Mapping/Visualising Hiro Arikawa's ***The Travelling Cat Chronicles*** *and* ***The Goodbye Cat***

[1]

Number of words: ~ 2200, excluding references and titles.

Date of submission of the assignment: 09/11/2025

Anita Pal / ap224pu@student.lnu.se

[1] https://unsplash.com/photos/a-white-kitten-is-sitting-in-a-basket-02ZwT7EeBmk

Research Topic and Questions

Hiro Arikawa is a Japanese writer whose two novels, *The Travelling Cat Chronicles* (2012) and *The Goodbye Cat* (2021), feature stories about cats and their human companions. In Japan, as a blogger (2023) notes, cats are pervasive in popular culture, appearing as mascots on planes, having their own island (Shen, 2024, p. 63), often featured in home decor, and comprising part of a person's day-to-day accessories. Their origins trace back to folklore, with the morally ambiguous demon cat *bakaneko* (化け猫) or the more benevolent *maneki neko* (招き猫), translated as beckoning cat (J-Life International, 2023).

This paper's research questions explore various aspects of the cats in both novels—specifically their lifespans and their strong bonds with people—using network graphs. Additionally, the project uses GIS to examine the areas of Japan that Nana and his owner, Satoru, saw during their travels in *The Travelling Cat Chronicles*. Finally, using textual analysis, the paper further explores how certain words, such as "family," appear in *The Goodbye Cat.*

This project seeks to demonstrate, as Yuan Shen (2024) describes, that cats and humans in Japan share a deep bond. Not only do the Japanese consider them sacred and noble, but they also see similarities between themselves and cats in their need for personal space, which mirrors the social conduct that emphasises social distance/aloofness, often associated with Japanese culture (p. 63).

(223 words).

Research Plan

Creation/Cleaning of Data

Johanna Drucker (2014) states that *capta* requires careful, meticulous construction (p. 128). In contrast, *data* is assumed to be a given that needs no further modification and already contains all the relevant qualities (p. 2). Jeremy Hunsinger (2020) adds that mistaking *capta* for *data* leads researchers to objectify humans, treating them as commodities that do not require ethical consideration (p. 2). Hunsinger further states that *capta* is a necessary step in making sense of *data*, involving multiple processing steps (p. 4). Therefore, this project treats data as *capta*, i.e., as an entity to be manufactured or created (cf. Drucker, 2014, p. 128).

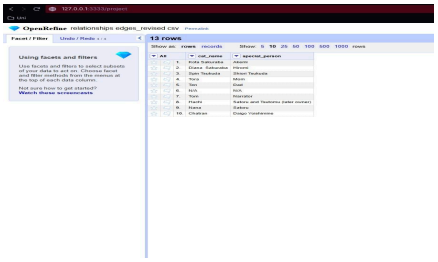
Moreover, as no one else has attempted to analyse Hiro Arikawa's works in this data-centric manner, the data used throughout this project were collected manually, with initial close reading used to determine which facts might be relevant. Initially, the data was stored in a spreadsheet, which was then exported to CSV files that served as the starting point for further processing. Unfortunately, not all the collected data was appropriate, and, despite the temptation to use everything in the visualisations (cf. Hall, 2020, p. 57), the data required cleaning and omission of irrelevant details.

Johan Jahlbrink (2020) notes that data cleaning often requires manual intervention despite the availability of software. While automation may speed up the process, its reliance on a specific algorithm requires human supervision to ensure the cleaning is done correctly (p. 115). For this reason, the project used both digital tools and manual error-checking.

One of these tools, OpenRefine[2], which Elizabeth Sterner (2019) describes as an easy-to-use, free data-cleaning tool (p. 1), enabled transforming the manual data into a more suitable format. Figure 1 shows how preliminary work was conducted on project-specific data to create a CSV file ready for network graph depiction. However, the data still had to be edited using Python's Pandas library, as some oversights only became apparent later in the project.

[2] https://openrefine.org

Figure 1
An example of data being edited in OpenRefine.
Note. Screenshot.



Network Graphs

Drucker (2021) explains that networks -- also referred to as threads or wires that are arranged in a net-like formation (Douglas Harper, 2025) -- are part of an interconnected entity or system (p. 101). In a similar vein, Scott Weingart (2011) describes networks as complex systems composed of elements and the relationships they share.

Furthermore, Deryc T. Painter et al. (2019) state that networks consist of elements with pairwise relationships, some with weights and others with strengths (p. 539). More specifically, networks use nodes to represent the entities connected (Weingart, 2011). Meanwhile, edges represent the ties that connect them (Drucker, 2021, p. 101). Nodes are also referred to as vertices (Weingart, 2011).

In the Digital Humanities (DH), researchers pay special attention to the relationships entities share, e.g., how paintings relate to a collection or how people communicate with each other (Drucker, 2021, p. 101). Deryc T. Painter et al. (2019) likewise indicate that networks are a means to analyse the underlying social structures in email exchanges (p. 539).

For this particular project, data cleaning was a prerequisite for investigating the relationships between each feline and its special human, the cats and their breeds, and, if available, each cat's life span. The tool used to create the visualisation was Python, specifically the NetworkX[3] library, in a Google Colab notebook, with the process being iterative.

GIS

Don DeBats et al. (2018) note that Geographic Information Systems (GIS) play an essential role in a field increasingly referred to as Spatial History, of which Historical GIS (HGIS) is a subset. GIS is a database technology that uses coordinates to display information on a map (p. 1).

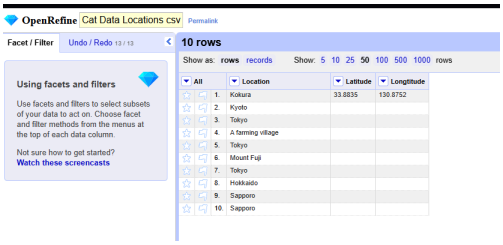
Maps, Drucker (2021) states that GIS's design seeks to integrate maps with data for analysis and presentation (p. 133). Jen Jack Gieseking (2018) stresses that GIS is not a method but a tool that produces maps, which DH scholars often have to rework, posing a problem because GIS is complex software that uses points, lines, and polygons to depict buildings, rivers, and lakes (p. 643).

This project used Python GIS via Google Collabs to depict the travels of Nana and his owner, Satoru, in the aptly named *The Travelling Cat Chronicles*, using manually collected data. Figure 2 shows the first step of the editing process, which involved removing any undesirable columns and adding the required columns (i.e., latitudes and longitudes).

Figure 2

[3] https://networkx.org

The first step towards creating data suitable for GIS processing in OpenRefine.
Note. Screenshot.



Textual Analysis

David L. Hoover (2013) maintains that textual analysis is of benefit to any project, since he believes that it would be a waste to search a large volume of texts for some obscure piece of information; the work could be performed manually, but the strength of digital tools lies in "storing, counting, comparing, sorting, and performing statistical analysis" (para. 1).

Stéfan Sinclair and Geoffrey Rockwell (2016) note that visualisations such as word clouds — despite their simplicity — often only provide a snapshot, not conducive to further experimentation or analysis (pp. 274-276). Despite these drawbacks, this specific project, AntConc[4], was utilised to analyse how the word "family" is used, without relying solely on word clouds.

(825 words).

Research Report

Cleaning of Data

Drucker (2021) states that visualisations often provide powerful rhetoric because they allow the consumption of otherwise complex information through an easily digestible medium. They are, she stresses, especially useful for spotting patterns, but she equally emphasises the need to understand graphics, as they do contain meaning and thus require critical reflection (p.86). In this project, the data had to be prepared manually before it made sense to do so, especially for the network- and GIS-related graphs.

For example, as shown in Figure 3, in the relationship graph between each cat and its special person, specific rows had to be shortened (CN, 2022) to improve legibility, as previous attempts to create graphs showed that using the full names of both felines and humans rendered the graph illegible. It would have been possible to edit the data using OpenRefine; however, using Python's Pandas proved quicker and more efficient, as it did not require creating a new CSV file.

Figure 3
Names had to be shortened so the relationship network graphs for each feline and its human could be displayed correctly.
Note. Screenshot taken from Google Collab.

```
# More data revisions, with Pandas coming to the rescue
revised_edges = revised_edges.dropna()
revised_edges.loc[0] = ['Kota','Akemi'] # @https://www.
revised_edges.loc[1] = ['Diana','Hiromi']
revised_edges.loc[2] = ['Spin', 'Shiori']
revised_edges.loc[7] = ["Hachi", "Satoru"]
revised_edges.loc[9] = ['Chatran', 'Daigo']
```

[4] https://www.laurenceanthony.net/software/antconc

Figure 4 shows that a row had to be added (GeeksforGeeks, 2025) to make the connection between Satoru, his friend Tsutomu and their ownership of a specific cat clearer -- a fact that previous editing in OpenRefine had not accounted for.

Figure 4
A new row had to be added to create a specific network graph.
Note. Screenshot taken from Google Collab.

```
# Add a new row
revised_edges.loc[len(revised_edges)] = ["Hachi", "Tsutomu"]
revised_edges.head(n=14)
```

Meanwhile, Figure 5 shows how the simplicity of Python Pandas columns can be leveraged to rename columns seamlessly (Stack Overflow, 2012), without hindering map creation (which OpenRefine would have required by creating a new CSV file).

Figure 5
Using Python Pandas, columns could be renamed efficiently.
Note. Screenshot taken from Google Collab.

```
[8]: # Rename columns @ https://stackoverflow.com/questions/11346283/renaming-column-names-in-pandas
cat_data = cat_data.rename(columns={'Location': 'location', 'Latitude': 'latitude', "Longtitude": "longitude"})
cat_data.head(n=10)
```

The modifications above display the importance of *data cleaning* -- also referred to as *data cleansing* or *scrubbing* (Rahm & Do, p. 1) -- but most importantly, attest to the extent of planning one's data more carefully, as some of the back and forth in this project could have been avoided if the data had been more carefully curated.

Network Graphs

Figure 6 shows a spring layout connecting each cat to a special person. Unfortunately, despite the energy method that uses "gravitational forces acting on each connected component to prevent divergence" (NetworkX Developers, 2025) to make the graph as straightforward as possible, it is not easy to distinguish the owner from the feline without intimate knowledge of the text, showcasing that DH often relies on iterative work processes rather than producing some inherently productive from the get go.

With some knowledge of the text, it is possible to infer that the character Satoru owned two cats, Hachi and Nana. Yet, without any context, the addition of the person Tsutomu might seem confusing, as only the narrative itself makes it clear that they are the second owner of Hachi, whom Satoru had to give away after losing his parents in tragic circumstances.

Figure 6
The first network graph about cats and their special people is challenging to interpret.
Note. Graph created in Google Collab.

Therefore, a second graph had to be created, which was only possible after some data revisions (performed in both OpenRefine and Python Pandas). To make the distinction between owner and feline more straightforward, the rows containing cat names were appended with an extra 'c' character so that the viewer would not become too confused (Figure 7).

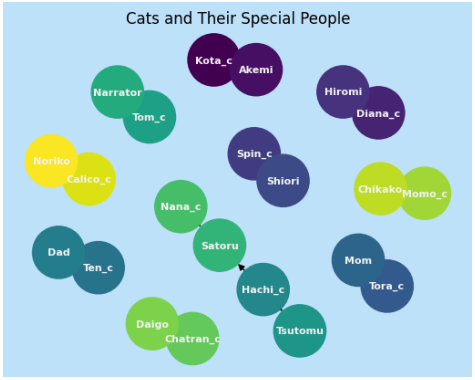
Figure 7
Before an improved version of the graph in Figure 6 could be created, rows had to be renamed.
Note. Screenshot taken from Google Collab.

```
relationship_edges = open_and_view_csv_file_contents("/content/relationships-edges_revised.csv")
relationship_edges = relationship_edges.dropna()

# Missed editing some rows in OpenRefine, so Python to the rescue ...
relationship_edges.loc[10] = ["Momo_c", "Chikako"]
relationship_edges.loc[12] = ['Calico_c', 'Noriko']
relationship_edges.head(n=14)
```

Thanks to the learning experience gained from creating the graph in Figure 6, it was no longer necessary to make separate CSV files for edges and nodes, as the graph only required edges. Consequently, as shown in Figure 8, this led to an improved graph that uses differently coloured nodes (NetworkX Developers, 2025) and a background (JohanC, 2020) to display the relationship between each feline and its special, most beloved person.

Figure 8
An improved graph that shows the relationship between each feline and its special person.
Note. Graph created in Google Collab.



The graph in Figure 8 shows that each cat had an affectionate relationship with its owner, with Satoru deserving special mention for bonding strongly with two cats, Hachi and Nana. Without some familiarity with the text, the casual viewer would not know that Satoru is one of the main characters in *The Travelling Cat Chronicles* and that Nana's striking resemblance to his first cat, Hachi, is what led him to adopt Nana in the first place.

Figure 9 displays the various cat breeds in Arikawa's novels, with the tabby in various manifestations being the most prominent, and only Diana and Calico are specifically purebred Pedigree cats. What the graph cannot

convey to the uninformed viewer is that most of these cats are rescues saved by the various human characters in the novels, either spotted as abandoned kittens (e.g., Hachi, Ten) or taken in after an injury as adult cats (Nana), which hints at the reverence Japanese people hold towards cats (cf. Shen, 2024, 64).

Figure 9
A graph that shows the various cat breeds in Arikawa's novels.
Note. Graph created in Google Collab.

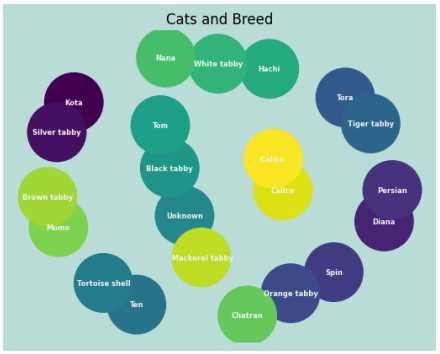
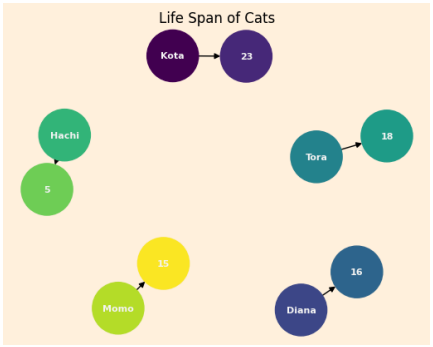


Figure 10 shows the life span of the felines that are known. Except for Hachi, all the cats had above-average lifespans, demonstrating that they not only bonded with their special humans but also lived long, happy lives. Once again, the casual viewer without insight into the text would not know that much-loved Hachi's life was cut short by a car accident.

Figure 10
A graph that shows the life spans of the cats in Arikawa's novels.
Note. Graph created in Google Collab.



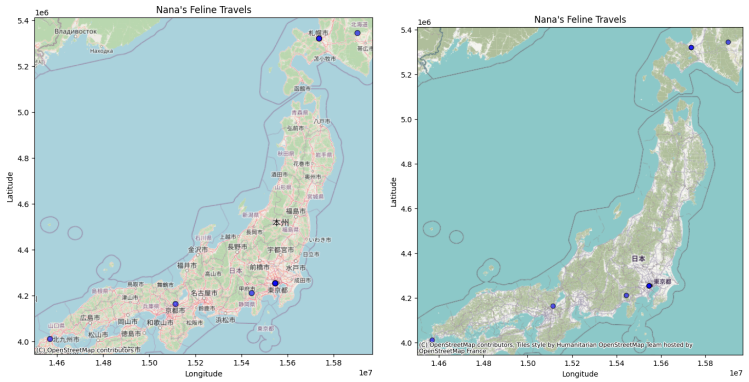
GIS

To create the maps, a dataset containing latitude and longitude values was generated. With these coordinates, a function (Figure 11) could be written to create maps with various display options, thereby making the code more readable (cf. Python Land, 2025).

Figure 11
A function used to generate map-related graphs.
Note. Screenshot taken in Google Collab.

```
]:
# Reusable function (for the lazy)
def draw_graph(provider, title, provider_map_wanted):
  fig, ax = plt.subplots(figsize=(8, 8))
  cat_graph.plot(ax=ax, color='blue', markersize=50, alpha=0.6, edgecolor='k')
  if provider_map_wanted:
   cx.add_basemap(ax, source=provider)
  else:
    cx.add_basemap(ax)
  plt.title(title)
  plt.xlabel("Longitude")
  plt.ylabel("Latitude")
  plt.show()
```

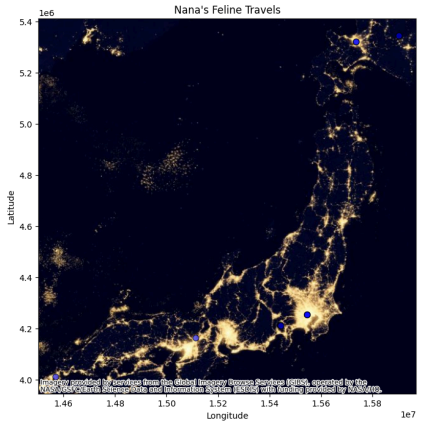
Figure 12 shows a map created using the base map option in Contextily (2025). While it does not display place names in English, it does tell the casual viewer that Nana travelled a fair distance, with the furthest being Hokkaido. Figure 13 shows another option for drawing the map using the OpenStreetMap option (Contextily, 2025). While neither map states the reason for Nana's travels nor describes how these journeys begin or end, they inform the reader which places Nana visited in Japan in an easy-to-digest manner, reinforcing Drucker's (2021) view that visuals create a powerful narrative (p. 86).



Figures 13 and 14
Two graphs that show Nana's travels.
Note. Graphs created in Google Collab.

The downsides of the maps are exacerbated by the map shown in Figure 15, which features dark colours and lacks place names. In this case, the lack of place names poses a more problematic issue, as there is very little for the user to go on, making it harder for them to make sense of the graph and thus undermining its purpose in the first place.

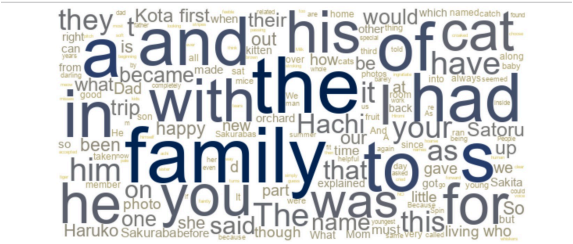
Figures 15
A graph that shows Nana's travels in a darker mode.
Note. Graph created in Google Collab.



Textual Analysis

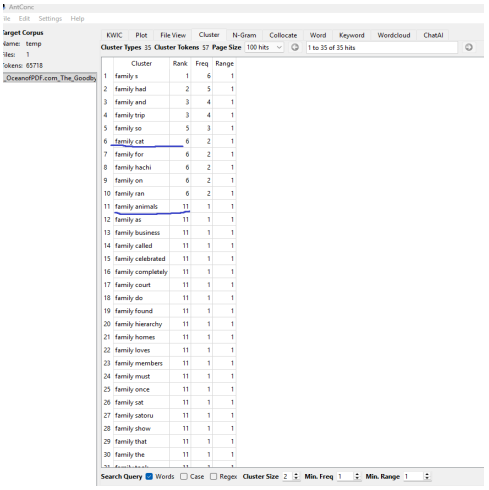
While the word cloud in Figure 16 shows that the word "family" plays a pivotal role in *The Goodbye Cat*, it is not until the user delves deeper into AntConc's KWIC feature that the 57 occurrences of the word become more evident, as the underlined passages do show that the narrative refers to the felines mentioned in *The Goodbye Cat* as family members, with Hachi specifically noted to be a member of a family (line 19, Figure 17).

Figures 16
A word cloud created in AntConc.
Note. Screenshot.



Lines 4 and 7 in Figure 17 refer to a cat becoming a family member, which, along with the relationship network graphs, shows that these felines were cherished and loved. The cats' long lifespans in Figure 10 suggest that they were not only cherished but also well cared for. Similarly, the cluster analysis in Figure 18 shows that the words "family cat" and "family animals" also appear, further suggesting that people in Japan do forge deep, meaningful relationships with their cats (cf. Shen, 2024, p. 63).

Figures 17 and 18
KWIC and cluster analysis of the token ‘family’in *The Goodbye Cat*.
Note. Screenshot.



(1152 words).

AI Acknowledgements

This paper did not use any AI beyond Grammarly for quick, dirty proofreading and some APA citations (because the author is lazy —not like a mathematician, but a happy kitten on a warm sofa).

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