**Philosophy Classification System Visuals**

**Objective**: Show the relationship between the Library of Congress classification system and the way philosophy topics are categorized by [www.philpapers.org](http://www.philpapers.org), in a way that is useful for people looking to find information on philosophy.

**General Info**

**Visualization methods (described in detail below)**:

* Alluvial diagram (RAWGraphs) p. 2
* Dendrograms
  + Dendrogram (RAWGraphs) p. 3
  + Dendrogram (R) p. 4
  + Collapsible tree (R) p. 6
* Network analysis (Connect the Dots) p. 7

**Files** – contain information for the “History of Western Philosophy” section of PhilPapers

* phil\_cat\_dataframe.csv – an example of the file structure described as **“dataframe”**
  + contains additional columns PPbroad\_sort and LCcategory\_sort, which preface the titles with numbers, allowing them to be sorted into the correct order
* phil\_cat\_dendro.csv – an example of the file structure described as **“from-to list”**, as needed to create a dendrogram in R
* phil\_cat\_network.csv – an example of the file structure described as **“from-to list”**, as needed for network analysis

**R Scripts**

* phil\_cat\_dendro.R – creates a dendrogram
* phil\_cat\_colltree.R – creates a collapsible tree

**Terminology**

* PhilPapers broad categories: the “clusters” on the original infographic, names can be found on PhilPapers website (e.g. “Ancient Greek and Roman Philosophy”)
* PhilPapers specific categories: the individual bubbles on the original infographic, often names of philosophers (e.g. “Plato”)
* LC call numbers: the LC numbers where a specific PhilPaper category can be found (e.g. for Plato, “B 350-398”)
* LC categories: the most specific category that encompasses a given LC call number range; these are found on the LC Classification document (e.g. “B 165-491 Greece”)

**Visualizations**

**Alluvial diagram** – RAWGraphs (<https://app.rawgraphs.io/>)

* Pros:
  + very clear about how the PhilPapers categories are distributed among LC categories
  + colorful & appealing
  + not overcrowded with information
* Cons: doesn’t show how to find specific topics
* Data: dataframe (example: phil\_cat\_dataframe.csv)
  + relevant columns: PP broad categories, LC categories
  + *You need to know the PP specific category and LC call numbers to define the LC categories, so these should also be on the spreadsheet somewhere.*
* Data structure: in Excel, one column for each of the variables (highlighted = used)

|  |  |  |  |
| --- | --- | --- | --- |
| **PP Broad** | **PP Specific** | **LC Call Number** | **LC Category** |
| 17th-18th Century Philosophy | 17th/18th c. British Philosophy | B 1131-1402 | B 790-4695 Modern Philosophy |
| 17th-18th Century Philosophy | 17th/18th c. Philosophy (General) | B 801-802 | B 791-804 General Works |
| 17th-18th Century Philosophy | 17th/18th c. French Philosophy | B 1815-2179 | B 1801-2430 France |
| 17th-18th Century Philosophy | 17th/18th c. German Philosophy | B 2535-3177 | B 2521-3396 Germany & Austria |

*Optional: To make sure categories appear in the correct order, type a number before the text in the order you want them to occur, as in “1 Ancient Greek and Roman Philosophy”, “2 Medieval and Renaissance Philosophy”. For the LC categories, if you have more than 10 different ones, use “01”, “02”.*

* Instructions:
  + Rearrange the columns so that PP Broad and LC category are next to each other (in order to make them easier to copy and paste).
  + Paste highlighted columns into app.rawgraphs.io.
    - *If you want categories to appear in the correct order, use columns PPbroad\_sort and LCcategory\_sort from phil\_cat\_dataframe.csv.*
  + Select “Alluvial Diagram”.
  + Under “Map your Dimensions”, drag “PP broad” and “LC category” to the box labeled “Steps”. They should be listed in that order.
  + Under “Sort by”, choose “name”.
  + Adjust numbers for width and height so that all words are visible.
  + Download “image (png)” or copy the code in the box below to pasted into HTML.

**Dendrogram** – RAWGraphs (<https://app.rawgraphs.io/>)

* Pros:
  + shows how PhilPapers categories are split among LC categories, and then how specific topics can be found within those LC categories
  + among dendrograms, looks very neat
* Cons:
  + for long category names, words are cut off at the edge
  + not very customizable (so previous problem can’t be fixed)
* Data: (example: phil\_cat\_dataframe.csv)
  + relevant columns: PP broad categories, LC categories, PP specific categories
  + *You need to know the LC call numbers to define the LC categories, so these should also be on the spreadsheet somewhere.*
* Data structure: in Excel, one column for each of the variables (highlighted = used)

|  |  |  |  |
| --- | --- | --- | --- |
| **PP Broad** | **PP Specific** | **LC Call Number** | **LC Category** |
| 17th-18th Century Philosophy | 17th/18th c. British Philosophy | B 1131-1402 | B 790-4695 Modern Philosophy |
| 17th-18th Century Philosophy | 17th/18th c. Philosophy (General) | B 801-802 | B 791-804 General Works |
| 17th-18th Century Philosophy | 17th/18th c. French Philosophy | B 1815-2179 | B 1801-2430 France |
| 17th-18th Century Philosophy | 17th/18th c. German Philosophy | B 2535-3177 | B 2521-3396 Germany & Austria |

*Optional: To make sure categories appear in the correct order, type a number before the text in the order you want them to occur, as in “1 Ancient Greek and Roman Philosophy”, “2 Medieval and Renaissance Philosophy”. For the LC categories, if you have more than 10 different ones, use “01”, “02”.*

* Instructions:
  + Rearrange the columns so that PP Broad, PP specific, and LC category are next to each other (in order to make them easier to copy and paste).
  + Paste highlighted columns into app.rawgraphs.io.
    - *If you want categories to appear in the correct order, use columns PPbroad\_sort and LCcategory\_sort from phil\_cat\_dataframe.csv.*
  + Select “Cluster Dendrogram”.
  + Under “Map your Dimensions”, drag “PP broad”, “LC category”, and “PP specific” to the box labeled “Hierarchy”. They should be listed in that order.
  + Adjust numbers for width and height so that no words overlap each other.
  + Download “image (png)” or copy the code in the box below to pasted into HTML.

**Dendrogram** – R

* Pros:
  + similar benefits to RAWGraphs version
  + customizable
* Cons:
  + much harder to work with
  + to make all visible, graphic has to be huge
* Data: all the previous data, in a “from-to” list (example: phil\_cat\_dendro.csv)
  + In the diagram to the right, the data would be structured as follows:

A

B

C

D

E

F

G

**from to**

A B

A C

B D

B E

C F

C G

* + How to create from the previously described spreadsheets:
    - Rearrange columns to be in this order: PP broad, LC category, PP specific. You will not need LC call number.
    - Your first two columns (PP broad and LC category) are correct.
    - Copy columns 2 and 3 (LC category and PP specific) and paste them beneath the first two.
    - Delete everything but first two columns.
    - Add lines that connect the broad PP categories to the section they appear in, such as:

|  |  |
| --- | --- |
| History of Western Philosophy | Ancient Greek and Roman Philosophy |
| History of Western Philosophy | Medieval and Renaissance Philosophy |
| History of Western Philosophy | 17th-18th Century Philosophy |
| History of Western Philosophy | 19th Century Philosophy |
| History of Western Philosophy | 20th Century Analytic Philosophy |
| History of Western Philosophy | 20th Century Continental Philosophy |

* Instructions (if you have phil\_cat\_dendro.R):
  + Open the file phil\_cat\_dendro.R in R Studio.
  + Specify the folder you are working from:
    - Go to the Session tab.
    - Choose “Set Working Directory” > “Choose Directory…”
    - Pick the folder where your from-to list is saved.
  + Under “VARIABLES TO ADJUST”, change the name of your file as necessary. While the cursor is on that line (line 5), click “Run”.
  + Highlight everything under “Create the dendrogram” and click “Run”.
  + Saving image
    - Above the plot, click “Export” and “Save as image…”
    - Click “Directory…” to choose the directory you want to save to, and type in a file name.
    - Change the width and height. For a tree of this size, you will probably want at least 1000 each in order to save in enough detail; the example file is 1400 by 1800. Unfortunately, there is no way to preview this for an image of that size. You will need to save, check the picture in your folder, and repeat as necessary.
    - If the words go off the side no matter how much you adjust the width, go back to the code and change the part that says “coord\_flip(ylim=c(3,-1.5))”. You will want to change the last number and make it more negative. If there is too much space on the right side of the screen, you can make this number more positive.

* Instructions (if you do not have phil\_cat\_dendro.R):
  + Load spreadsheet into R Studio:
    - Under “Import Dataset”, choose “From Text (readr)”.
    - Select the CSV file and load.
  + Paste the following code into the top left window, highlight all of it, and click “Run”:

install.packages("ggraph")

library(ggraph)

ggraph(phil\_cat\_dendro, "dendrogram") +

geom\_edge\_diagonal() +

geom\_node\_point() +

coord\_flip(ylim=c(3,-1.5)) +

geom\_node\_label(aes(label=name, angle=0, hjust=0))

* + Do not trust the plot you see on the bottom right, which will be more cramped than the one you download.
  + Saving image
    - Use same instructions as above.

**Collapsible Tree** – R

* Pros:
  + shows maximum amount of information
  + interactive
  + visually neat
  + easy to follow the path of information without seeing too much at once
* Cons: issue with embedding
* Data: dataframe (example: phil\_cat\_dataframe.csv)
  + relevant columns: PP broad categories, LC categories, PP specific categories, LC call numbers
* Data structure: in Excel, one column for each of the variables (highlighted = used)

|  |  |  |  |
| --- | --- | --- | --- |
| **PP Broad** | **PP Specific** | **LC Call Number** | **LC Category** |
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| 17th-18th Century Philosophy | 17th/18th c. German Philosophy | B 2535-3177 | B 2521-3396 Germany & Austria |

* Instructions (if you have phil\_cat\_colltree.R):
  + Open the file phil\_cat\_colltree.R in R Studio.
  + Specify the folder you are working from:
    - Go to the Session tab.
    - Choose “Set Working Directory” > “Choose Directory…”
    - Pick the folder where your dataframe is saved.
  + Under “VARIABLES TO ADJUST”, change the name of your file as necessary. While the cursor is on that line (line 5), click “Run”.
  + Highlight the lines under “Create the collapsible tree” and click “Run”.
  + If the image seems to be correct, highlight everything under “Save the image” and click “Run”.
* Instructions (if you have phil\_cat\_colltree.R):
  + Title columns: PPbroad, PPspecific, LCnumber, LCcategory
  + Save Excel spreadsheet as a CSV, using the filename “phil\_collapse.csv”.
  + Load spreadsheet into R Studio:
    - Under “Import Dataset”, choose “From Text (readr)”.
    - Select the CSV file and load.
  + Choose the folder you want to save your file to:
    - Go to the Session tab.
    - Choose “Set Working Directory” > “Choose Directory…”
    - Pick the folder where your dataframe is saved.
  + To create the tree, paste the following code into the top left window, and click “Run”:

install.packages("collapsibleTree")

library(collapsibleTree)

phil\_coll\_tree <- collapsibleTree(phil\_tree, c("PPbroad","LCcategory","PPspecific","LCnumber")); phil\_coll\_tree

* + To save the tree, paste the following code into the top left window, and click “Run”:

library(htmlwidgets)

saveWidget(phil\_coll\_tree, file="phil\_coll\_tree.html")

**Network Analysis** – Connect the Dots ([www.databasic.io/en/connectthedots](http://www.databasic.io/en/connectthedots))

* Pros:
  + colorful
  + interactive
* Cons:
  + the categories from PhilPapers and LC look exactly the same, so it’s hard to tell how the two systems interact
  + hard to tell anything about the information except how complex it is
* Data: “from-to” list (example: phil\_cat\_network.csv)
  + *Note: This is similar to the way you arrange data for the R dendrogram, but the columns should originally be in a different order.*
  + How to create from the previously described spreadsheets:
    - Rearrange columns to be in this order: PP broad, PP specific, LC category,. You will not need LC call number.
    - Your first two columns (PP broad and PP specific) are correct.
    - Copy columns 2 and 3 (PP specific and LC category) and paste them beneath the first two.
    - Delete everything but first two columns.
* Instructions:
  + At [www.databasic.io/en/connectthedots](http://www.databasic.io/en/connectthedots), go to the “paste rows” tab and paste your Excel columns.
    - Make sure that “has header row” is not checked if you do not have titles for your columns.
    - phil\_cat\_network.csv DOES have headers, so make sure the box is checked if you are using this file.
  + Click “Graph”.