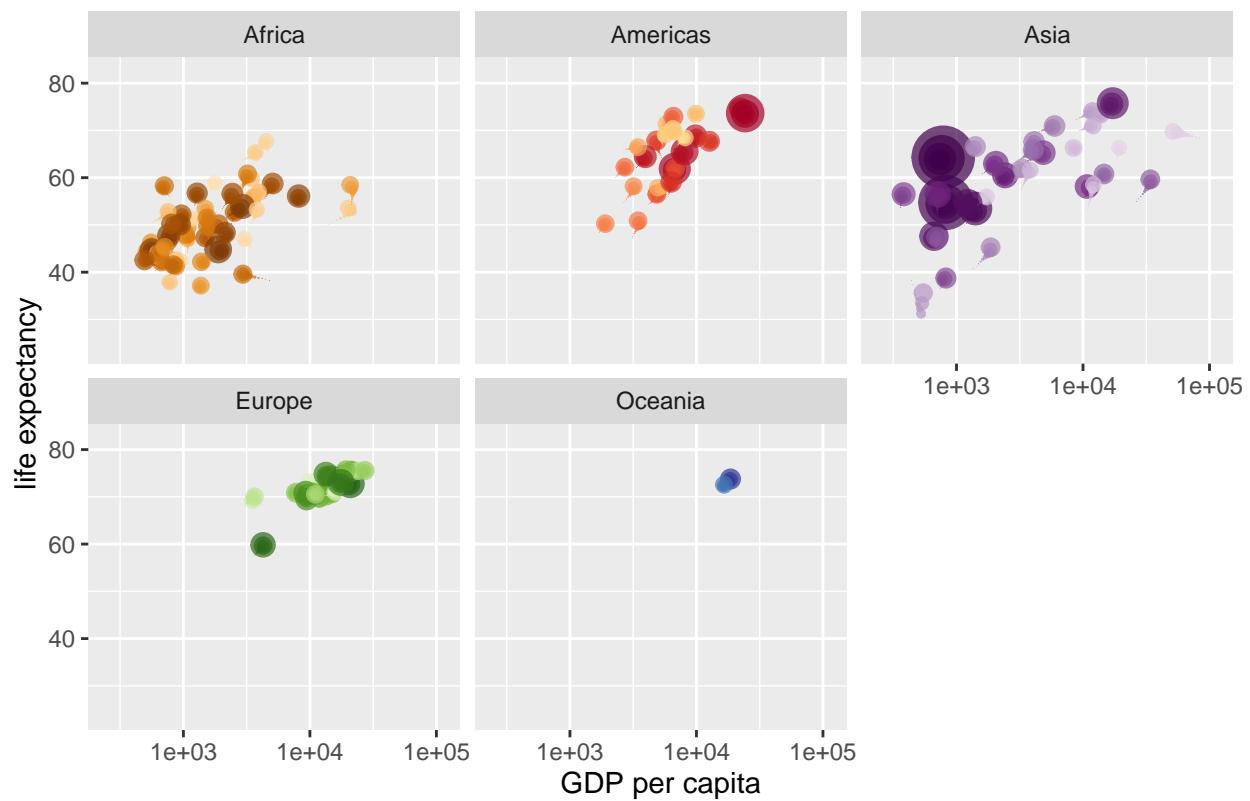
Year: 1977



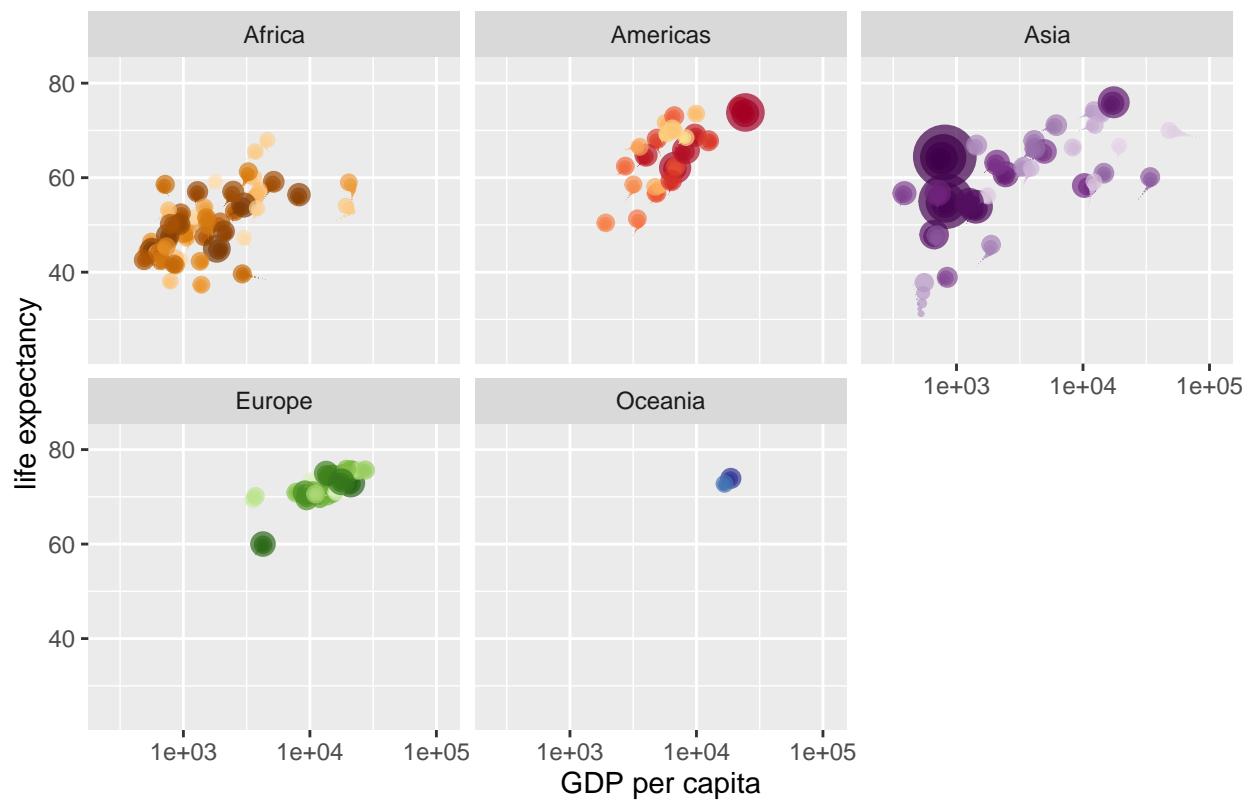
Year: 1978



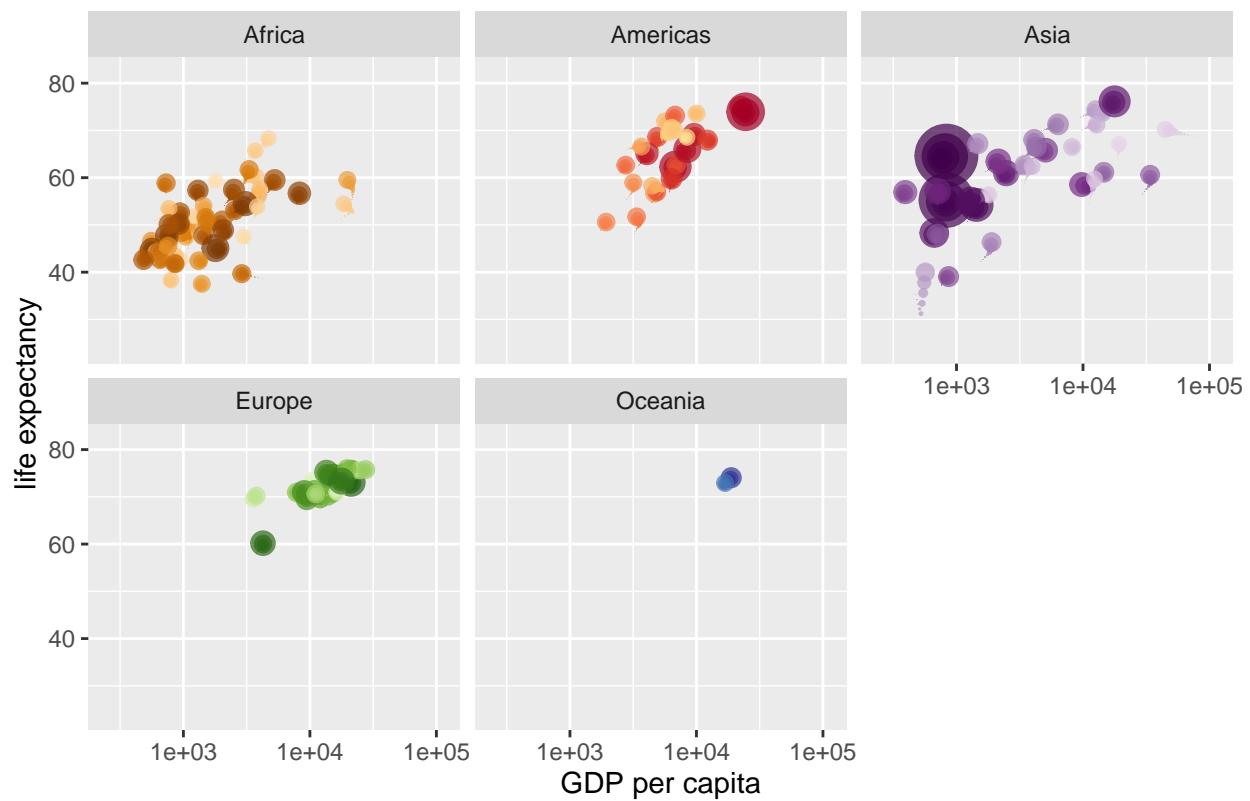
Year: 1978



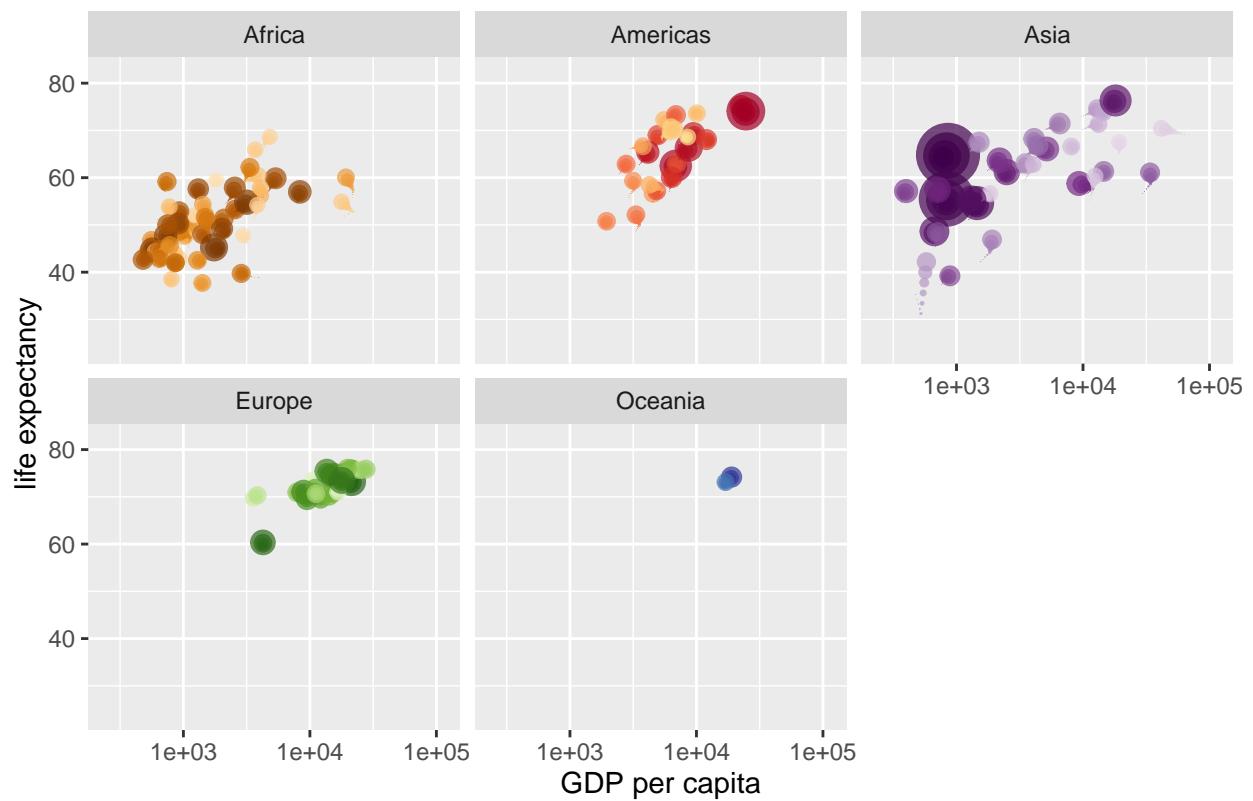
Year: 1979



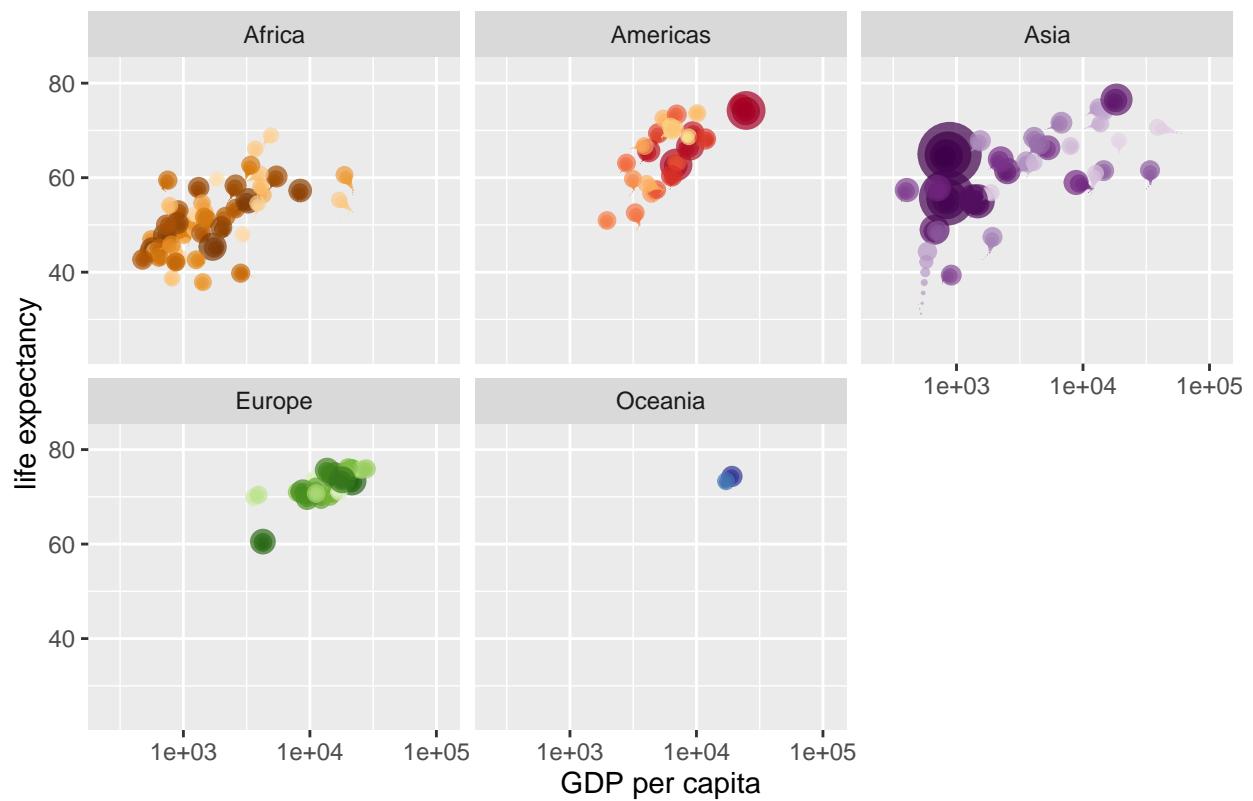
Year: 1979



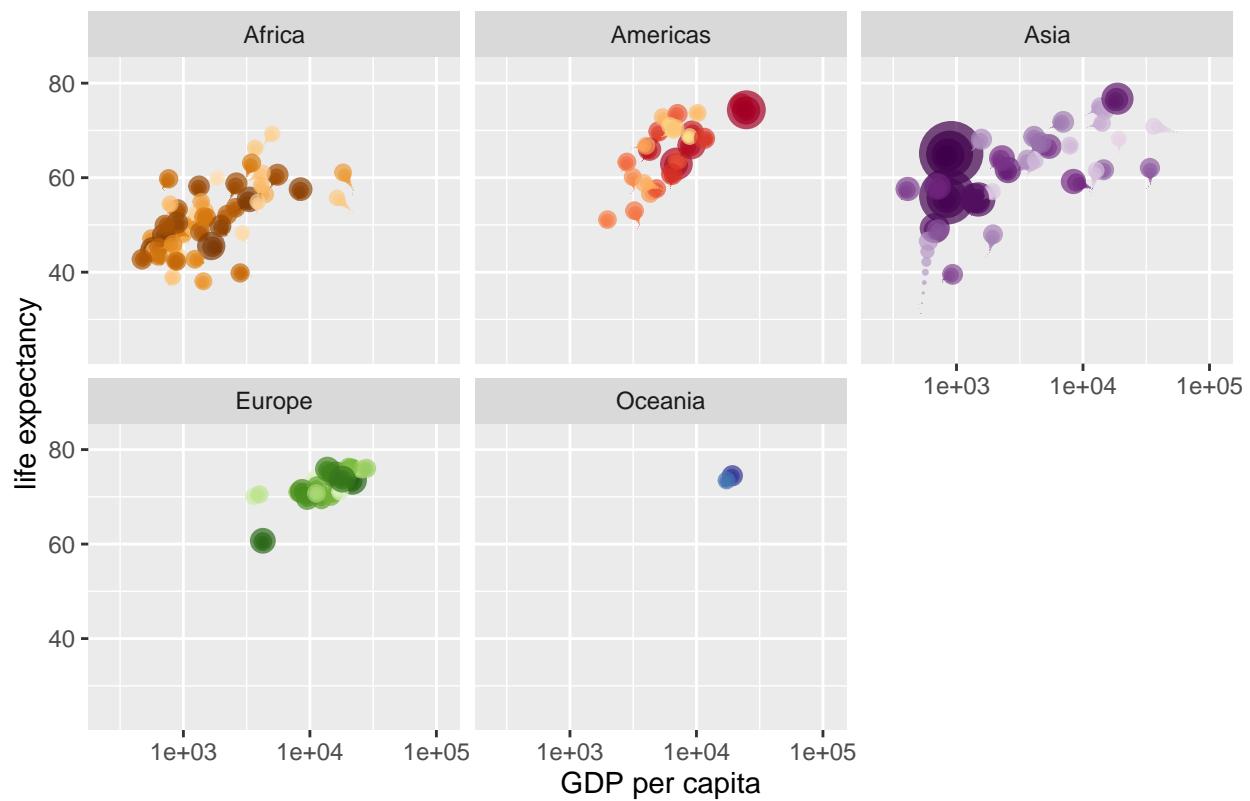
Year: 1980



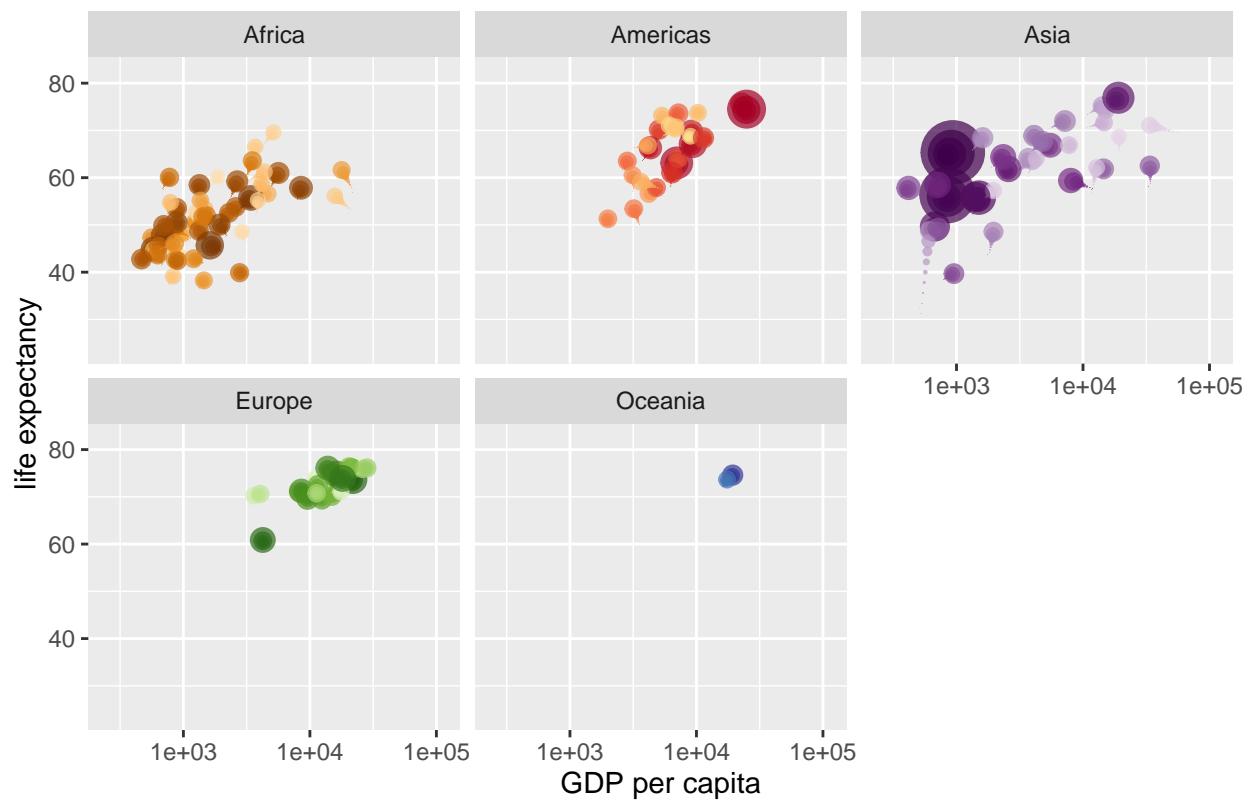
Year: 1980



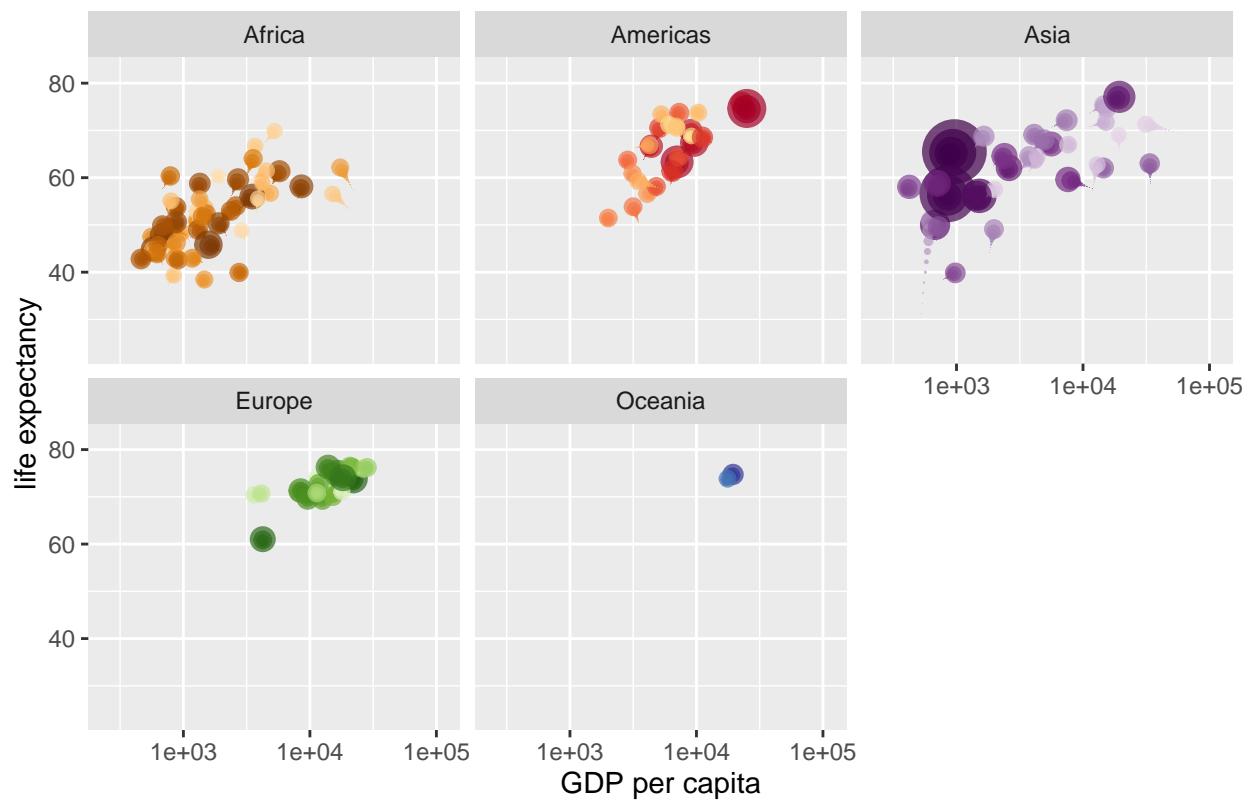
Year: 1981



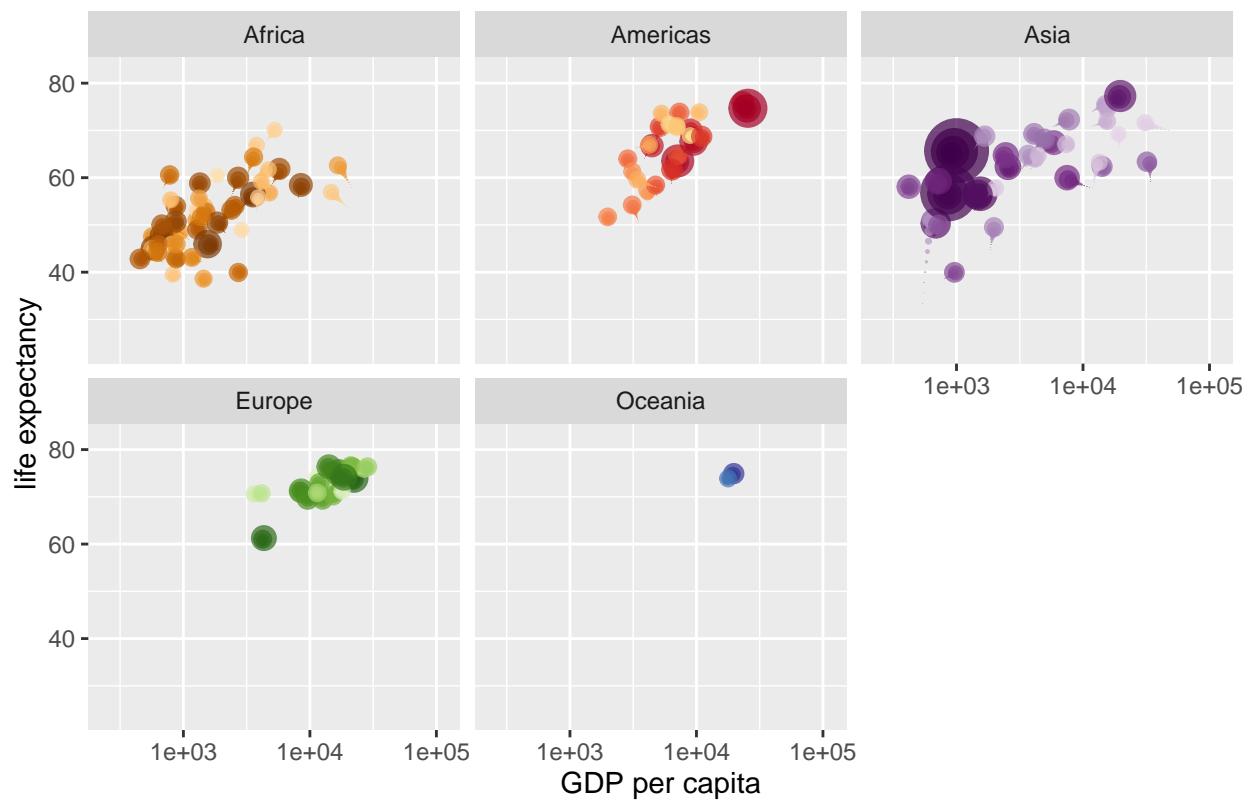
Year: 1981



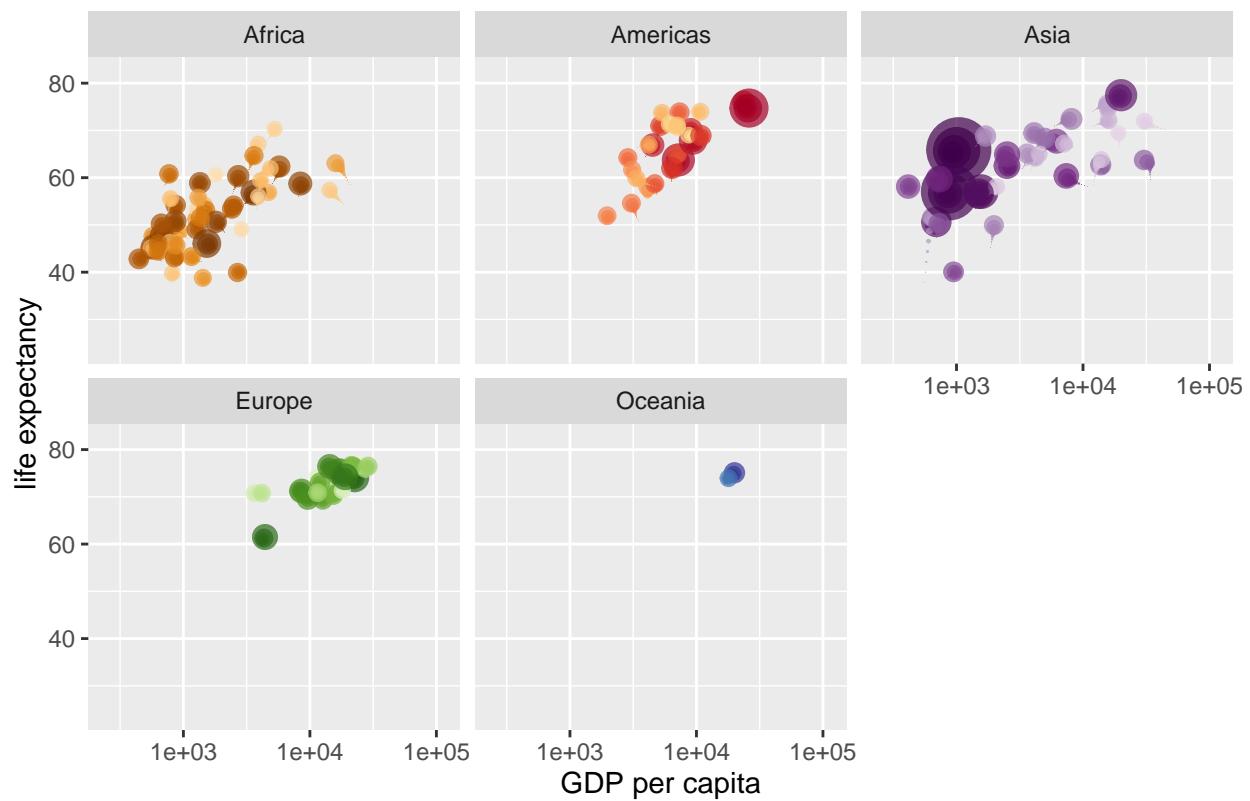
Year: 1982



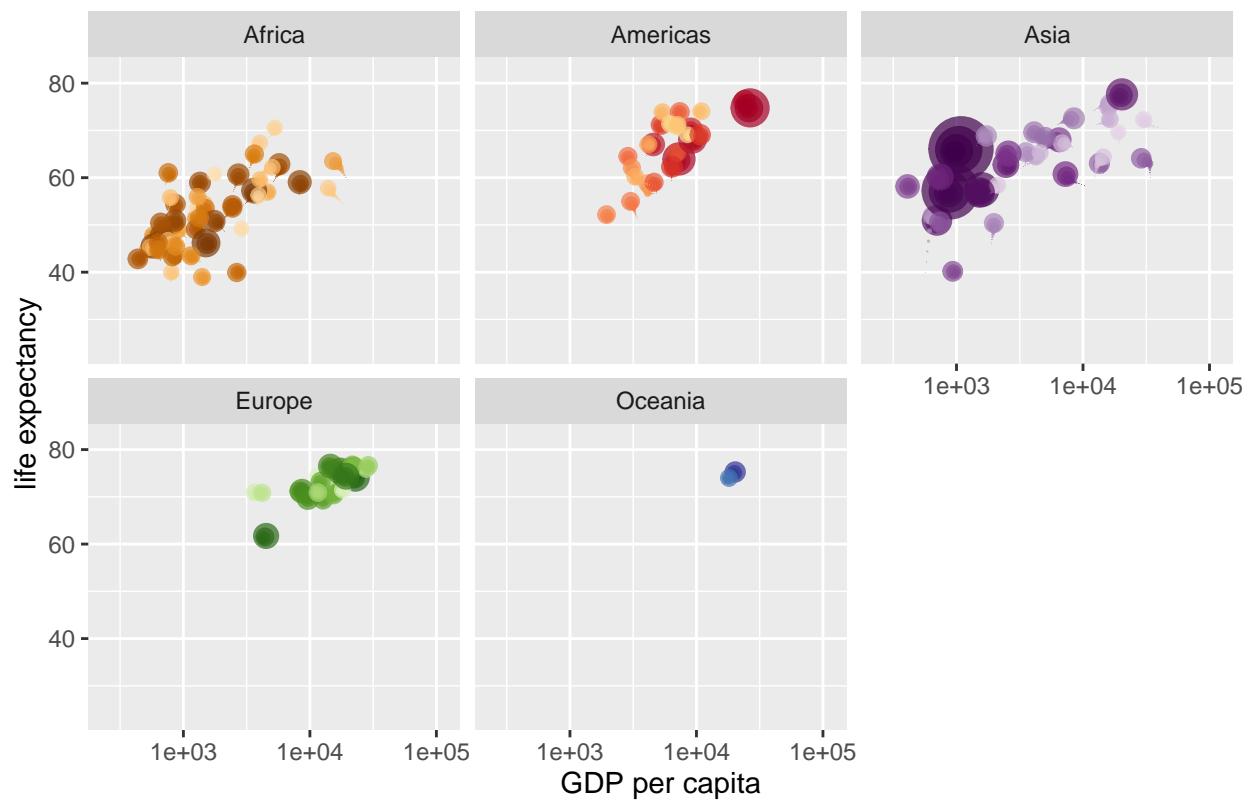
Year: 1983



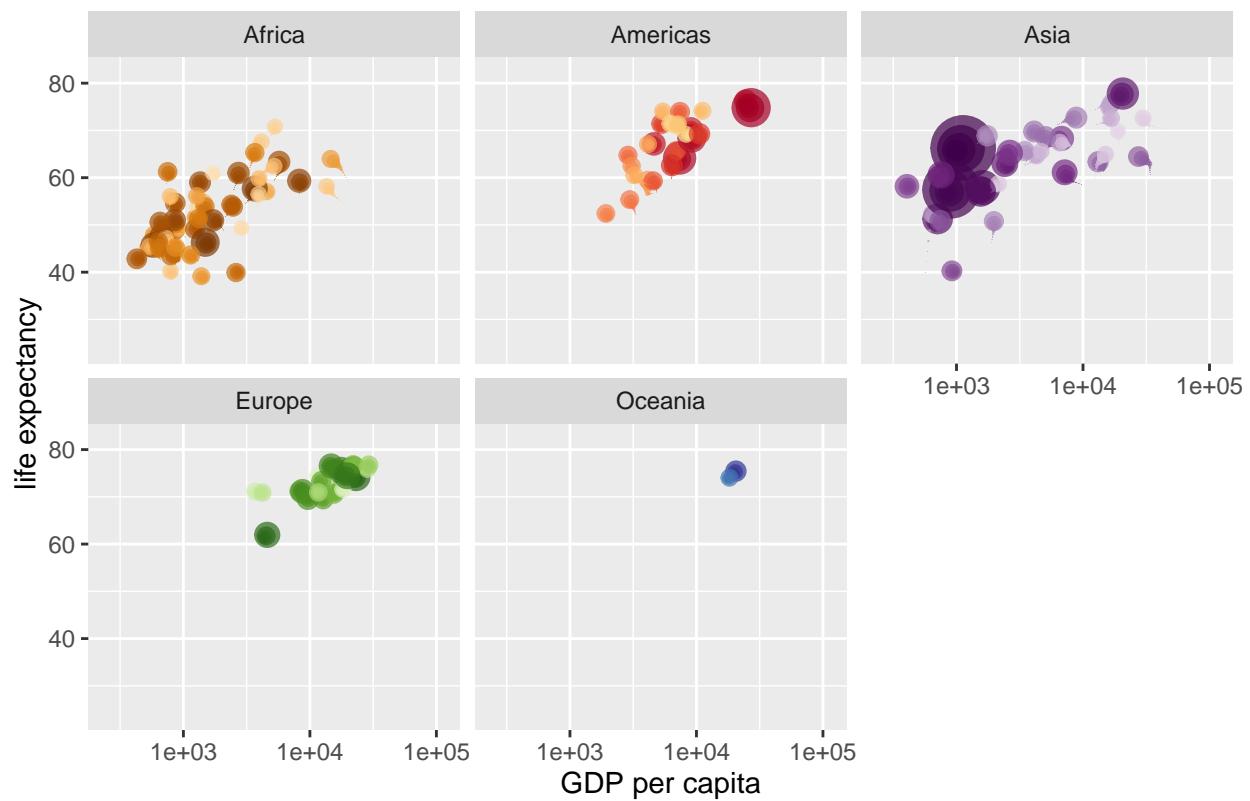
Year: 1983



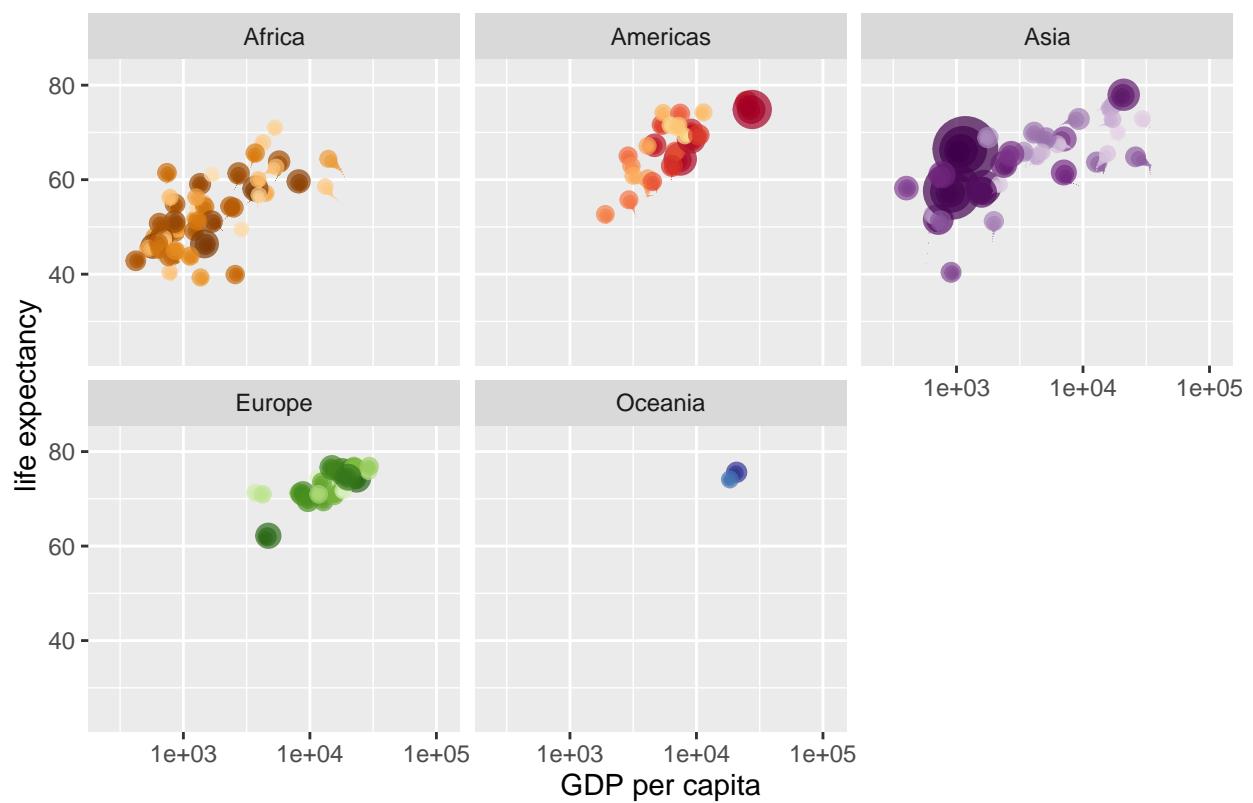
Year: 1984



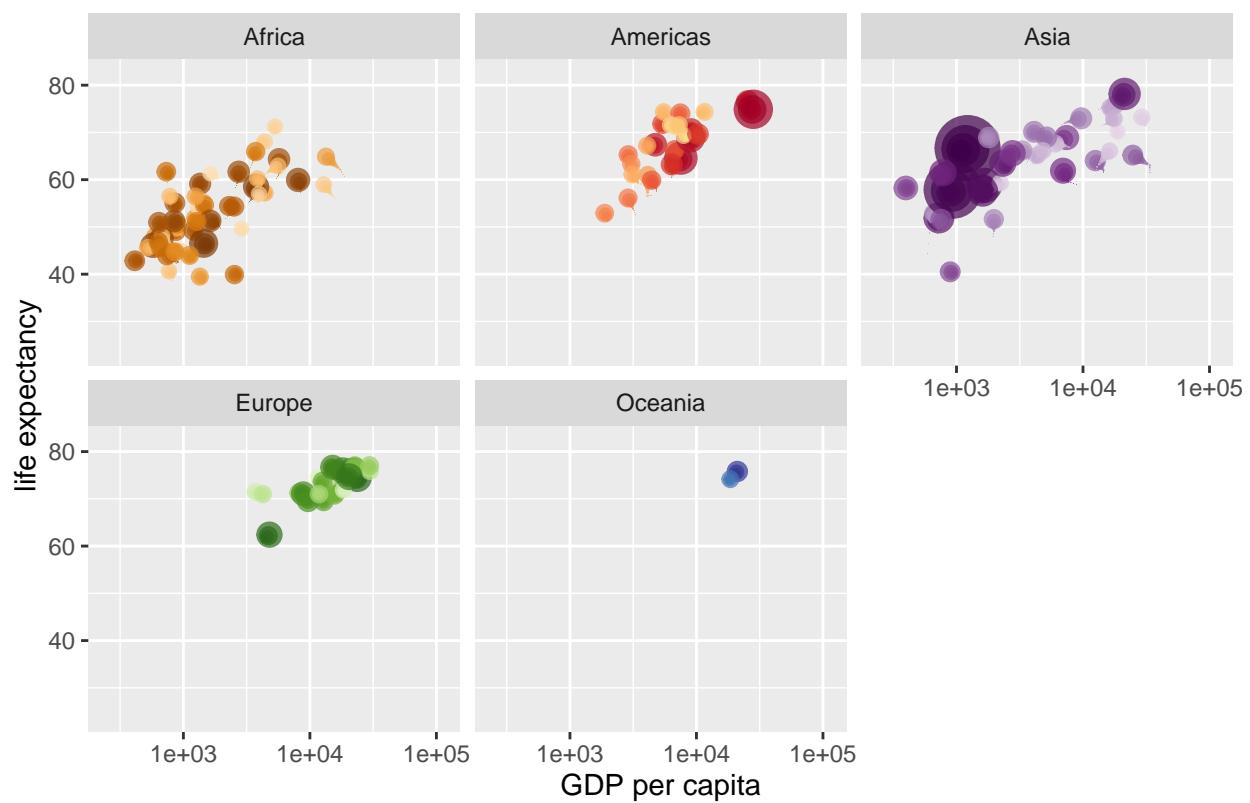
Year: 1984



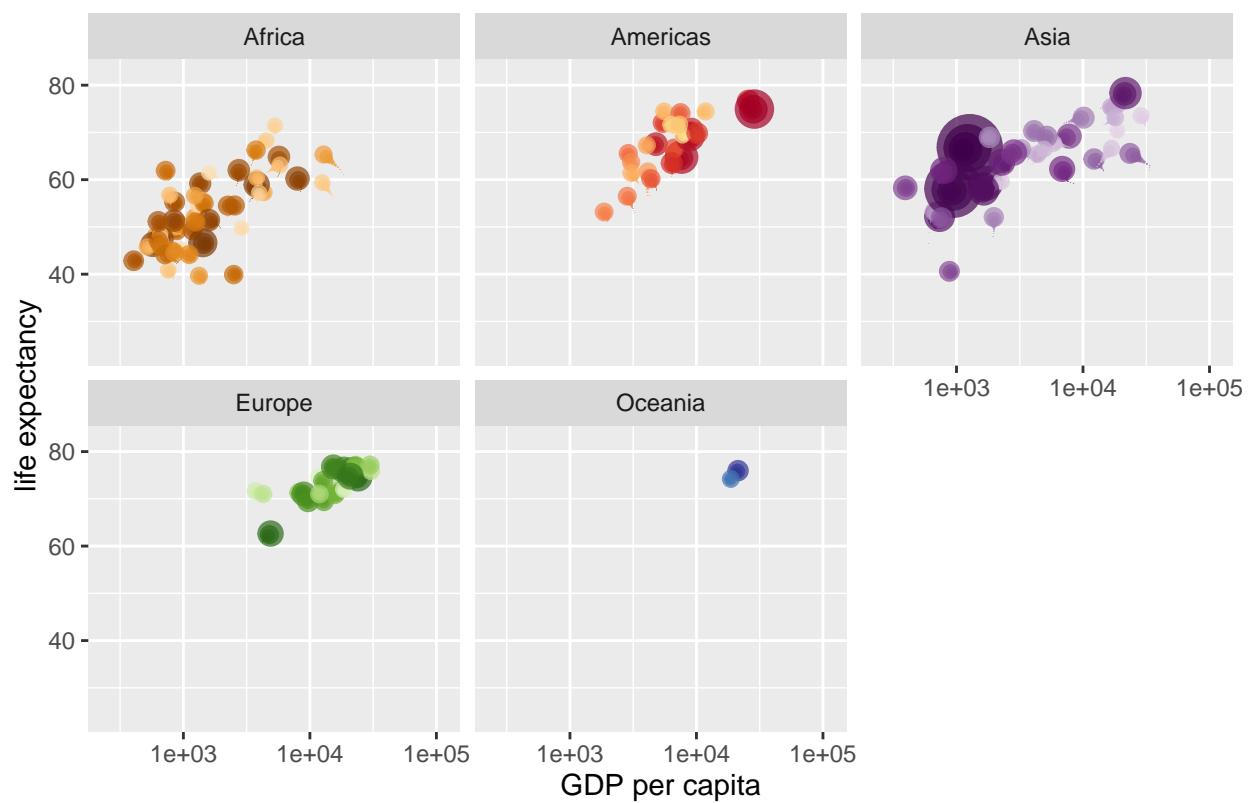
Year: 1985



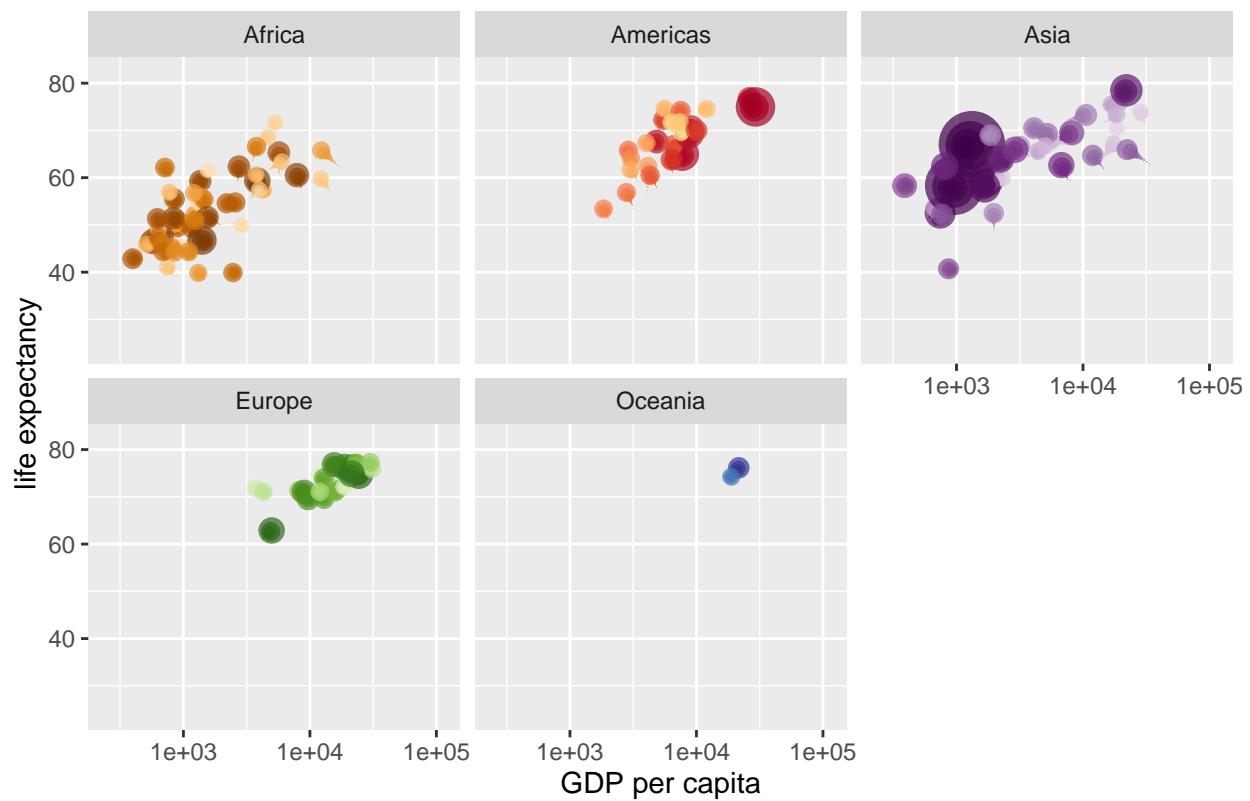
Year: 1985



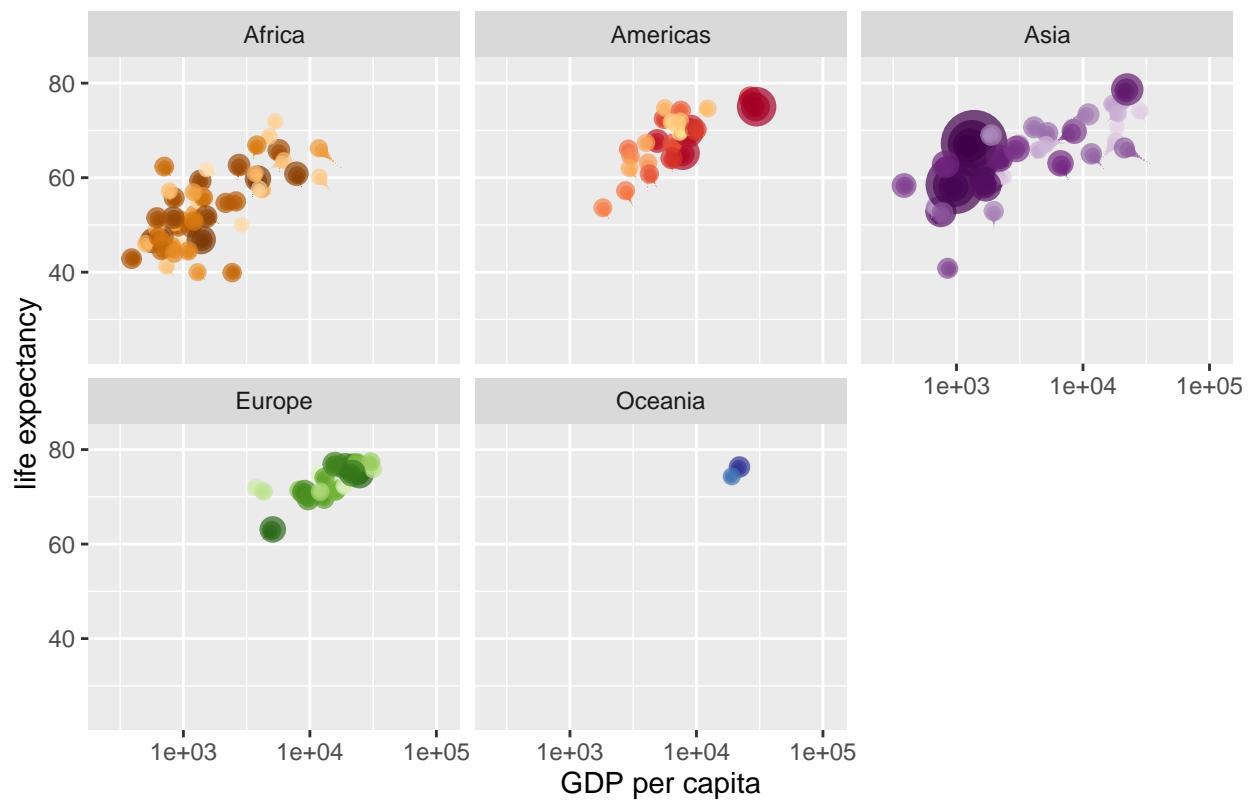
Year: 1986



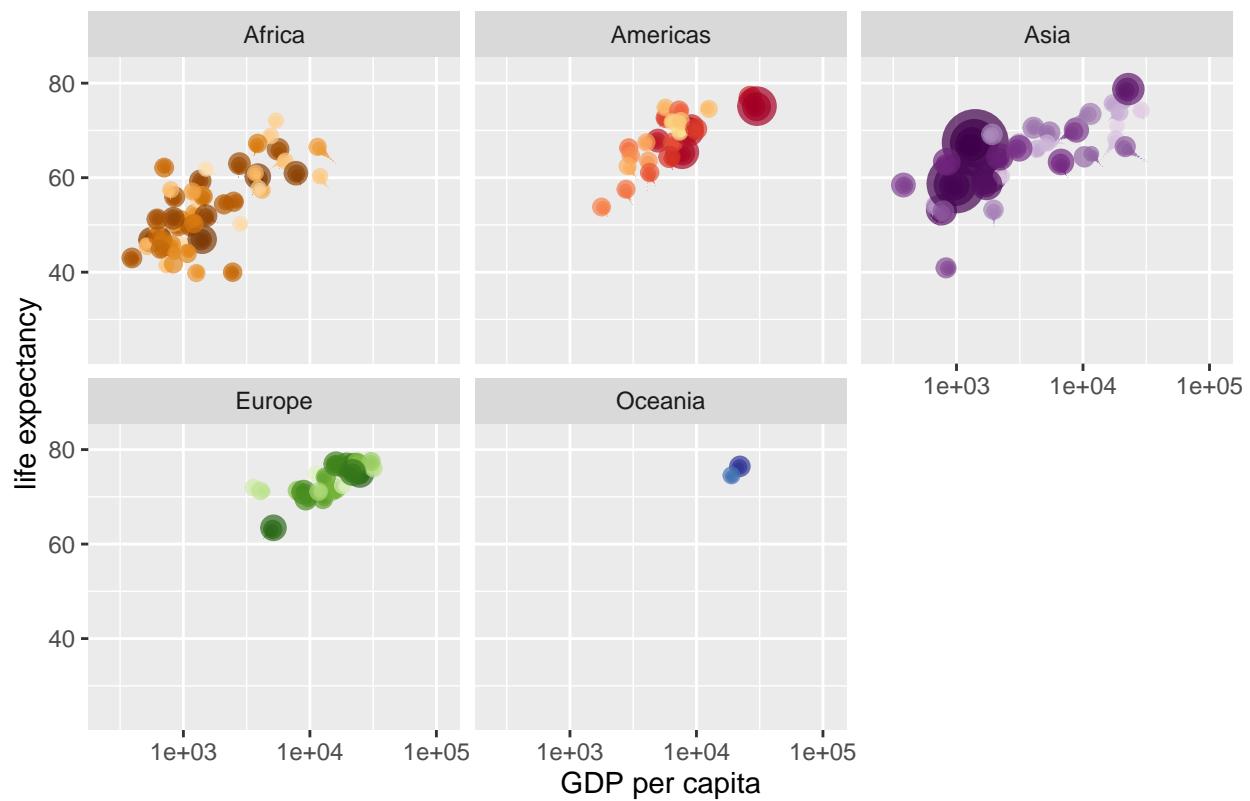
Year: 1986



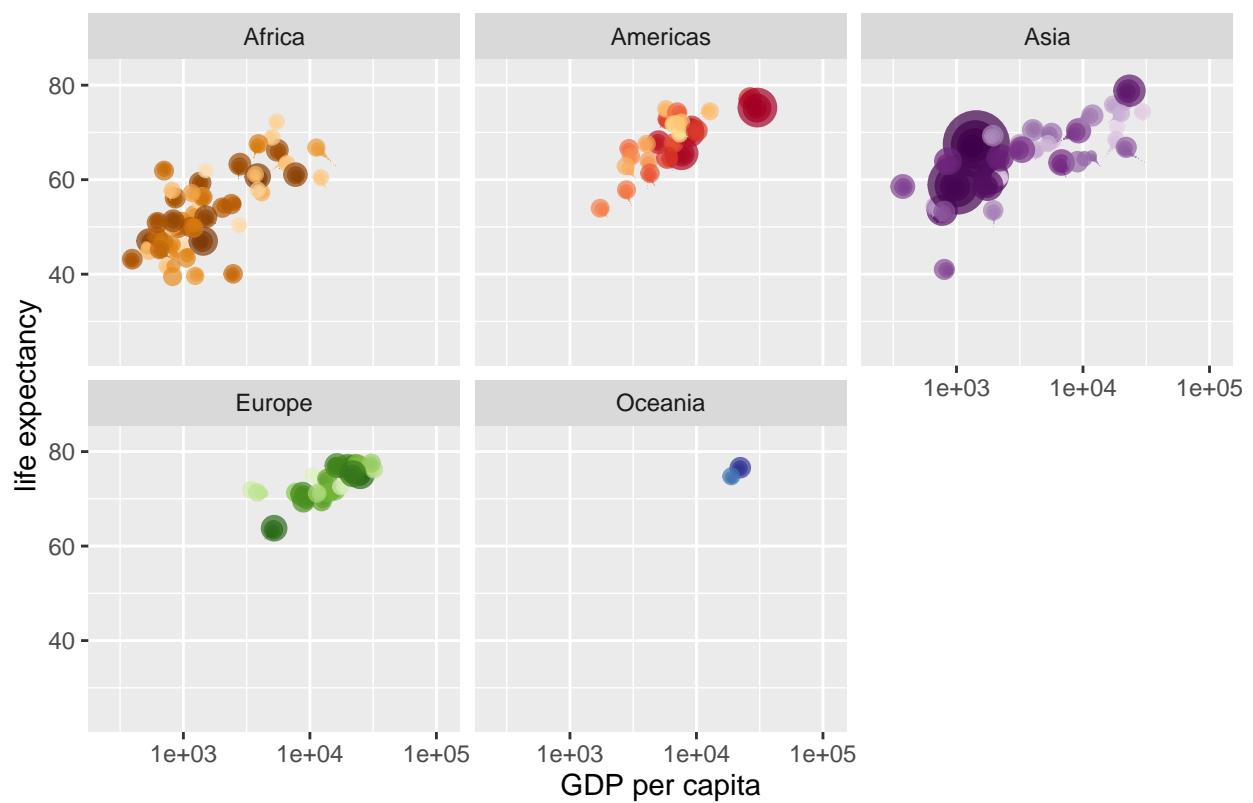
Year: 1987



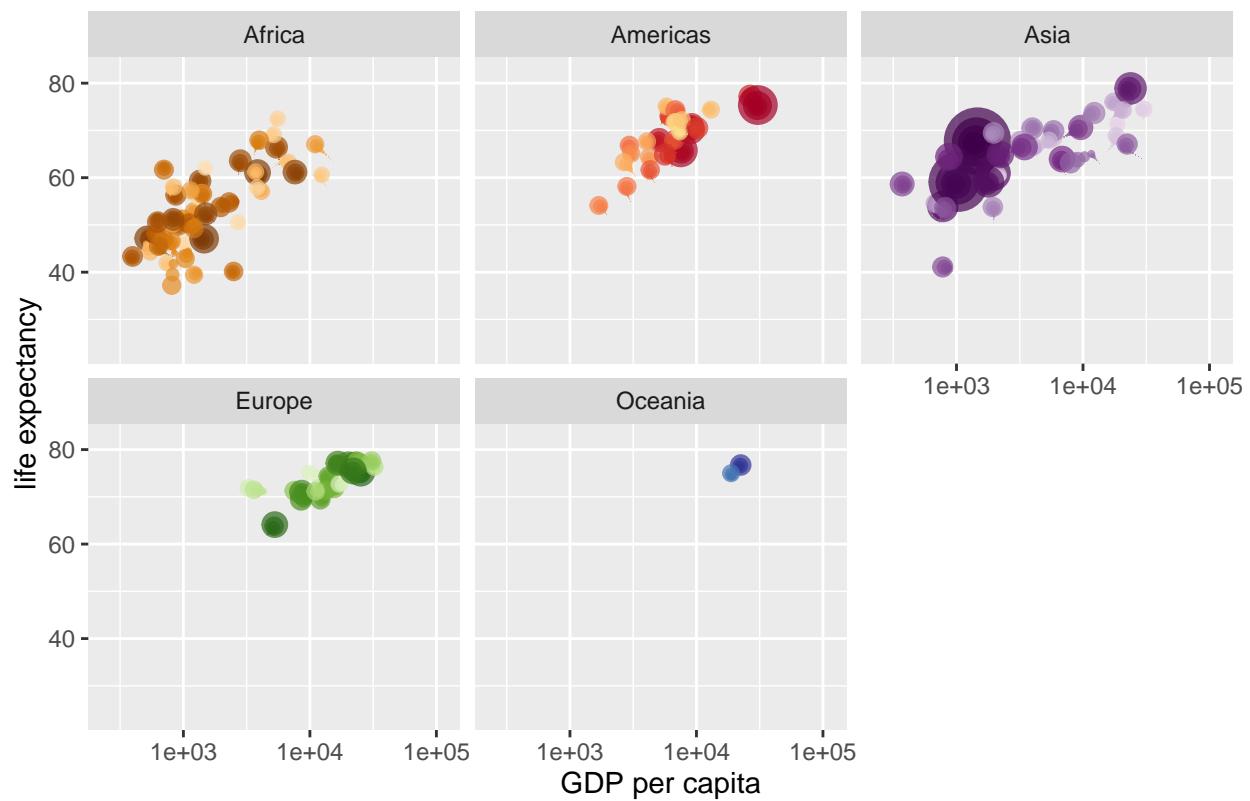
Year: 1988



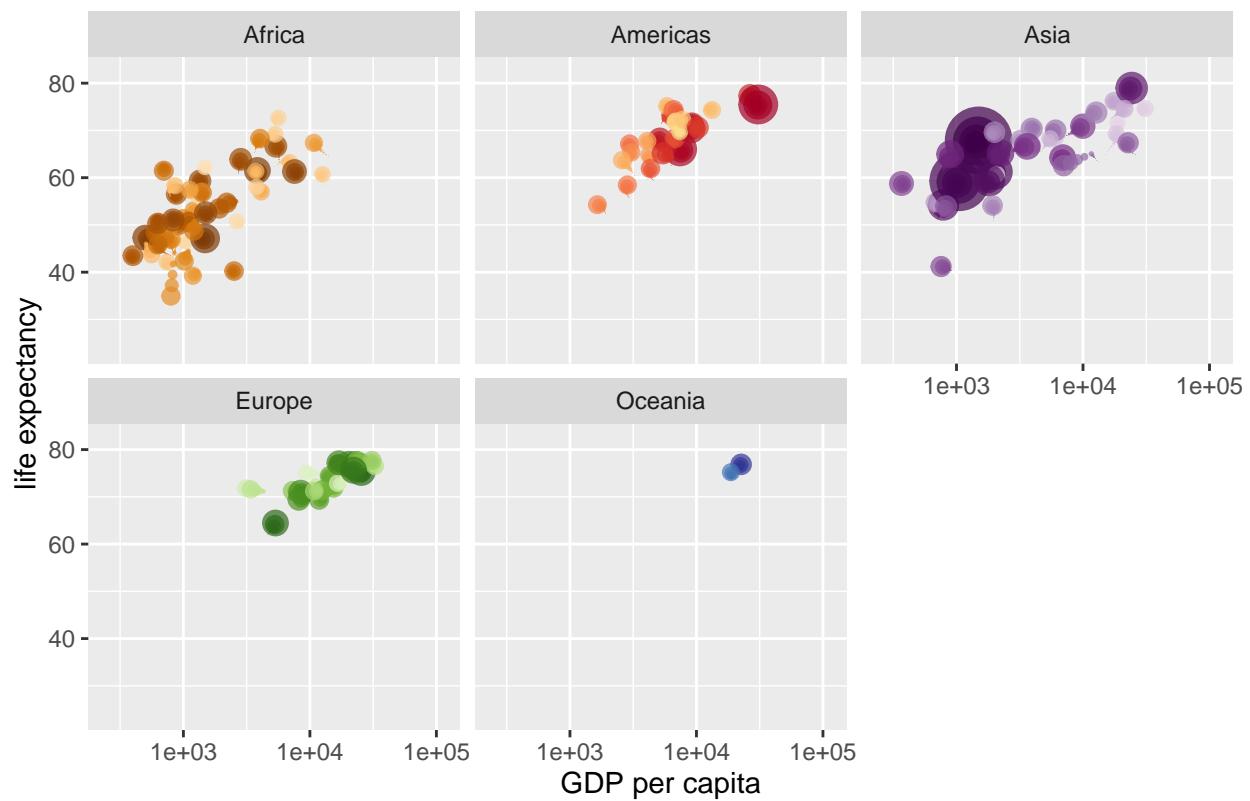
Year: 1988



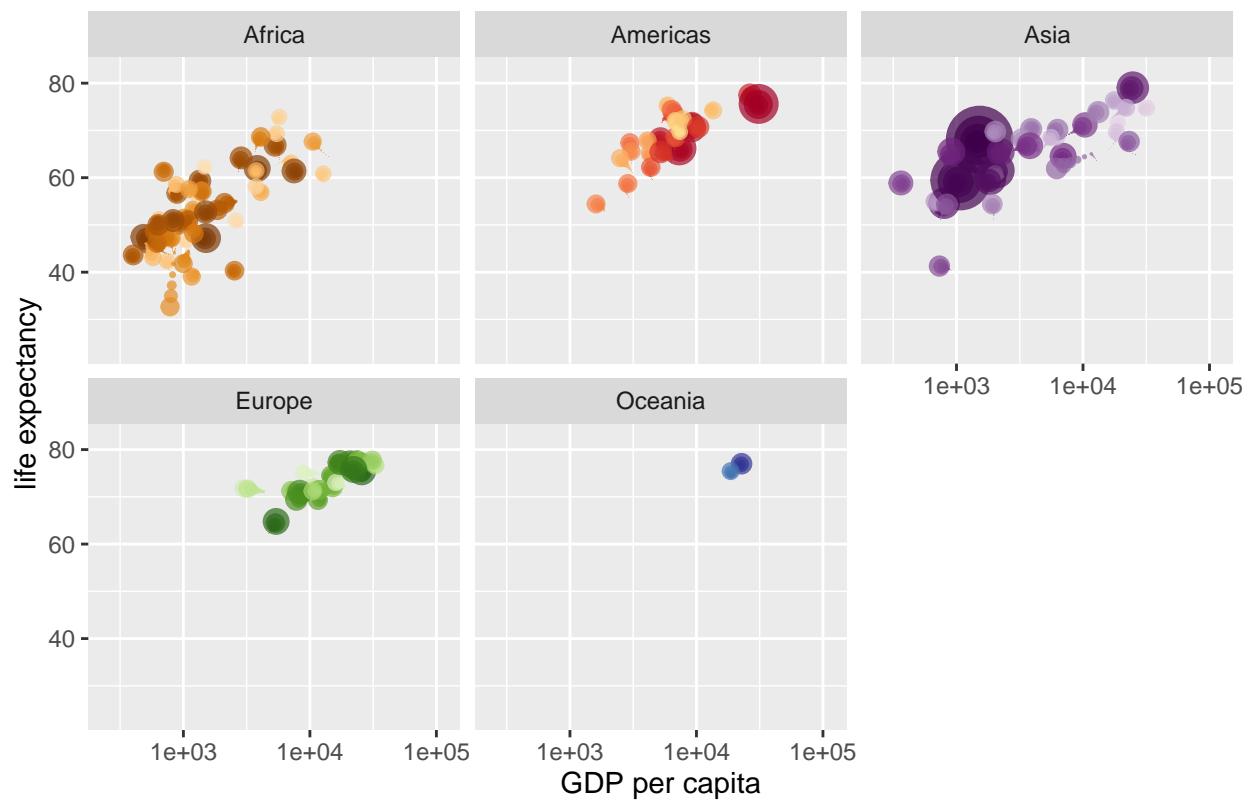
Year: 1989



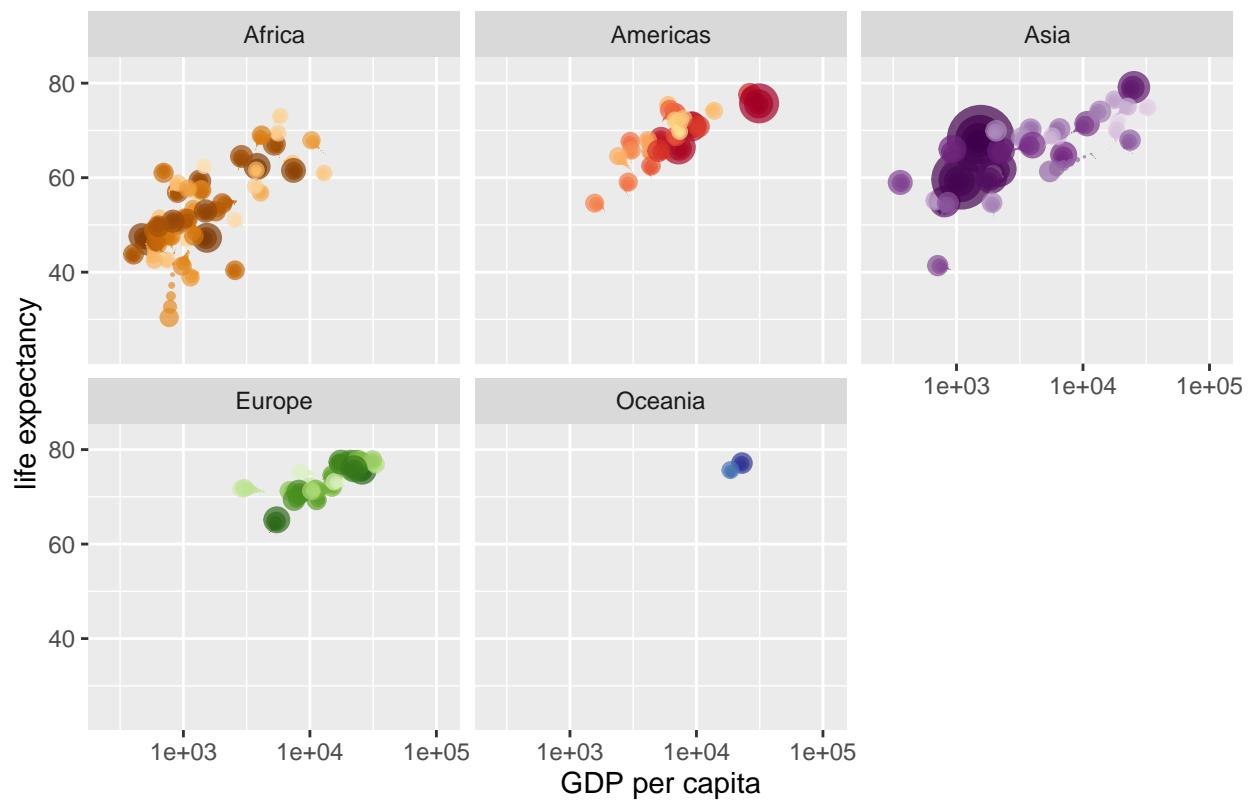
Year: 1989



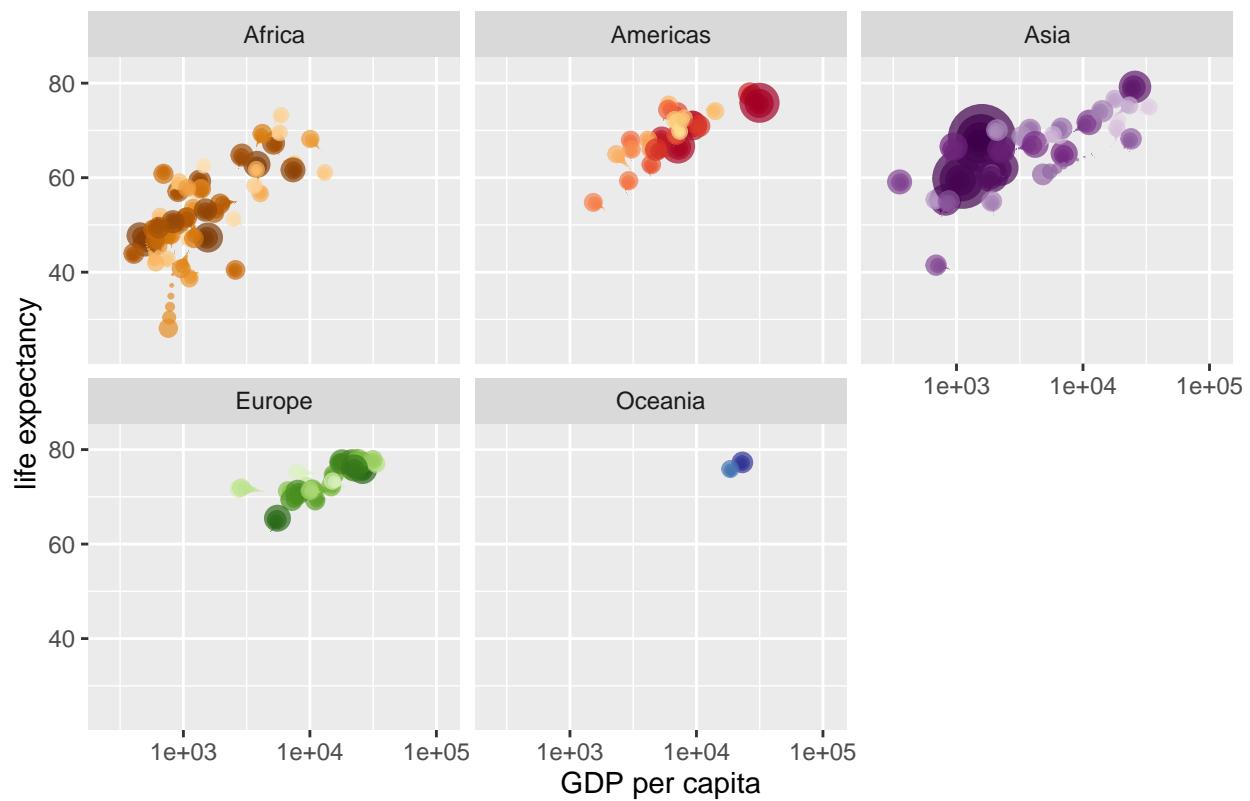
Year: 1990



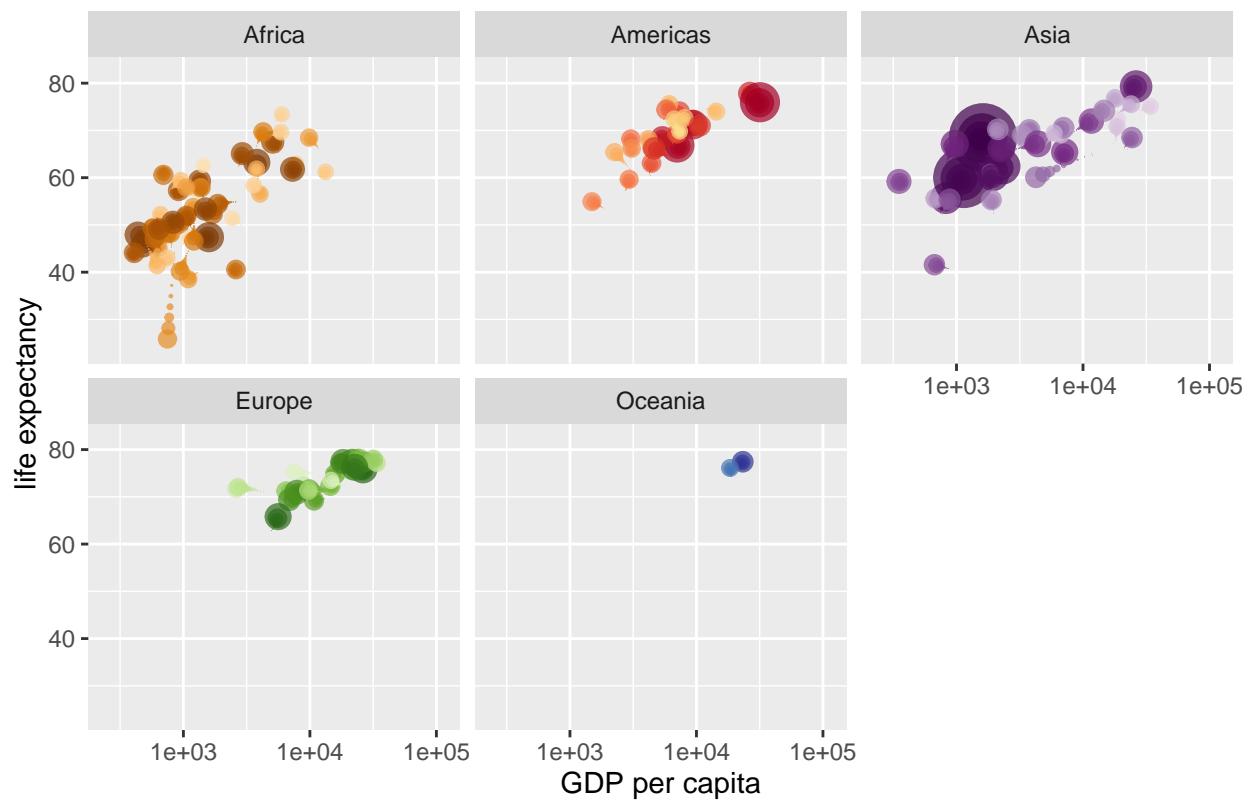
Year: 1990



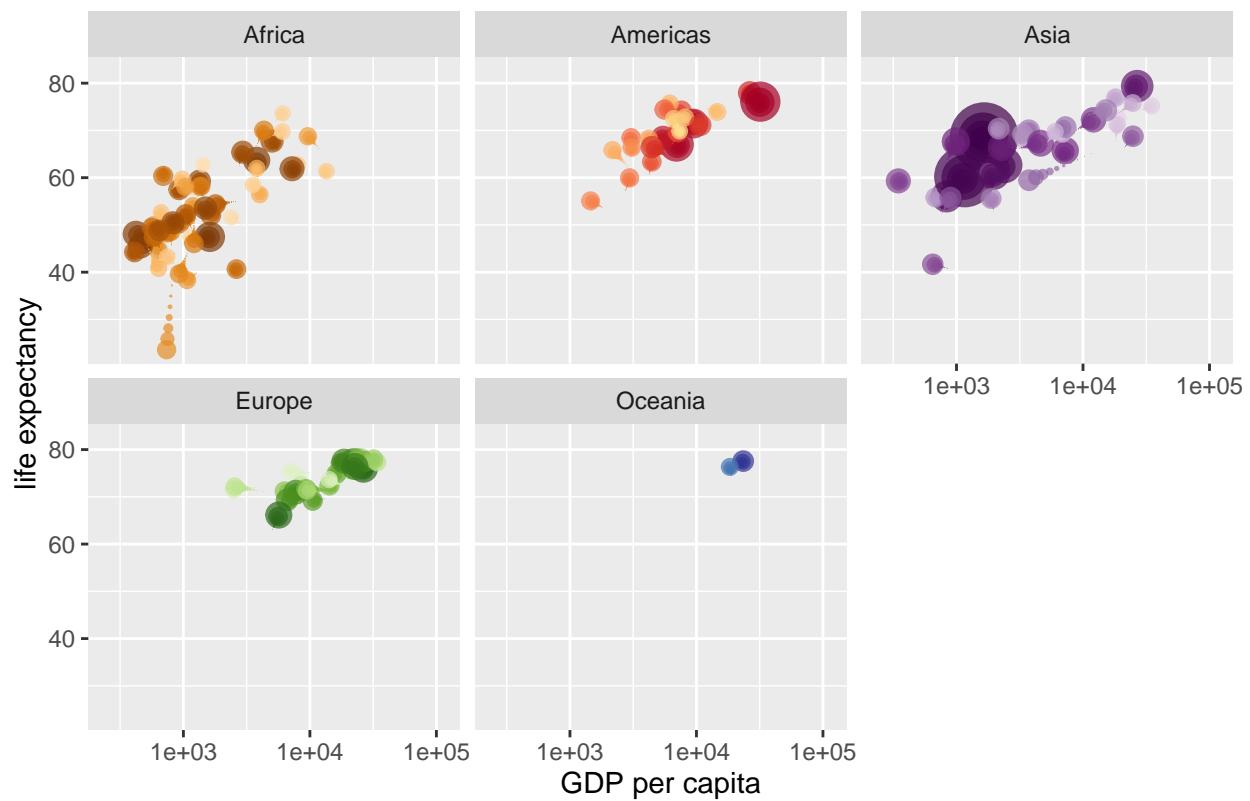
Year: 1991



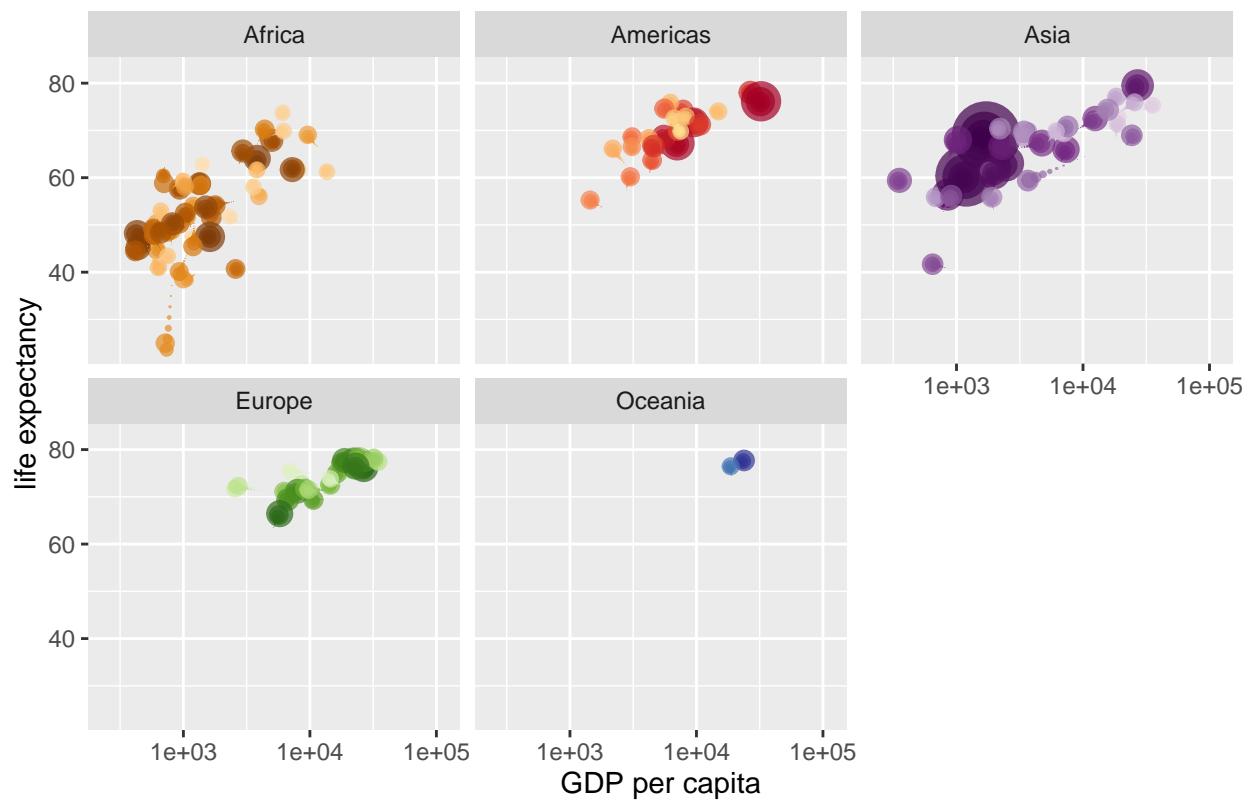
Year: 1991



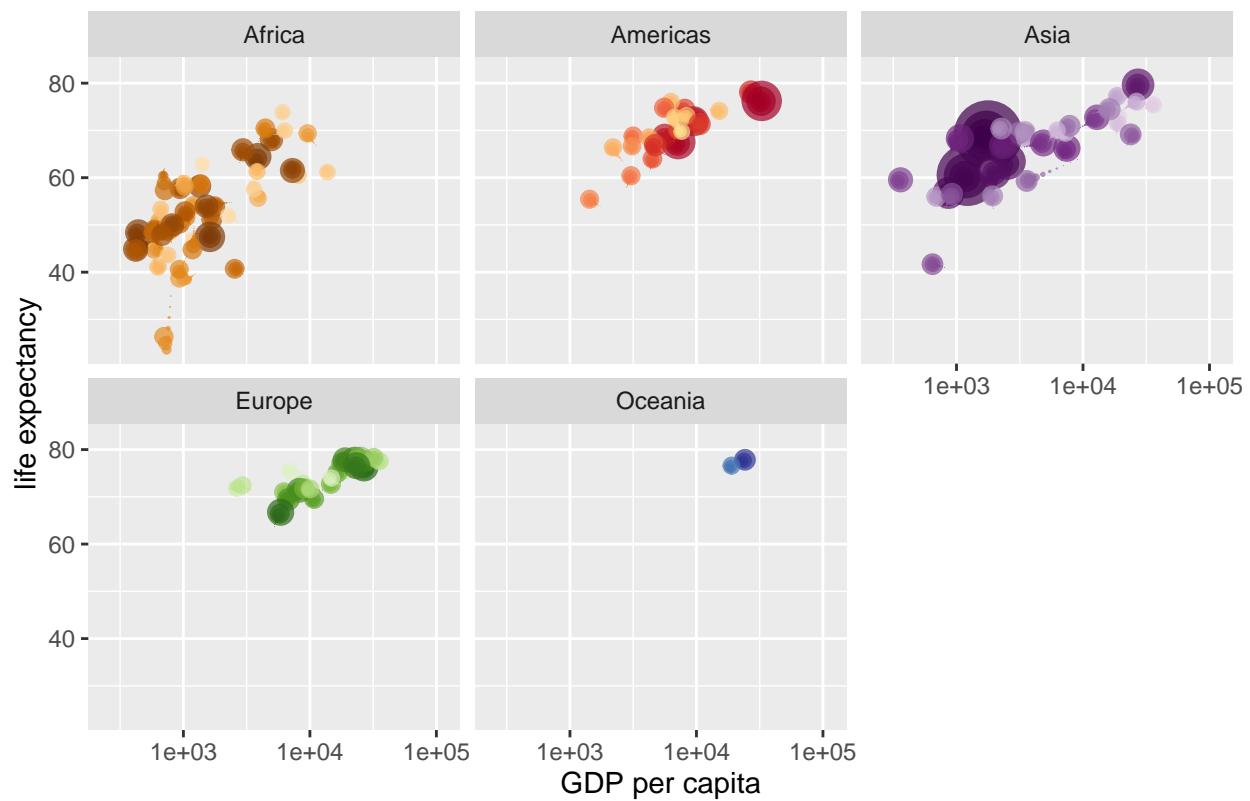
Year: 1992



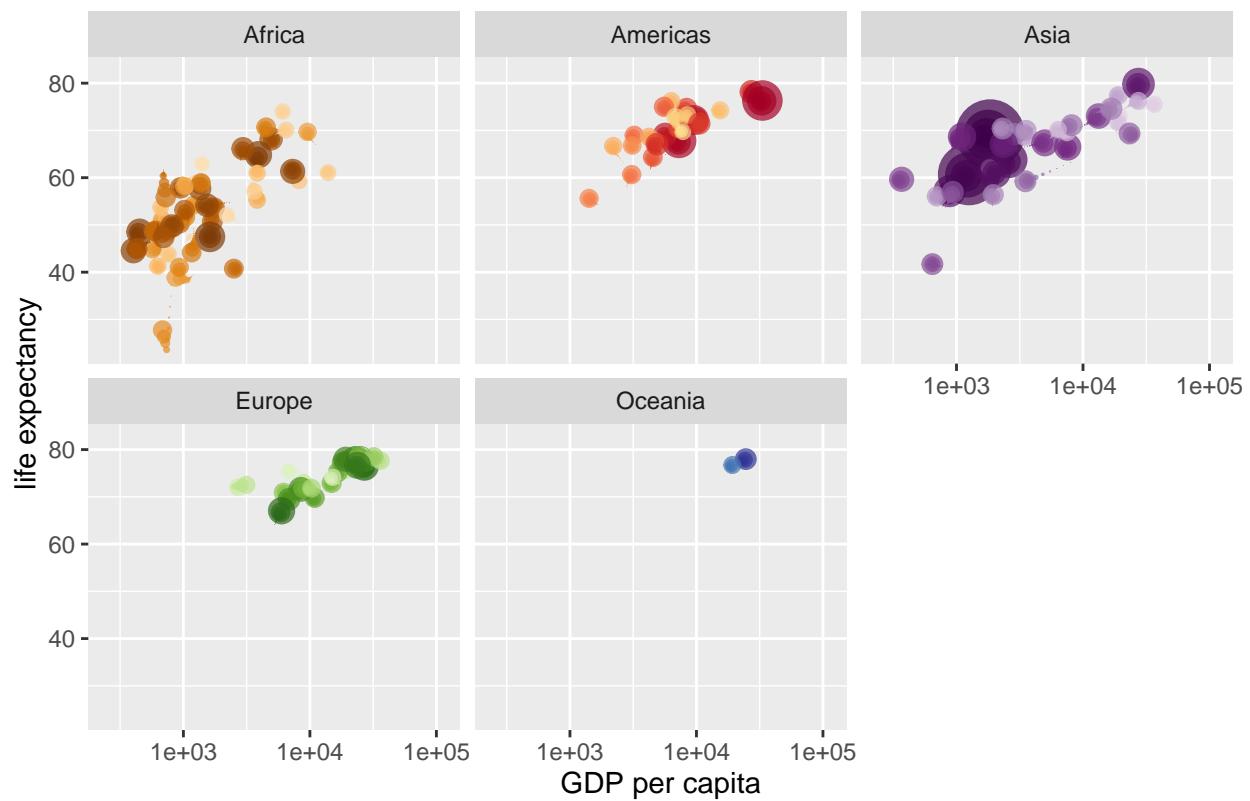
Year: 1993



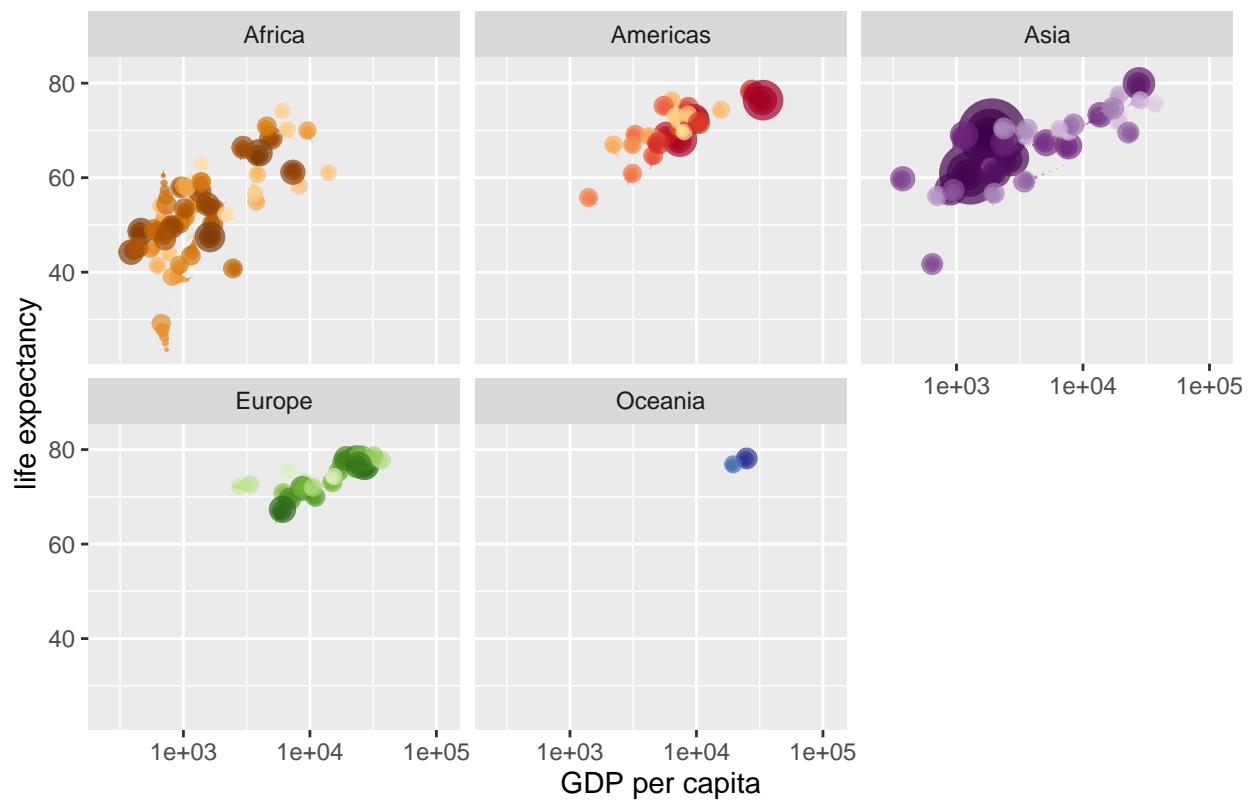
Year: 1993



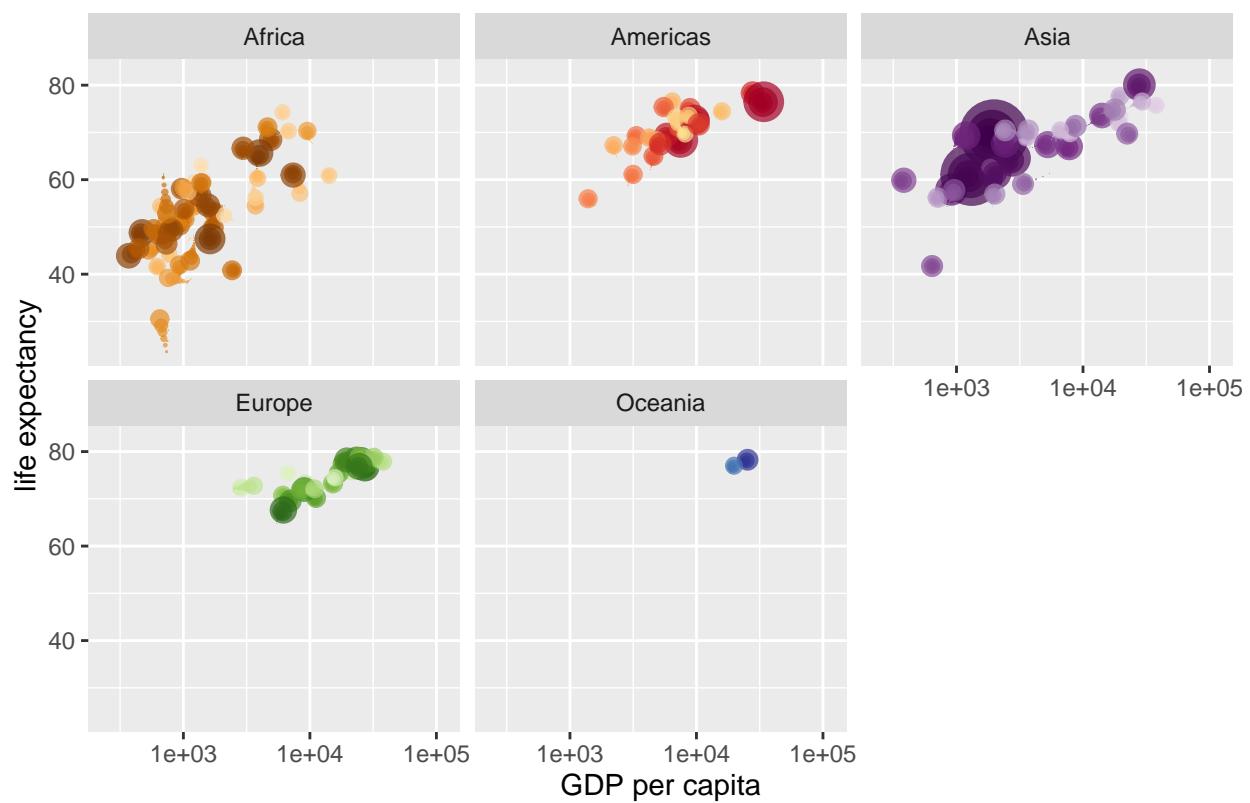
Year: 1994



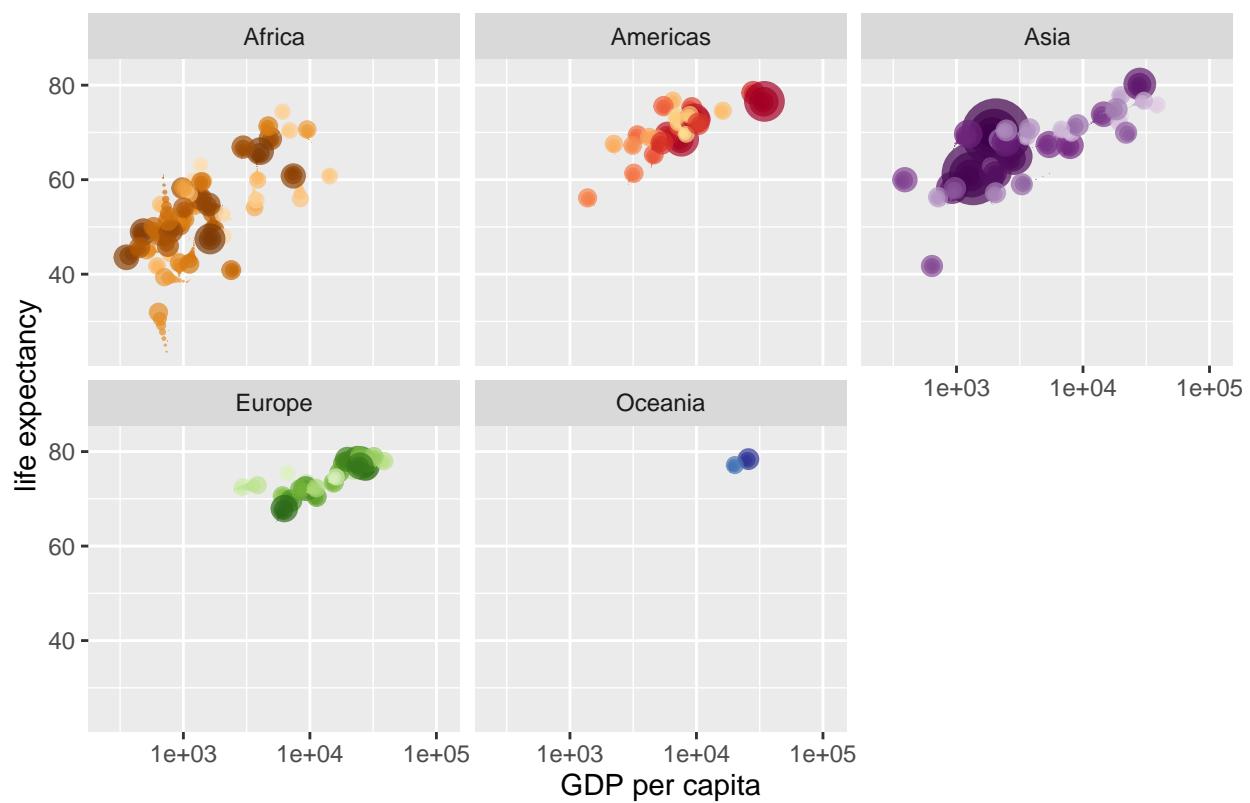
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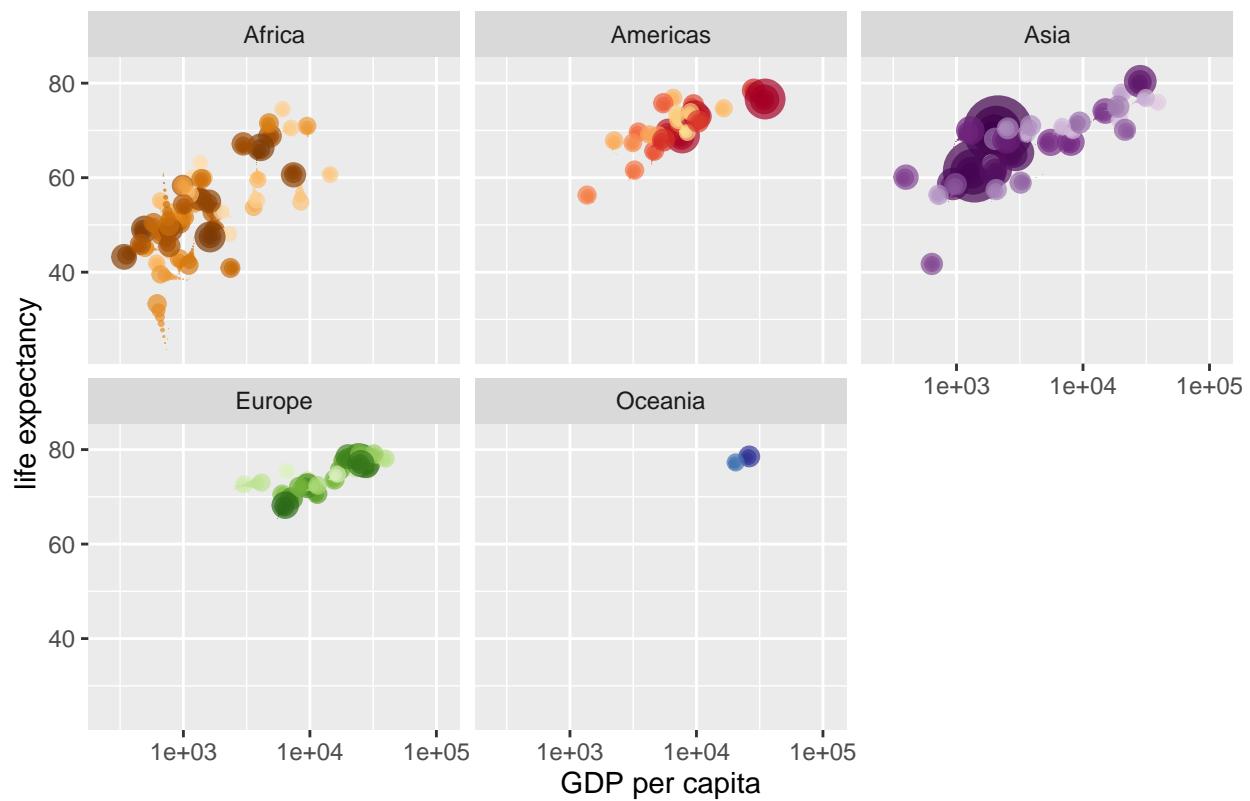
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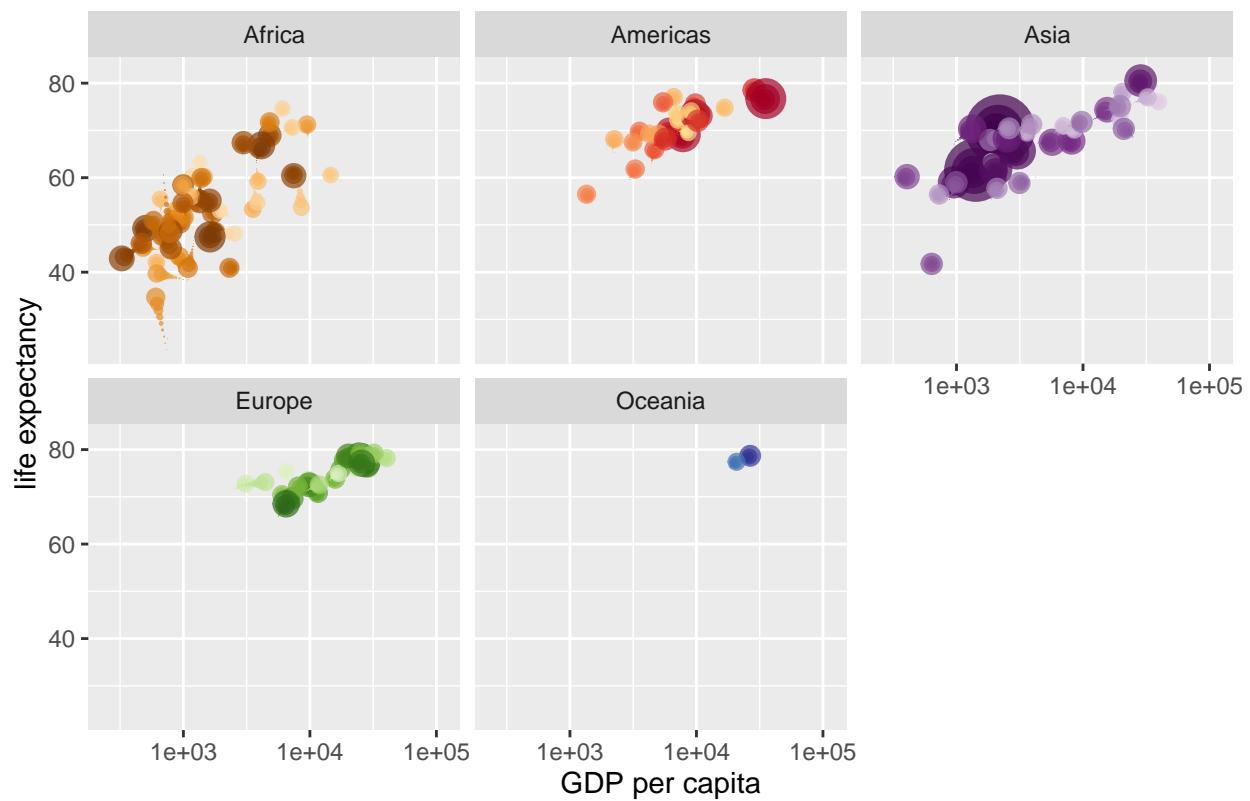
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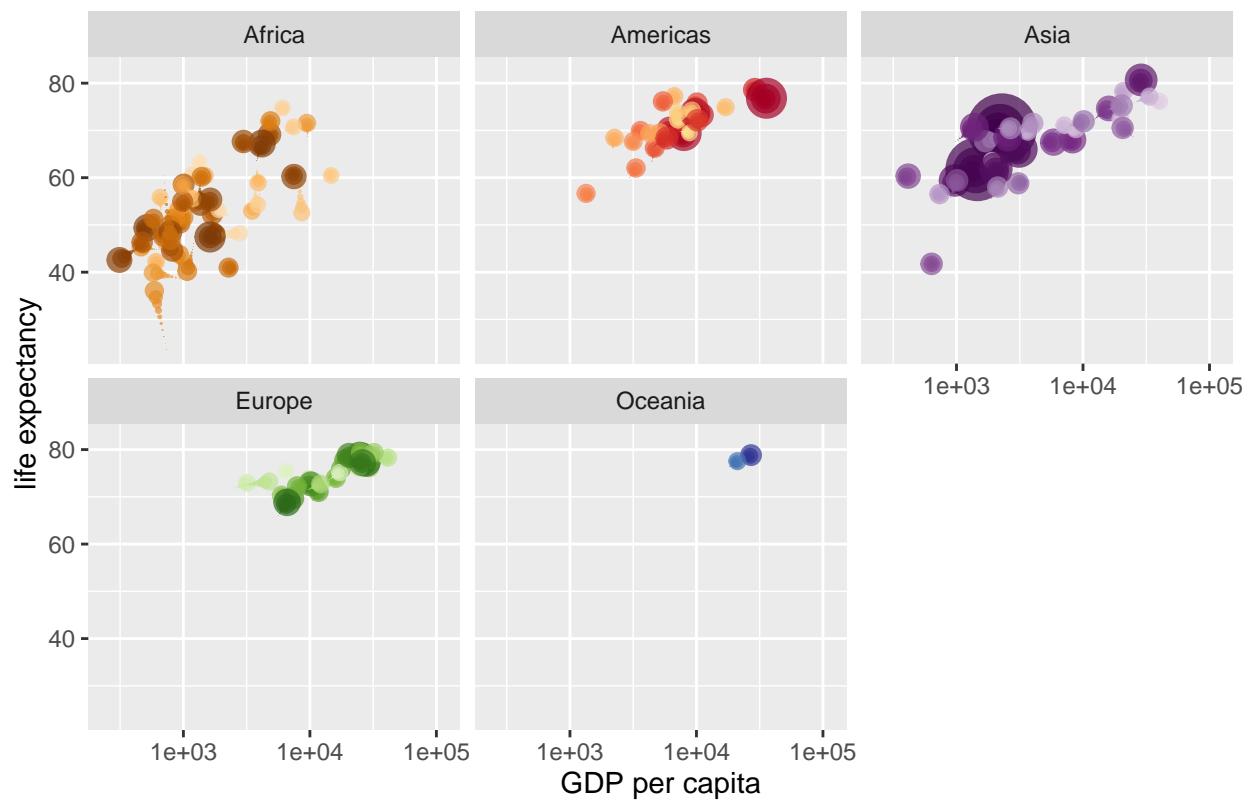
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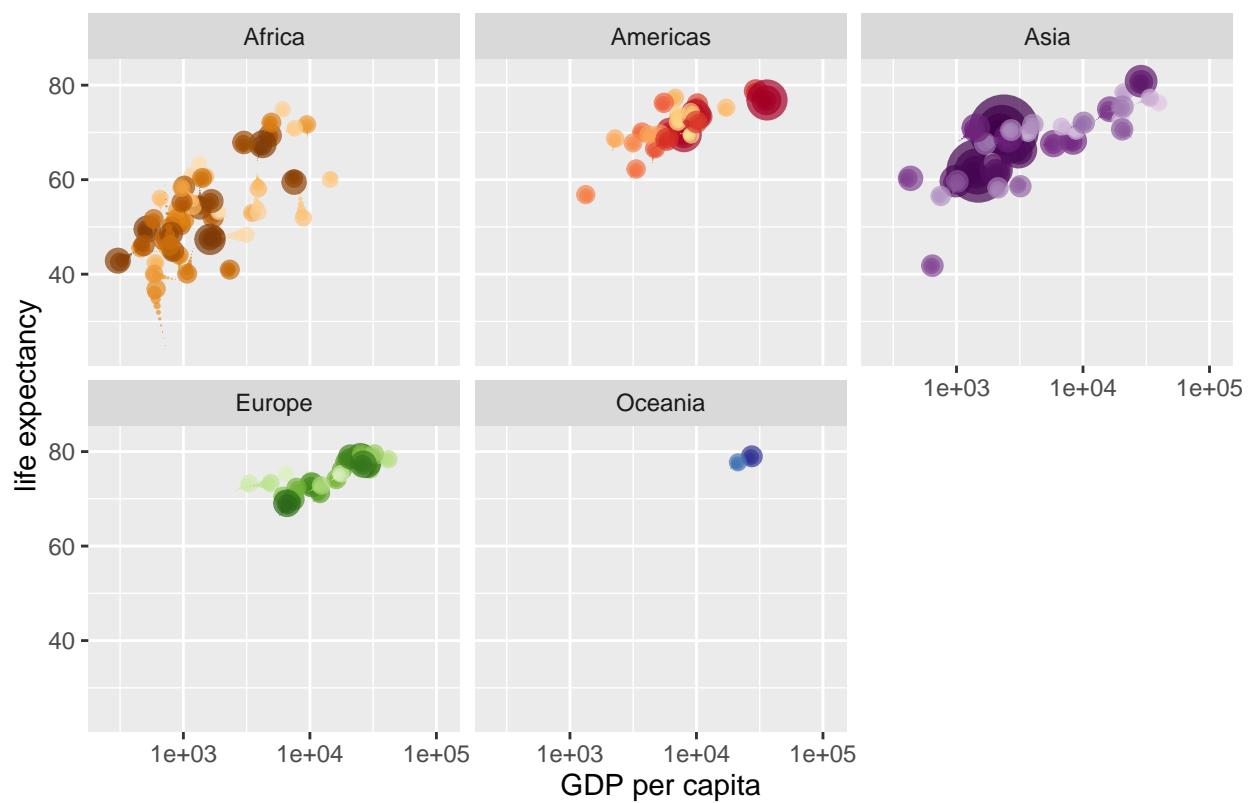
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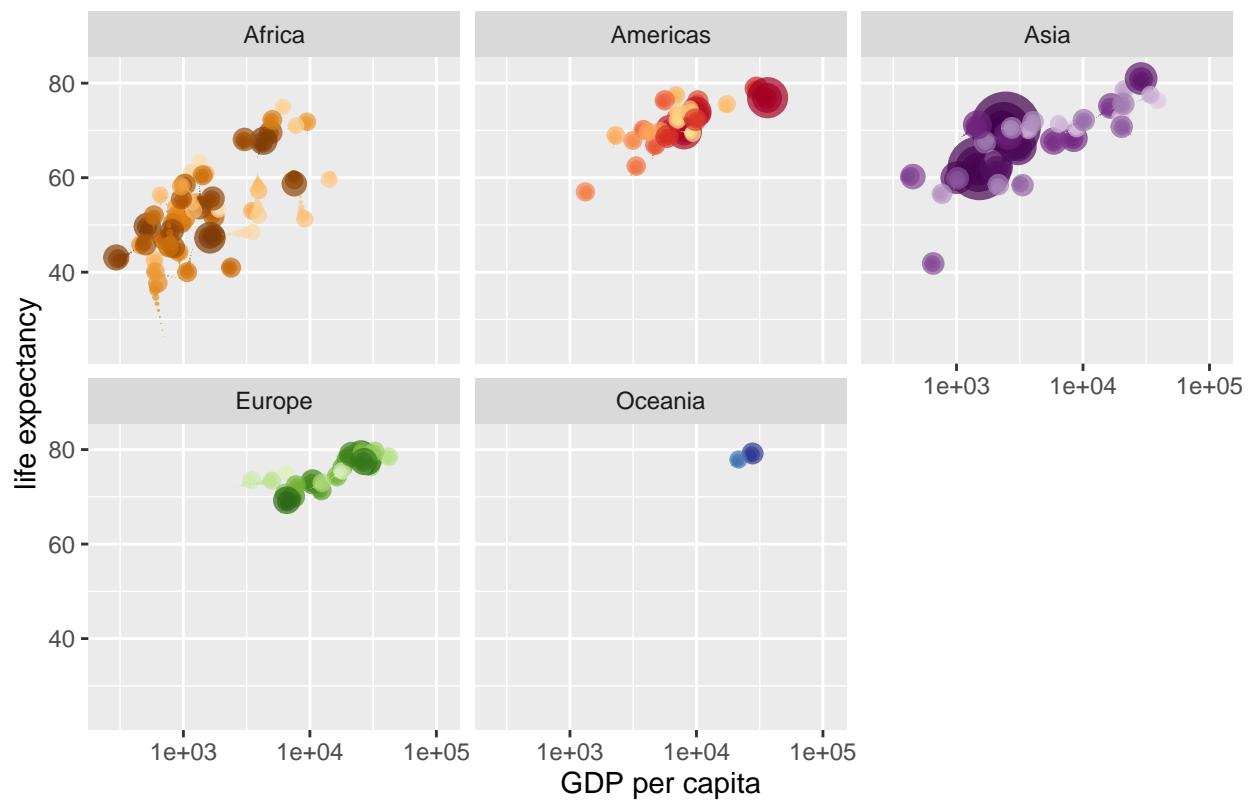
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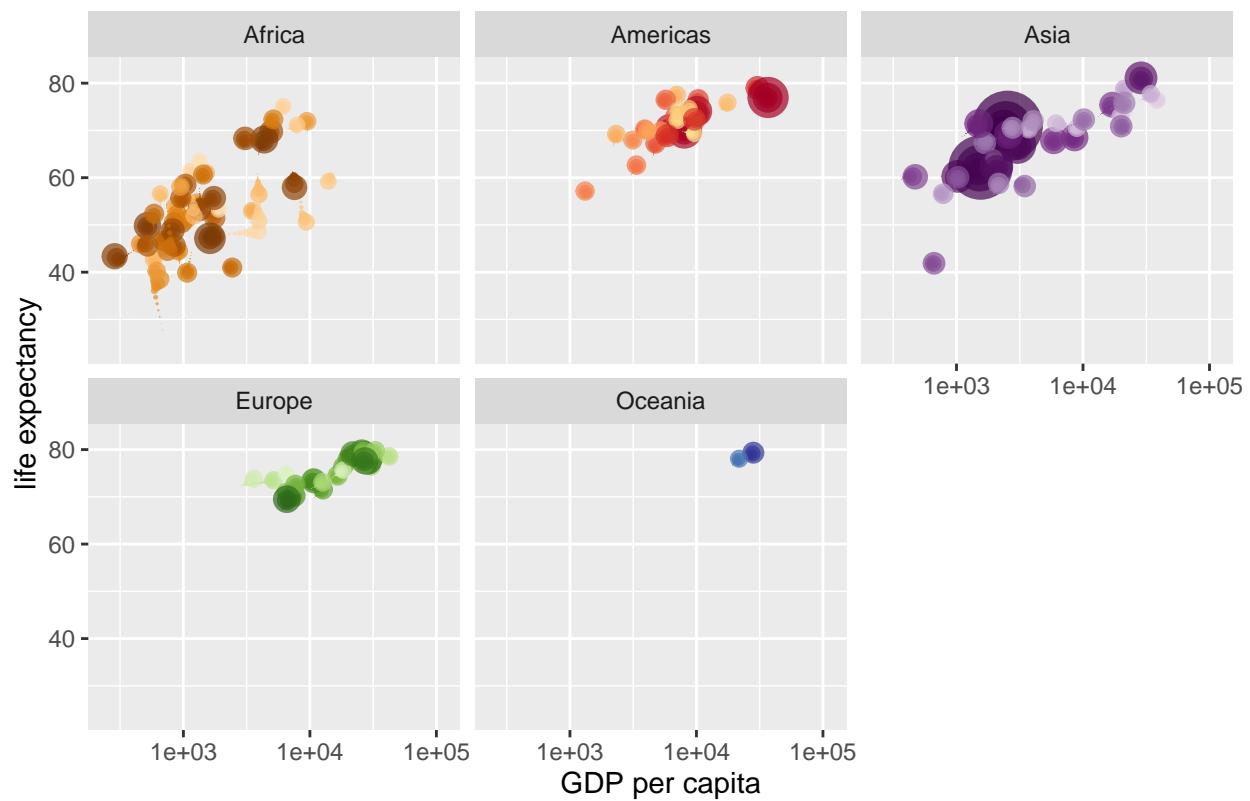
Year: 1998



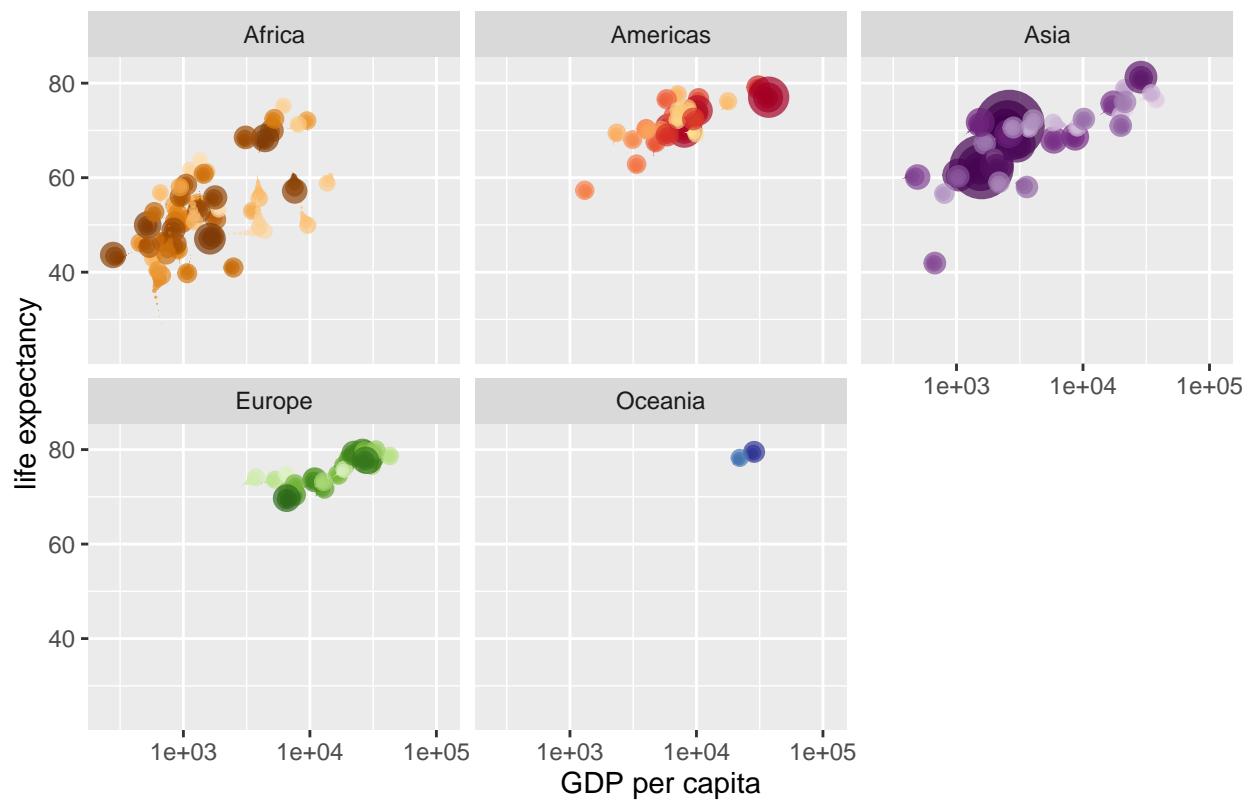
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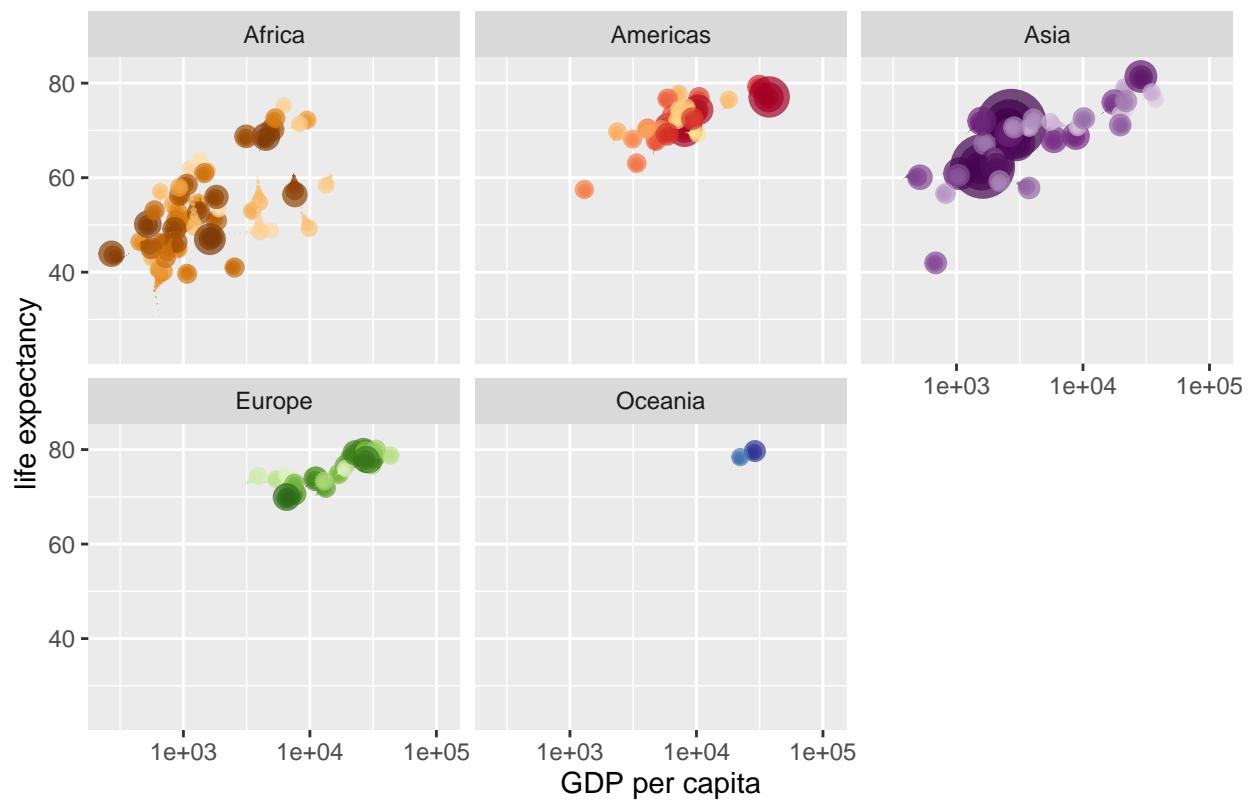
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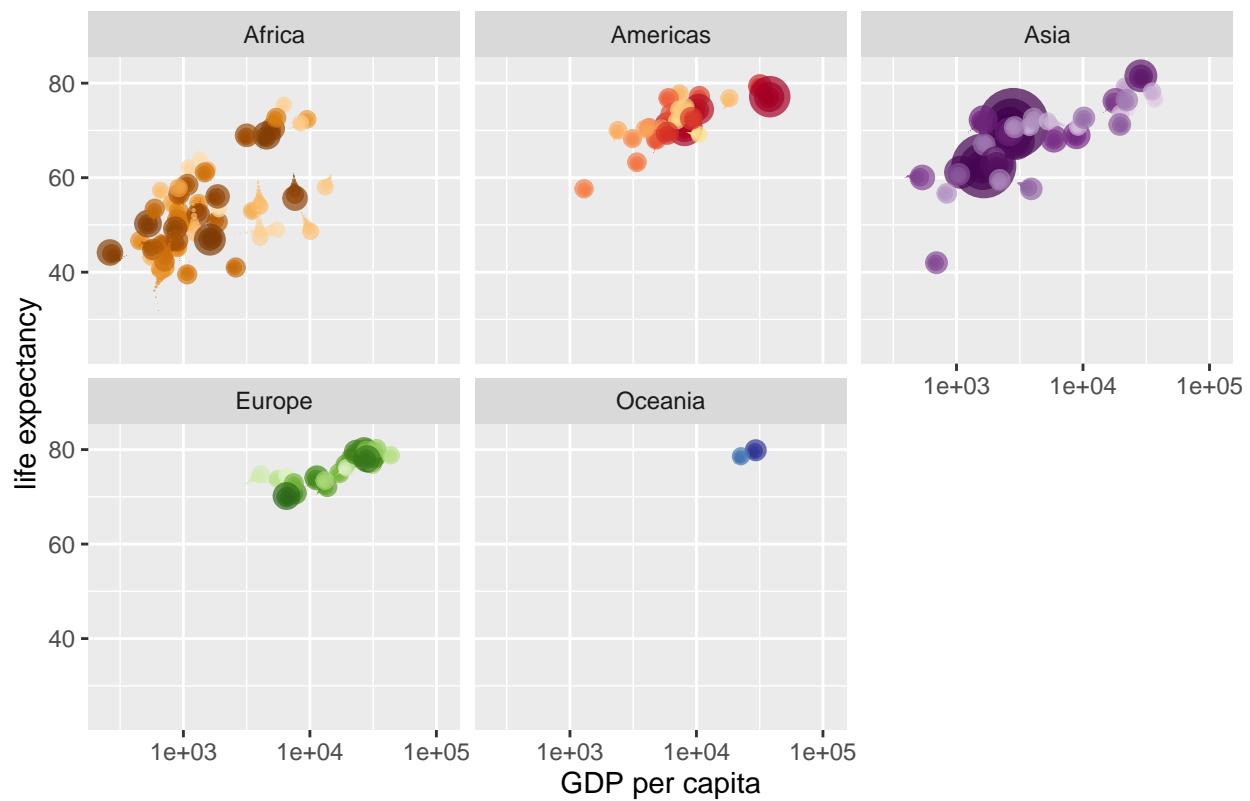
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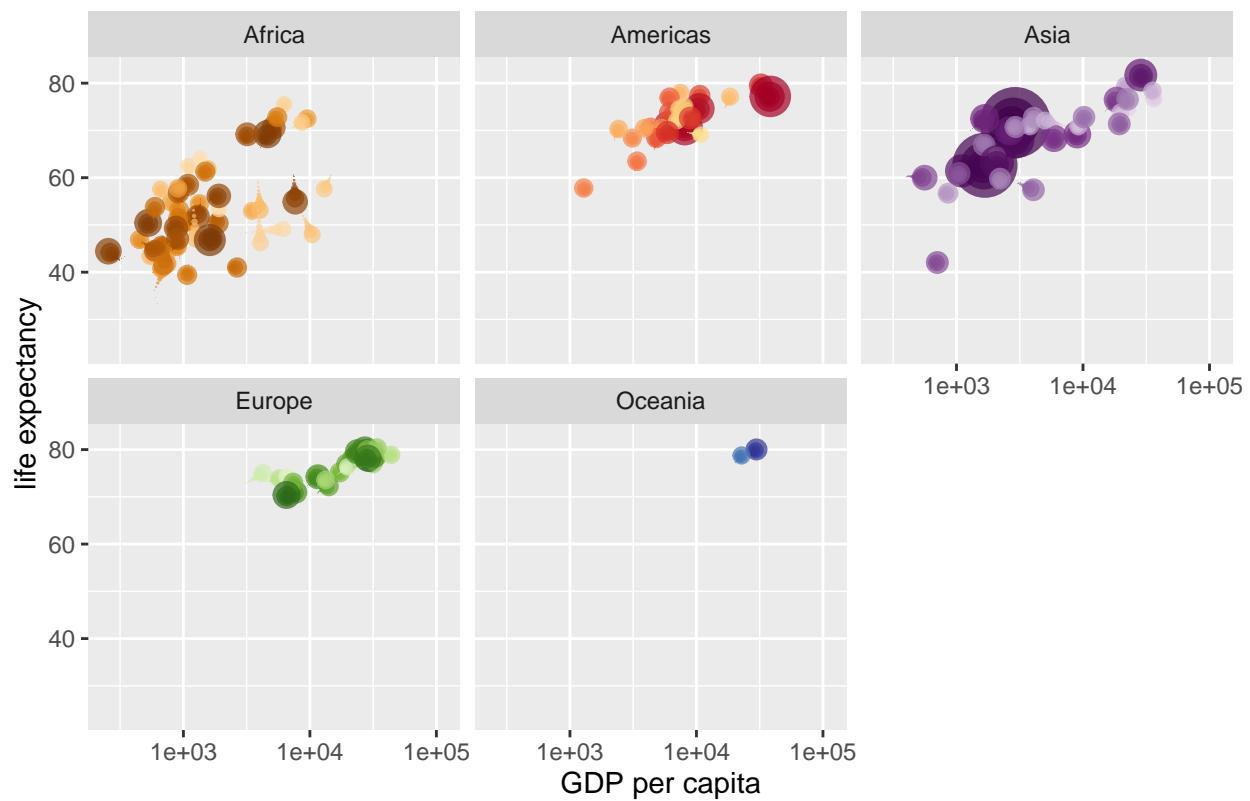
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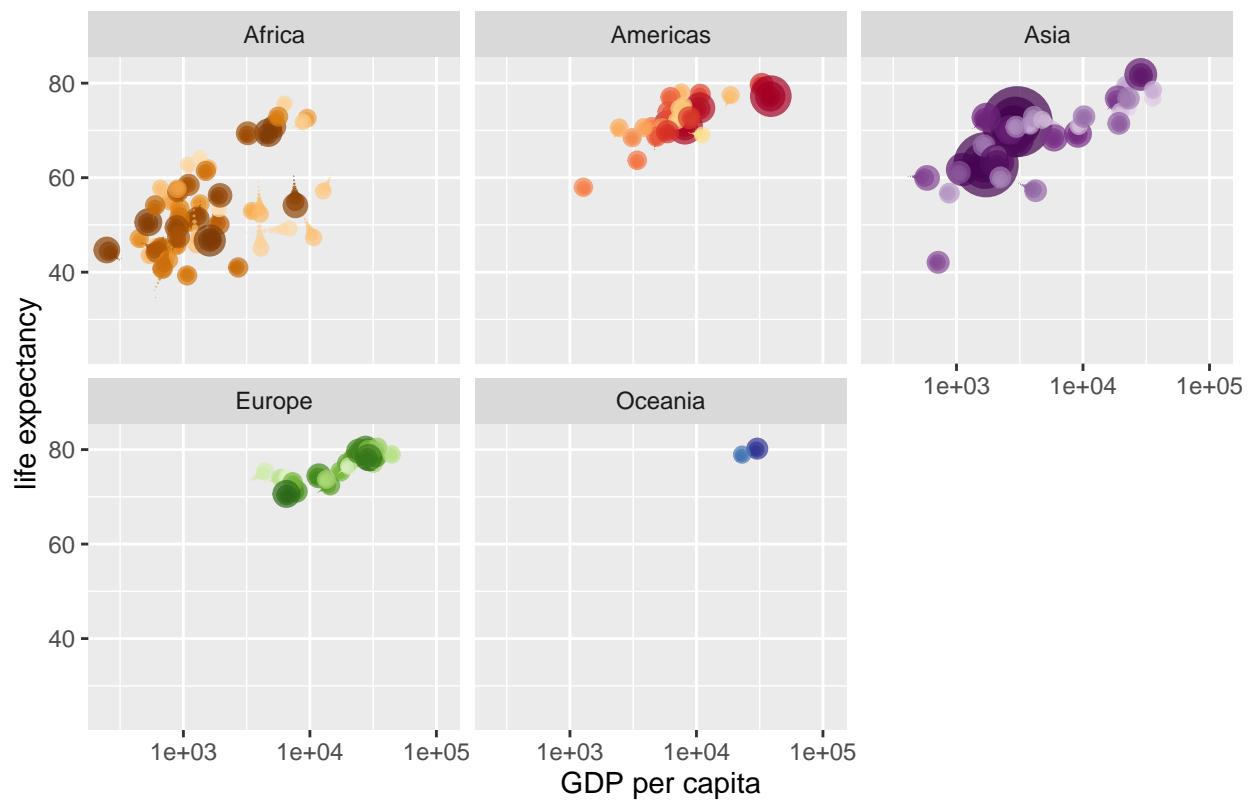
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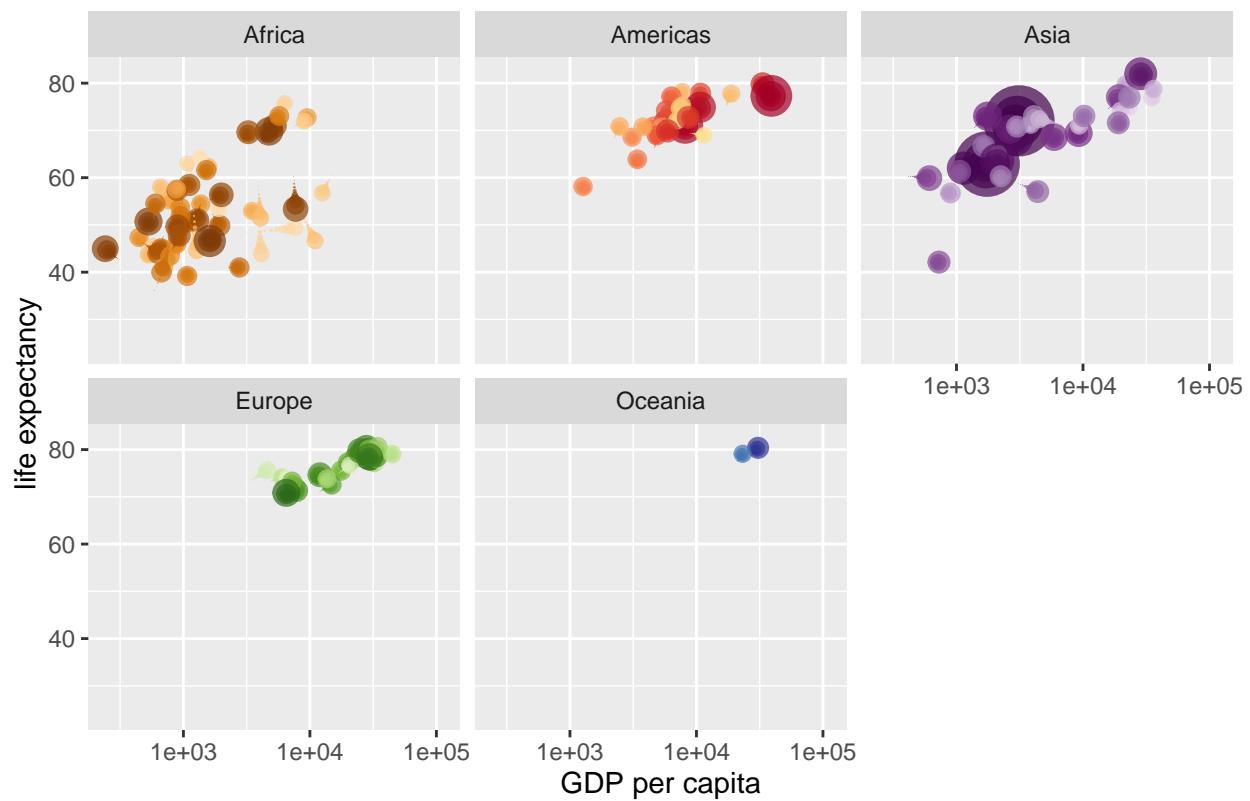
Year: 2001



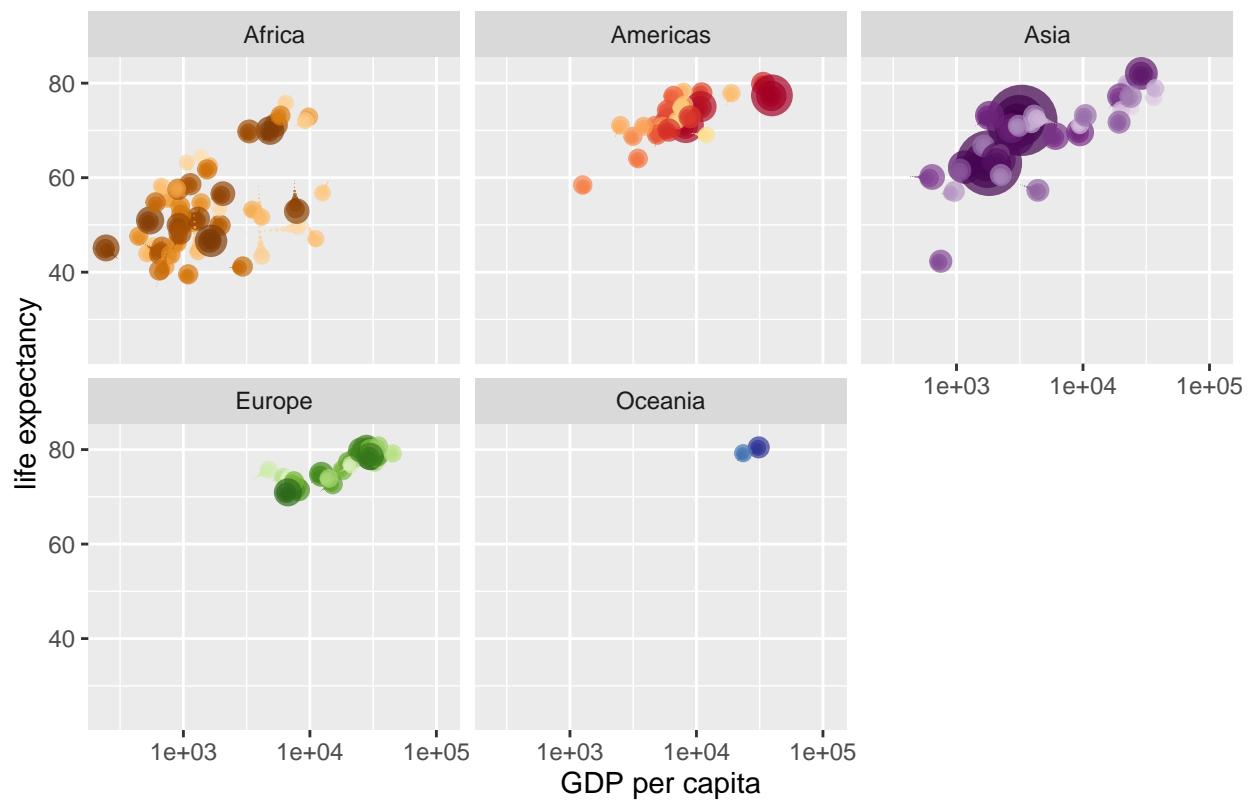
Year: 2001



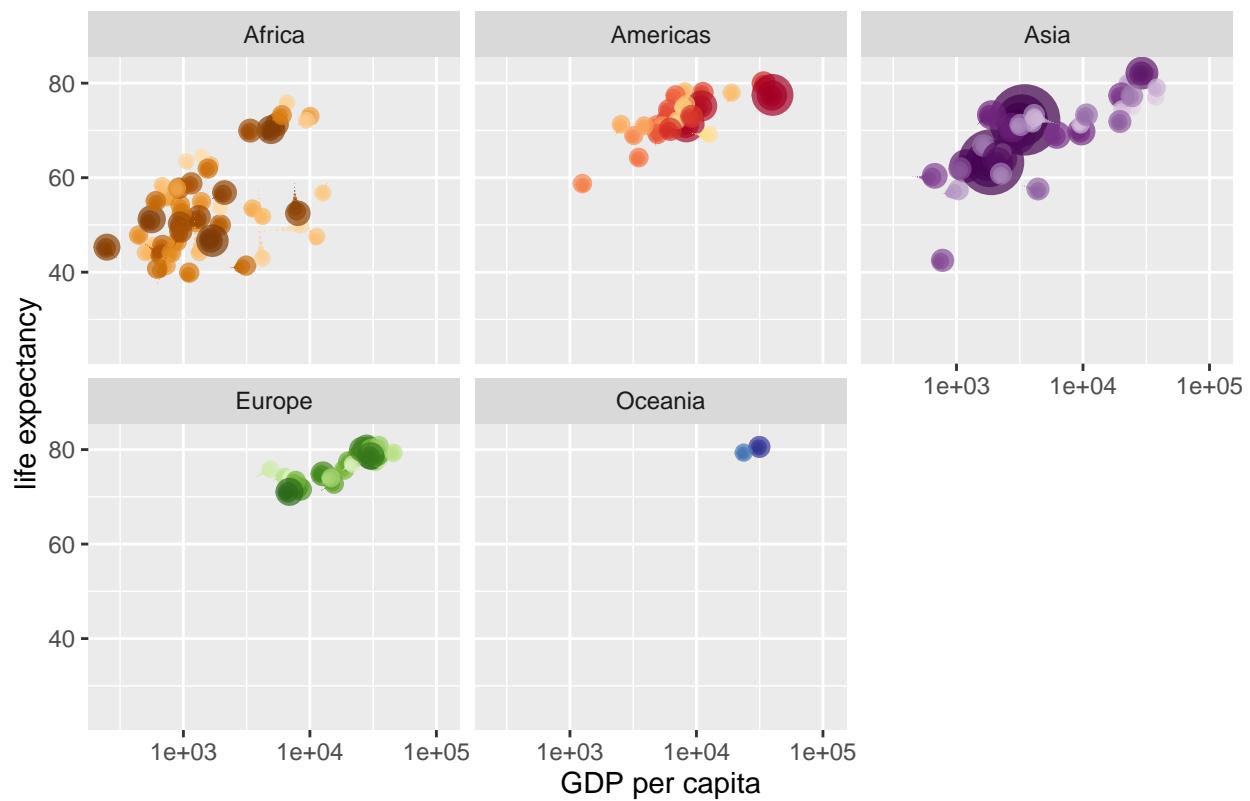
Year: 2002



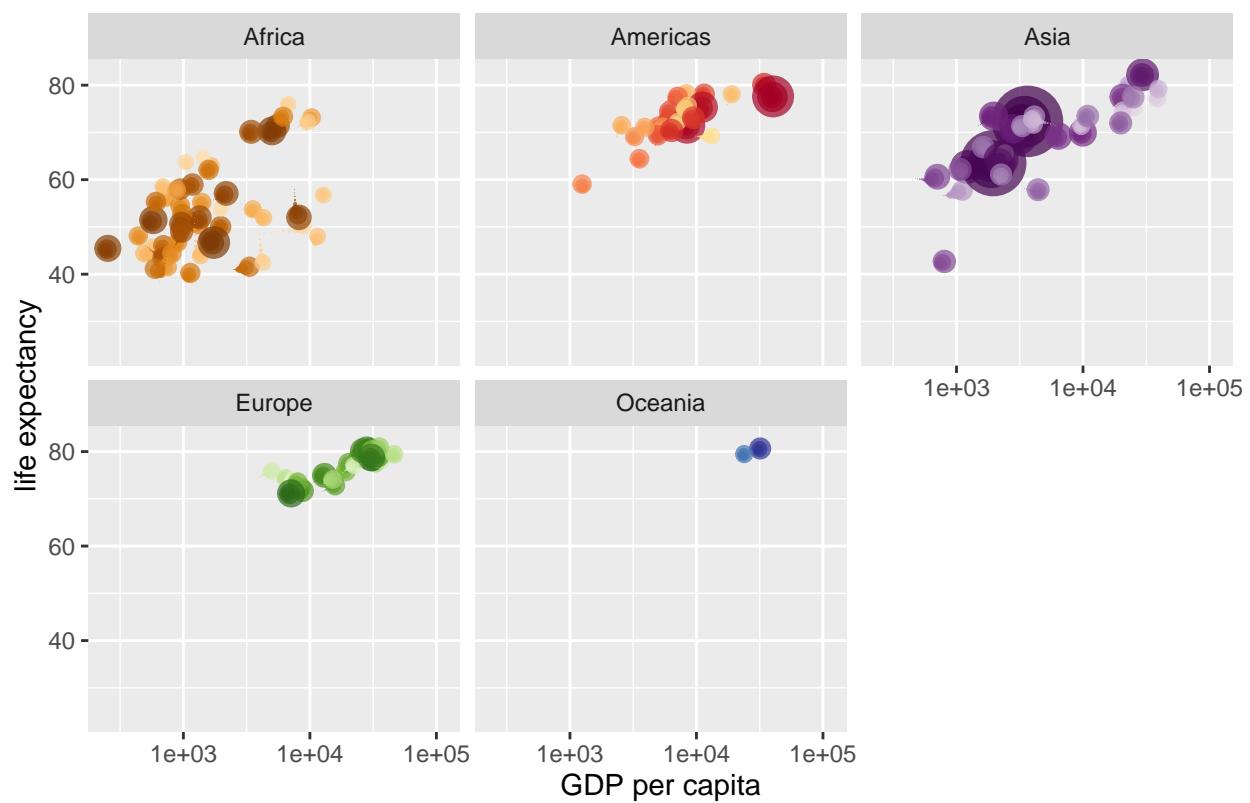
Year: 2003



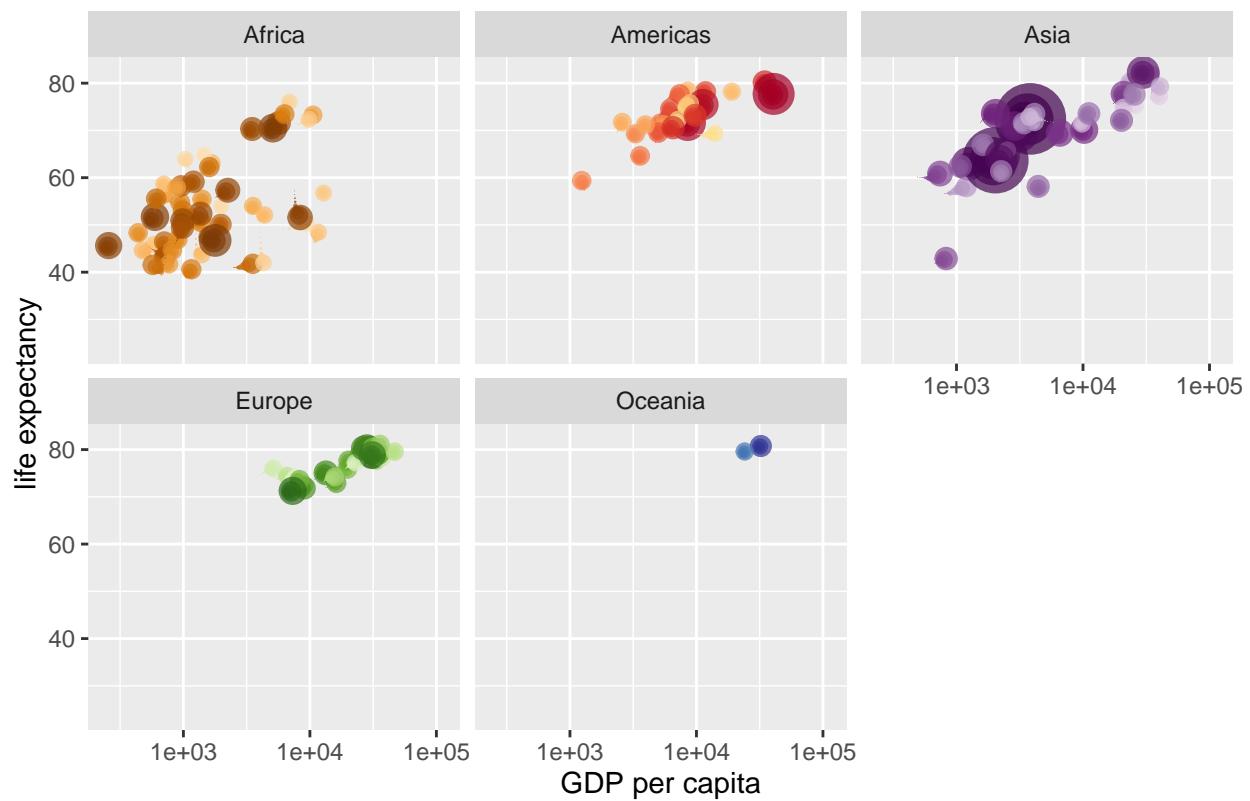
Year: 2003



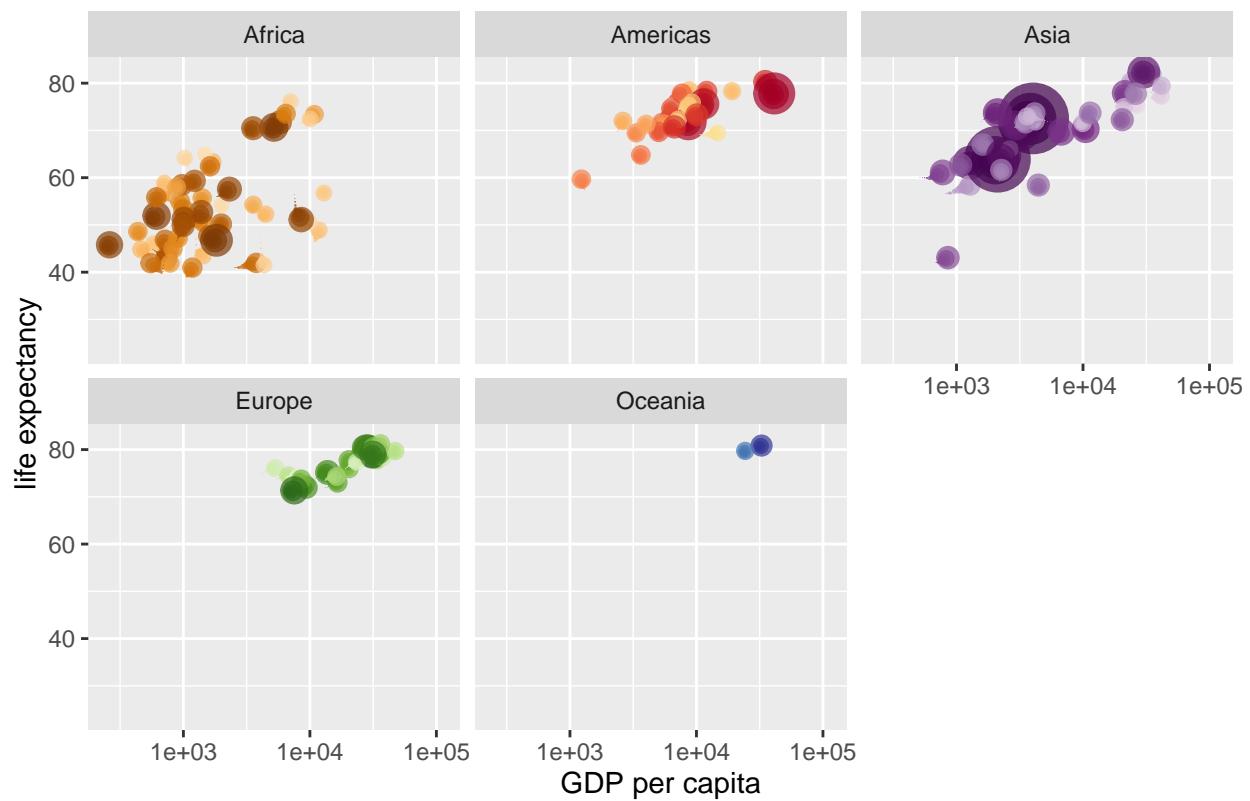
Year: 2004



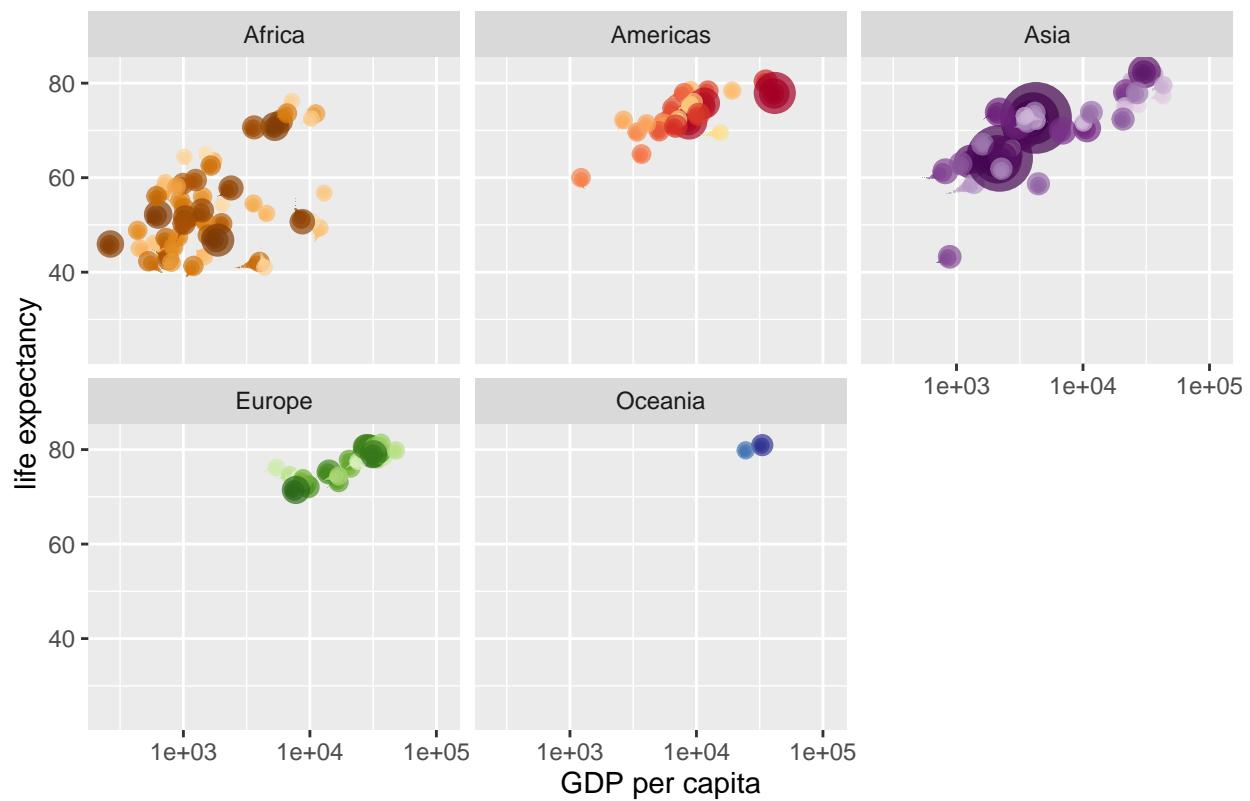
Year: 2004



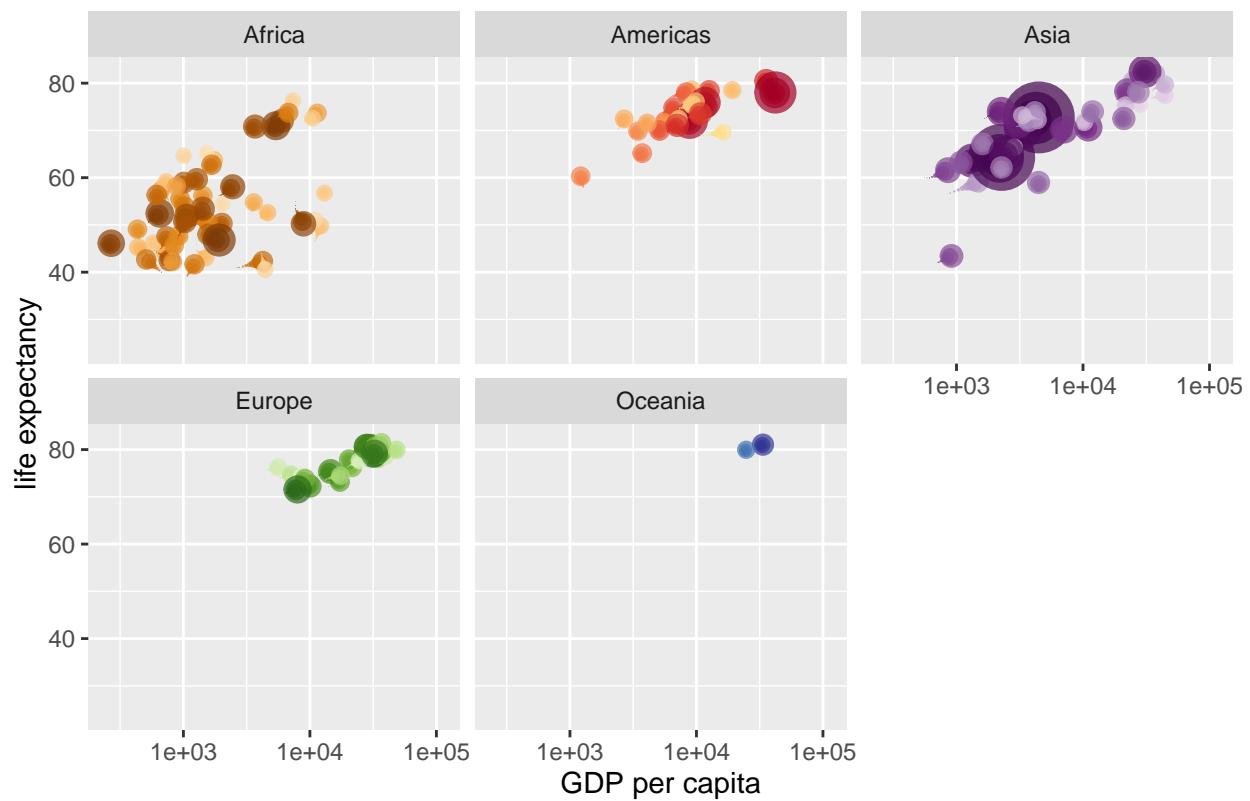
Year: 2005



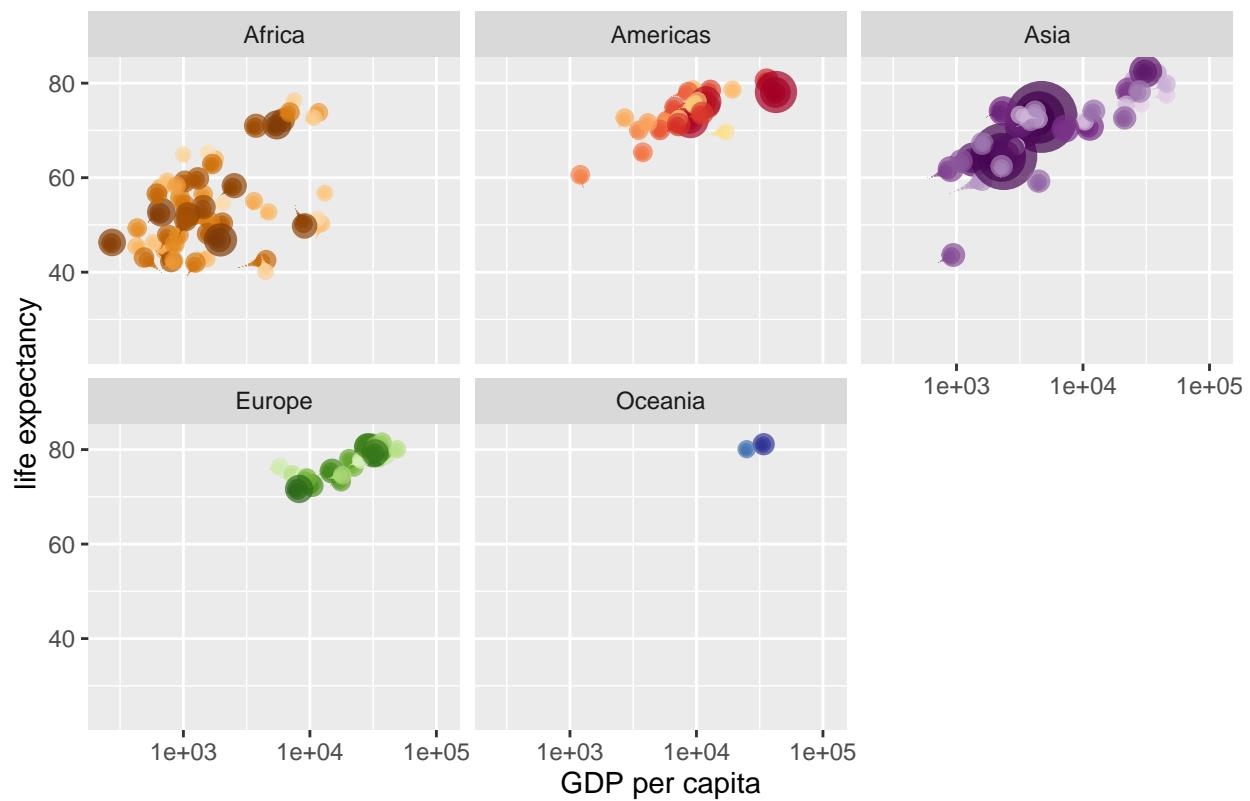
Year: 2005



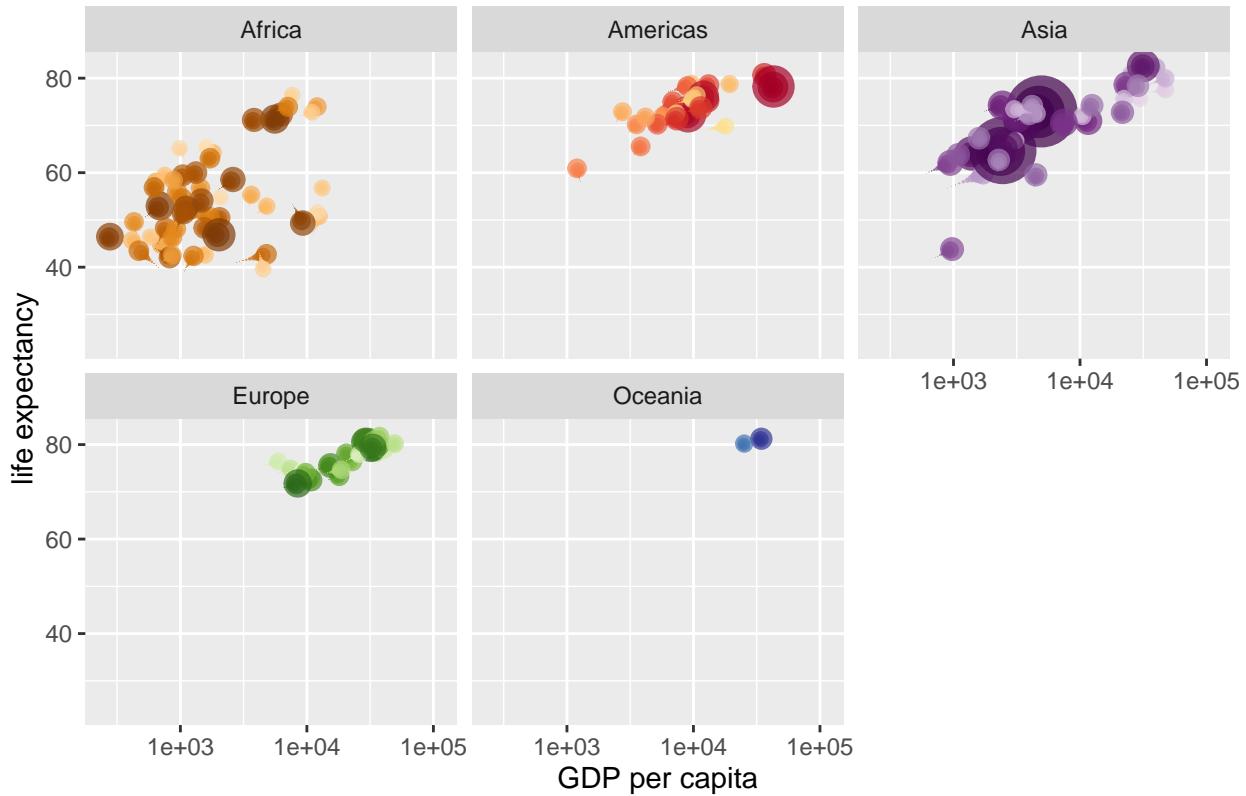
Year: 2006



Year: 2006



Year: 2007



```
sessionInfo()
```

```
## R version 4.1.2 (2021-11-01)
## Platform: x86_64-apple-darwin17.0 (64-bit)
## Running under: macOS Big Sur 10.16
##
## Matrix products: default
## BLAS:    /Library/Frameworks/R.framework/Versions/4.1/Resources/lib/libRblas.0.dylib
## LAPACK:  /Library/Frameworks/R.framework/Versions/4.1/Resources/lib/libRlapack.dylib
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] stats      graphics   grDevices  utils       datasets   methods    base
##
## other attached packages:
## [1] gganimate_1.0.7 gapminder_0.3.0 ggplot2_3.3.5
##
## loaded via a namespace (and not attached):
##  [1] Rcpp_1.0.8          plyr_1.8.6          pillar_1.7.0        compiler_4.1.2
##  [5] highr_0.9           prettyunits_1.1.1   progress_1.2.2     tools_4.1.2
##  [9] digest_0.6.29       evaluate_0.14      lifecycle_1.0.1    tibble_3.1.6
## [13] gtable_0.3.0        nlme_3.1-153       lattice_0.20-45   mgcv_1.8-38
## [17] pkgconfig_2.0.3     rlang_1.0.1         Matrix_1.3-4       cli_3.1.1
## [21] yaml_2.2.2          xfun_0.29          fastmap_1.1.0     withr_2.4.3
```

```
## [25] stringr_1.4.0      knitr_1.37        hms_1.1.1       vctrs_0.3.8
## [29] grid_4.1.2          glue_1.6.1        R6_2.5.1        gifski_1.4.3-1
## [33] fansi_1.0.2         rmarkdown_2.11    tweenr_1.0.2    farver_2.1.0
## [37] magrittr_2.0.2       scales_1.1.1     ellipsis_0.3.2 htmltools_0.5.2
## [41] splines_4.1.2       colorspace_2.0-2 labeling_0.4.2   utf8_1.2.2
## [45] stringi_1.7.6       munsell_0.5.0    crayon_1.4.2
```