

Introduction to Human Geography Using ArcGIS Online

Chapter 10 Exercises

Exercise 10.1: Popular music trends: Which songs top charts around the world?

Introduction

As places become more interconnected, cultures mix, and new ideas spread over wide areas relatively quickly. Whereas music was once tied to specific places and tied to local folk traditions, many more people now listen to popular music, which has global audiences and can diffuse almost instantly through digital distribution. In this exercise you will explore the diffusion of current pop songs to different countries and consider processes in which it diffuses.

Objectives

- Analyze the diffusion of pop songs around the world.
- Discuss how diffusion processes relate to the distribution of pop music.

1. Open the Chapter 10 Popular Music map and sign in to your account:

<https://arcg.is/1K04C10>

The map contains the layer, Popular Music This Week, which contains links to Spotify Charts, showing the top songs by country during the past week. Countries shown in green are included in the charts database.

2. Click the United States. In the pop-up window, click on the link to Spotify Charts.

3. Make note of the top song for the week.

4. **Hover your cursor over the layer name and click Show Table.**
5. **In the attribute table, you can see a link to Spotify Charts for the 58 countries with data.**
6. **Click each link and write down the name of the countries with the same #1 song as in the United States.**

Question 10.1.1

To which countries do you see the top US song being diffused? Name the countries in your answer.

Question 10.1.2

How widely diffused is the song? Does it cluster regionally? Are there any regions where it is not #1?

Question 10.1.3

Select some non-English speaking countries and view their top songs. Describe how language acts as a barrier to diffusion, or how pop music transcends it. Give specific examples.

Question 10.1.4

Do you see evidence of distance decay with pop music? In other words, do pop songs cluster in nearby countries, or do they transcend distance? Give specific examples.

Question 10.1.5

Based on the idea of hierarchical diffusion, which cities or types of cities are likely to pick up on pop songs first?

Conclusion

A central component of popular culture is that it disperses widely. As you have seen in this exercise, popular music now reaches a global audience. But with that said, language sometimes acts as a barrier to diffusion, restricting some songs to regions with the same language.

Exercise 10.2: Food and drink: How healthy is your town?

Introduction

In chapter 6, you completed an exercise on farmers' markets, which in some ways can be seen as a return to folk foods—those that grow locally according to the season. However, with the modern global food production systems, mass-produced and mass-market popular culture foods are now more commonly consumed in the United States. In this exercise, you will use the Data Enrichment analysis tool to identify food and drink consumption patterns in your town and for the United States as a whole. Based on this data, you will then evaluate how healthy or unhealthy local consumption patterns are when compared to the average for the United States.

Objectives

- Obtain data on food consumption for a study area of your choice in the United States.
- Calculate proportions for food consumption.

- Evaluate the cultural influences of the study area that shape food consumption patterns.

1. Open the Chapter 10 Popular Culture Foods map and sign in to your account:

<https://arcg.is/00SzLy>.

2. The map contains the World Countries (Generalized) layer, which has already been filtered to show only the United States in outline form.

3. Use the Data Enrichment tool to collect data on US consumption of food and drink. This will later be used for comparison to your local area.

4. Click the Analysis button, then Data Enrichment, and Enrich Layer.

In the Enrich Layer window, Step 1 should have World Countries (Generalized).

5. For step 2, click Select Variables.

- **In the Data Browser window, make sure United States is the selected region.**

Data Browser

0 Selected Variables

United States

- **In the Data Browser window, click Spending, followed by the Show All Spending Variables link.**

This gives you access to hundreds of spending variables.

- **Click the small arrow by the Alcoholic Beverages (Consumer Spending) variable.**
- **Click the box next to Alcoholic Beverages: Average.**
- **Click the small arrow by the Alcoholic Beverages (Consumer Spending) variable again to collapse it.**
- **Expand the Dining Out (Consumer Spending) variable.**
- **Click the box by Food Away from Home - Dinner at Fast Food Restaurant: Average**
- **Collapse the Dining Out (Consumer Spending) variable.**
- **Click on the small arrow by the Food at Home – Dairy/Fruit/Vegs (Consumer Spending) variable to expand it.**
- **Scroll down and click the box next to Food at Home – Fruit and Vegetables: Average, and Food at Home – Fresh Vegetables: Average.**
- **Collapse the Food at Home – Dairy/Fruit/Vegs (Consumer Spending) variable by clicking on the small arrow again.**
- **Expand the Food at Home – Nonalcoholic Bev (Consumer Spending) variable.**
- **Click the box next to Food at Home – Cola Drinks: Average.**
- **Collapse the Food at Home – Nonalcoholic Bev (Consumer Spending) variable.**

- **Expand the Food at Home – Snacks/Other (Consumer Spending) variable.**
- **Click the box by Food at Home – Sugar & Other Sweets: Average.**
- **Collapse the Food at Home – Snacks/Other (Consumer Spending) variable.**
- **Expand the Miscellaneous Expenses (Consumer Spending) variable.**
- **Click the box by Smoking Products: Average.**
- **Collapse the Miscellaneous Expenses (Consumer Spending) variable.**
- **Expand the Total Expenditures (Consumer Spending) variable.**
- **Click the box by Food: Average.**

You now have eight variables selected.

6. Make sure that for each you have selected the Average value.

This will show the average dollar amount spent per year per household in the United States.

7. Click Apply.

8. For step 4, give your layer a unique name.

9. Click Show Credits and then click the link and make sure you are using less than 1 credit.

10. Click Run Analysis.

11. Once your new layer is added to your map, hover over the layer name and click **Show Table**. (If you do not see all the fields, in the attribute table, click the **Options** button, then select **All Columns**.)

Dinner at Fast Food Restaurants:Avg	Fruit & Vegetables:Avg	Fresh Vegetables:Avg	Cola Drinks	Sugar & Other Sweets:Avg	Show/Hide Columns:
529.71	981.52	313.50	10,891,399,236.00	188.59	<input type="checkbox"/> All Columns <input checked="" type="checkbox"/> Country <input checked="" type="checkbox"/> ISO <input checked="" type="checkbox"/> COUNTRYAFF <input checked="" type="checkbox"/> AFF_ISO <input checked="" type="checkbox"/> ID <input checked="" type="checkbox"/> sourceCountry

12. Write the values from the attribute table in the cells adjacent to **United States** in the table (question 10.2.1).

Question 10.2.1

	A. Alcoholic Beverages : Avg	B. Dinner at Fast Food Restaurants :Avg	C. Fruit & Vegetables: Avg	D. Fresh Vegetables: Avg	E. Cola Drinks	F. Sugar & Other Sweets: Avg	G. Smoking Products : Avg	H. Food: Avg
United States								
Map Note 1								
Map Note 2 (opt.)								

13. Locate a community of your choice in the United State for comparison to the US averages. To do this you will add a Map Note.

- Click the **Add** button, then **Add Map Notes**.

- **Give the Map Note a name reflecting your selected community.**
- **Click Create.**

After you Create a Map Note, the Add Features window opens.

14. Click the Pushpin icon.

15. Zoom to your selected neighborhood in the map and click in the center of it.

This will place the Pushpin.

16. Close the Points window.

Next, you'll collect food consumption data for your selected neighborhoods, just as you did for the United States.

17. Click the Analysis button, click Data Enrichment, then click Enrich Layer.

In the Enrich Layer window, step 1 should have World Countries (Generalized).

- **For step 2, click Select Variables.**

In the Data Browser window, click Spending, then click the Show All Spending Variables link.

- **Use the preceding steps to select the same variables.**
- **For step 3, set the number of miles for your search radius.**

The radius depends on how large of an area you want to select. Depending on the size of the neighborhood, a distance of 1 to 3 miles is probably good.

- **Check the box next to Return result as bounding areas.**

This will draw a polygon showing your search area.

- **For step 4, give your layer a unique name.**
- **Uncheck the box for Use current map extent.**

This will allow your entire search area to be selected, even if you are zoomed in too much.

- **Check Show credits and make sure you are using less than 1 credit.**
- **Click Run Analysis.**

18. As before, click Show Table for your new layer and enter the values in cells adjacent to Map Note 1 in the table (question 10.2.1).

Spending averages vary substantially by the income of the selected study area. If you chose a wealthy area your values may be above the US average, while a poorer area will likely have lower values. Because of this, you will calculate consumption ratios for the US and your study area. Optionally, you can add another Map Note to compare a second neighborhood.

19. In the following table (question 10.2.2), divide the values from the preceding table.

This will show each type of consumption as a percentage of a household's average food expenditures.

Question 10.2.2

	A/H (Alcohol)	B/H (Fast food dinners)	C/H (Fruits & veggies)	D/H (Fresh veggies)	E/H (Cola drinks)	F/H (Sweet snacks)	G/H (Cigarettes)
United States							
Map Note 1							
Map Note 2 (optional)							

In many cases the numbers for the United States and Map Note 1 may be similar. To help see the differences a little more clearly, you will complete the following table using the values from the previous table (question 10.2.2).

20. For each cell, divide the value for United States by Map Note 1.

Question 10.2.3

	(Alcohol)	(Fast food dinners)	(Fruits & veggies)	(Fresh veggies)	(Cola drinks)	(Sweet snacks)	(Cigarettes)
United States/Map Note 1							
United States/Map Note 2 (optional)							

If, for example, United States/Map Note 1 for alcohol consumption equals 0.97, then households in your selected neighborhood only spend 97 percent as much on alcohol relative to all food expenditures than the average American household. On the other hand, if United States/Map Note 1 for alcohol is 1.12, then households in your neighborhood spend 12 percent more on alcohol relative to all food expenditures than the average American household.

Question 10.2.4

Based on the preceding table, does your selected neighborhood consume more, or less, mass-produced goods that are typically considered unhealthy? Which are consumed more, and which are consumed less?

Question 10.2.5

Based on the regional culture, of your selected area, explain why these patterns likely exist. What are attitudes toward food, nutrition, and healthy lifestyles in the area?

Question 10.2.6

Do you see changes in attitudes toward mass-produced popular culture foods? Are people choosing different products? Are large food producers changing their products in response?

Conclusion

The spatial patterns of food and drink consumption have a strong correlation with health. In some neighborhoods, smoking is rare and fast food, soda, and sweets are eaten only as occasional treats, while fresh fruits and vegetables are consumed daily. In other neighborhoods, the opposite is found, where fast food, sugar, and smoking are more common than healthy alternatives.

Exercise 10.3: Language assimilation of Asians and Latinos

Introduction

Language is an important component of one's identity and culture. Because of this, it is often a point of conflict in conversations over immigration. Some fear that new immigrants with a different language will fail to integrate into the broader society and disrupt social cohesion. Others argue that that fear is overblown and, especially in the United States, waves of immigrants have eventually blended in, contributing to a vibrant American culture. In this exercise you will examine English language ability for the largest immigrant group in recent years, Latinos, and the fastest growing group, Asians.

Objectives

- Calculate proportions of the population 5 years and over, by nativity and English language ability.
- Map Asian and Latino populations by English language ability for a local city.
- Analyze hot spots and cold spots for language assimilation.
- Evaluate the reasons behind the spatial patterns of hot and cold spots.

1. Open the Chapter 10 Language Assimilation map and sign in to your account:

<https://arcg.is/1j0ez8>

The map contains the Language Assimilation layer. The data come from the census tract level US Census 2016 American Community Survey. Fields include the total number of Asians and Latinos, if they are native US or foreign born, if they speak English only, and if they speak English less than very well (shortened in the field name to Limited English).

The attribute table for this layer contains data for every census tract in the United States and is thus very large. Because of this, viewing it and getting statistics may be slow on some devices. Therefore, the sum of values for the following fields are included in the table below.

Population 5 Years and Over	Asian	Latino
Native Born	4,768,661	34,197,874
Foreign Born	10,940,089	19,180,591
Native Born, Limited English (Speaks English Less than Very Well)	382,331	5,819,384
Foreign Born, Limited English (Speaks English Less than Very Well)	5,014,354	12,602,658
Native Born, Speaks Only English	2,534,458	12,642,687

You will begin by calculating the proportion of Asians and Latinos by English language ability and nativity.

2. Use the data from the preceding table to calculate the values in the question

10.3.1.

Question 10.3.1

Proportion of population 5 years and over	Asian	Latino
Native born with limited English/Native born		
Foreign born with limited English/Foreign born		

Native born, speaks only English/native born		
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Question 10.3.2

Based on the table results, which group appears to be more linguistically assimilated? Explain how the data shows this.

Question 10.3.3

What may account for the differences seen in the table? Many factors are at play. You can consider country of origin, differences in time in US, levels of education, birth rates and age structure of each population, geographic clustering, cultural views on linguistic assimilation, and more.

Next, you'll identify local places where there is more language assimilation and places where there is less.

- 3. Zoom to a city of your choice in the US that has a significant Asian or Latino population.**
- 4. Hover your cursor over the Language Assimilation layer and click Change Style.**
 - In step 1, click the drop-down arrow and select Asian_Pct_NativeBorn_OnlyEng.**
 - You can use the default settings in step 2 or click Options and modify them.**

- **Click Done.**

Your map now shows census tracts by the proportion of native US-born Asians that only speak English. These areas have the greatest language assimilation.

Patterns may be difficult to ascertain visually in your map and in some cases individual tracts may have a very small number of native born Asians, making the map somewhat misleading. The Hot Spots analysis tool will help identify patterns by statistically identifying clusters of tracts with similarly high or similarly low levels of language assimilation.

5. Hover your cursor over the Language Assimilation layer and click Perform Analysis.

- **In the Perform Analysis window, click Analyze Patterns and then click Find Hot Spots.**
- **In step 1, make sure the Language Assimilation layer is selected.**
- **In step 2, use the drop-down arrow to select the Asian_Pct_NativeBorn_OnlyEng field.**
- **In step 4, give your layer a unique name.**
- **Make sure that there is a check next to Use current map extent.**
- **Click Show credits. You should use less than 5 credits. If it is above 5, zoom the map in some more to show a smaller map extent.**

 Find Hot Spots 1 ◀

1 Choose layer for which hot spots will be calculated 1

Language Assimilation ▼

2 Find clusters of high and low 1

Asian_Pct_NativeBorn_OnlyEng ▼

3 Divide by (optional) 1

None ▼

+ Options 1

4 Result layer name 1

MY Hot Spots Asian_Pct_NativeBorn_OnlyEng

Save result in Human Geography ▼

Use current map extent [Show credits](#)

- **Click Run Analysis.**

Question 10.3.4

What spatial patterns do you see? Which neighborhoods are hot spots of more linguistically assimilated native-born Asians? Which neighborhoods are cold spots of less linguistic assimilation?

Question 10.3.5

How do the socioeconomic characteristics of hot spots and cold spots differ? Think of how the Asian populations differ in terms of length of time (in years and/or generations) in the US, income, education, profession, and more.

6. **Repeat the previous steps with the Latino population.**
7. **Hover your cursor over the Language Assimilation layer and Change Style, then in step 1 select Latino_Pct_NativeBorn_EngOnly.**
8. **Visually observe the patterns of where native US-born Latinos speak only English.**

These are the places with more linguistically assimilated Latinos.

9. **Run the hot spot analysis as above, but in step 2, set the field to Latino_Pct_NativeBorn_EngOnly.**

Question 10.3.6

What spatial patterns do you see? Which neighborhoods are hot spots of more linguistically assimilated native-born Latinos? Which neighborhoods are cold spots of less linguistic assimilation?

Question 10.3.7

How do the socioeconomic characteristics of hot spots and cold spots differ? Think of how the Latino populations differ in terms of length of time (in years and/or generations) in the US, income, education, profession, and more.

Question 10.3.8

You have mapped hot spots and cold spots for Asians and Latinos that only speak English. As time progresses, do you expect to find more neighborhoods where these groups only speak English? Consider the history of other immigrant groups in the United States, such as the

Italians, Germans, Russians, and others. What could slow the process of linguistic assimilation and what could accelerate it?

10. Print or take a screenshot of your Asian assimilation hot spot layer. Print or take a screenshot of your Latino assimilation hot spot layer.

Conclusion

In this exercise, you explored language assimilation for two significant contemporary immigrant groups in the United States, Asians and Latinos. As you can see, language assimilation occurs at different rates and there are identifiable areas with less assimilation. Yet over time, if these groups follow the tried and true pattern of assimilation that all other immigrant groups have gone through, we should expect a shrinking of places with less linguistic assimilation and growth of places with more.

Exercise 10.4: Toponyms and sense of place

Introduction

Toponyms, or place names, can say a lot about the history of a place and its present character. In this exercise you will analyze place names in two ways. First, you will use the Aggregate Points analysis tool to map Robert E Lee and Martin Luther King Jr. places names by state. Next, you will explore a reference map of your local city or town and find clues as to its history and sense of place.

Objective

- Aggregate Robert E. Lee and Martin Luther King Jr. places names by state.

- 1. Open the Chapter 10 Toponyms Exercise map and sign in to your account:**

<https://arcg.is/1iSHPC>

The map contains the following layers:

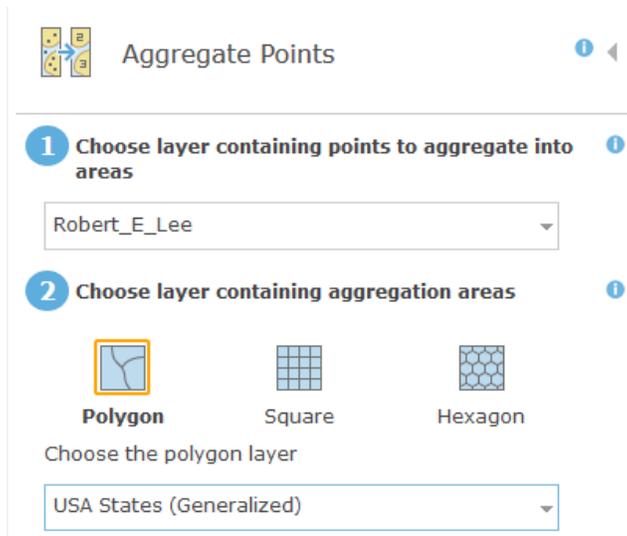
- a. USA States (Generalized).**
- b. Robert E Lee. This is the location of places named after Robert E Lee according to the Geographic Names Information System of the USGS.**
- c. Martin L King Jr. This is the location of places named after Martin Luther King Jr. according to the Geographic Names Information System of the USGS.**

Next, you'll use the Aggregate Points analysis tool to map states by number of Robert E Lee and Martin Luther King Jr places names.

- 2. Click the Analysis button, click Summarize Data, then click Aggregate Points.**
- 3. In the Aggregate Points window, set step 1 to Robert_E_Lee.**

Step 2 should have USA States (Generalized).

- 4. In step 5, give your layer a unique name.**
- 5. Uncheck the box by Use current map extent to include all points regardless of your level of zoom.**
- 6. Click Show credits. You should use less than 1 credit.**



7. Click Run Analysis.

Your map now shows graduated symbols for the number of Robert E Lee places names by state.

8. Hover your cursor over the name of your new layer and click Show Table.

9. Click the header name for the Count of Points field and Sort Descending.

10. In the following table, write the names of four states with the most Robert E Lee place names, as well as their count value.

Question 10.4.1

State	Count (Number of Robert E Lee place names)
1.	
2.	
3.	
4.	

11. Repeat the analysis, but change step 1 to Martin_L_King_Jr.

12. Based on the aggregated points for Martin Luther King Jr, fill in the table below.

Question 10.4.2

State	Count (Number of Martin Luther King Jr. place names)
1.	
2.	
3.	
4.	

Question 10.4.3

These place names are tied to the contentious debate over race and history in many states. Based on your two aggregated points maps, there are clear spatial differences in place names. From what you know of US history, what are the historical reasons behind some states having more Robert E Lee place names and others having more Martin Luther King Jr place names?

Next, you'll find examples of toponyms in your local area that reflect its history and sense of place.

13. Click the Basemap button and select Topographic.

This is a basic reference map that shows cities, streets, major buildings, topographic contour lines, and more.

14. Zoom to a city of your choice, and then zoom in and out so that you can see various types of features and their names.

15. Note the features that reflect the places history and character.

This can include historical individuals and events, references to racial/ethnic groups or nationalities, economic activities, and more.

16. Write the toponyms in the next table, along with a short description explaining how it reflects the history and character.

Question 10.4.4

Toponym. Include the name and type of feature	Significance in place's history and character

Question 10.4.5

As sensibilities change over time, some place names can be seen as offensive. Did you find any names that might come across as inappropriate today? If so, give an example. When place names are seen as offensive by some, do you think it is best to update them to something non-offensive, or is it better to keep them and add historical context and descriptions at the sites?

Conclusions

Place names can tell a lot about a place, both the ways in which it was settled and its character today. In some cases, these can be contentious, as new interpretations of history and changes in language lead some to call for renaming places, while others prefer to maintain them but add context.