R Notebook

```
fit_pl <- function(year) {</pre>
    time <- Sys.time()</pre>
    print(paste("Processing", year))
    # Libraries
    library(poweRlaw)
    ## INITIALISE DATA #########################
    # Load data
    load("degree_distribution.RData")
    # Filter year
    ddyear <- degree_distribution_all %>% filter(Year == year) %>% group_by() %>% select(Order, count)
    # Produce tall vector (as poweRlaw interacts with)
    vec <- NULL
    for(row in seq_len(nrow(ddyear))) {
        vec <- c(vec, rep(as.numeric(ddyear[row,"Order"]), ddyear[row,"count"]))</pre>
    # Remove zeros because log scale can't handle it.
    vec <- vec[vec != 0]</pre>
    m_pl <- displ$new(vec)</pre>
    est = estimate_pars(m_pl)
    est_pl <- estimate_xmin(m_pl)</pre>
    m_pl$setXmin(est_pl)
    print(Sys.time() - time)
    return(m_pl)
}
if (file.exists("power_law_fits.RDS")) {
    pl <- readRDS("power_law_fits.RDS")</pre>
} else {
    pl <- list()</pre>
    for (yr in 1976:2015) {
        pl[[yr]] <- fit_pl(yr)</pre>
    saveRDS(pl, "power_law_fits.RDS")
}
vec <- NULL
for (yr in 1976:2015) {
    vec <- c(vec, pl[[yr]]$getPars())</pre>
par(mfrow = c(1,1))
plot(1976:2015, vec)
```

