

# Appendix 3: World Maps

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11 June, 2021

## Session Info

Give the session info (reduced).

```
## [1] "R version 3.6.3 (2020-02-29)"  
## [1] "x86_64-pc-linux-gnu"
```

## Load Libraries

If the libraries are not installed yet, you need to install them using, for example, the command: `install.packages("ggplot2")`.

```
library(readr)  
library(ggmap)  
library(maps)  
library(gridExtra)  
library(ggrepel)
```

Give the package versions.

```
##      ggrepel gridExtra      maps      ggmap      ggplot2      readr  
##    "0.8.2"      "2.3"    "3.3.0"    "3.0.0"    "3.3.2"    "1.4.0"
```

## Load the Data

Load Glottolog (Version 4.1) language information combined with information on the language sample of the IWMLC.

```
languages <- as.data.frame(read_csv("https://raw.githubusercontent.com/IWMLC/language-complexity-metrics"))
```

## Simple Stats

```
length(unique(languages$isocodes)) # number of languages according to iso: 79
```

```
## [1] 80
```

```
length(unique(languages$glottocode)) # number of languages according to glottolog: 79
```

```
## [1] 80
```

```
length(unique(languages$family_id)) # 34
```

```
## [1] 34
```

```
unique(languages$macroarea) # macroareas: 6
```

```
## [1] "Africa"          "Papunesia"        "Eurasia"          "South America"  
## [5] "North America"   "Australia"        NA
```

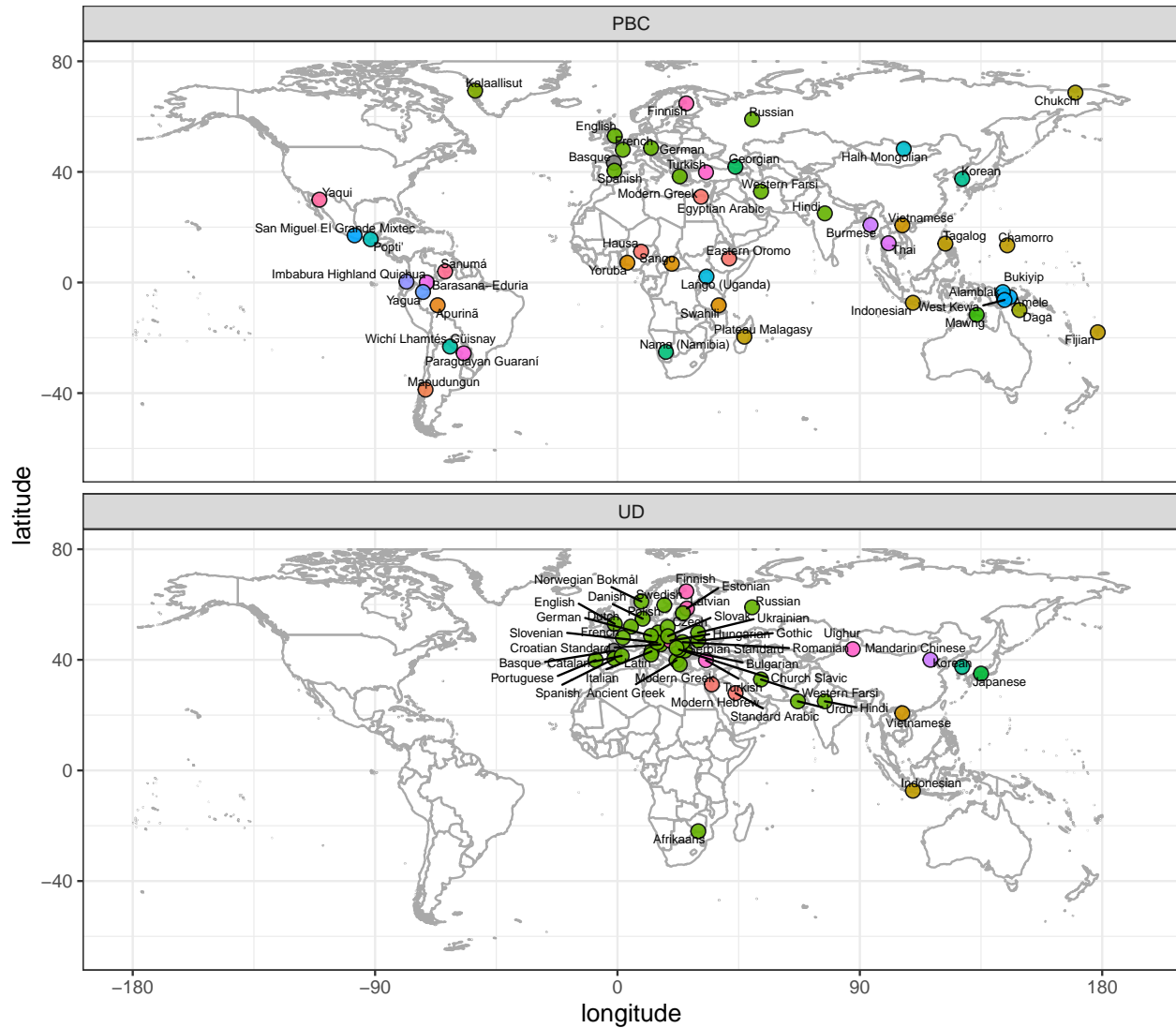
## Pre-Processing

```
# remove Norwegian Nynorsk (nno) since this has NAs in glottolog  
languages <- languages[languages$isocodes != "nno", ]
```

## World Map

World maps with macroarea information from Glottolog.

```
# create world map  
world <- map_data("world")  
family.map <- ggplot() +  
  geom_polygon(data = world, aes(x = long, y = lat, group = group),  
              fill = "white", colour = "darkgrey") +  
  geom_point(data = languages, aes(x = longitude, y = latitude,  
                                   fill = family_id),  
            alpha = 0.9, size = 3, pch = 21) +  
  geom_text_repel(data = languages, aes(x = longitude, y = latitude,  
                                       label = name), size = 2,  
                 box.padding = unit(0.1, 'lines'), force = 0.5) +  
  scale_y_continuous(limits = c(-65, 80)) +  
  scale_x_continuous(breaks = c(-180, -90, 0, 90, 180)) +  
  labs(x = "longitude", y = "latitude", fill = "Language Family") +  
  theme_bw() +  
  facet_wrap(~ corpus, nrow = 2) +  
  theme(axis.title.x = element_text(size = 12),  
        axis.title.y = element_text(size = 12),  
        title = element_text(size = 12),  
        legend.title = element_text(size = 10),  
        legend.text = element_text(size = 10),  
        legend.position = "bottom")  
family.map
```



- Language Family
- afro1255
  - arau1255
  - araw1281
  - atla1278
  - aust1305
  - aust1307
  - chuk1271
  - daga1274
  - eski1264
  - indo1319
  - iwai1246
  - japo1237
  - kart1248
  - khoe1240
  - kore1284
  - mata1289
  - maya1287
  - mong1349
  - nilo1247
  - nucl1708
  - nucl1709
  - otom1299
  - peba1241
  - quec1387
  - sepi1257
  - sino1245
  - taik1256
  - tuca1253
  - tupi1275
  - turk1311
  - ural1272
  - utoa1244
  - yano1268
  - NA

Save to file.

```
ggsave("Figures/WorldMap/worldMaps.pdf", family.map,
       dpi = 300, scale = 1, width = 8, height = 10, device = cairo_pdf)
```