



FOOD NETWORK: A GEOGRAPHICAL ANALYSIS

EECS 6302 PROJECT

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OBJECTIVES

- Find correlations between cuisines
- Identify key ingredients geographically
- Analyze the nutritional profile geographically
- Look for trends and similarities





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- Find correlations between cuisines
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OUTLINE

- Data collection
- Pre-processing & Graph generation
- Ingredient graphs analysis
- Nutrients graphs analysis

DATA SOURCE

- RecipeDB

- +118,000 recipes

- 6 continents

- 26 regions

- 74 countries

- + 20,000 ingredients

- + 150 nutrients

- Data from web scraping:

- Title

- Country, Region, Continent,

- Recipe nutritional profile, Ingredients + nutritional profiles

Big Smokey Burgers



Source: All Recipes

Estimated Nutritional Profile

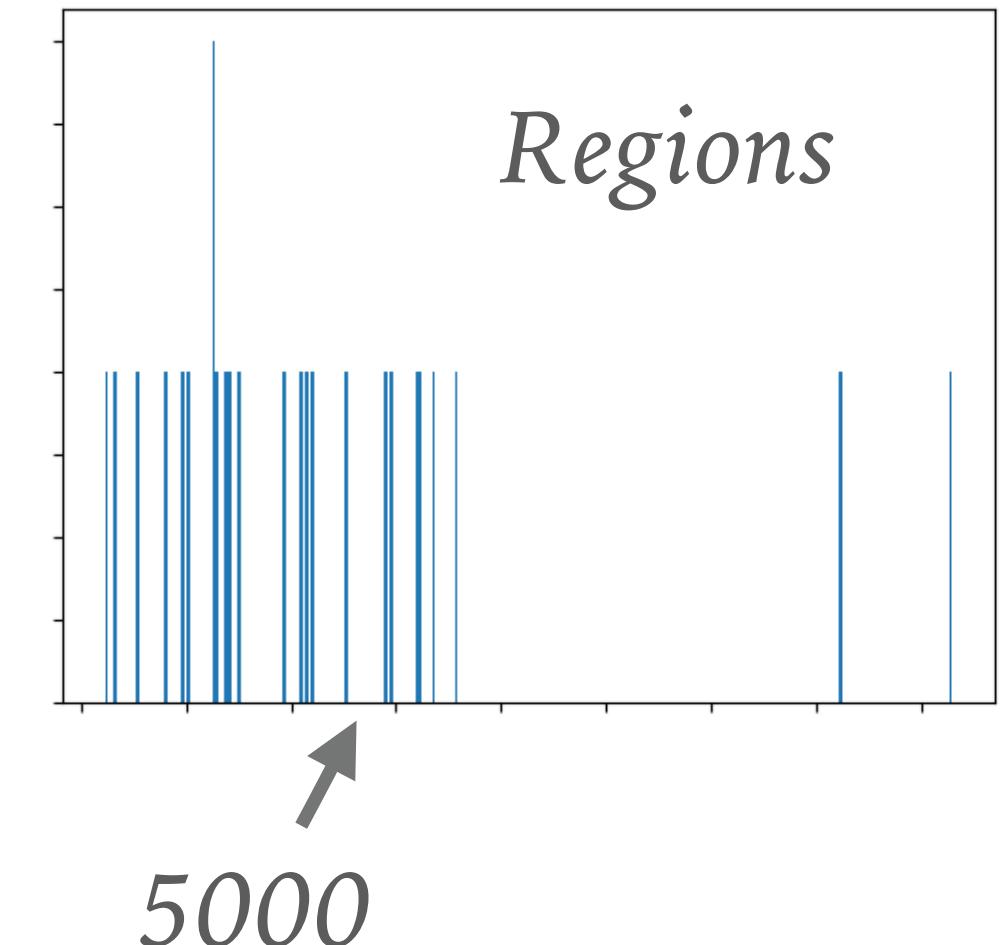
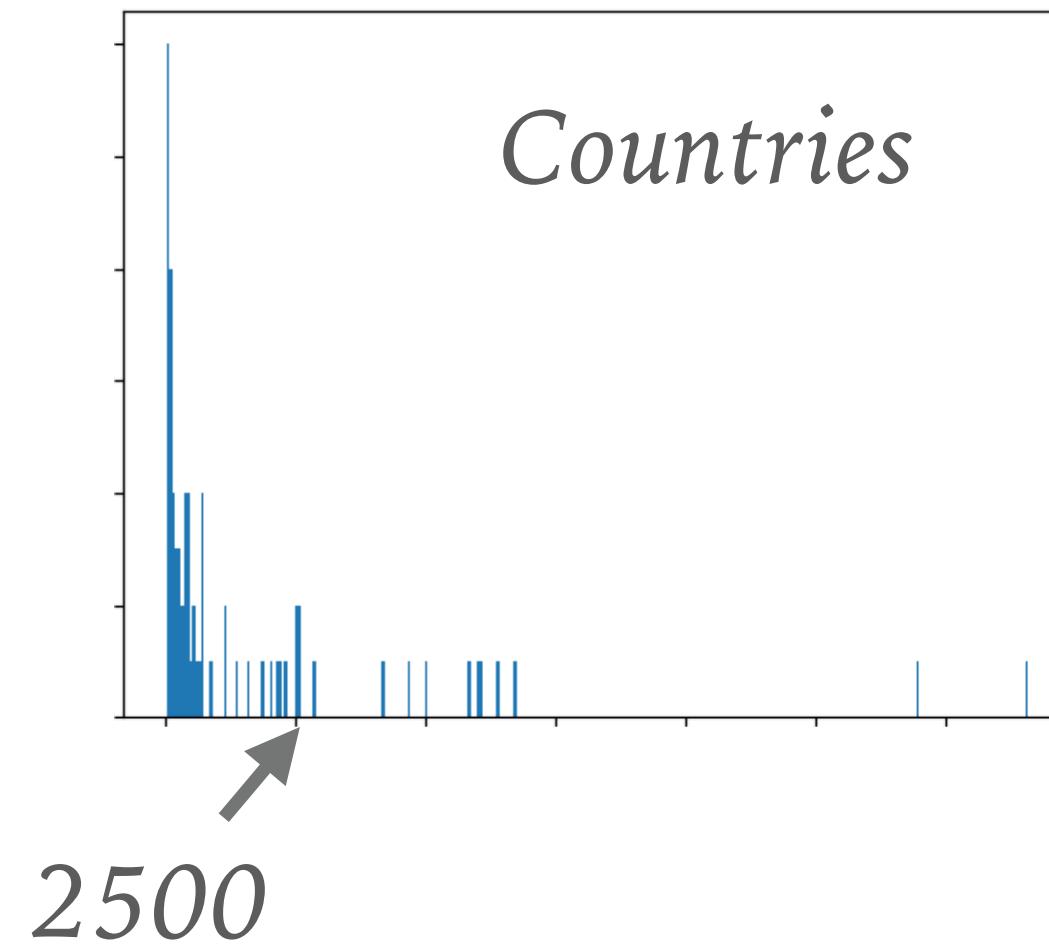
Nutrient	Quantity
Protein (g)	267.88
Energy (kCal)	2005.98
Carbohydrates (g)	19.70
SHOW MORE	

RECIPE OVERVIEW	INGREDIENTS								PROCESSES - UTENSILS		INSTRUCTIONS	
	Estimated Nutritional Profile for Ingredients											
Ingredient Name	Quantity	Unit	State	Energy (kcal)	Carbohydrates	Protein (g)	Total Lipid (Fat) (g)					
Beef Sirloin	2	pounds	ground	1922.13	0.0	265.92	87.67					
Onion	1/2		grated	32.0	7.47	0.88	0.08					
Grill Seasoning	1	tablespoon		-	-	-	-					
Liquid Smoke Flavoring	1	tablespoon		-	-	-	-					

PRE-PROCESSING

- Generated datasets for each
 - country with 2500+ recipes
 - region with 5000+ recipes
 - continent with 10000+ recipes

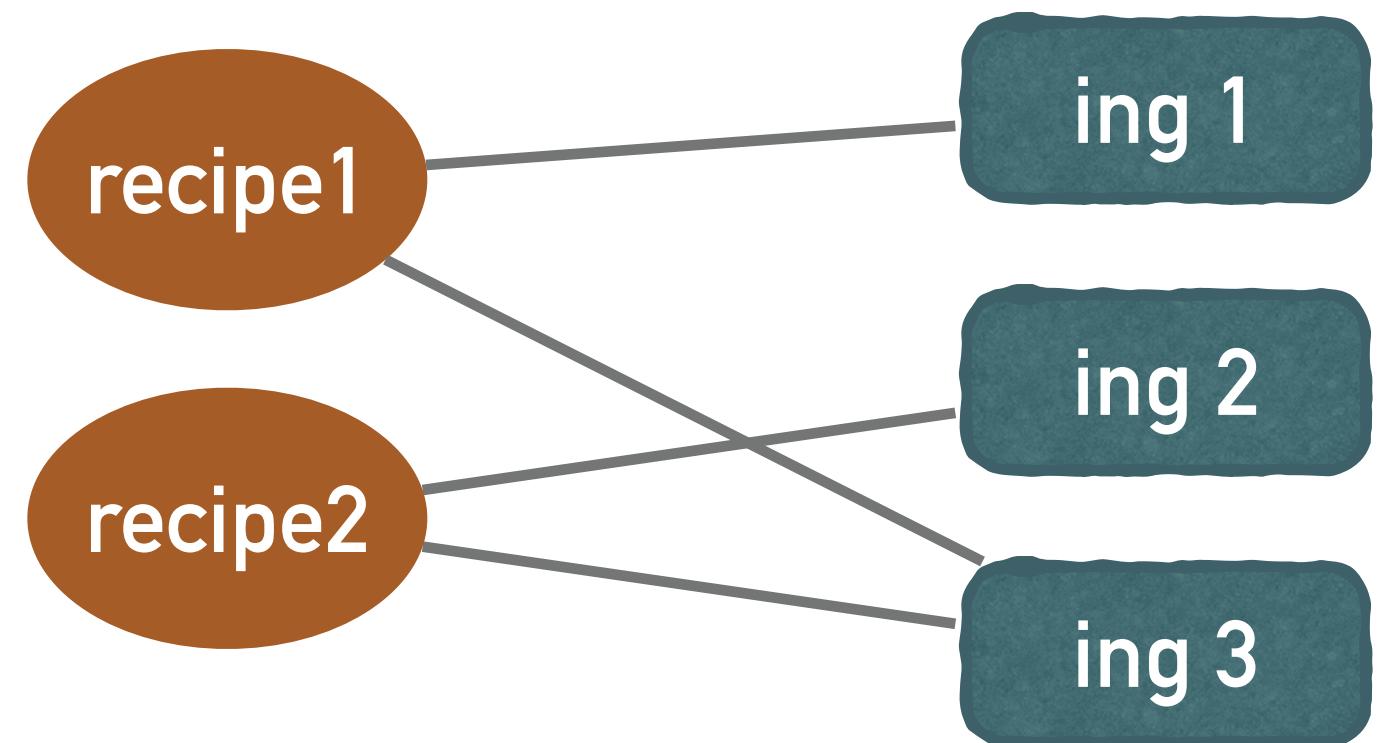
	Countries	Regions	Continents
Before	74	26	6
After	15	9	4



'Argentine', 'Australian', 'Canadian',
'Chinese', 'English', 'French', 'German',
'Greek', 'Indian', 'Irish', 'Italian',
'Mexican', 'Nigerian', 'Thai', 'US'

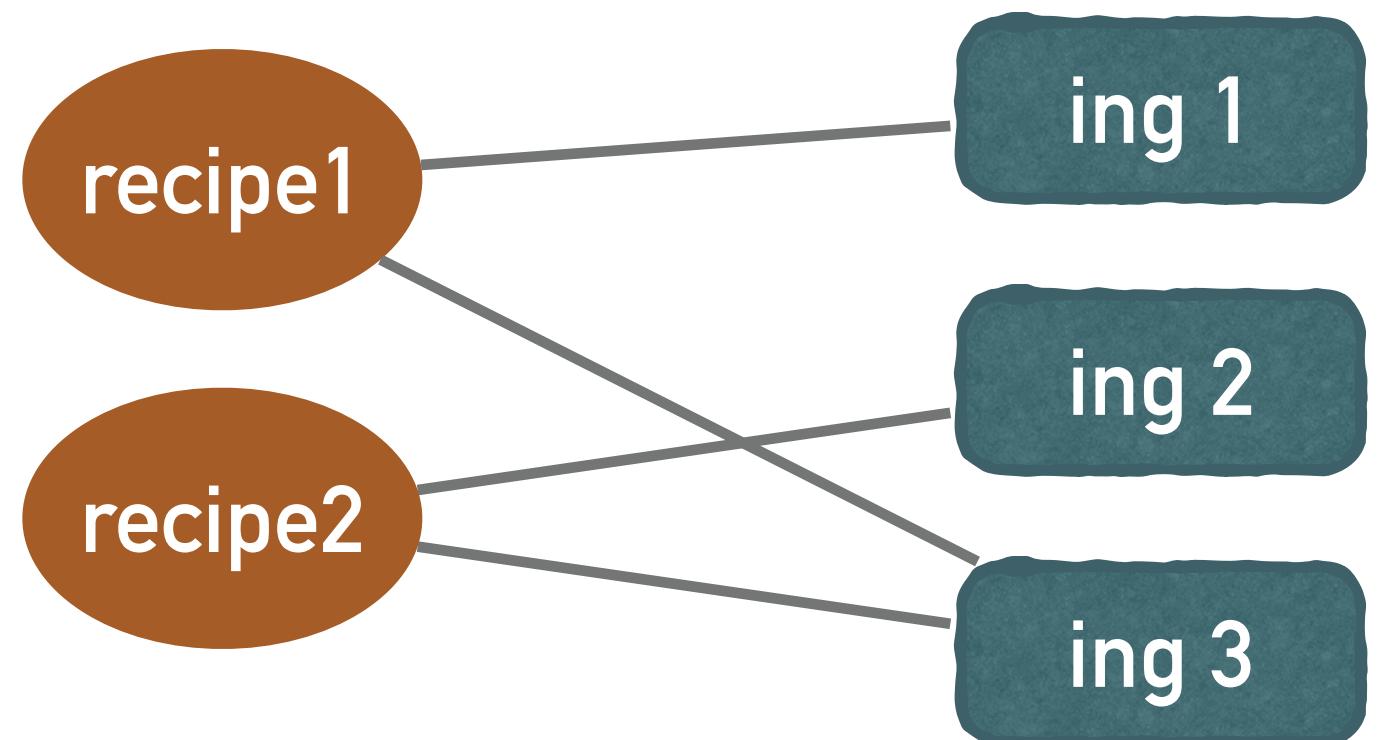
GRAPH CONSTRUCTION

- Phase 1:
 - Ingredients Graphs

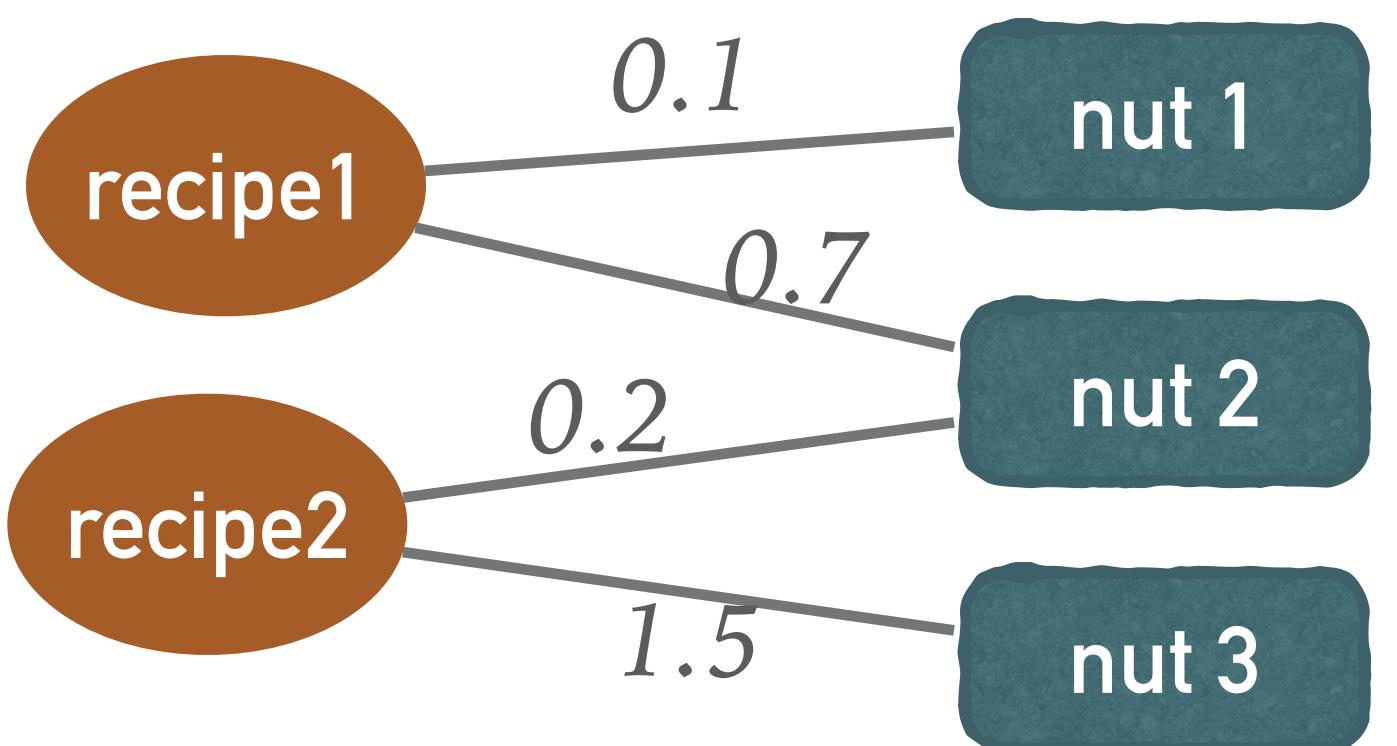


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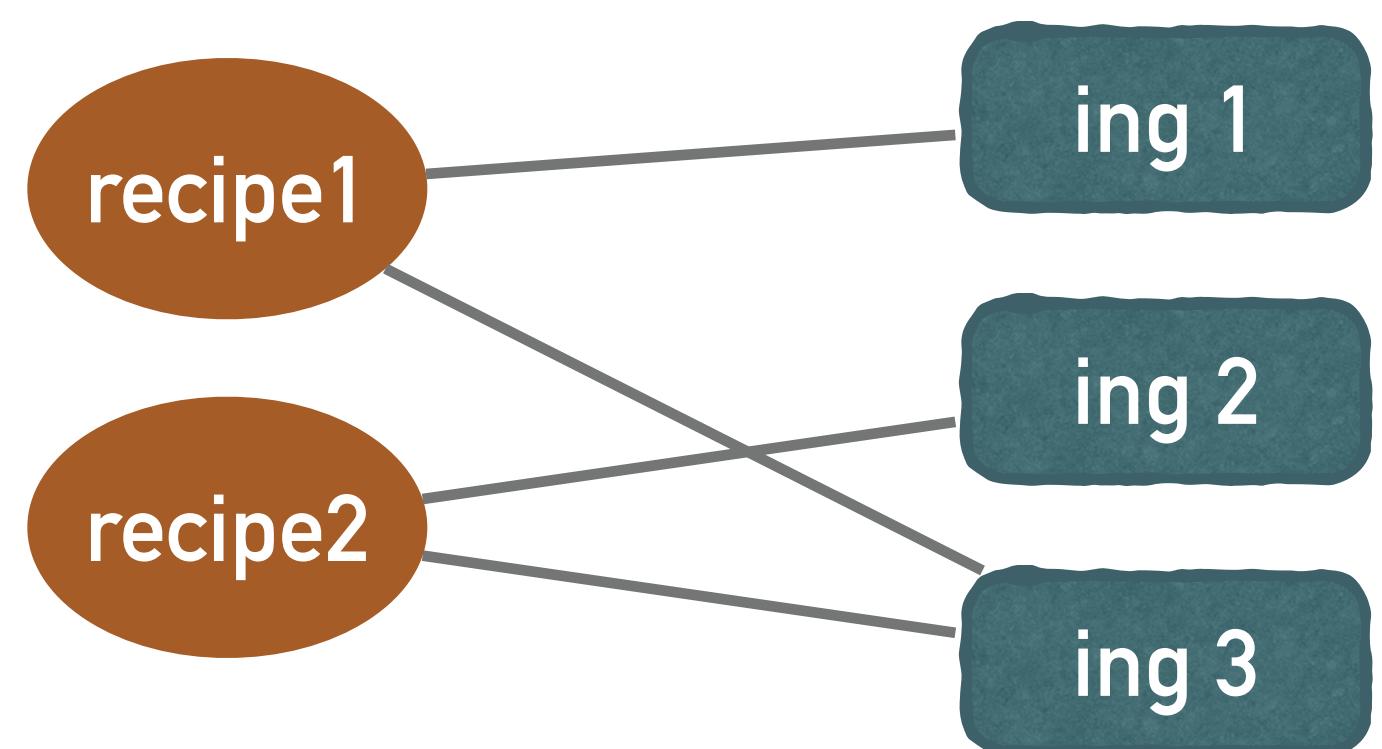
- Nutrients Graphs



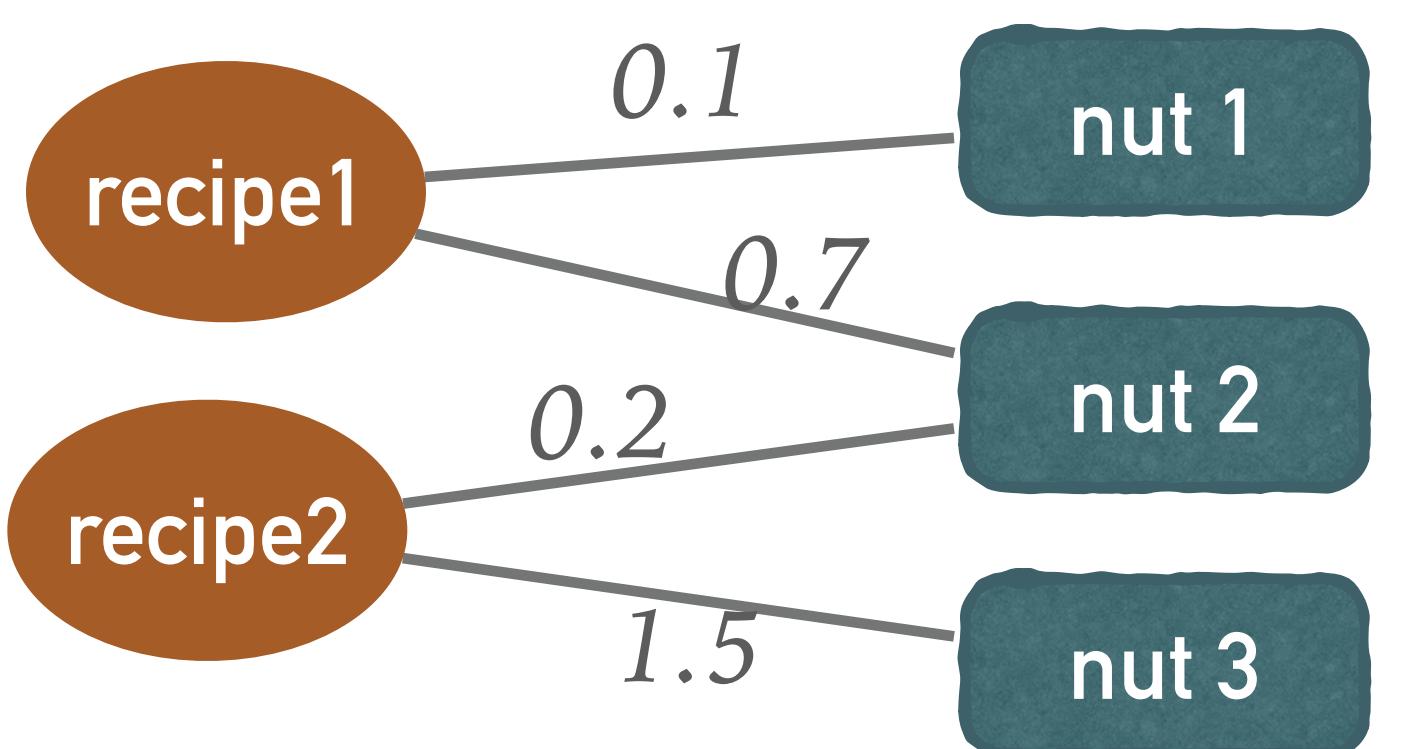
GRAPH CONSTRUCTION

► Phase 1:

► Ingredients Graphs



► Nutrients Graphs



Country	Num Recipes	Num Ingredients
Argentine	6051	3019
Australian	4689	2804
Canadian	6700	3398
Chinese	5821	2919
English	2858	2199
French	6381	3274
German	2596	1827
Greek	4185	2154
Indian	5988	2585
Irish	2532	2033
Italian	16582	5256
Mexican	14463	5059
Nigerian	2526	1834
Thai	2605	1852
US	5031	2964

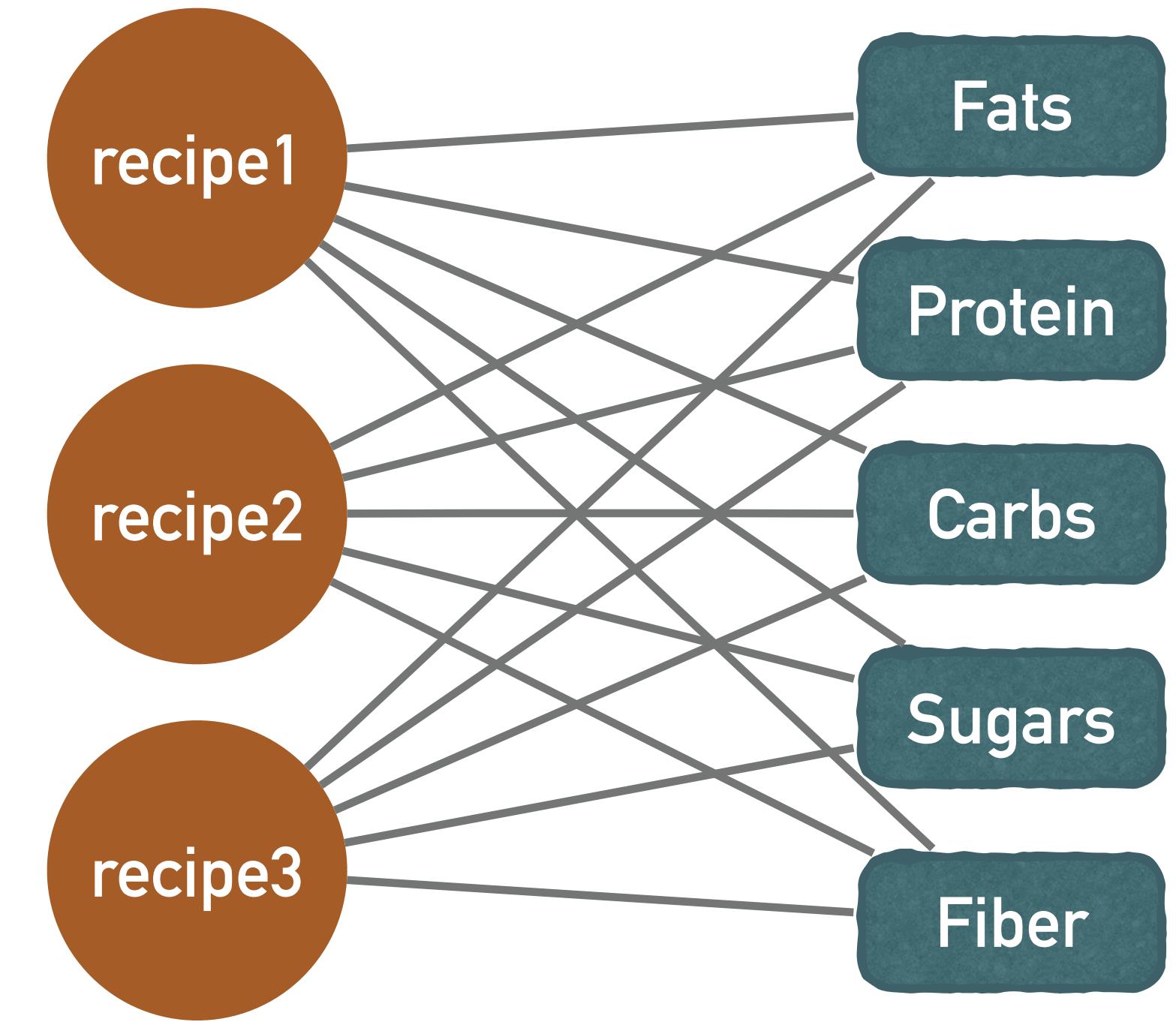
GRAPH CONSTRUCTION

- Phase 2-A: Ingredients Graphs:
 1. Remove simple recipes
 - < 5 ingredients
 2. Remove uncommon ingredients (+ corresponding recipes)
 - < 3(25*) recipes
 3. Do weighted 1-mode projection on ingredients
 - edge between ingredients used by same recipe
- (Same for regions/continent but with higher thresholds)

Country	Before	After
	Nodes (Edges)	Nodes (Edges)
Argentine	9070(64524)	5178(43642)
Australian	7493(40079)	3783(24343)
Canadian	10098(60461)	5384(39387)
Chinese	8740(61307)	4910(40723)
English	5057(24797)	2103(12482)
French	9655(57985)	5178(37493)
German	4423(24543)	2095(13977)
Greek	6339(42138)	3493(27642)
Indian	8573(68397)	5151(48898)
Irish	4565(21745)	1888(11151)
Italian*	21838(165540)	7808(72165)
Mexican*	19522(141665)	5964(52987)
Nigerian	4360(25240)	2020(14145)
Thai	4457(30171)	2182(17453)
US	7995(46555)	4077(28685)

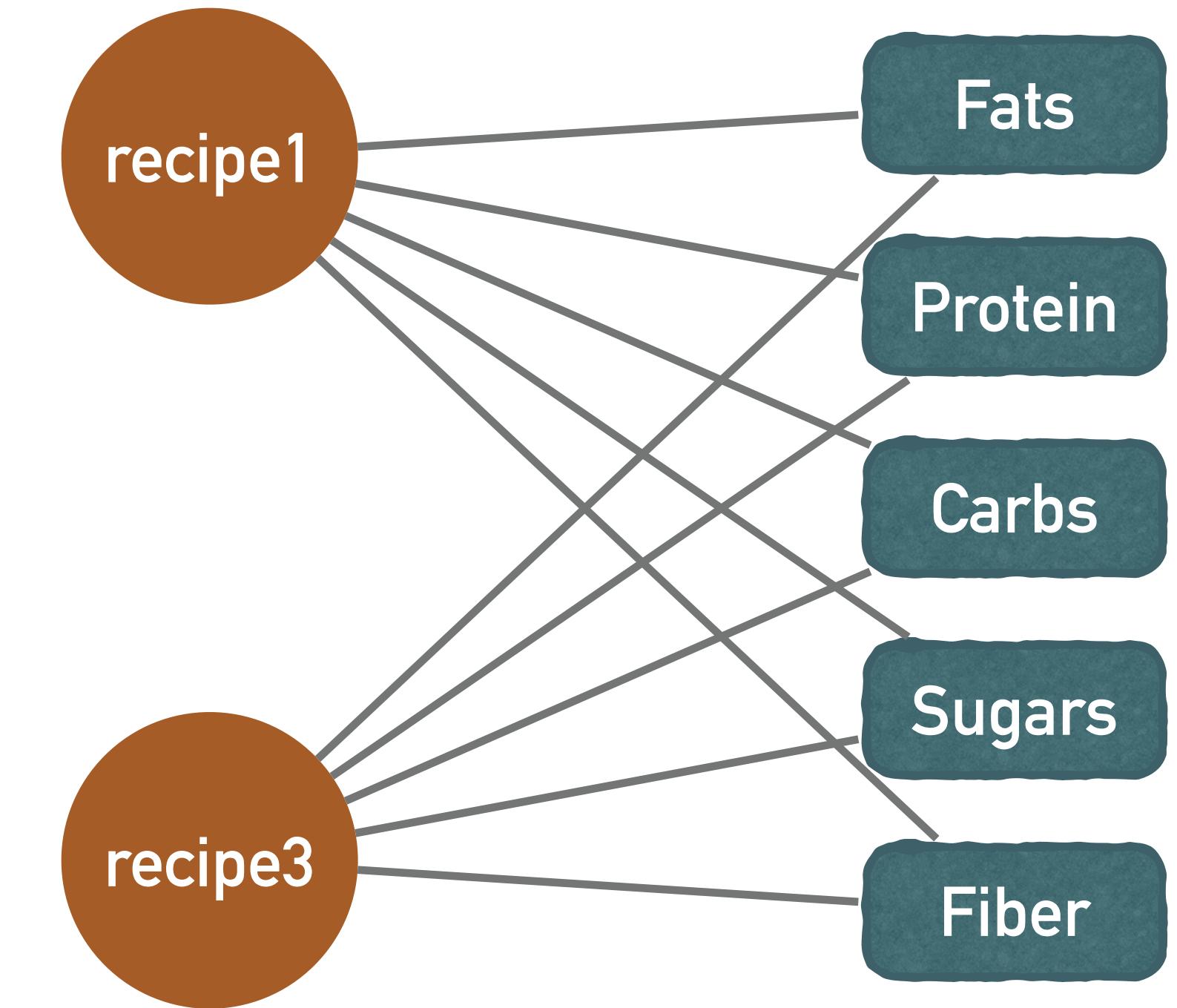
GRAPH CONSTRUCTION

- Phase 2-B: Nutrients Graphs:
 - Select five nutrients:
Fats, Protein, Carbs, Sugars, Fiber
 - 1. Remove all other nutrients



GRAPH CONSTRUCTION

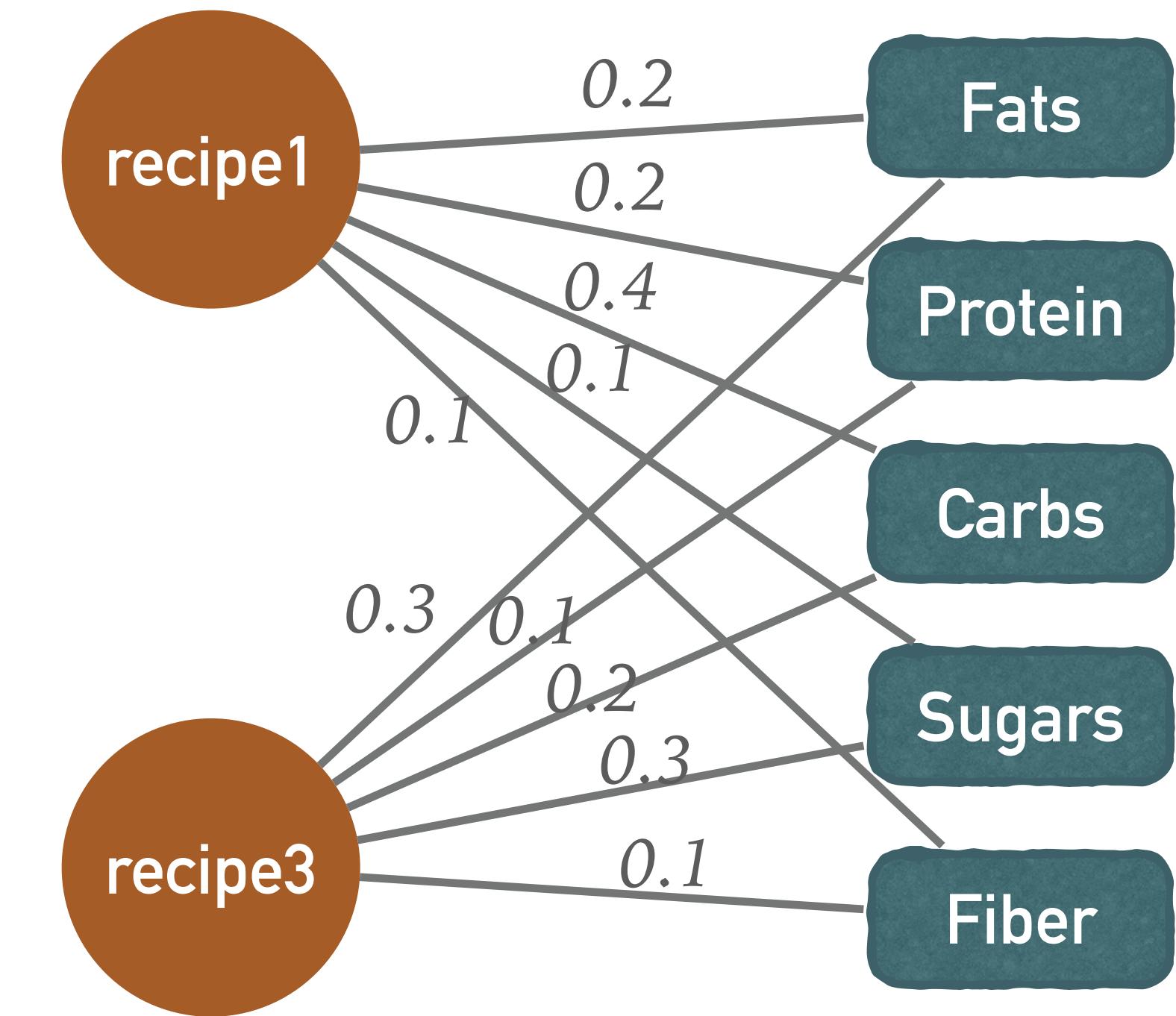
- Phase 2-B: Nutrients Graphs:
 - Select five nutrients:
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 - 1. Remove all other nutrients
 - 2. Remove recipes not found in Ingredients Graphs



GRAPH CONSTRUCTION

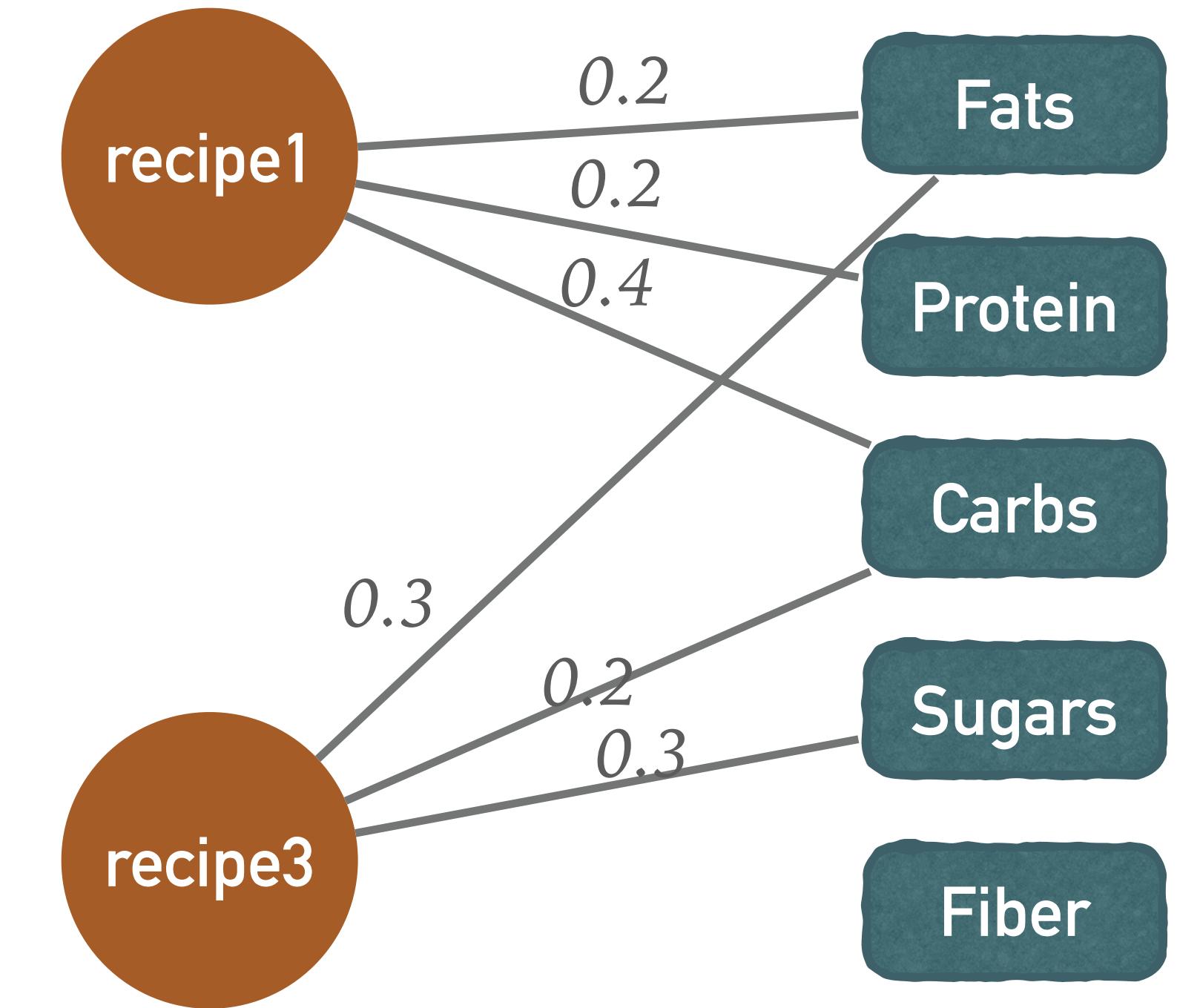
- Phase 2-B: Nutrients Graphs:
- Select five nutrients:
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 1. Remove all other nutrients
 2. Remove recipes not found in Ingredients Graphs
 3. Normalize edge weights per recipe



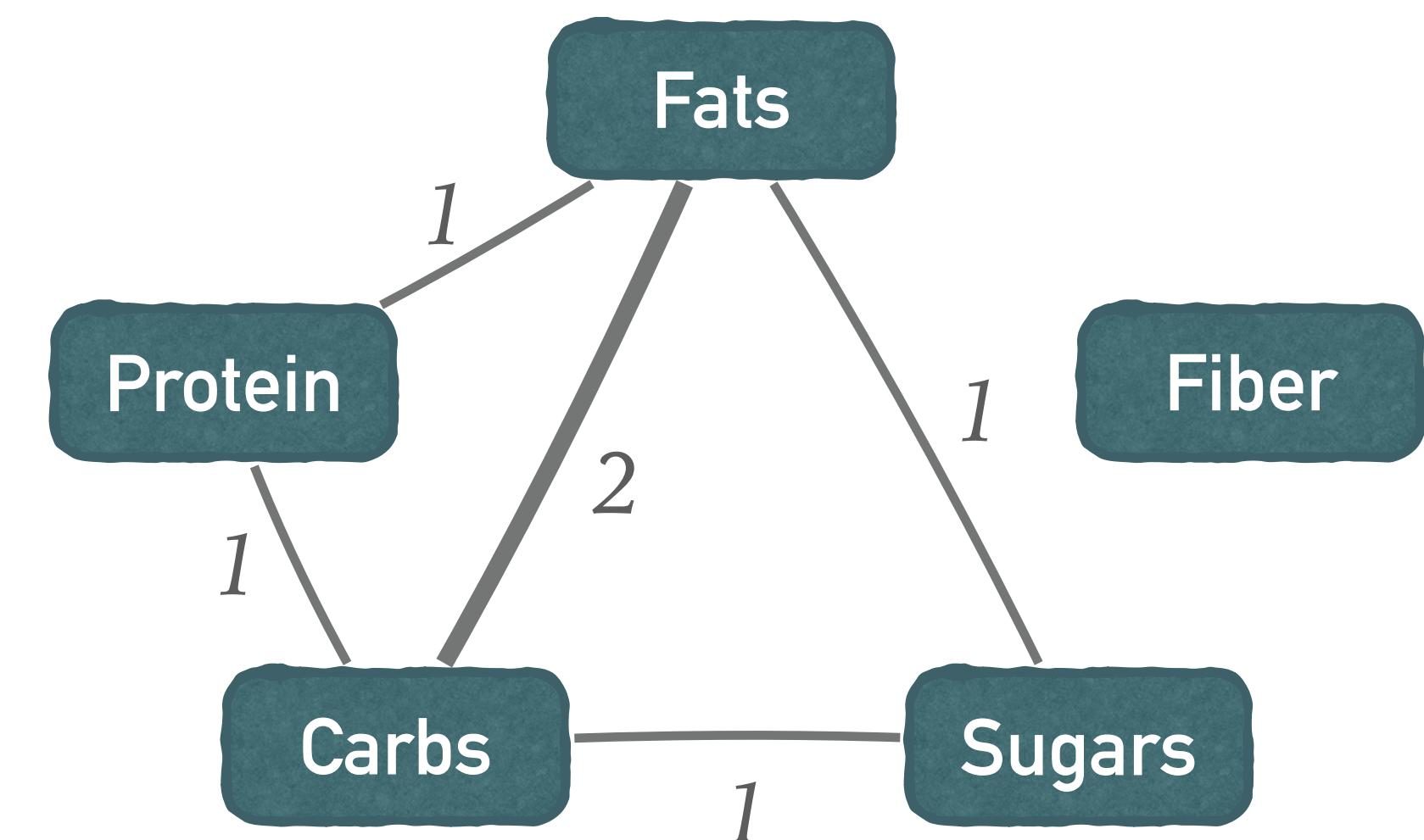
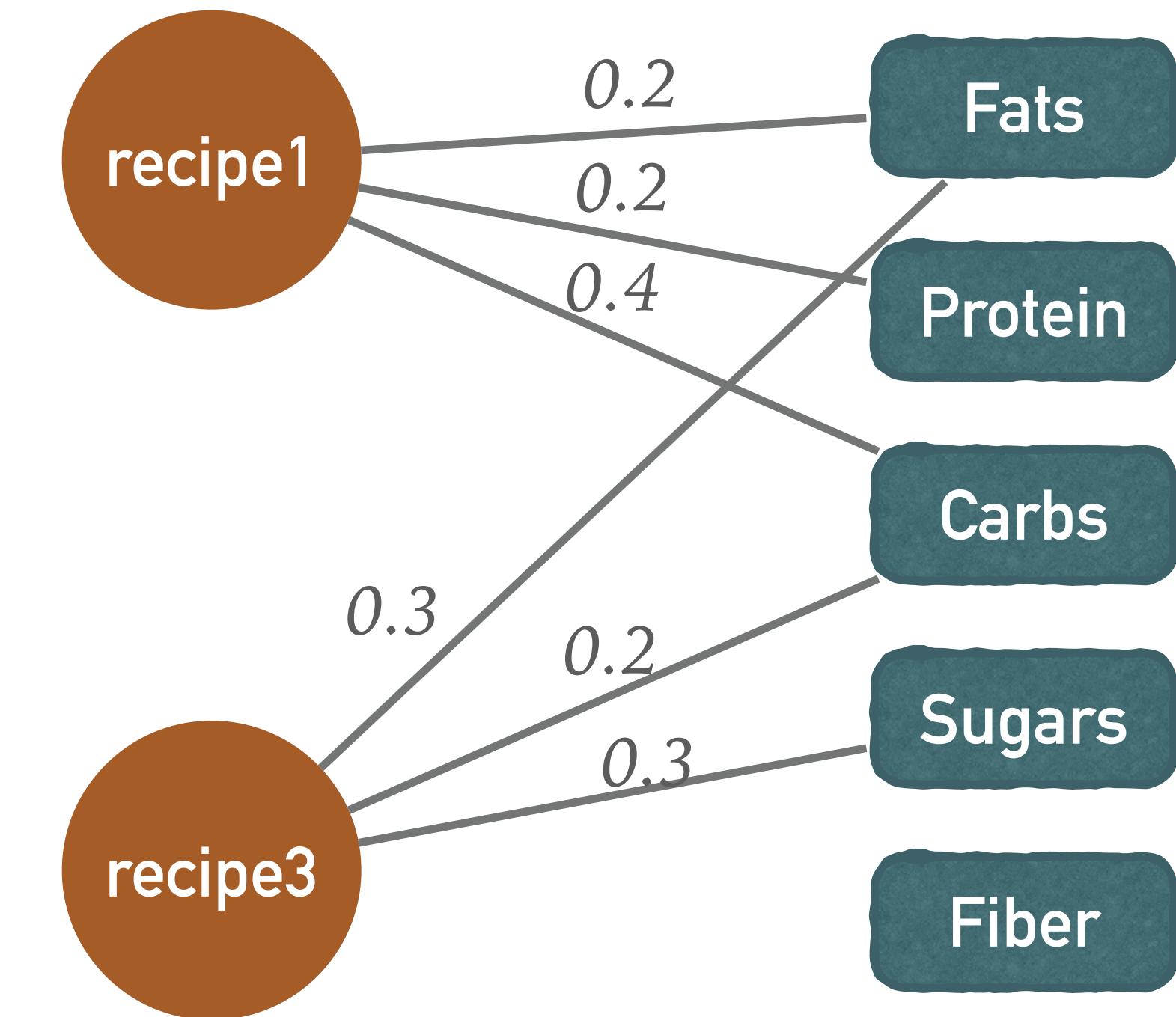
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 - 3. Normalize edge weights per recipe
 - 4. Remove edges with low weight (<0.15)



GRAPH CONSTRUCTION

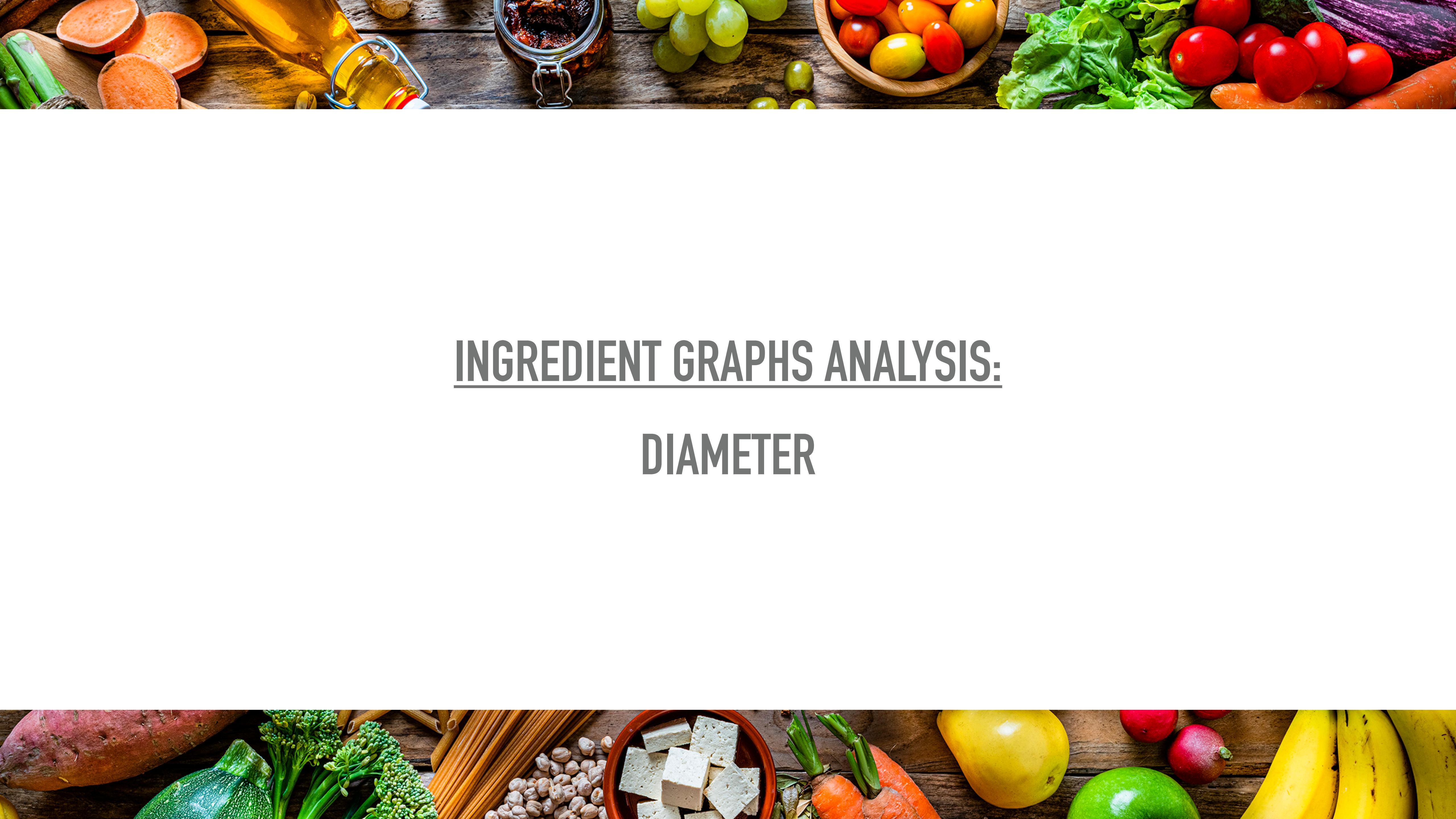
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 - 1. Remove all other nutrients
 - 2. Remove recipes not found in Ingredients Graphs
 - 3. Normalize edge weights per recipe
 - 4. Remove edges with low weight (<0.15)
 - 5. Do a weighted 1-mode projection on nutrients
 - edge between nutrients in the same recipe



“

Now I have *too many* graphs to analyze and compare :)

	Countries	Regions	Continents	Total
# datasets	15	9	4	28
# graphs (2 bipartite -> 2 Projections)	30	18	8	56

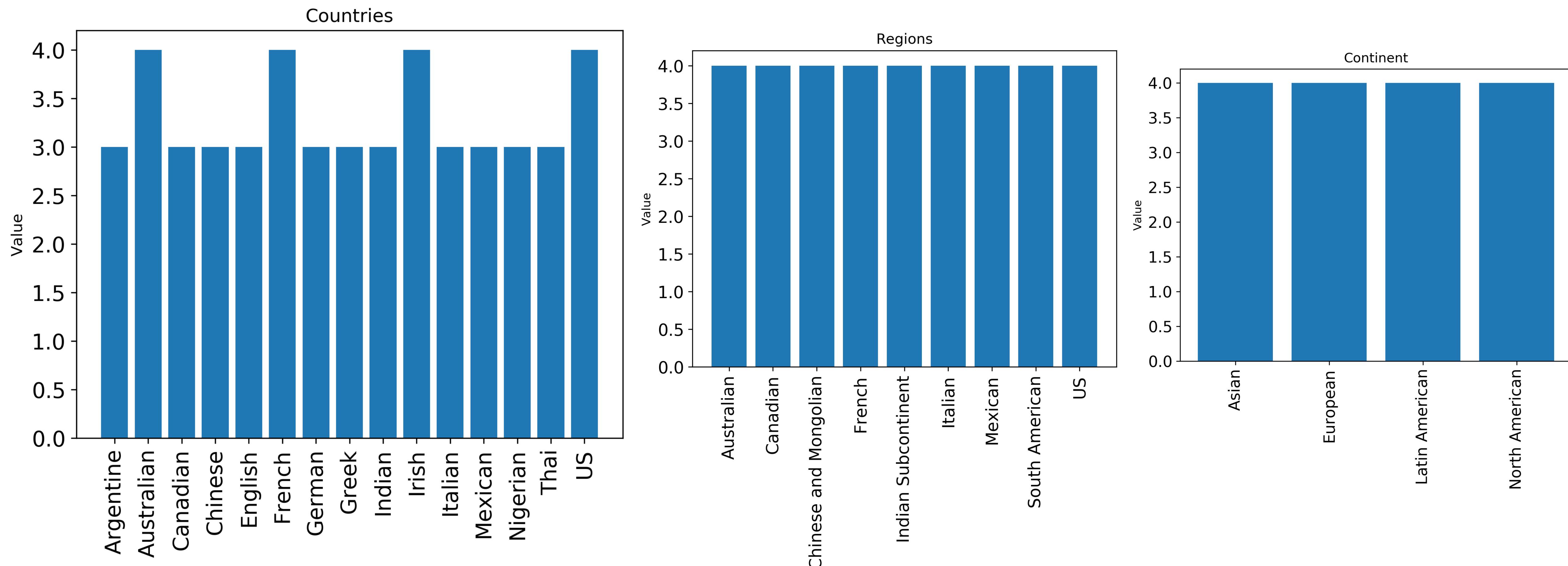


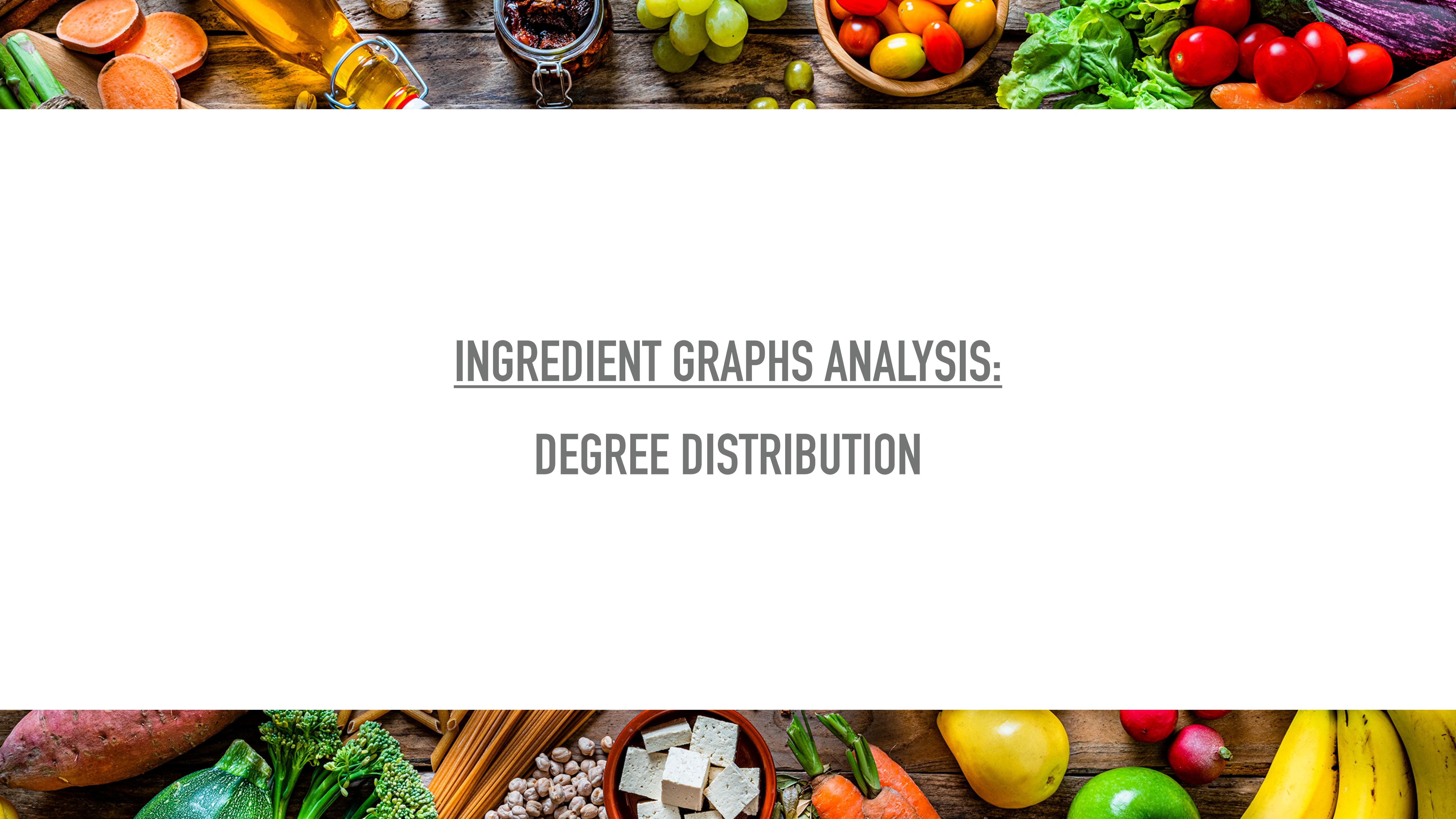
INGREDIENT GRAPHS ANALYSIS:

DIAMETER

INGREDIENTS GRAPH: DIAMETER

- 1-mode projection on ingredients
- Any two ingredients are within 3-4 hops

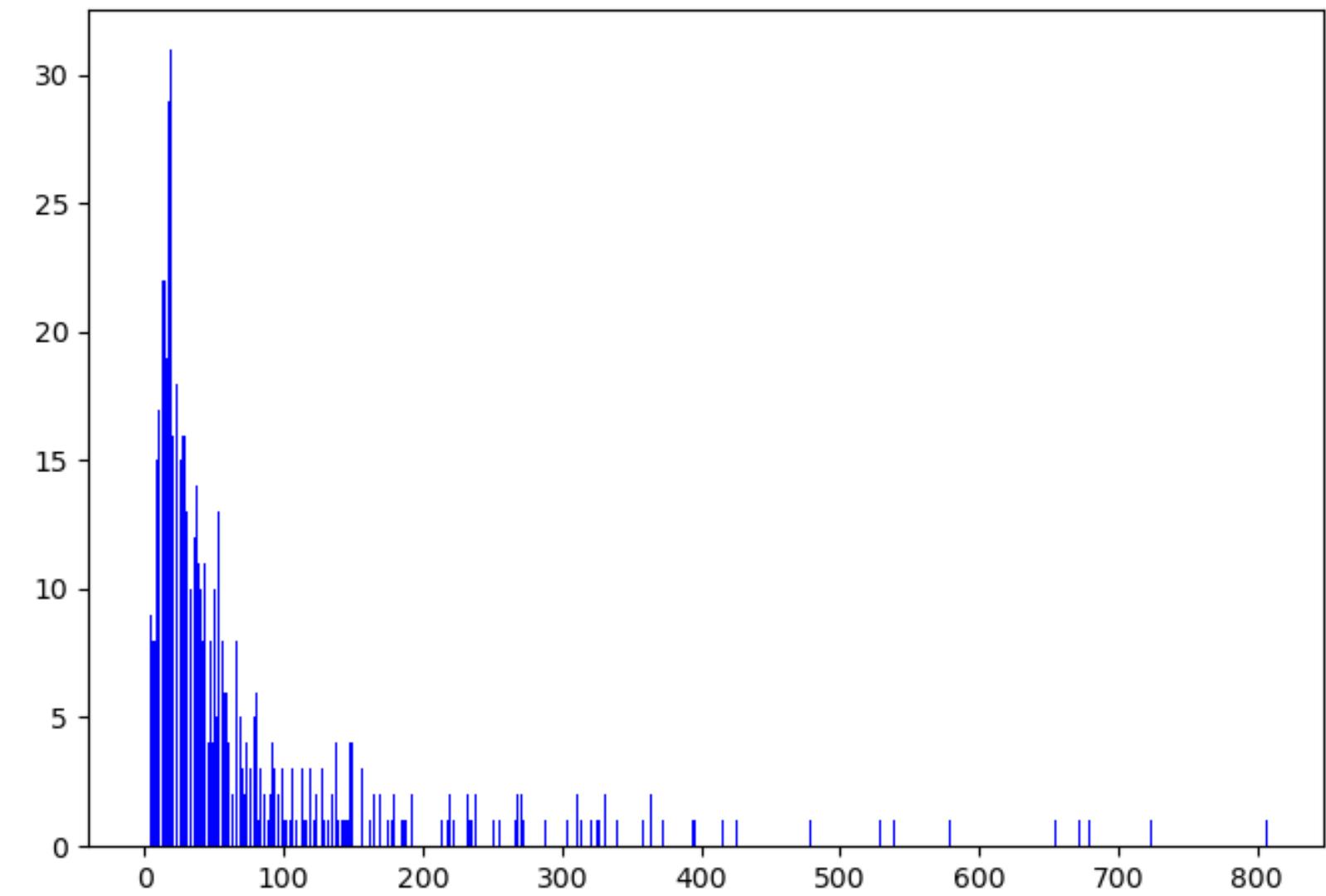




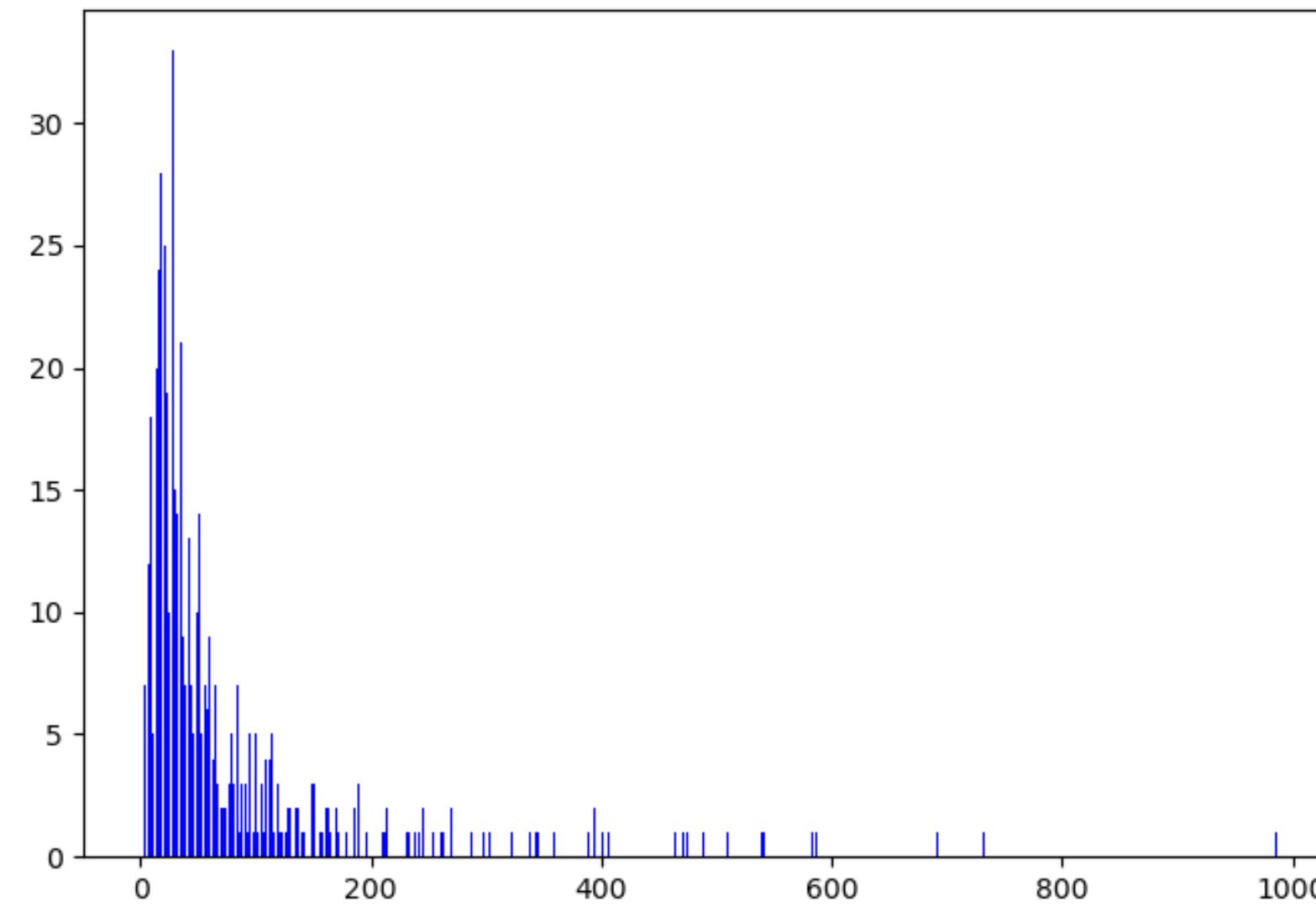
INGREDIENT GRAPHS ANALYSIS:

DEGREE DISTRIBUTION

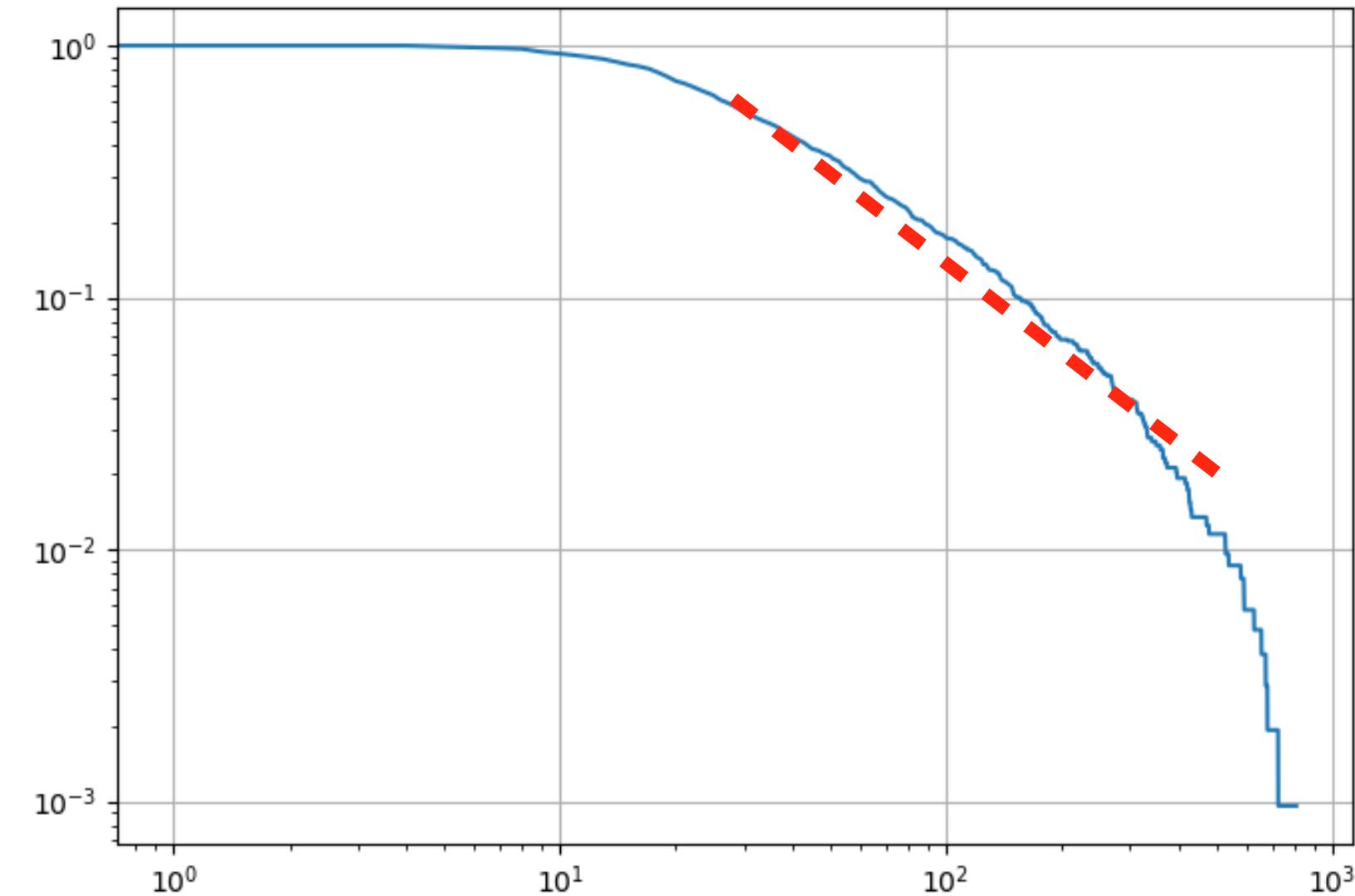
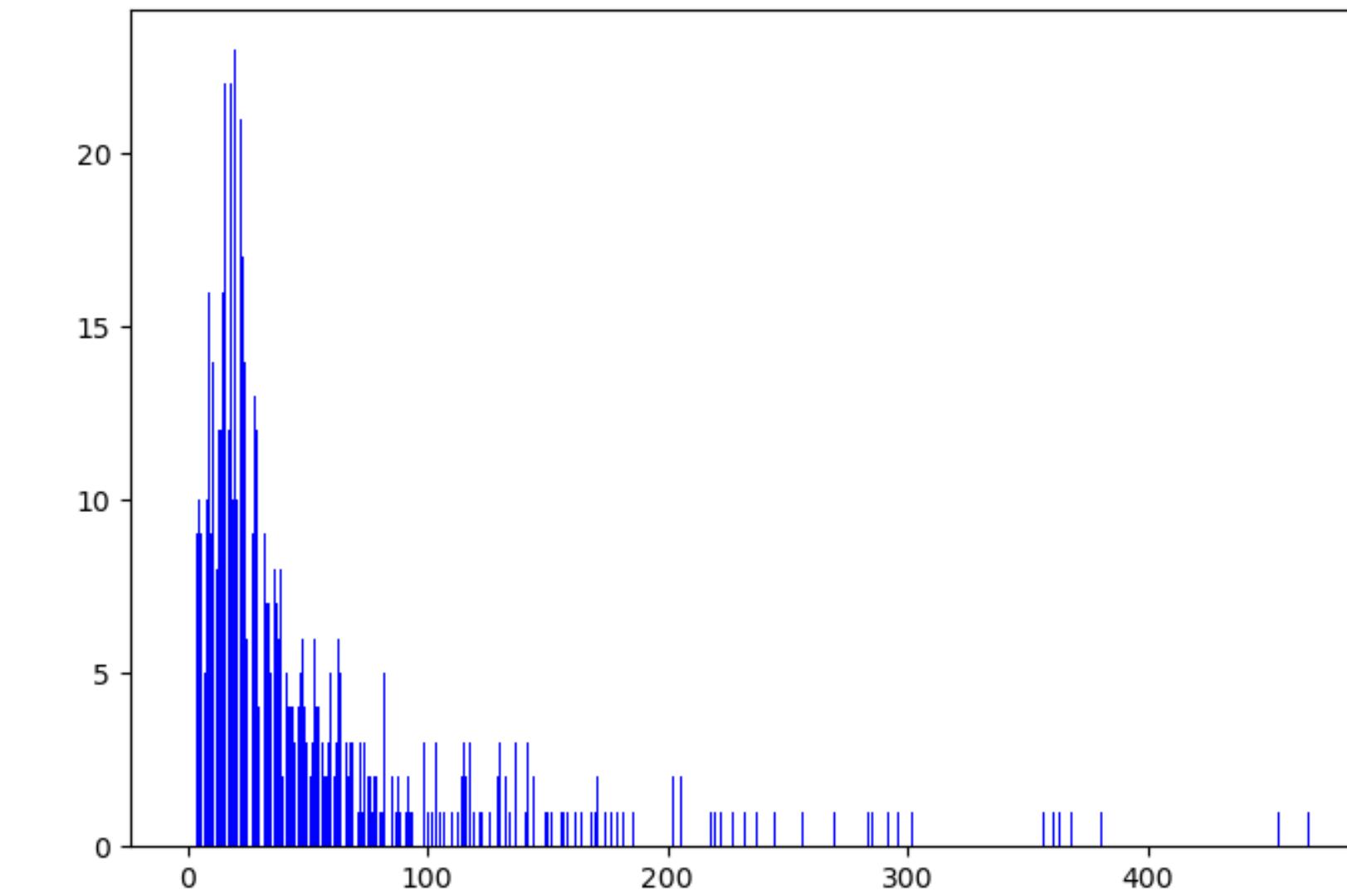
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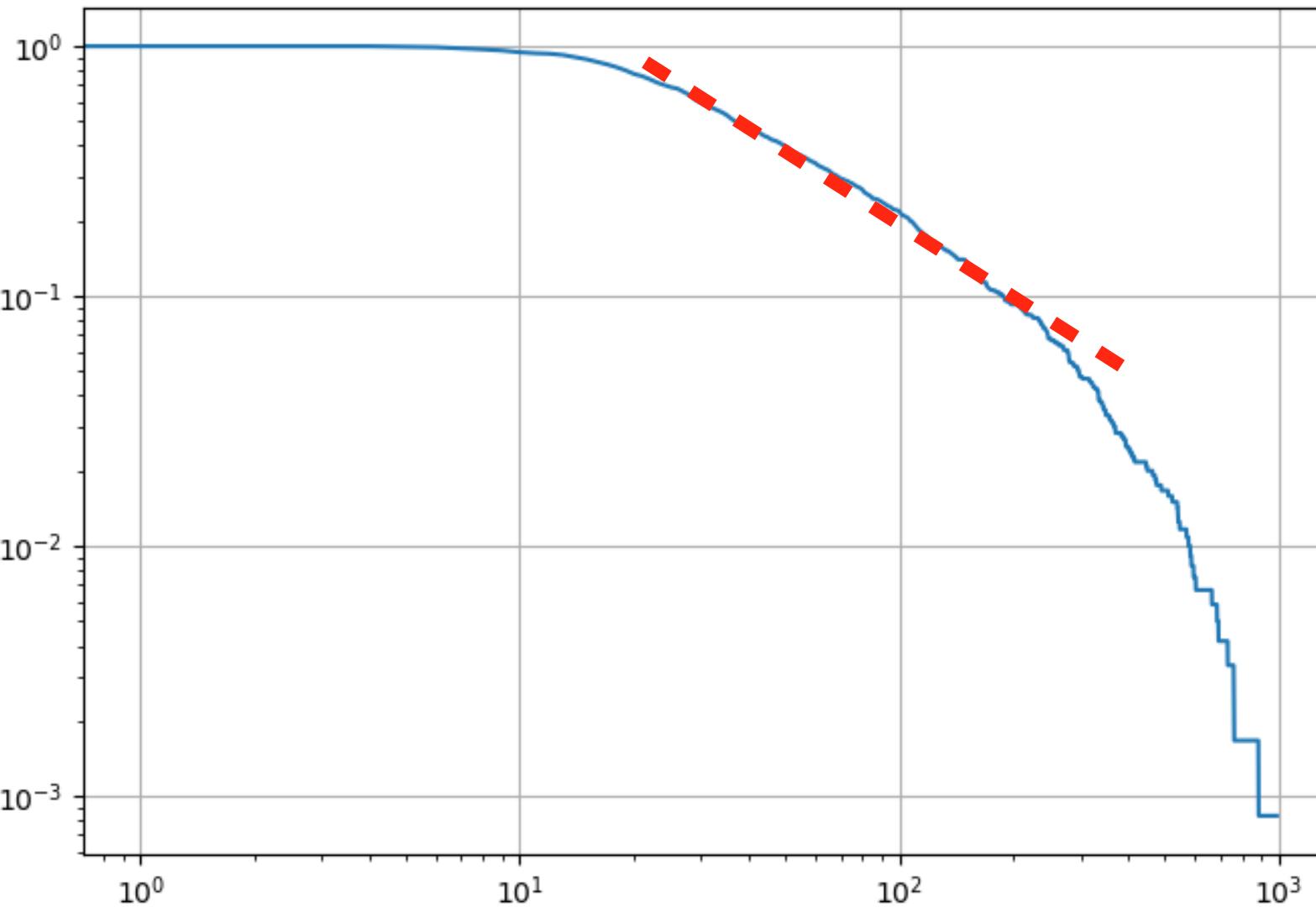
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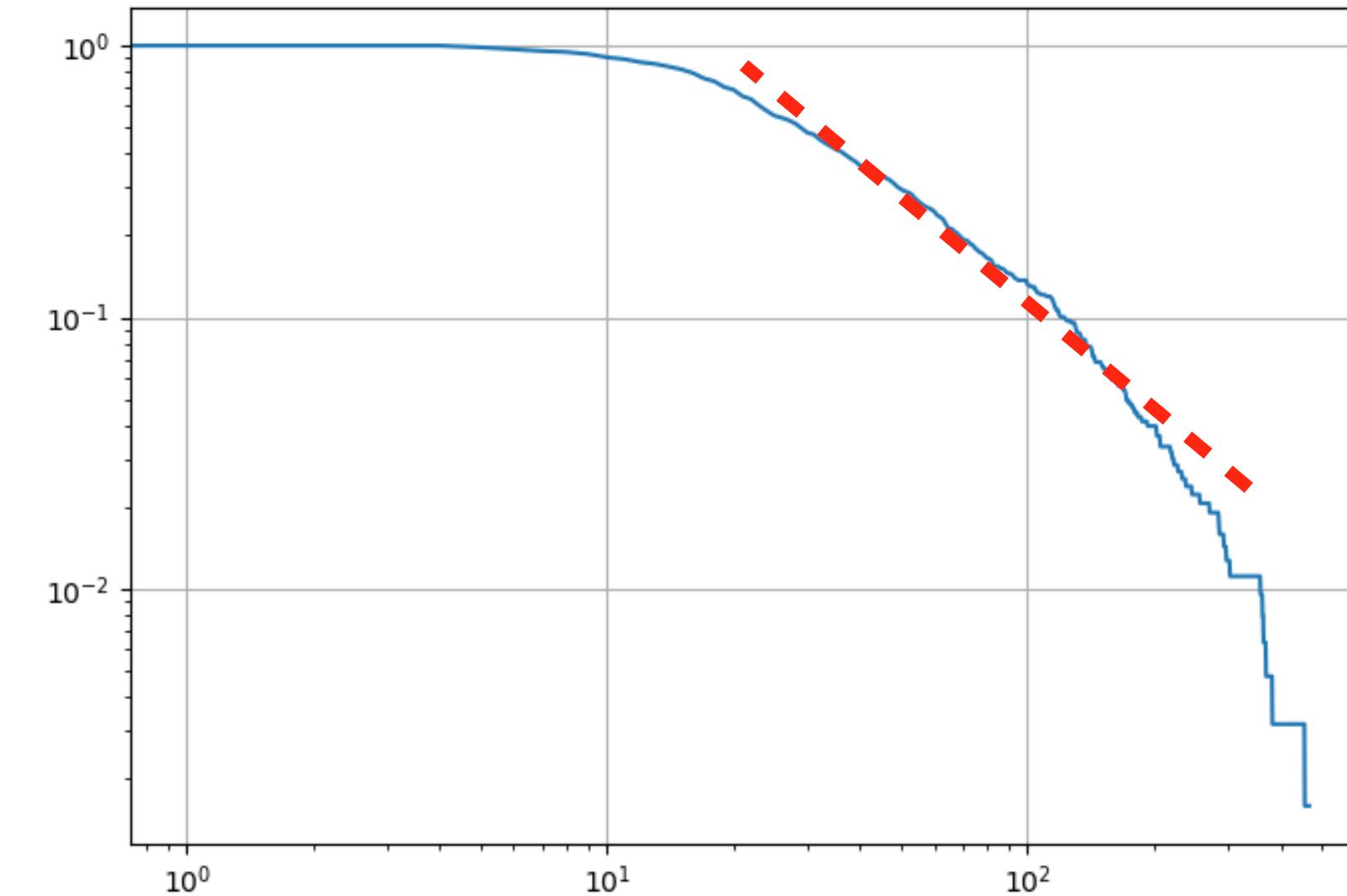
country: Ireland



Power Law

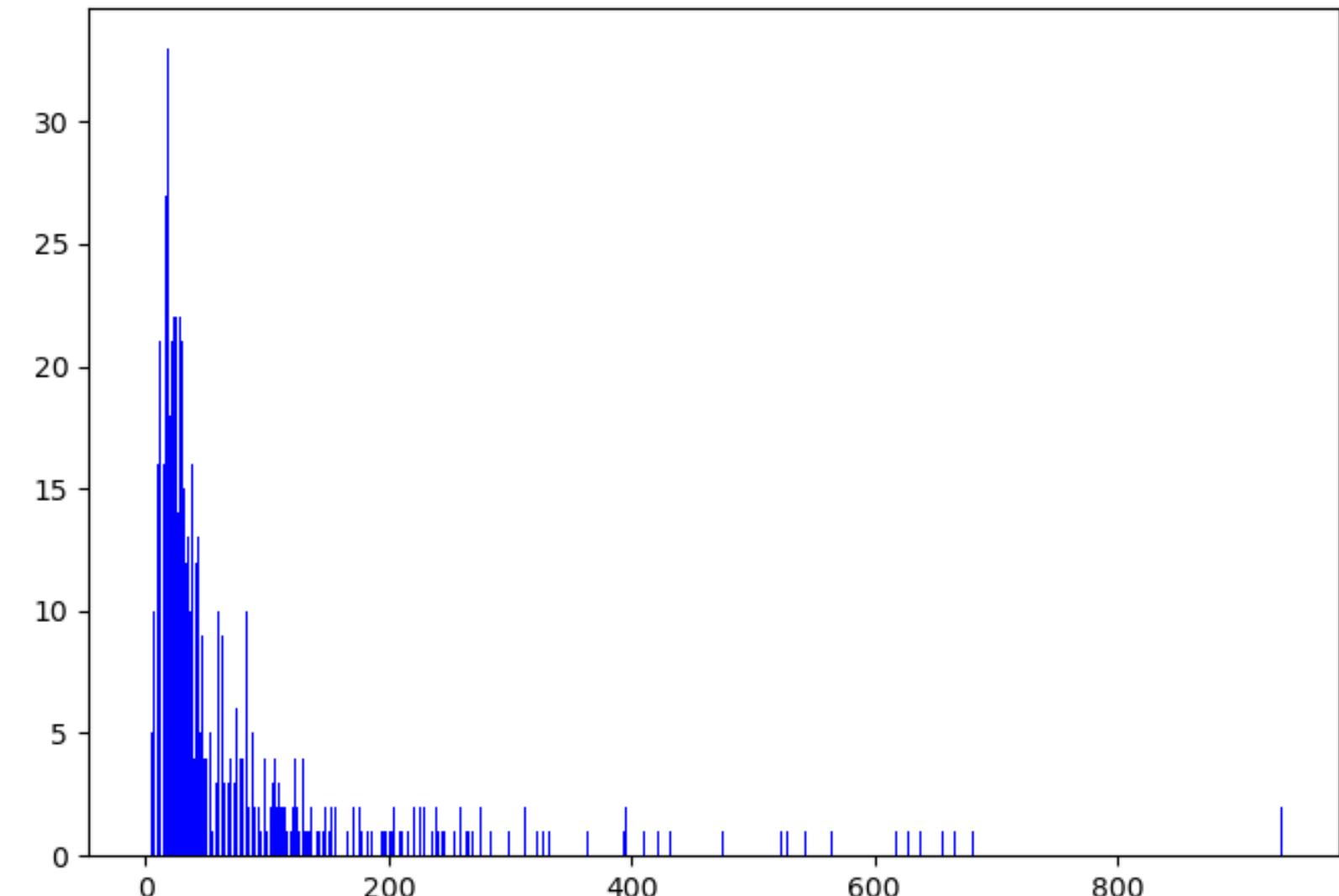


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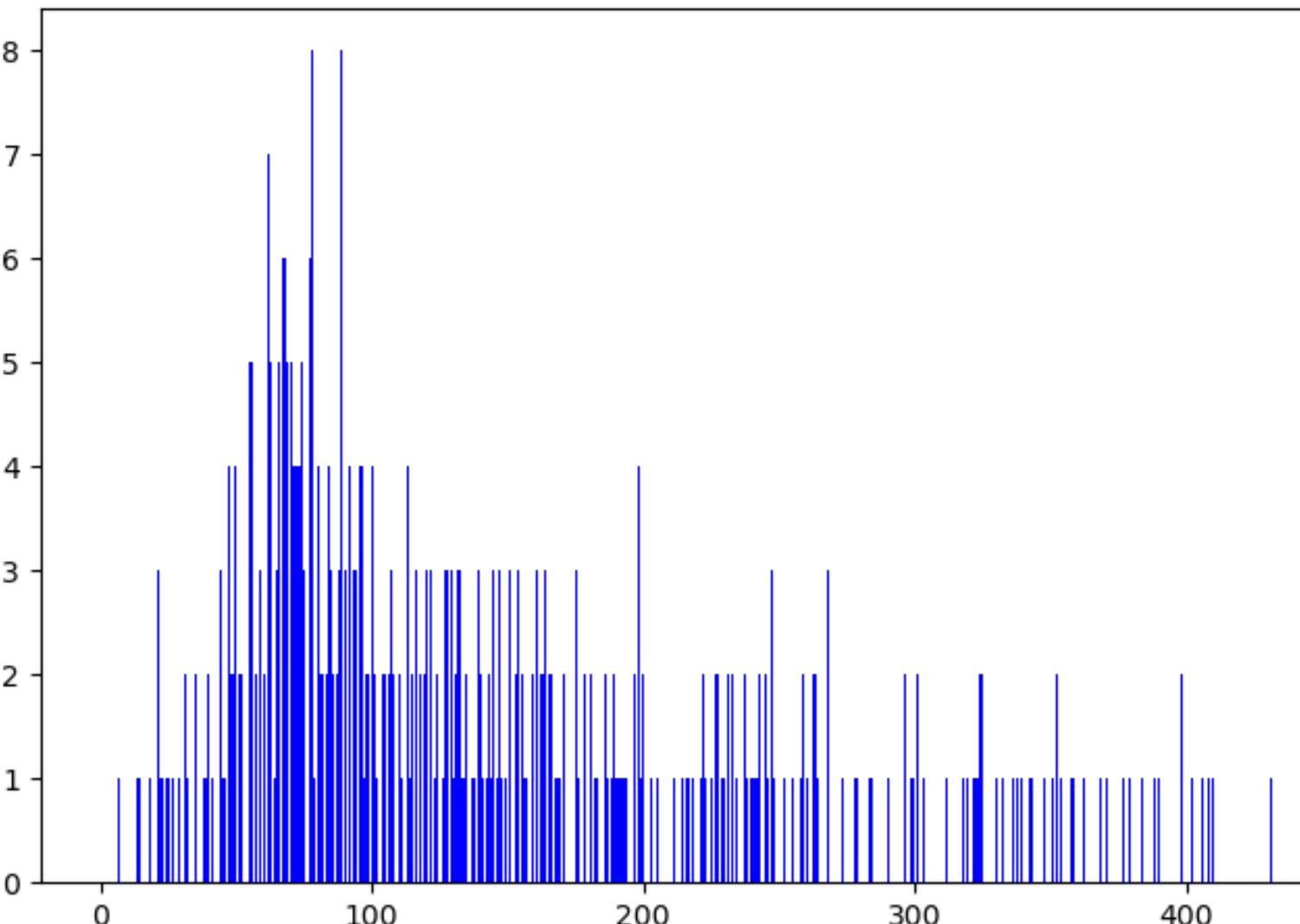


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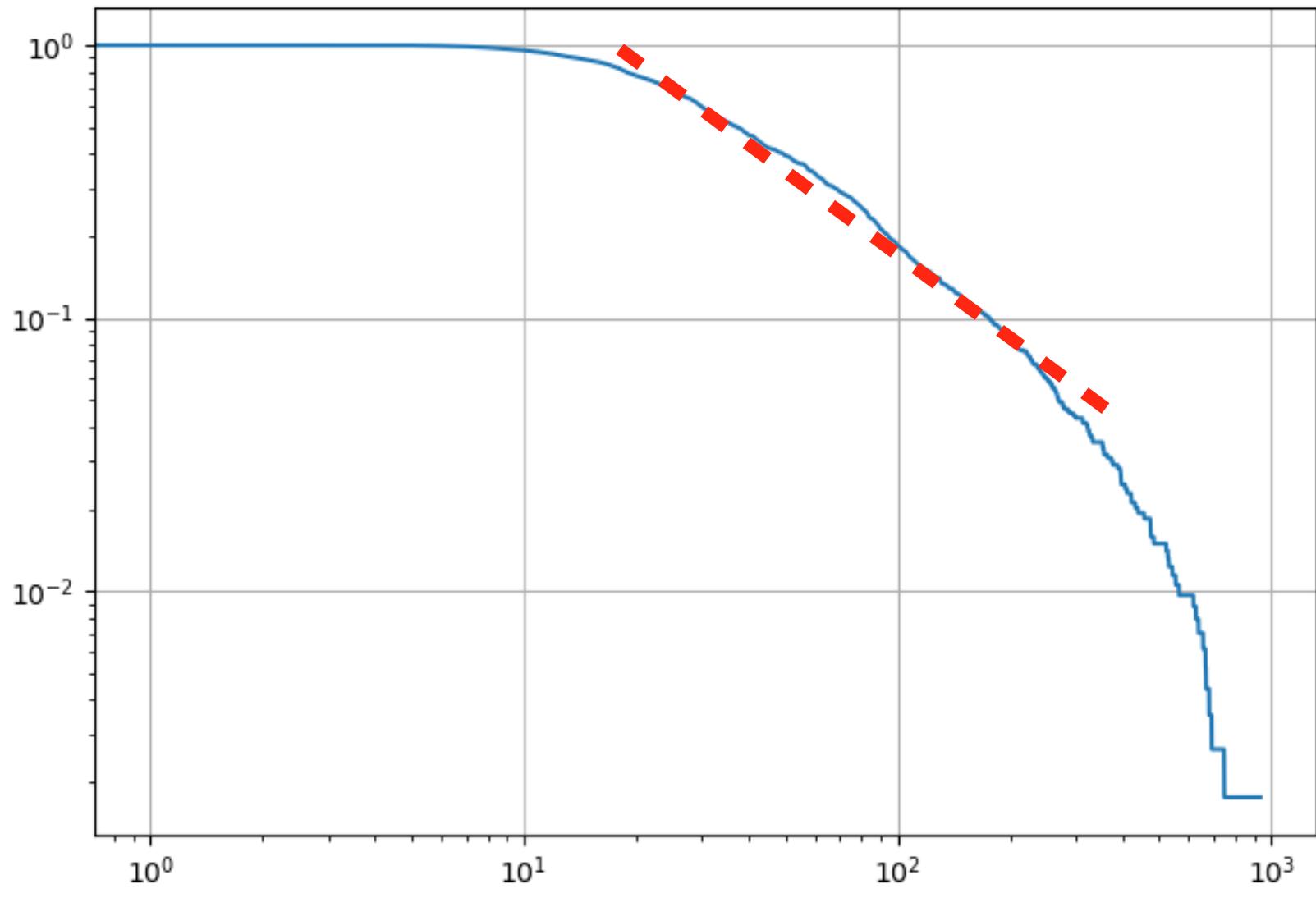
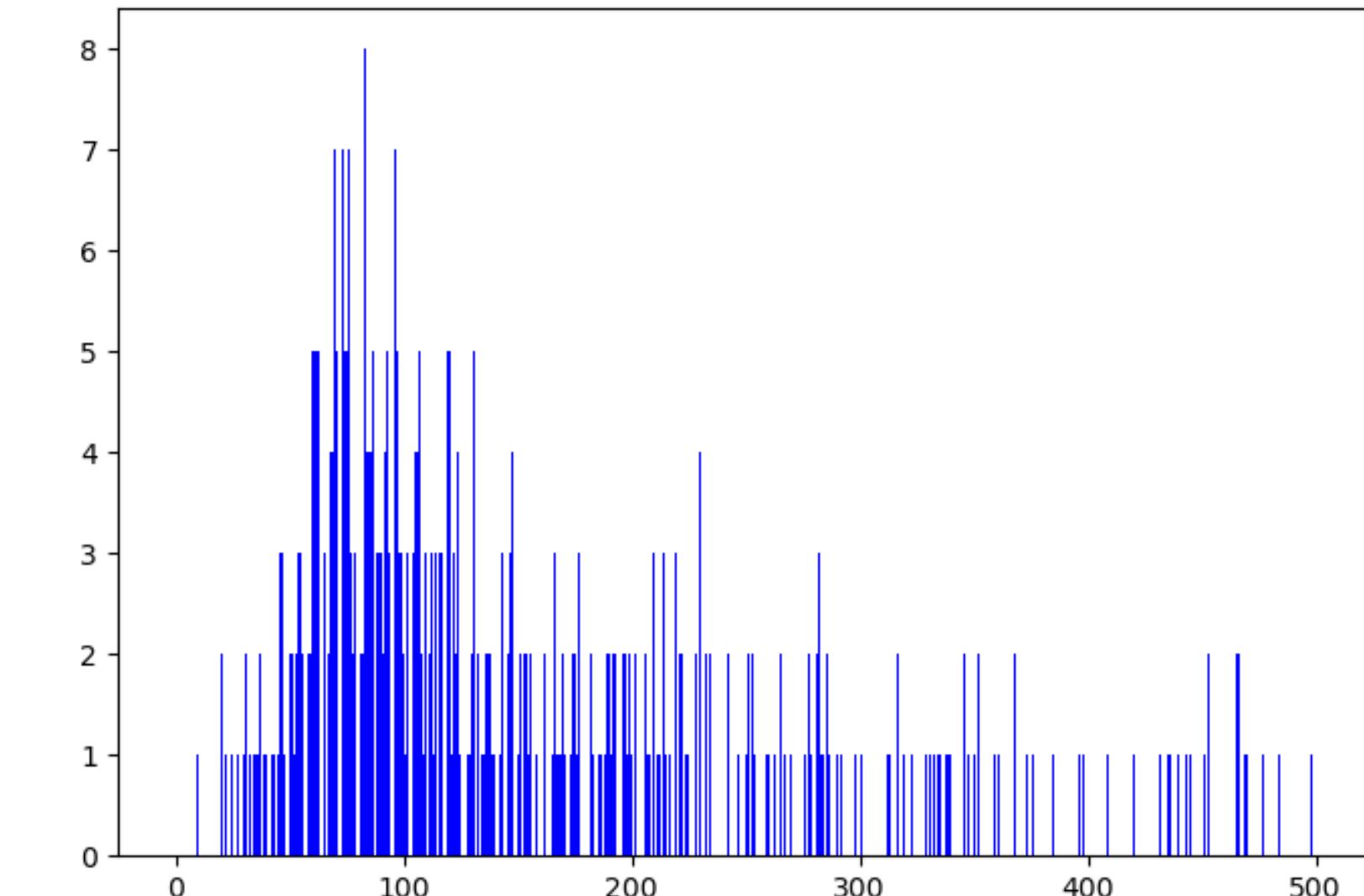
country: France



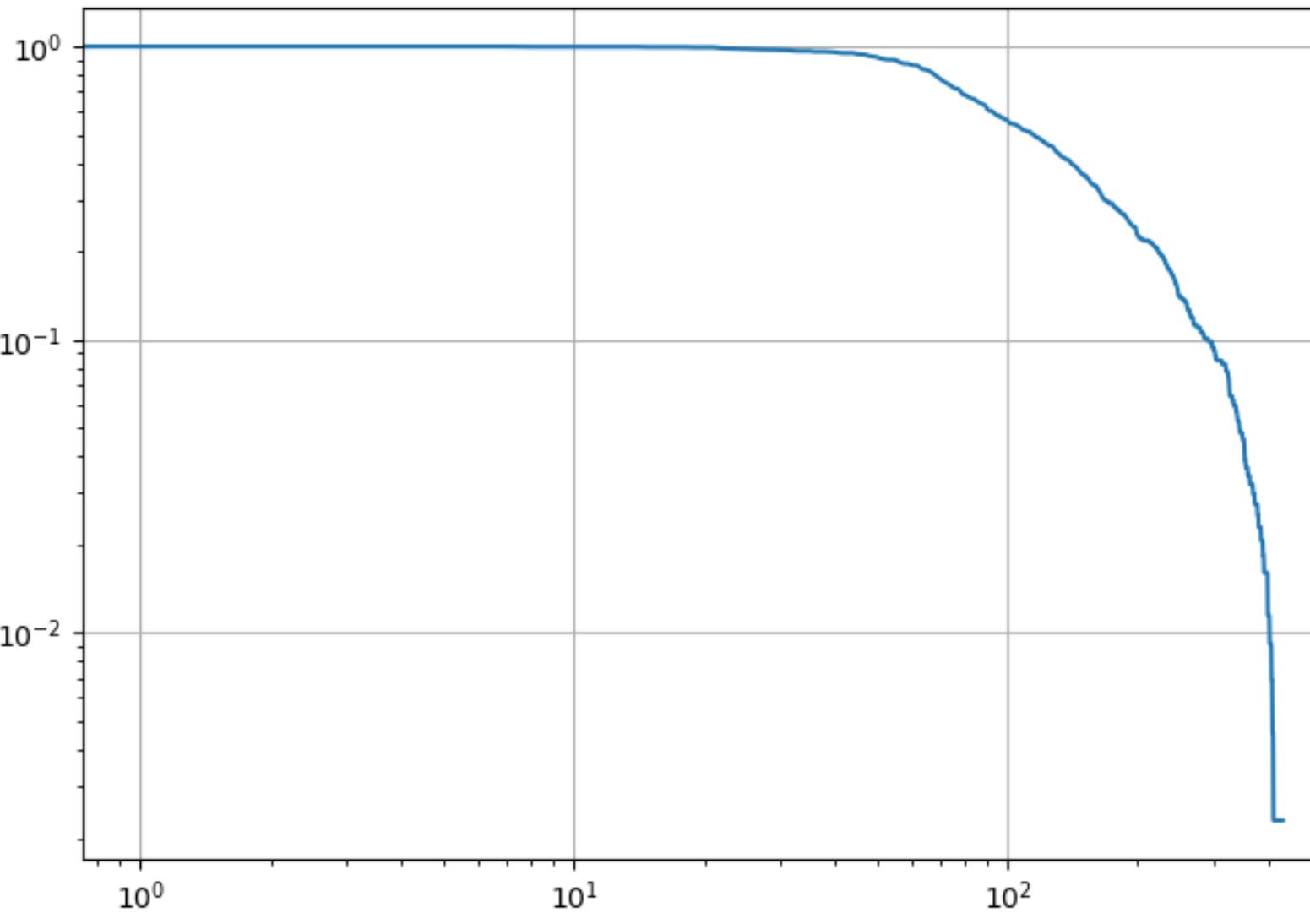
country: Mexico



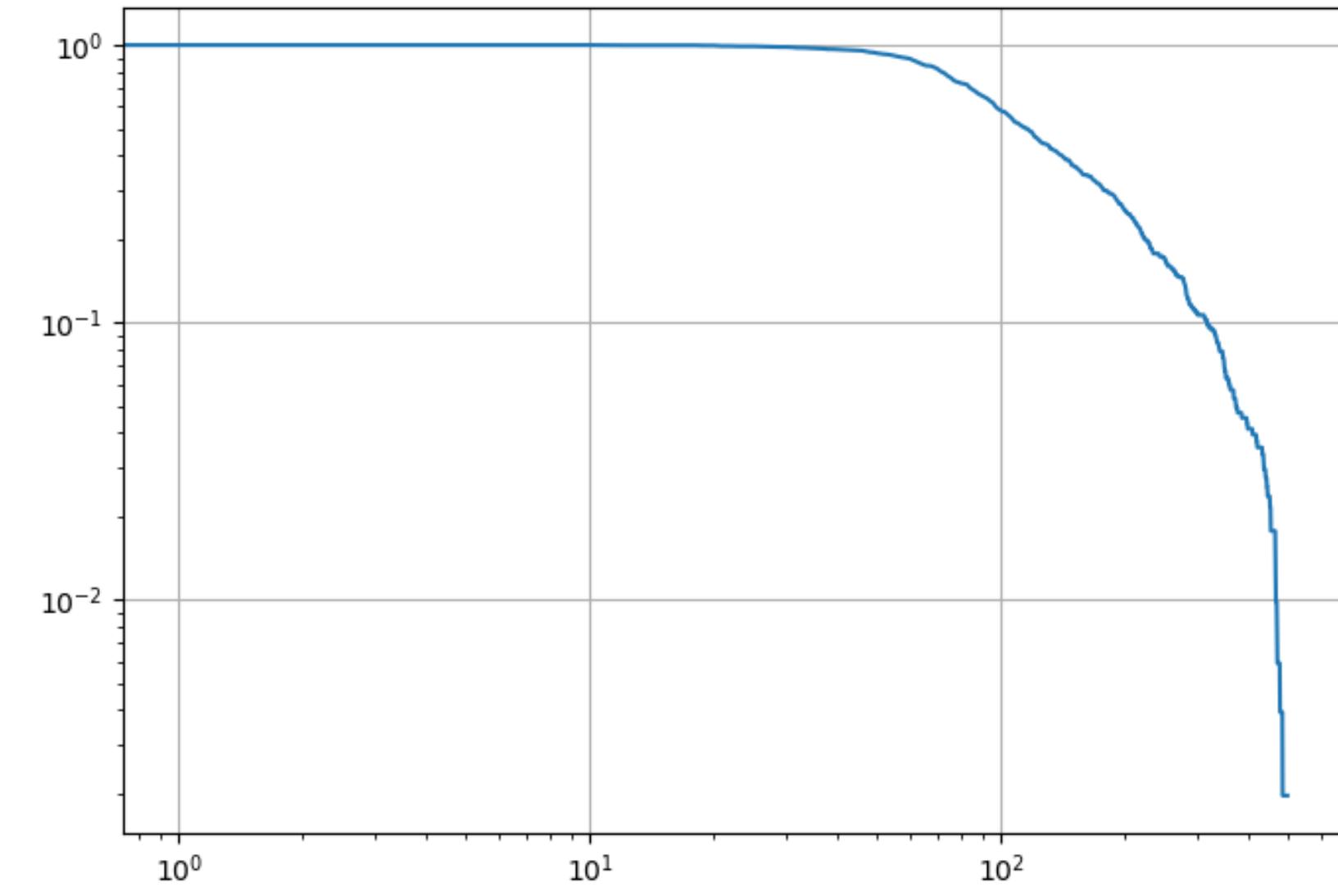
country: Italy



Power Law

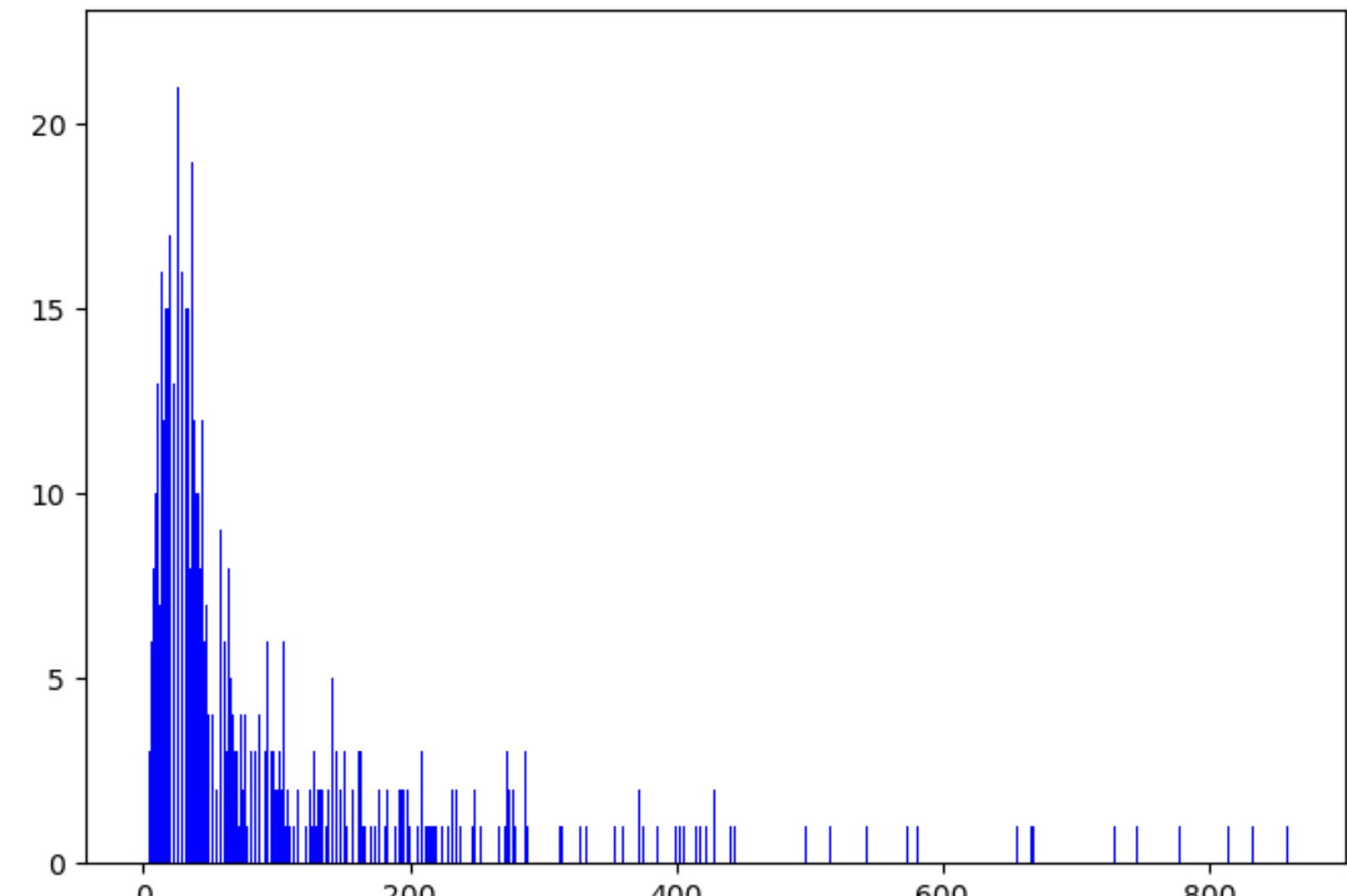


Not Power Law

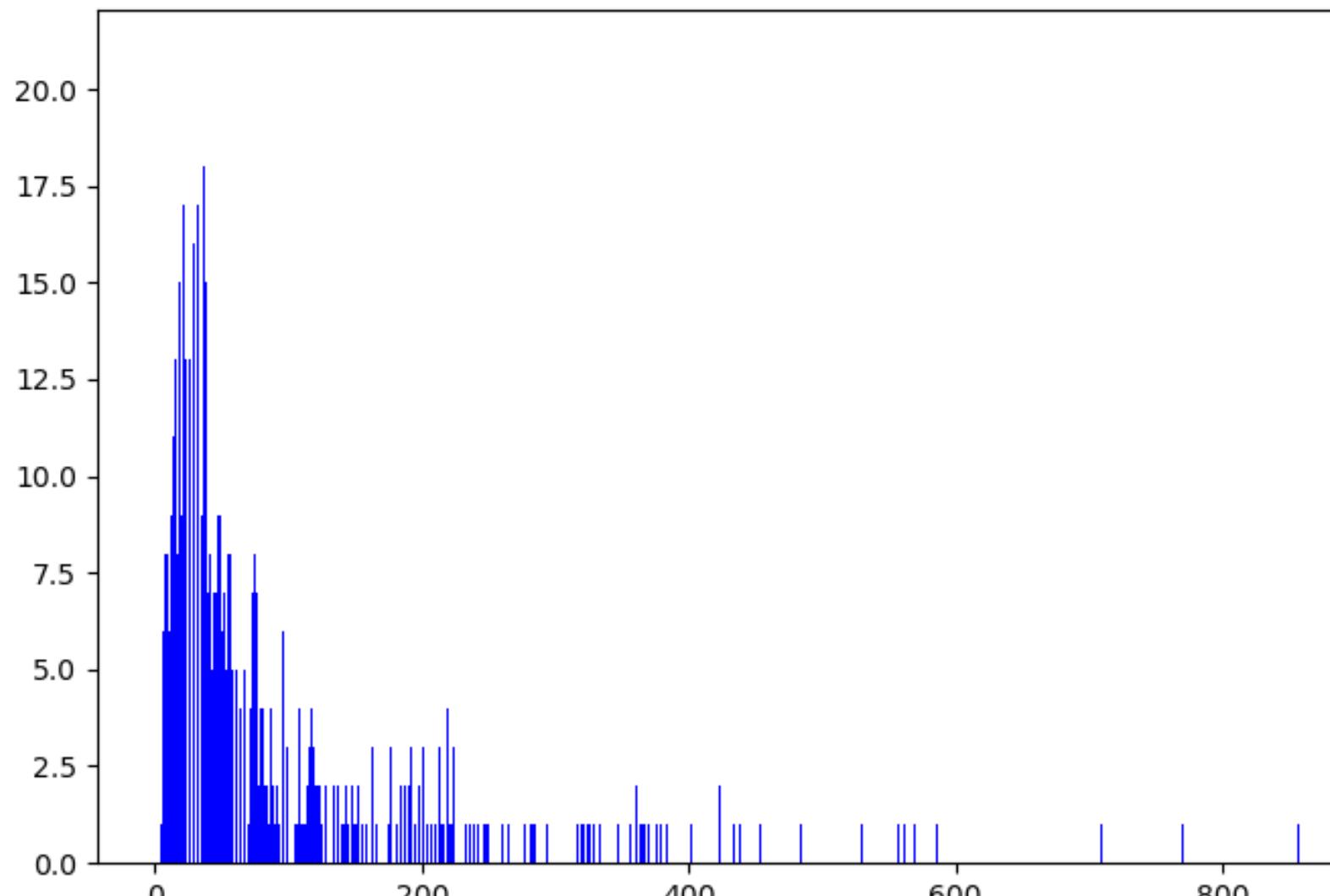


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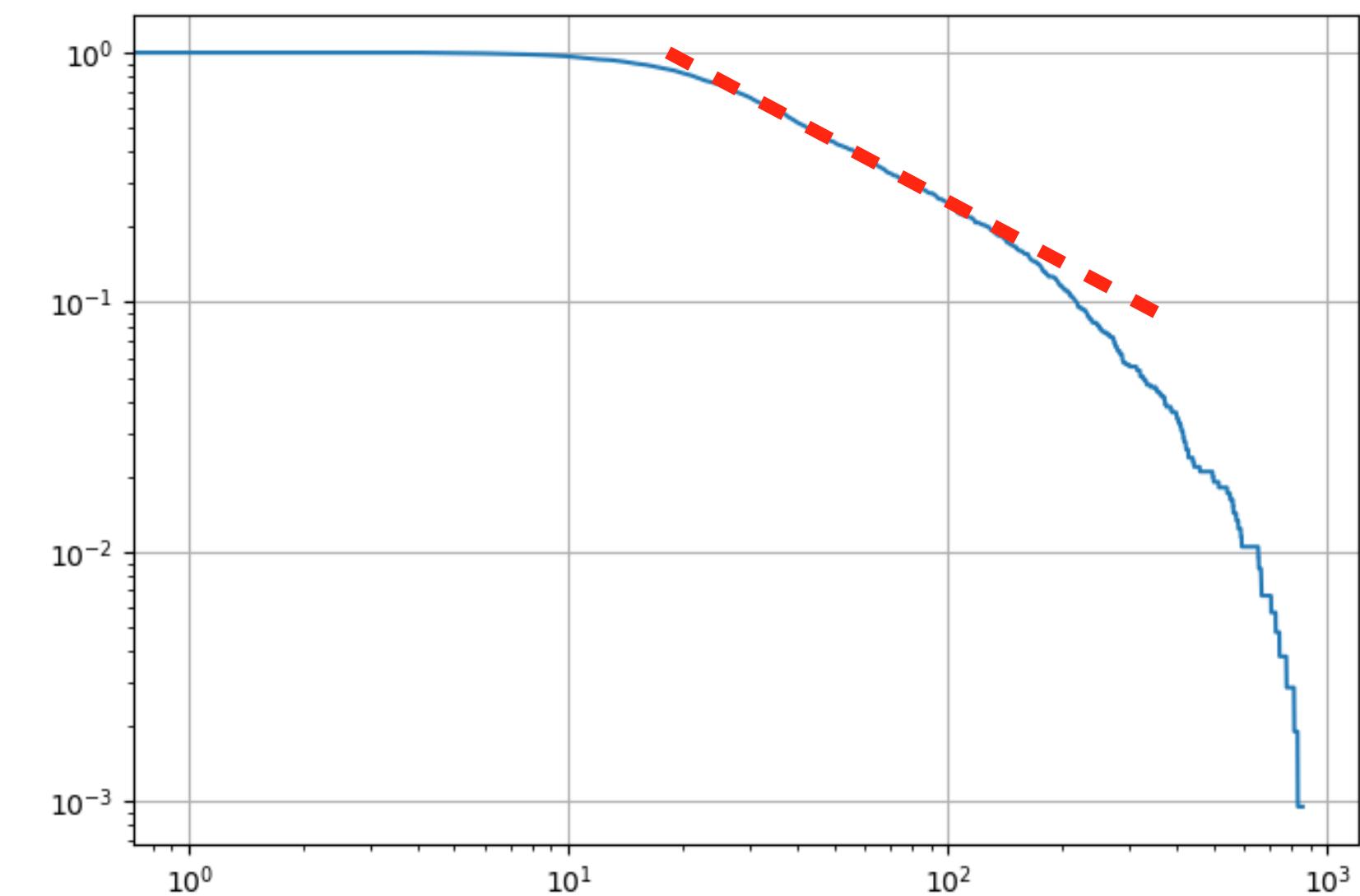
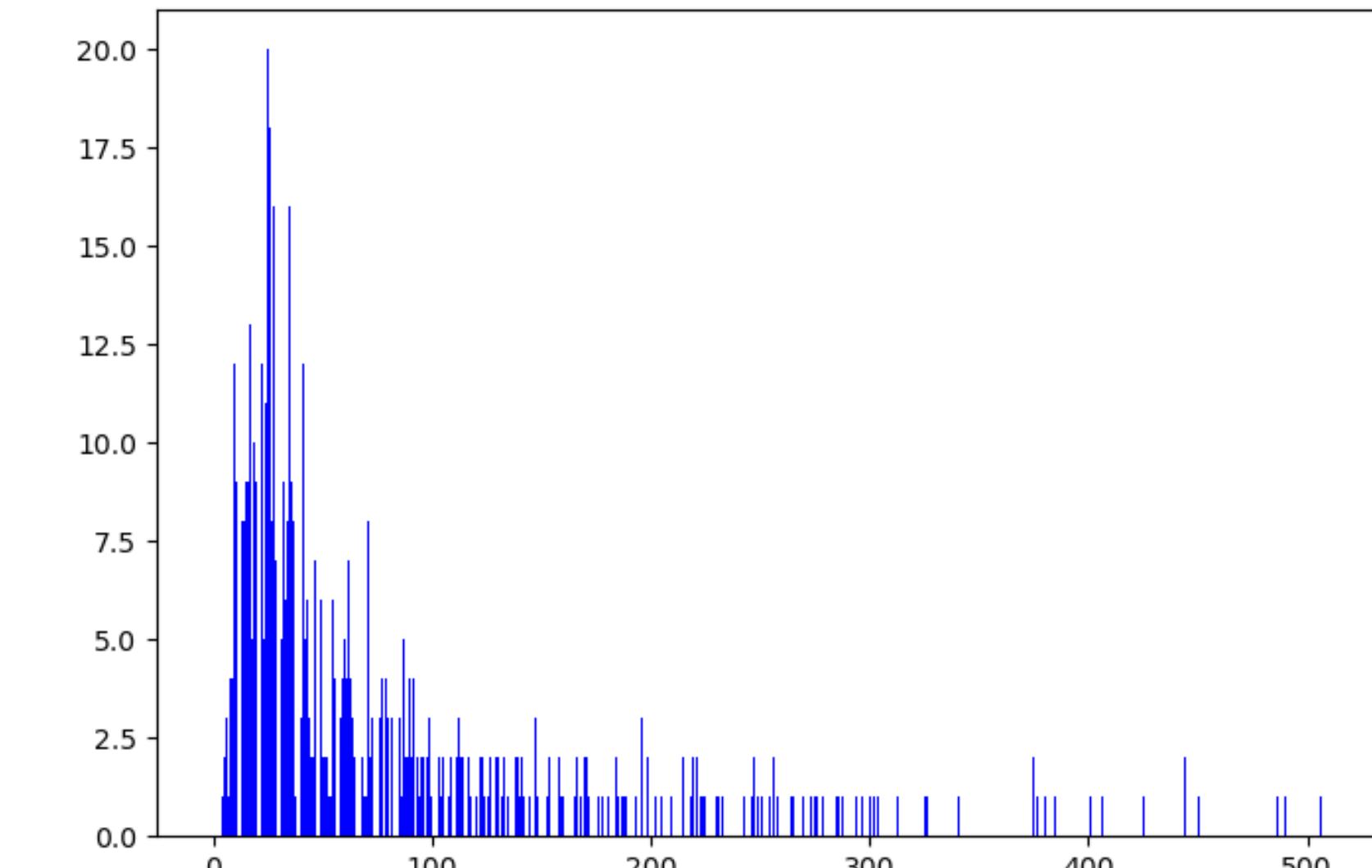
country: China



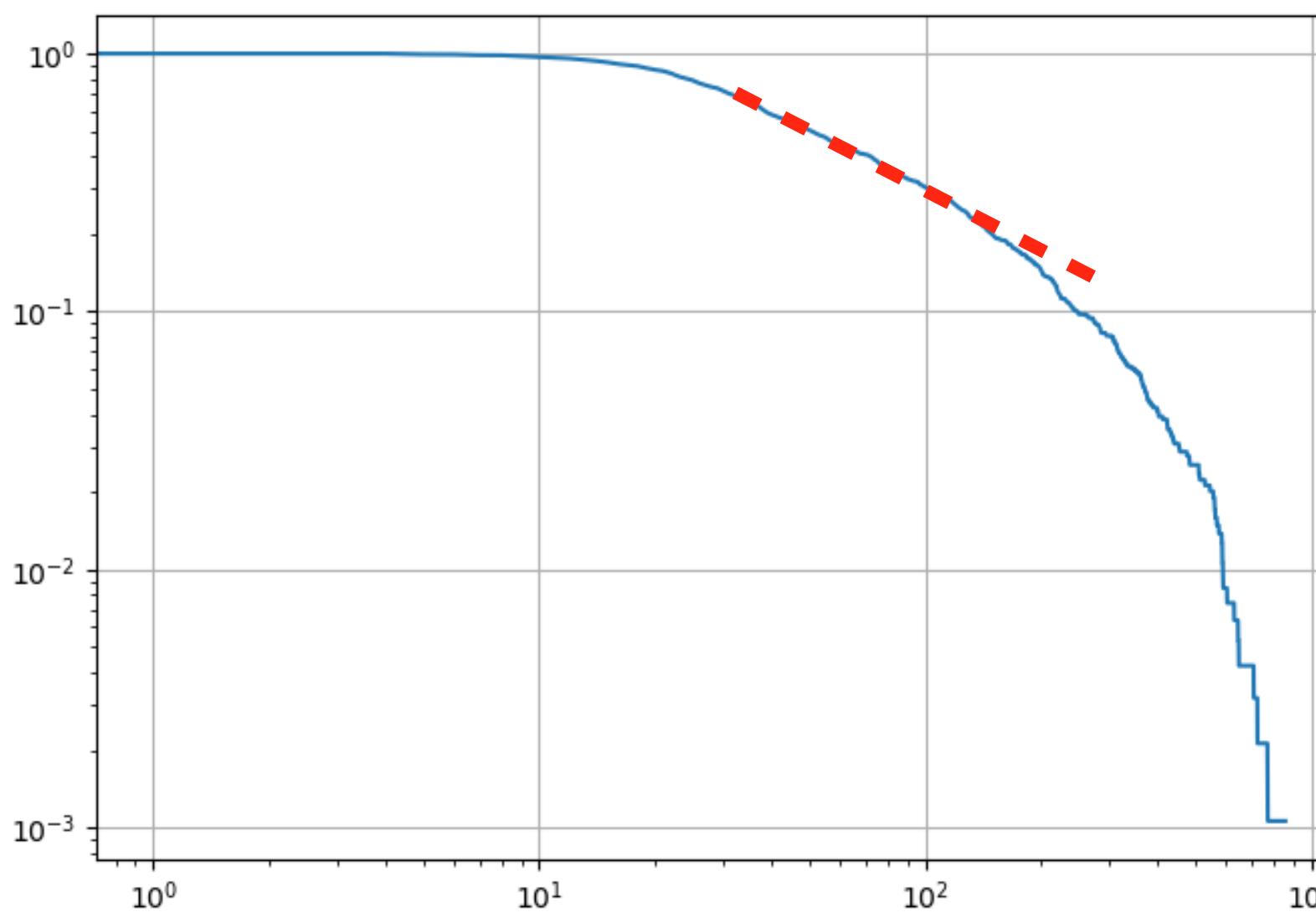
country: India



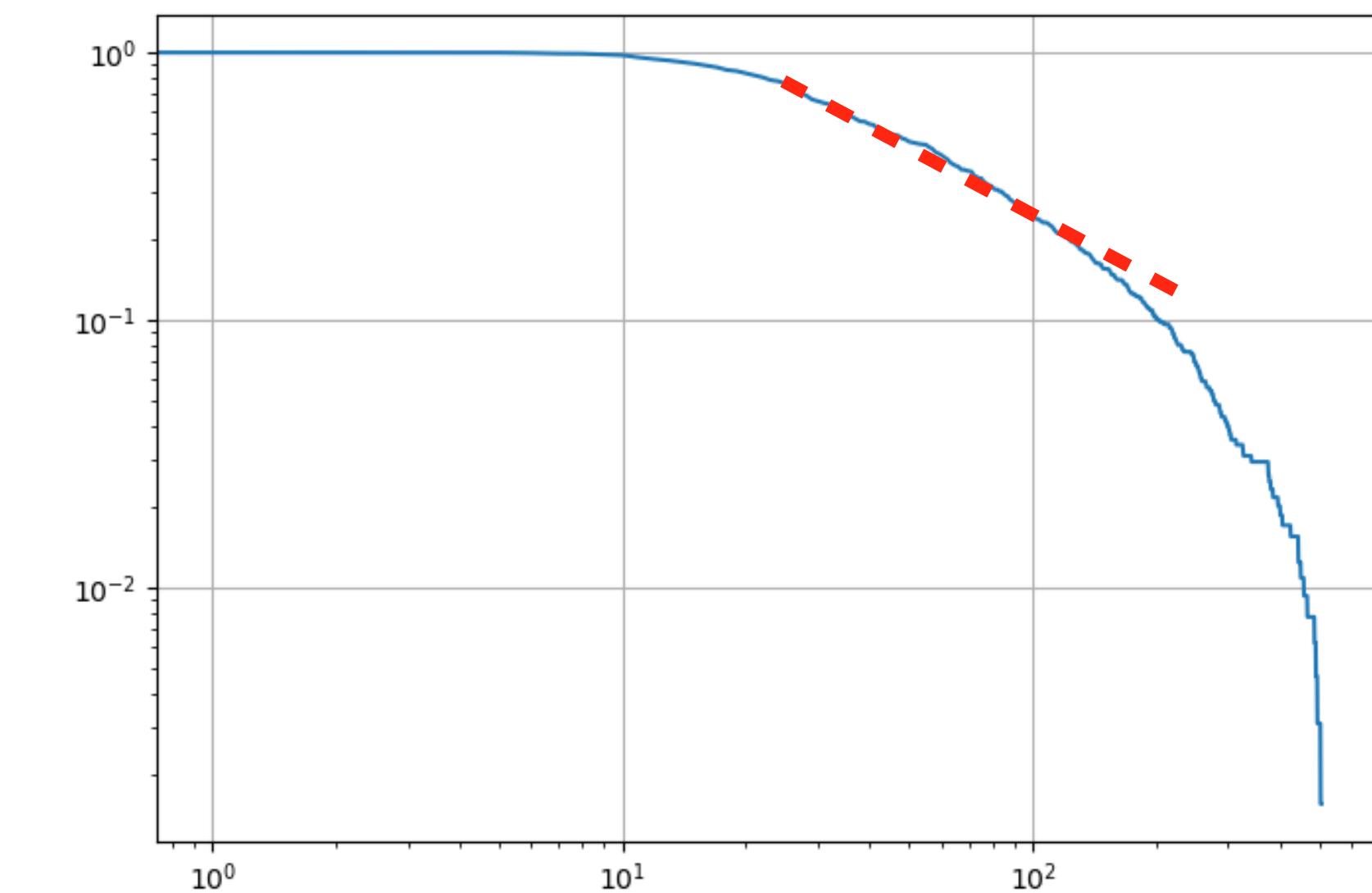
country: Thailand



Somewhat a Power Law

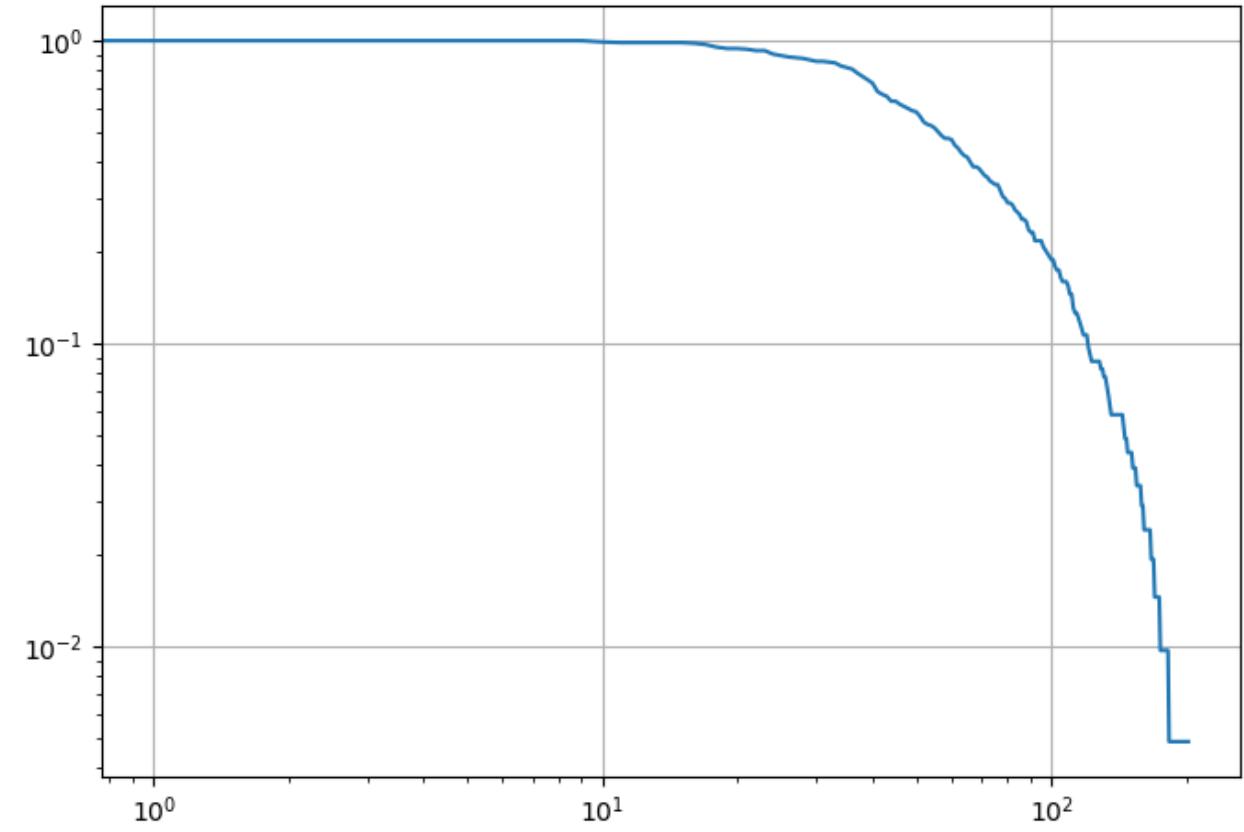
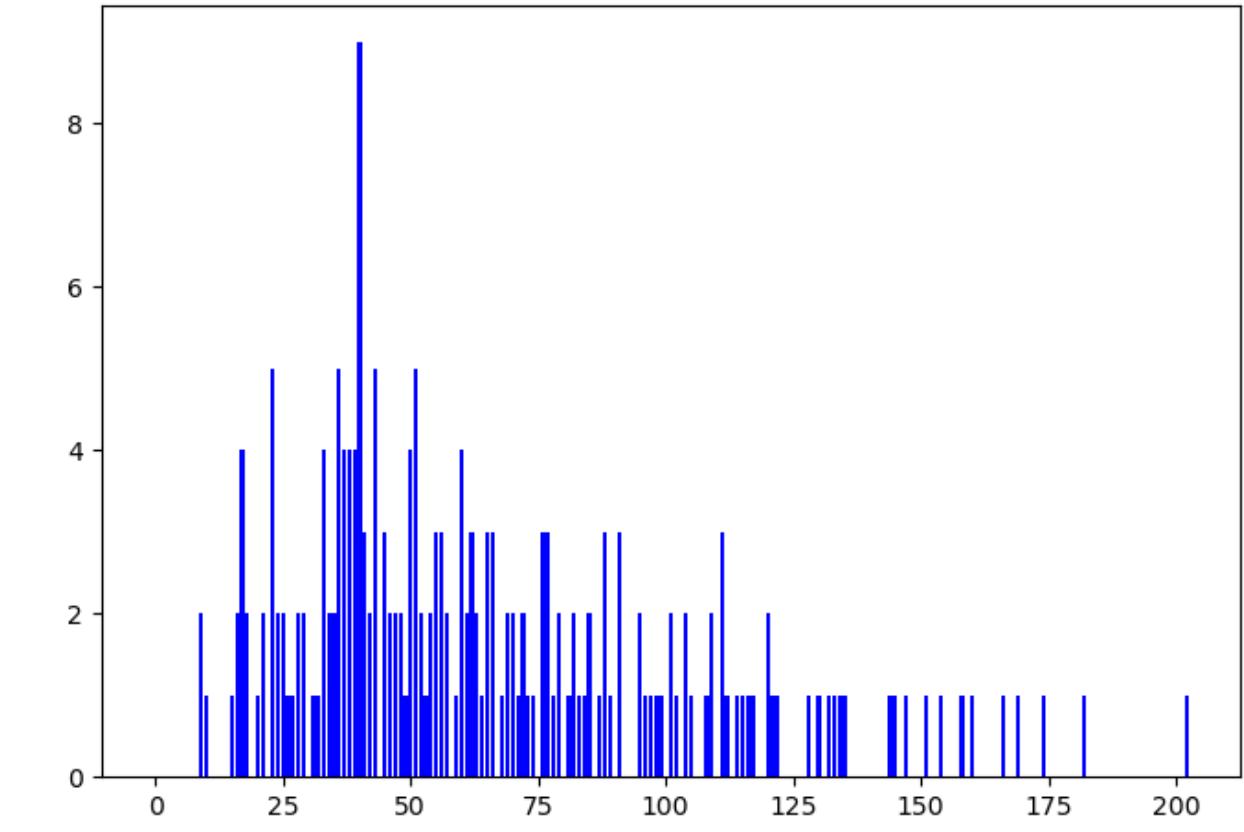


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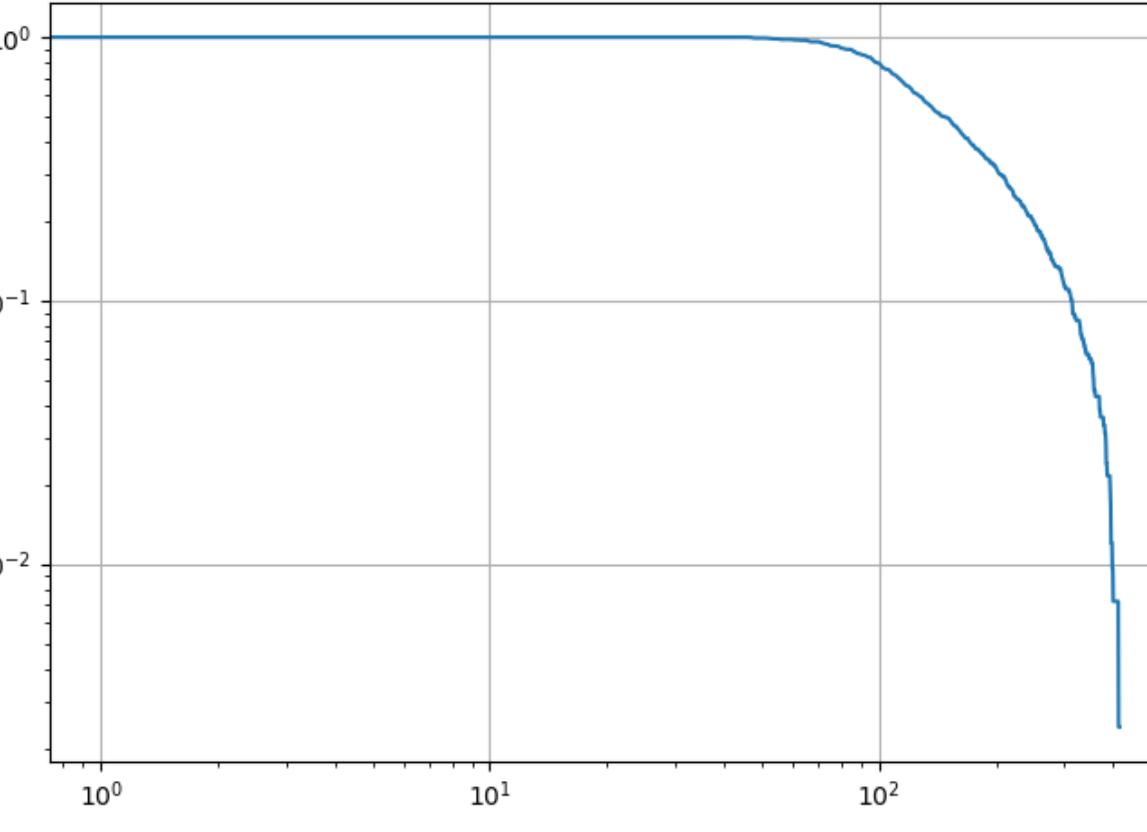
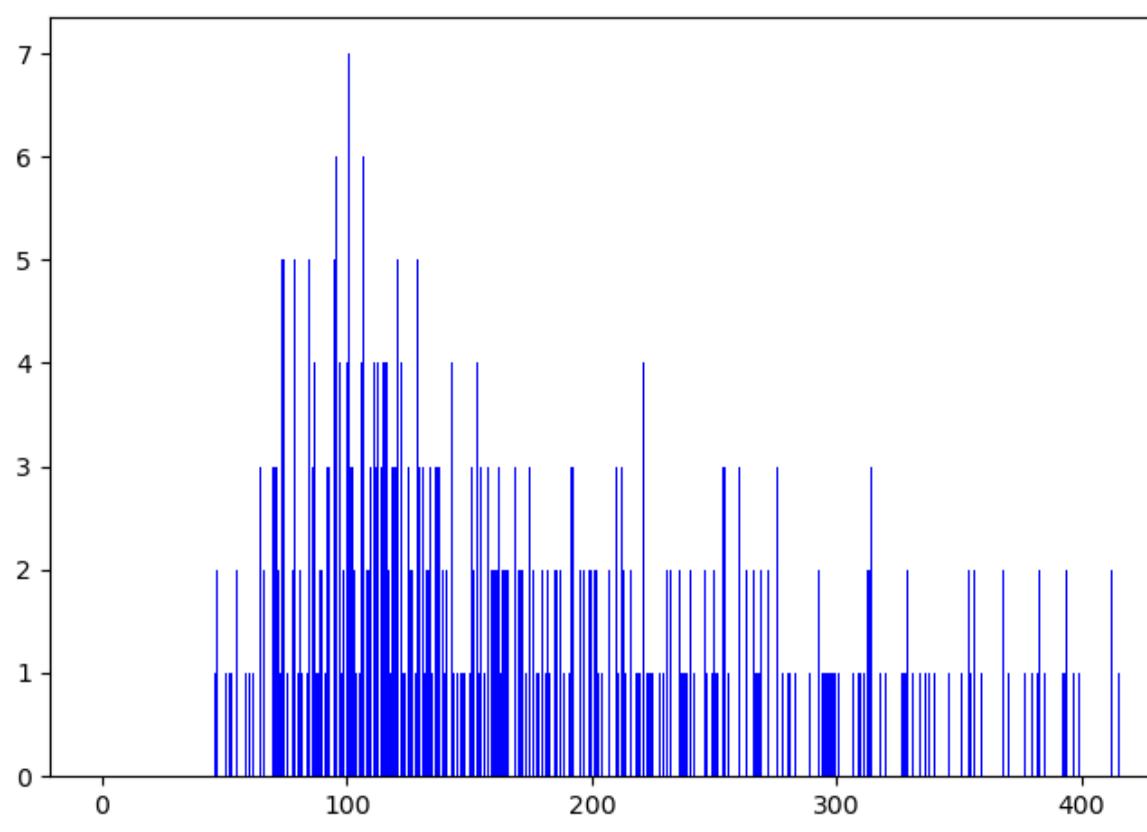


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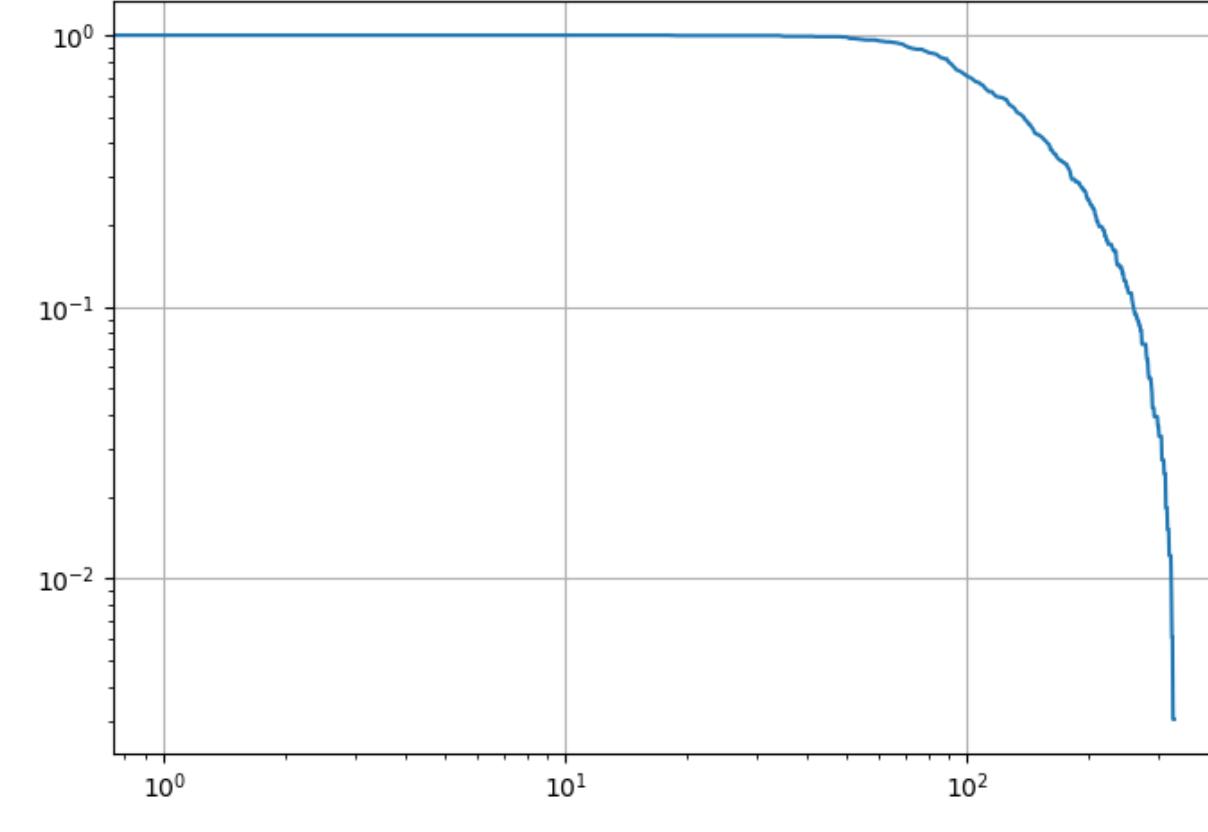
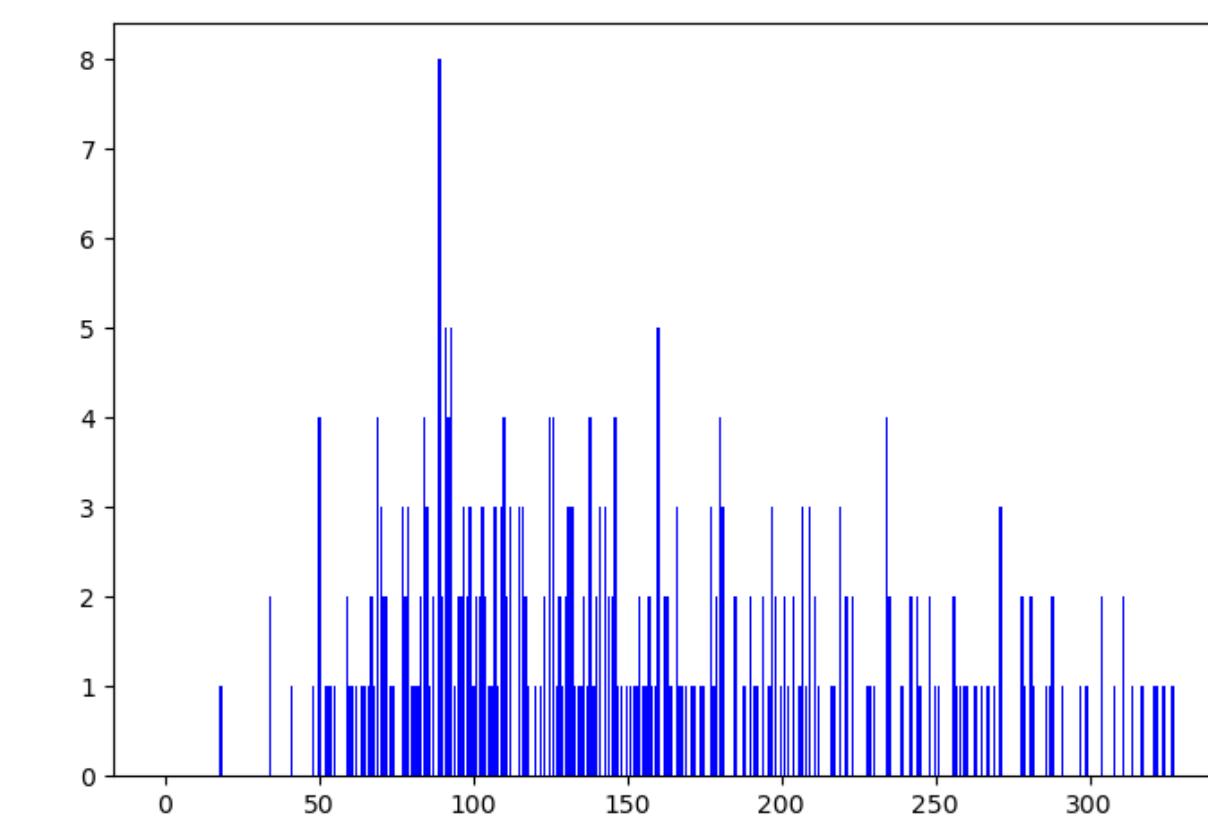
continent: North America



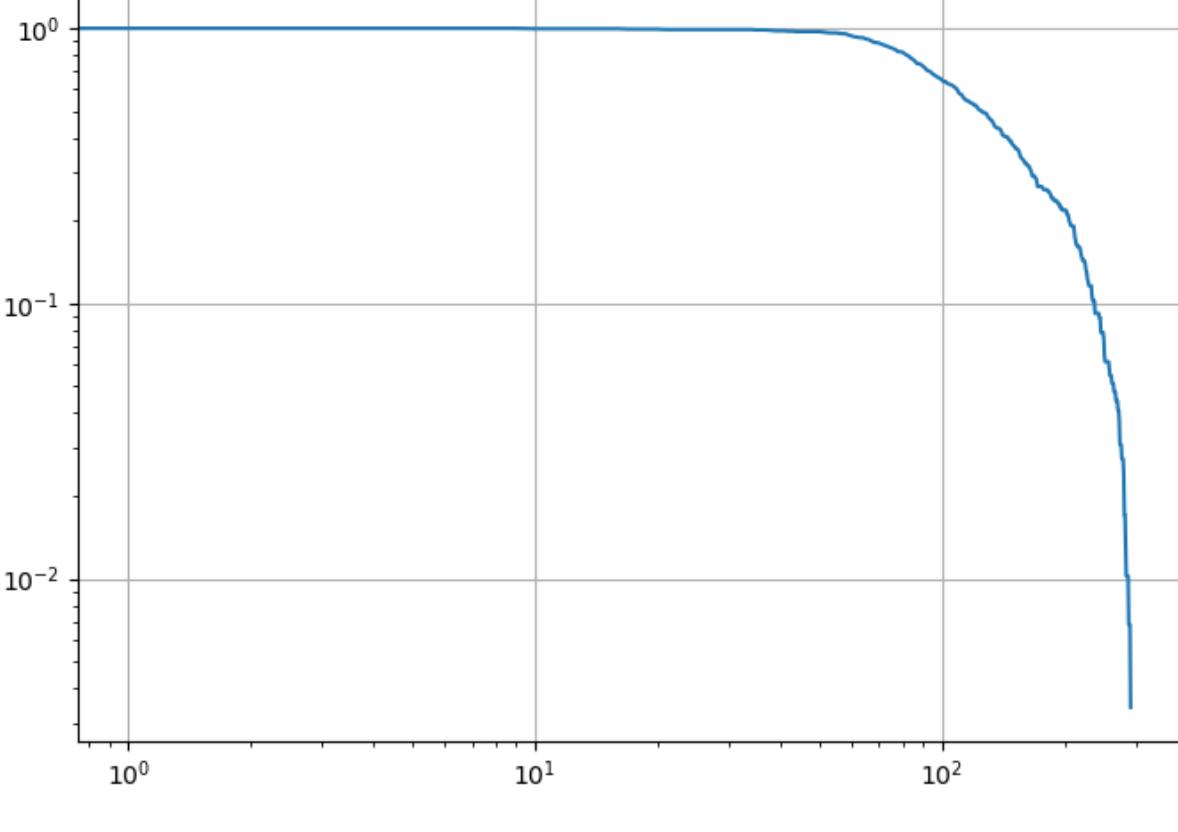
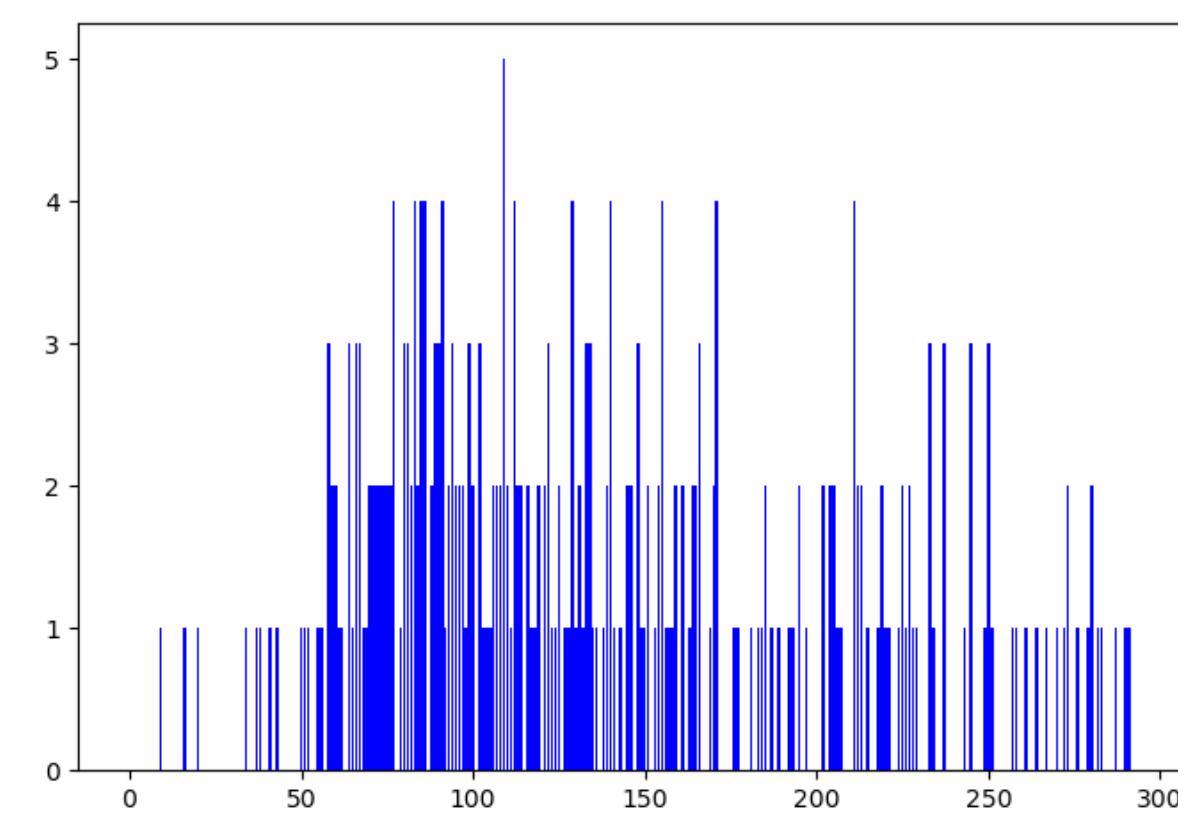
continent: Europe



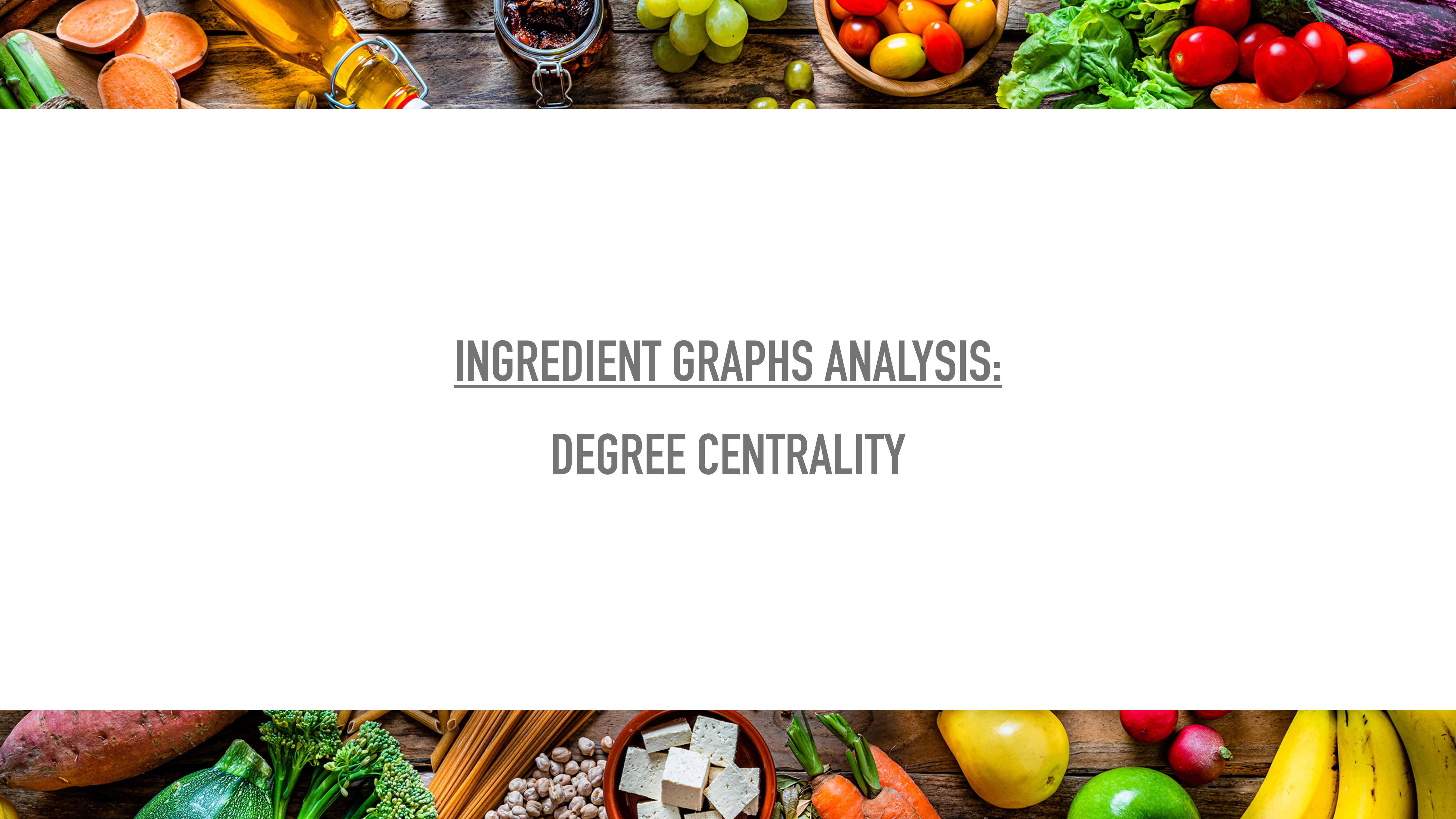
continent: Asia



continent: Latin America



Not Power Laws



INGREDIENT GRAPHS ANALYSIS:

DEGREE CENTRALITY

INGREDIENTS GRAPH: DEGREE CENTRALITY - COUNTRIES

US	salt (807)	butter (724)	onion (679)	garlic (672)	water (655)
Italian	salt (498)	olive oil (484)	butter (477)	garlic clove (470)	black pepper (469)
German	salt (522)	butter (459)	sugar (440)	water (438)	egg (414)
Canadian	salt (986)	butter (882)	egg (761)	onion (759)	water (732)
French	salt (935)	butter (935)	egg (746)	olive oil (692)	sugar (681)
Mexican	salt (431)	cilantro (410)	onion (408)	garlic clove (406)	water (402)
Indian	salt (857)	onion (770)	ginger (725)	water (709)	tomato (649)
Nigerian	salt (544)	onion (488)	water (467)	garlic clove (444)	olive oil (417)
Chinese	salt (859)	soy sauce (833)	water (815)	garlic clove (778)	ginger (746)
Thai	garlic clove (506)	soy sauce (503)	fish sauce (494)	lime juice (490)	ginger (486)
Argentine	onion (977)	salt (912)	garlic clove (865)	beef (817)	water (790)
Greek	olive oil (634)	salt (586)	garlic clove (557)	feta cheese (552)	oregano (521)
English	butter (561)	salt (506)	egg (456)	onion (443)	milk (411)
Irish	butter (467)	salt (455)	milk (381)	onion (368)	egg (363)
Australian	butter (692)	salt (659)	olive oil (638)	egg (636)	garlic clove (625)

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INGREDIENTS GRAPH: DEGREE CENTRALITY - COUNTRIES (SOME TOP ING.)

German salt, butter, sugar, water, egg, flour, milk

Indian ginger, tomato, turmeric,
cumin, coriander, garam masala

Irish milk, egg, flour, potato, carrot

INGREDIENTS GRAPH: DEGREE CENTRALITY - COUNTRIES (SOME TOP ING.)

German	salt, butter, sugar, water, egg, flour, milk
<hr/>	
Indian	ginger, tomato, turmeric, cumin, coriander, garam masala
<hr/>	
Irish	milk, egg, flour, potato, carrot



INGREDIENTS GRAPH: DEGREE CENTRALITY - COUNTRIES (SOME TOP ING.)



German salt, butter, sugar, water, egg, flour, milk



Indian

ginger, tomato, turmeric,
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Irish milk, egg, flour, potato, carrot

INGREDIENTS GRAPH: DEGREE CENTRALITY - COUNTRIES (SOME TOP ING.)

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salt, butter, sugar, water, egg, flour, milk



Indian

ginger, tomato, turmeric,
cumin, coriander, garam masala



Irish

milk, egg, flour, potato, carrot



INGREDIENTS GRAPH: DEGREE CENTRALITY - REGIONS (NON-STANDARD ING.)

Australian	lemon juice (434)	milk (412)	black pepper (410)	cream (407)	sugar (399)	parsley (383)
Canadian	pepper (485)	milk (475)	sugar (468)	lemon juice (425)	flour (414)	brown sugar (386)
US	black pepper (416)	all purpose flour (390)	white sugar (385)	egg (371)	milk (343)	tomato (308)
Mexican	cilantro (313)	chili powder (310)	cumin (309)	tomato (308)	cream (305)	black pepper (300)
French	egg (478)	sugar (431)	black pepper (418)	pepper (416)	milk (415)	flour (399)
Italian	black pepper (360)	parmesan cheese (356)	egg (349)	basil (348)	salt pepper (344)	oregano (344)
South American	beef (602)	black pepper (595)	pepper (593)	tomato (589)	garlic (564)	carrot (529)
Indian Subcontinent	ginger (525)	tomato (491)	turmeric (469)	cinnamon (459)	garam masala (458)	cumin seed (458)
Chinese and Mongolian	soy sauce (535)	ginger (506)	green onion (497)	sugar (494)	cornstarch (458)	sesame oil (457)

INGREDIENTS GRAPH: DEGREE CENTRALITY - REGIONS (SEASONING)

Australian	lemon juice (434)	milk (412)	black pepper (410)	cream (407)	sugar (399)	parsley (383)
Canadian	pepper (485)	milk (475)	sugar (468)	lemon juice (425)	flour (414)	brown sugar (386)
US	black pepper (416)	all purpose flour (390)	white sugar (385)	egg (371)	milk (343)	tomato (308)
Mexican	cilantro (313)	chili powder (310)	cumin (309)	tomato (308)	cream (305)	black pepper (300)
French	egg (478)	sugar (431)	black pepper (418)	pepper (416)	milk (415)	flour (399)
Italian	black pepper (360)	parmesan cheese (356)	egg (349)	basil (348)	salt pepper (344)	oregano (344)
South American	beef (602)	black pepper (595)	pepper (593)	tomato (589)	carrot (529)	beef broth (511)
Indian Subcontinent	ginger (525)	tomato (491)	turmeric (469)	cinnamon (459)	garam masala (458)	cumin seed (458)
Chinese and Mongolian	soy sauce (535)	ginger (506)	green onion (497)	sugar (494)	cornstarch (458)	sesame oil (457)

INGREDIENTS GRAPH: DEGREE CENTRALITY - REGIONS (BAKING/STEW)

Australian	lemon juice (434)	milk (412)	black pepper (410)	cream (407)	sugar (399)	parsley (383)
Canadian	pepper (485)	milk (475)	sugar (468)	lemon juice (425)	flour (414)	brown sugar (386)
US	black pepper (416)	all purpose flour (390)	white sugar (385)	egg (371)	milk (343)	tomato (308)
Mexican	cilantro (313)	chili powder (310)	cumin (309)	tomato (308)	cream (305)	black pepper (300)
French	egg (478)	sugar (431)	black pepper (418)	pepper (416)	milk (415)	flour (399)
Italian	black pepper (360)	parmesan cheese (356)	egg (349)	basil (348)	salt pepper (344)	oregano (344)
South American	beef (602)	black pepper (595)	pepper (593)	tomato (589)	garlic (564)	carrot (529)
Indian Subcontinent	ginger (525)	tomato (491)	turmeric (469)	cinnamon (459)	garam masala (458)	cumin seed (458)
Chinese and Mongolian	soy sauce (535)	ginger (506)	green onion (497)	sugar (494)	cornstarch (458)	sesame oil (457)

INGREDIENTS GRAPH: DEGREE CENTRALITY - CONTINENTS

	butter (182)	egg (169)	All purpose flour (166)	milk (160)	black pepper (154)	brown sugar (151)	garlic (147)	vegetab le oil (145)	flour (144)	white sugar (135)	pepper (134)	sugar (133)
North American												
Latin American	garlic clove (290)	tomato (283)	garlic (282)	olive oil (280)	black pepper (279)	cumin (276)	chili powder (273)	cilantro (273)	vegetab le oil (272)	pepper (270)	oregano (267)	butter (264)
Asian	garlic clove (321)	garlic (317)	ginger (314)	sugar (311)	black pepper (311)	vegetab le oil (308)	oil (304)	cilantro (304)	carrot (299)	olive oil (297)	chicken breast (291)	lemon juice (288)
European	butter (412)	egg (399)	sugar (397)	olive oil (394)	garlic clove (393)	black pepper (392)	pepper (385)	flour (383)	milk (383)	parsley (382)	lemon juice (380)	purpose flour (377)

*Excluding salt, water, onion

INGREDIENTS GRAPH: DEGREE CENTRALITY - CONTINENTS (SEASONING)

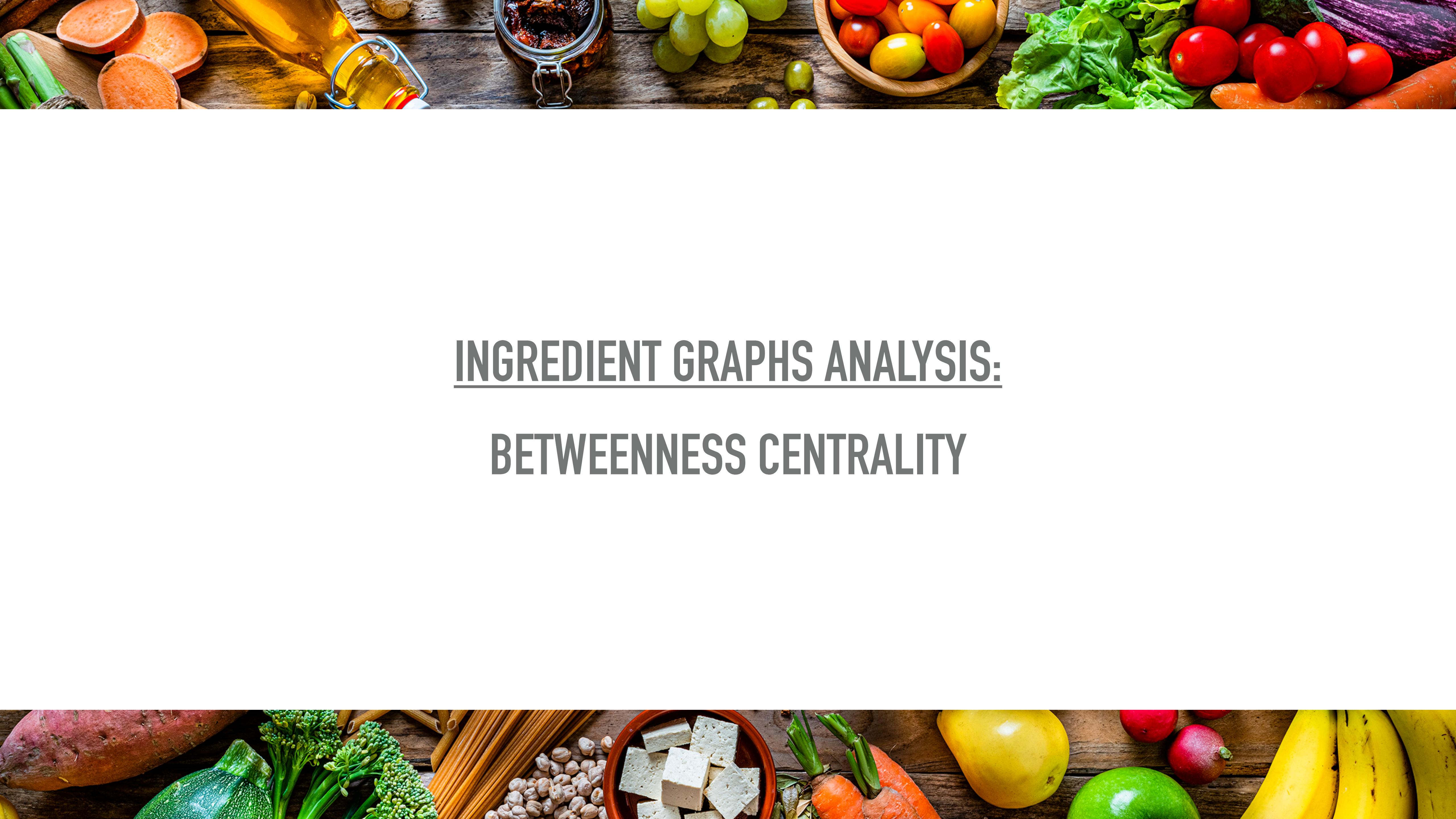
North American	butter (182)	egg (169)	all purpose flour (166)	milk (160)	black pepper (154)	brown sugar (151)	garlic (147)	vegetable oil (145)	flour (144)	white sugar (135)	pepper (134)	sugar (133)
Latin American	garlic clove (290)	tomato (283)	garlic (282)	olive oil (280)	black pepper (279)	cumin (276)	chili powder (273)	cilantro (273)	vegetable oil (272)	pepper (270)	oregano (267)	butter (264)
Asian	garlic clove (321)	garlic (317)	ginger (314)	sugar (311)	black pepper (311)	vegetable oil (308)	oil (304)	cilantro (304)	carrot (299)	olive oil (297)	chicken breast (291)	lemon juice (288)
European	butter (412)	egg (399)	sugar (397)	olive oil (394)	garlic clove (393)	black pepper (392)	pepper (385)	flour (383)	milk (383)	parsley (382)	lemon juice (380)	all purpose flour (377)

*Excluding salt, water, onion

INGREDIENTS GRAPH: DEGREE CENTRALITY - CONTINENTS (BAKING/PASTA/STEW)

North American	butter (182)	egg (169)	all purpose flour (166)	milk (160)	black pepper (154)	brown sugar (151)	garlic (147)	vegetable oil (145)	flour (144)	white sugar (135)	pepper (134)	sugar (133)
Latin American	garlic clove (290)	tomato (283)	garlic (282)	olive oil (280)	black pepper (279)	cumin (276)	chili powder (273)	cilantro (273)	vegetable oil (272)	pepper (270)	oregano (267)	butter (264)
Asian	garlic clove (321)	garlic (317)	ginger (314)	sugar (311)	black pepper (311)	vegetable oil (308)	oil (304)	cilantro (304)	carrot (299)	olive oil (297)	chicken breast (291)	lemon juice (288)
European	butter (412)	egg (399)	sugar (397)	olive oil (394)	garlic clove (393)	black pepper (392)	pepper (385)	flour (383)	milk (383)	parsley (382)	lemon juice (380)	all purpose flour (377)

*Excluding salt, water, onion



INGREDIENT GRAPHS ANALYSIS:

BETWEENNESS CENTRALITY

* Excluding garlic, salt, or water

INGREDIENTS GRAPH: BETWEENNESS CENTRALITY - COUNTRIES

US	butter(0.033)	white sugar(0.022)	olive oil(0.022)	vegetable oil(0.02)	milk(0.019)
Italian	cream(0.01)	oil(0.01)	heavy cream(0.008)	flour(0.008)	lemon(0.008)
German	milk(0.031)	flour(0.03)	butter(0.028)	sugar(0.028)	a.p. flour(0.022)
Canadian	butter(0.024)	sugar(0.023)	milk(0.021)	egg(0.02)	flour(0.018)
French	sugar(0.022)	butter(0.021)	egg(0.02)	milk(0.018)	black pepper(0.017)
Mexican	lemon juice(0.008)	cinnamon(0.006)	parsley(0.006)	paprika(0.006)	white rice(0.005)
Indian	milk(0.016)	ginger(0.015)	sugar(0.015)	butter(0.015)	olive oil(0.014)
Nigerian	lemon juice(0.02)	olive oil(0.02)	butter(0.017)	ginger(0.017)	onion(0.017)
Chinese	garlic(0.017)	garlic clove(0.017)	black pepper(0.017)	egg(0.016)	sugar(0.016)
Thai	ginger(0.018)	garlic clove(0.017)	sugar(0.017)	soy sauce(0.016)	lime juice(0.016)
Argentine	black pepper(0.018)	garlic(0.018)	pepper(0.018)	garlic clove(0.016)	olive oil(0.015)
Greek	feta cheese(0.02)	lemon juice(0.019)	garlic clove(0.019)	pepper(0.018)	black pepper(0.018)
English	butter(0.029)	milk(0.024)	egg(0.024)	flour(0.022)	sugar(0.022)
Irish	milk(0.038)	cream(0.035)	sugar(0.034)	egg(0.028)	a.p. flour(0.022)
Australian	cream(0.027)	lemon juice(0.022)	butter(0.02)	black pepper(0.018)	egg(0.018)

* Excluding garlic, salt, or water

INGREDIENTS GRAPH: BETWEENNESS CENTRALITY - COUNTRIES (SEASONING)

US	butter(0.033)	white sugar(0.022)	olive oil(0.022)	vegetable oil(0.02)	milk(0.019)
Italian	cream(0.01)	oil(0.01)	heavy cream(0.008)	flour(0.008)	lemon(0.008)
German	milk(0.031)	flour(0.03)	butter(0.028)	sugar(0.028)	a.p. flour(0.022)
Canadian	butter(0.024)	sugar(0.023)	milk(0.021)	egg(0.02)	flour(0.018)
French	sugar(0.022)	butter(0.021)	egg(0.02)	milk(0.018)	black pepper(0.017)
Mexican	lemon juice(0.008)	cinnamon(0.006)	parsley(0.006)	paprika(0.006)	white rice(0.005)
Indian	milk(0.016)	ginger(0.015)	sugar(0.015)	butter(0.015)	olive oil(0.014)
Nigerian	lemon juice(0.02)	olive oil(0.02)	butter(0.017)	ginger(0.017)	onion(0.017)
Chinese	garlic(0.017)	garlic clove(0.017)	black pepper(0.017)	egg(0.016)	sugar(0.016)
Thai	ginger(0.018)	garlic clove(0.017)	sugar(0.017)	soy sauce(0.016)	lime juice(0.016)
Argentine	black pepper(0.018)	garlic(0.018)	pepper(0.018)	garlic clove(0.016)	olive oil(0.015)
Greek	feta cheese(0.02)	lemon juice(0.019)	garlic clove(0.019)	pepper(0.018)	black pepper(0.018)
English	butter(0.029)	milk(0.024)	egg(0.024)	flour(0.022)	sugar(0.022)
Irish	milk(0.038)	cream(0.035)	sugar(0.034)	egg(0.028)	a.p. flour(0.022)
Australian	cream(0.027)	lemon juice(0.022)	butter(0.02)	black pepper(0.018)	egg(0.018)

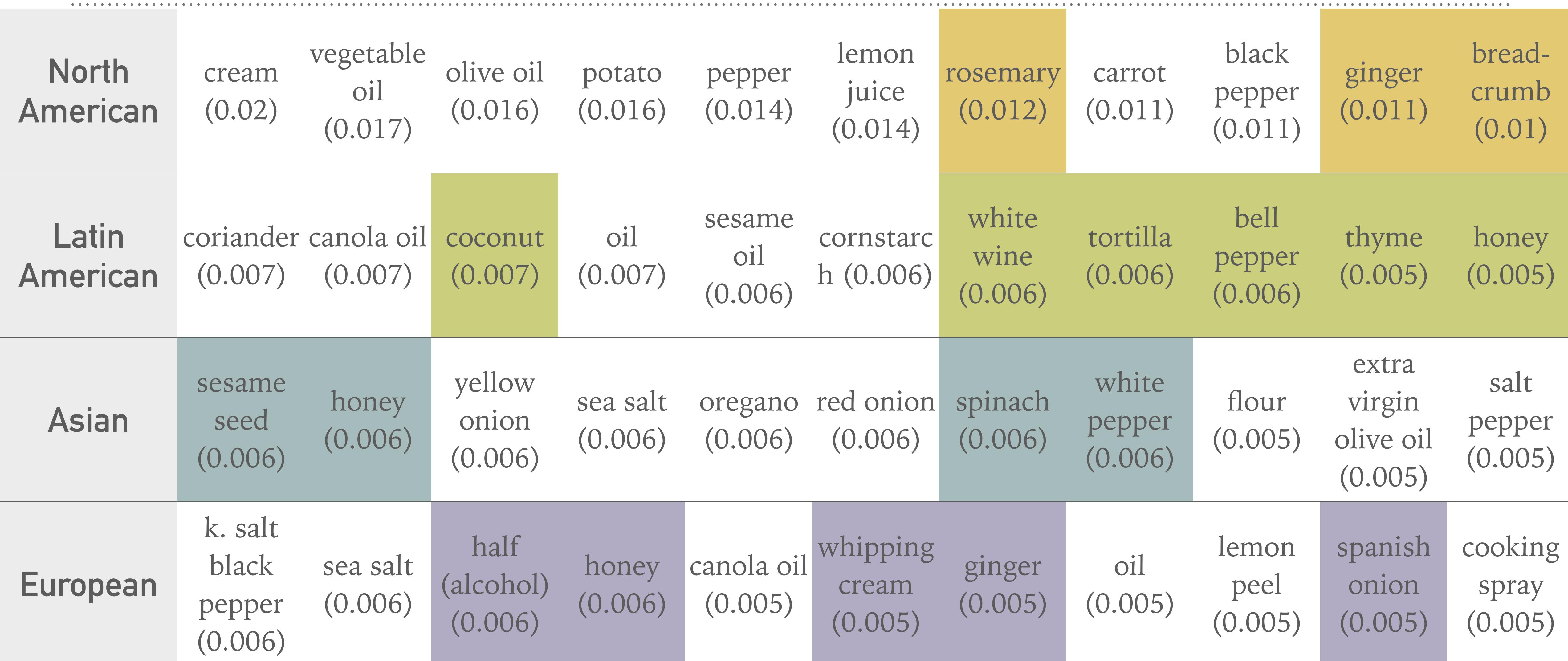
* Excluding garlic, salt, or water

INGREDIENTS GRAPH: BETWEENNESS CENTRALITY - COUNTRIES (BAKING/PASTA/STEW)

US	butter(0.033)	white sugar(0.022)	olive oil(0.022)	vegetable oil(0.02)	milk(0.019)
Italian	cream(0.01)	oil(0.01)	heavy cream(0.008)	flour(0.008)	lemon(0.008)
German	milk(0.031)	flour(0.03)	butter(0.028)	sugar(0.028)	a.p. flour(0.022)
Canadian	butter(0.024)	sugar(0.023)	milk(0.021)	egg(0.02)	flour(0.018)
French	sugar(0.022)	butter(0.021)	egg(0.02)	milk(0.018)	black pepper(0.017)
Mexican	lemon juice(0.008)	cinnamon(0.006)	parsley(0.006)	paprika(0.006)	white rice(0.005)
Indian	milk(0.016)	ginger(0.015)	sugar(0.015)	butter(0.015)	olive oil(0.014)
Nigerian	lemon juice(0.02)	olive oil(0.02)	butter(0.017)	ginger(0.017)	onion(0.017)
Chinese	garlic(0.017)	garlic clove(0.017)	black pepper(0.017)	egg(0.016)	sugar(0.016)
Thai	ginger(0.018)	garlic clove(0.017)	sugar(0.017)	soy sauce(0.016)	lime juice(0.016)
Argentine	black pepper(0.018)	garlic(0.018)	pepper(0.018)	garlic clove(0.016)	olive oil(0.015)
Greek	feta cheese(0.02)	lemon juice(0.019)	garlic clove(0.019)	pepper(0.018)	black pepper(0.018)
English	butter(0.029)	milk(0.024)	egg(0.024)	flour(0.022)	sugar(0.022)
Irish	milk(0.038)	cream(0.035)	sugar(0.034)	egg(0.028)	a.p. flour(0.022)
Australian	cream(0.027)	lemon juice(0.022)	butter(0.02)	black pepper(0.018)	egg(0.018)

* Excluding garlic, salt, or water

INGREDIENTS GRAPH: BETWEENNESS CENTRALITY - CONTINENTS

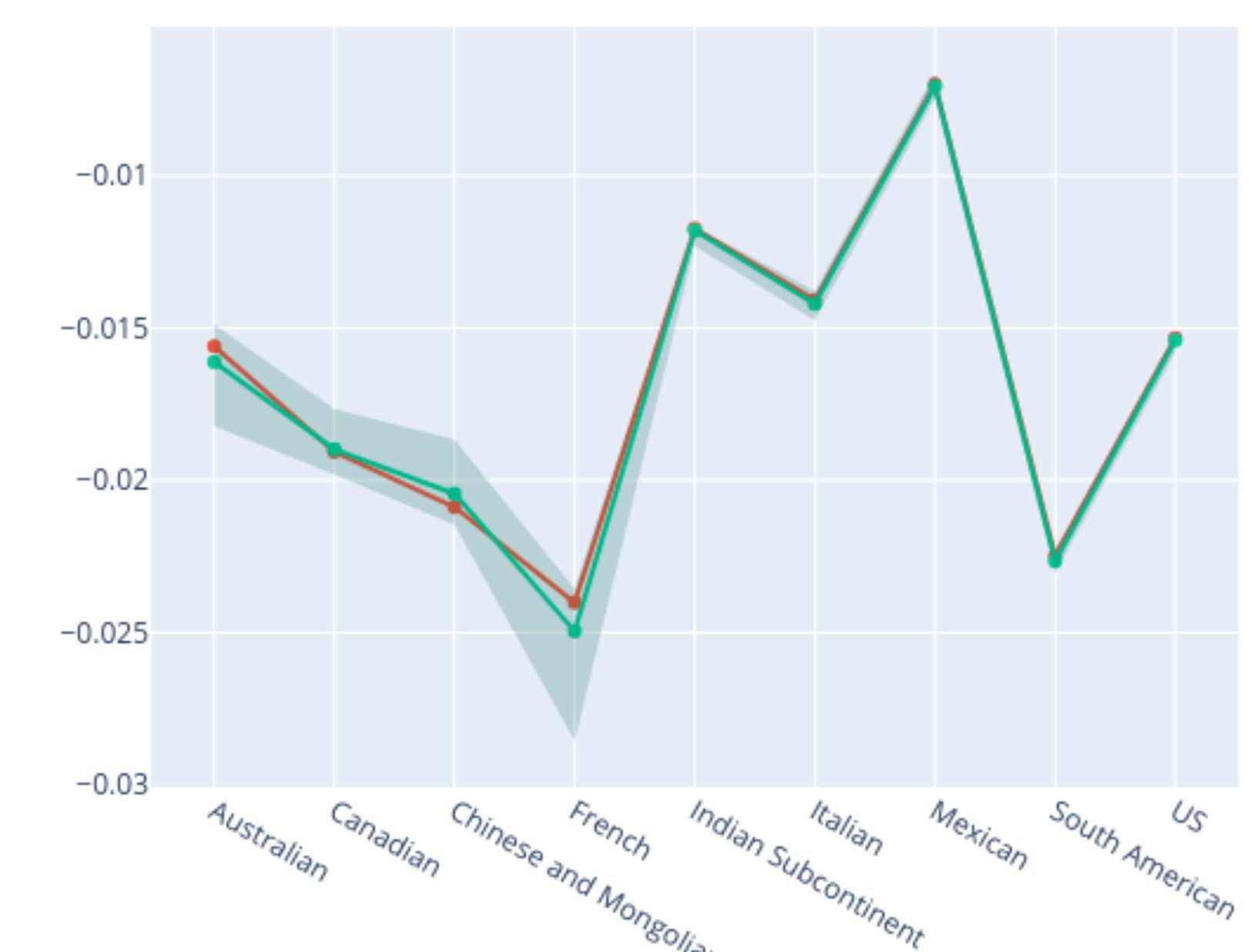
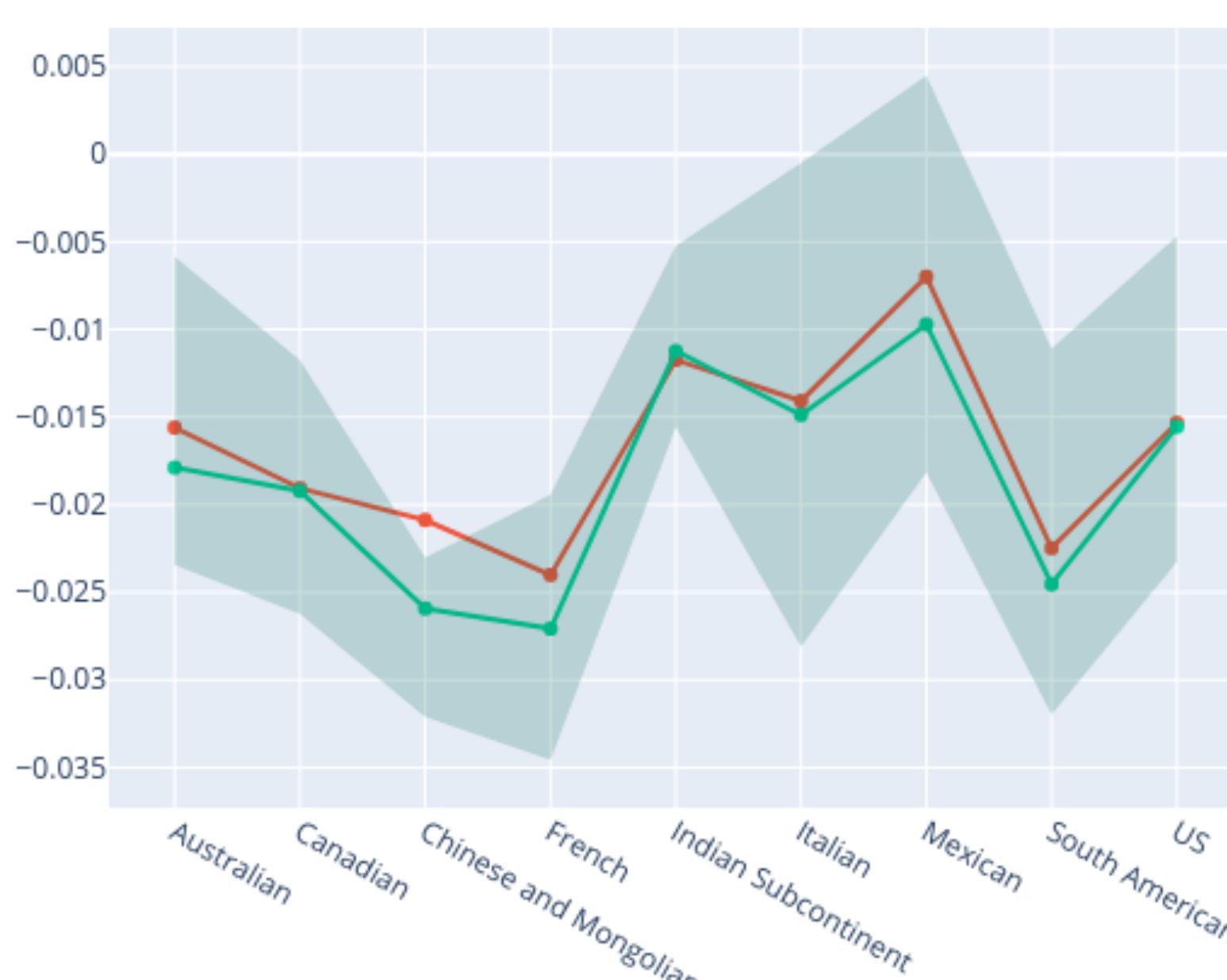
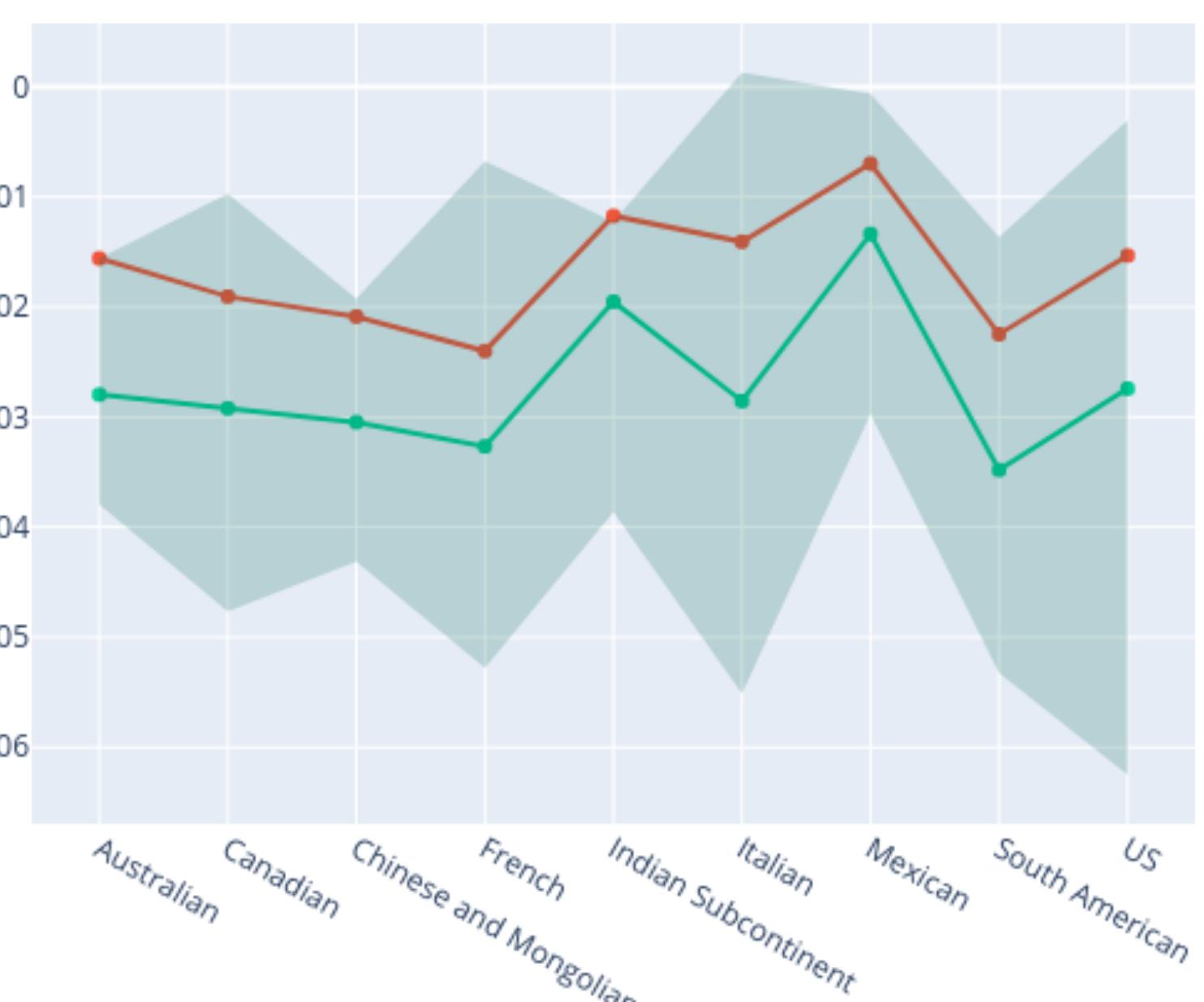
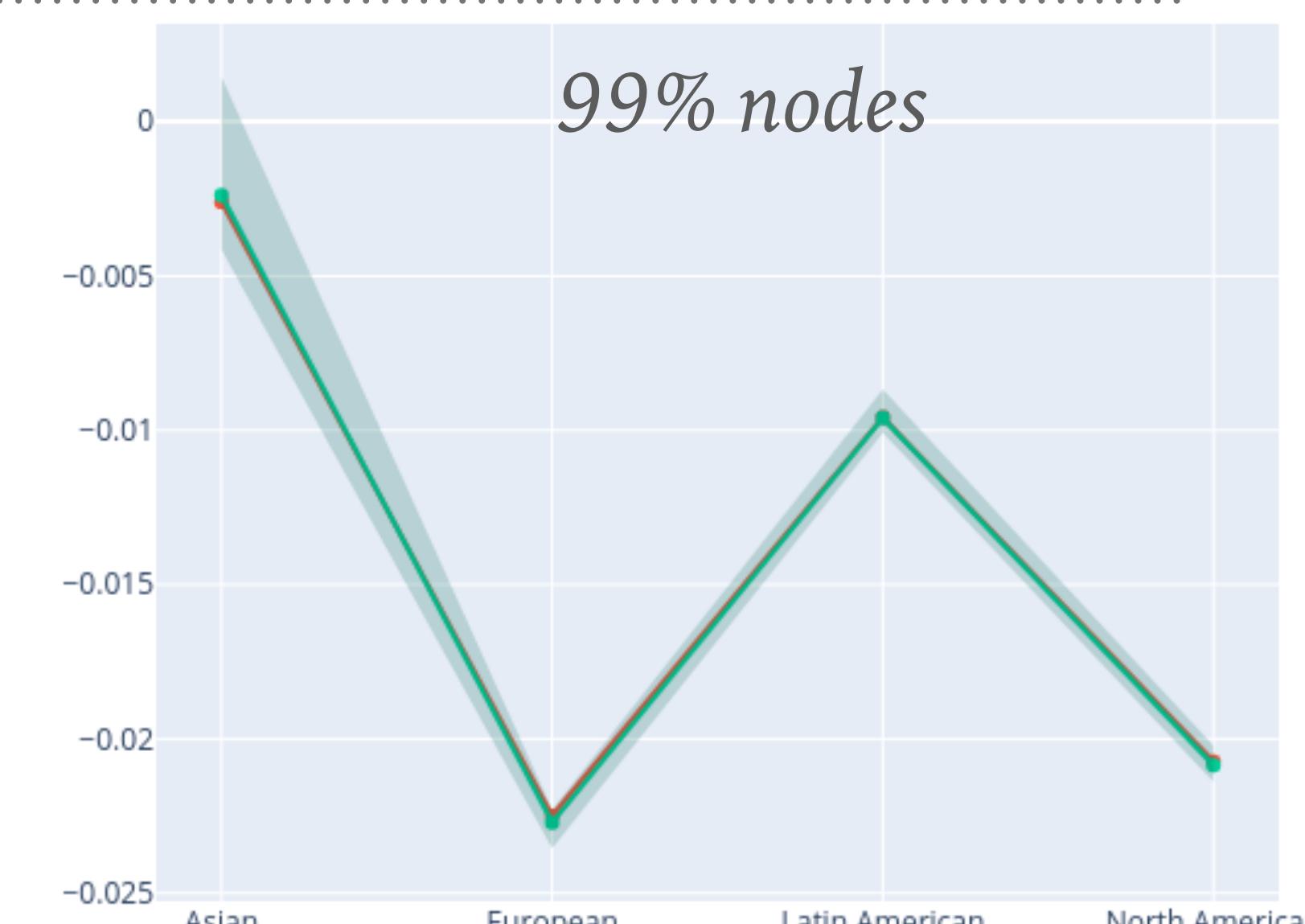
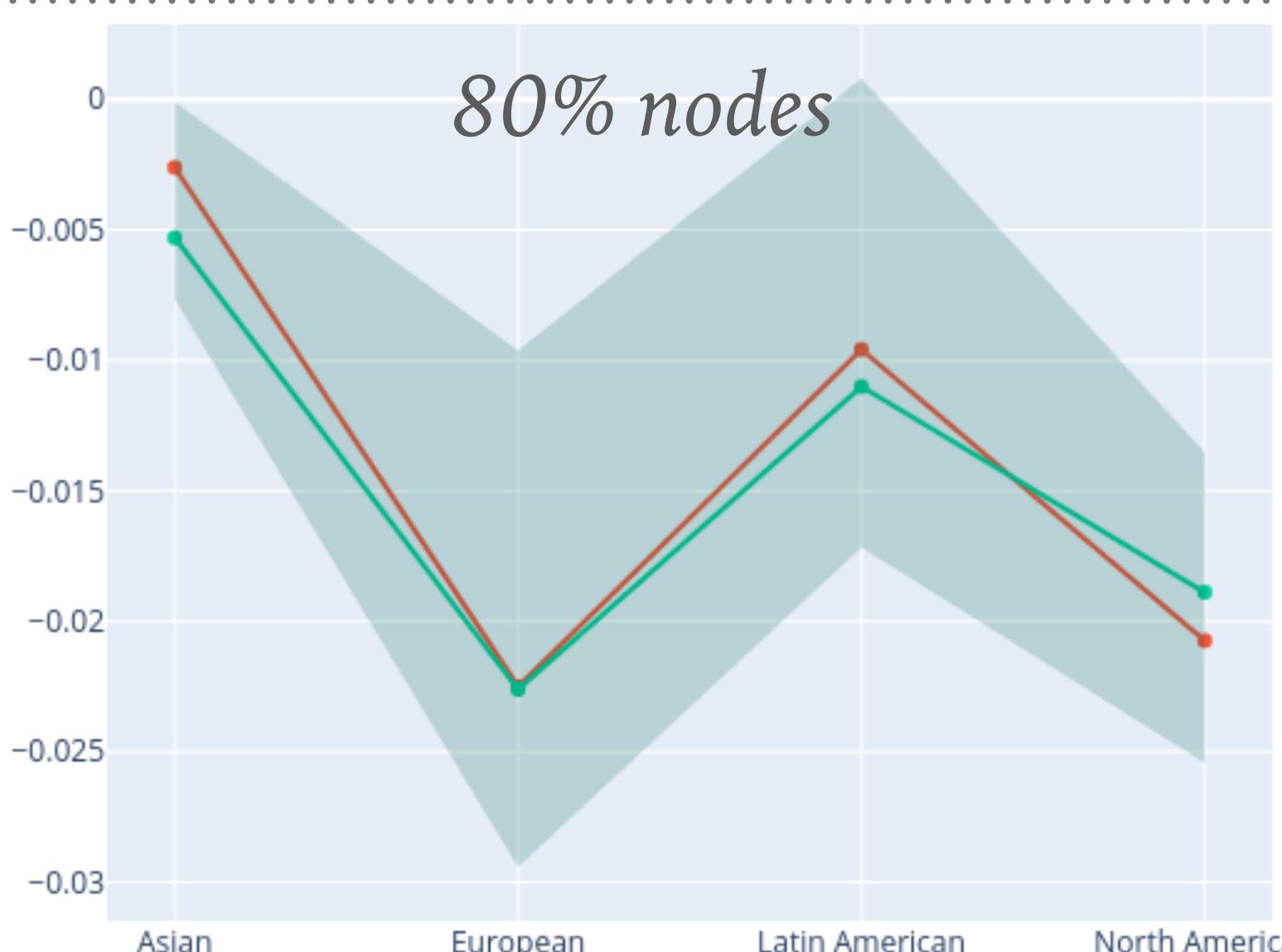
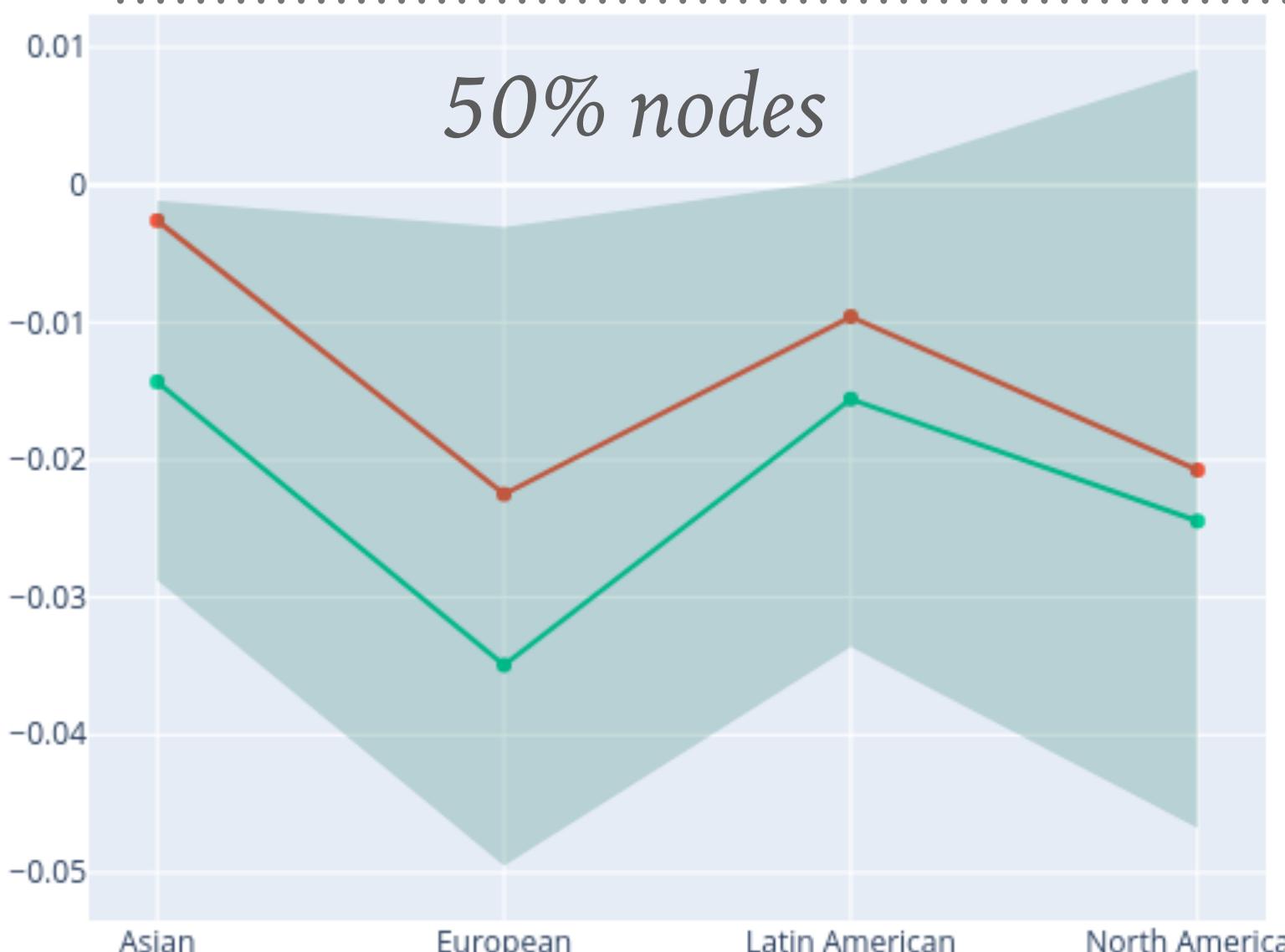




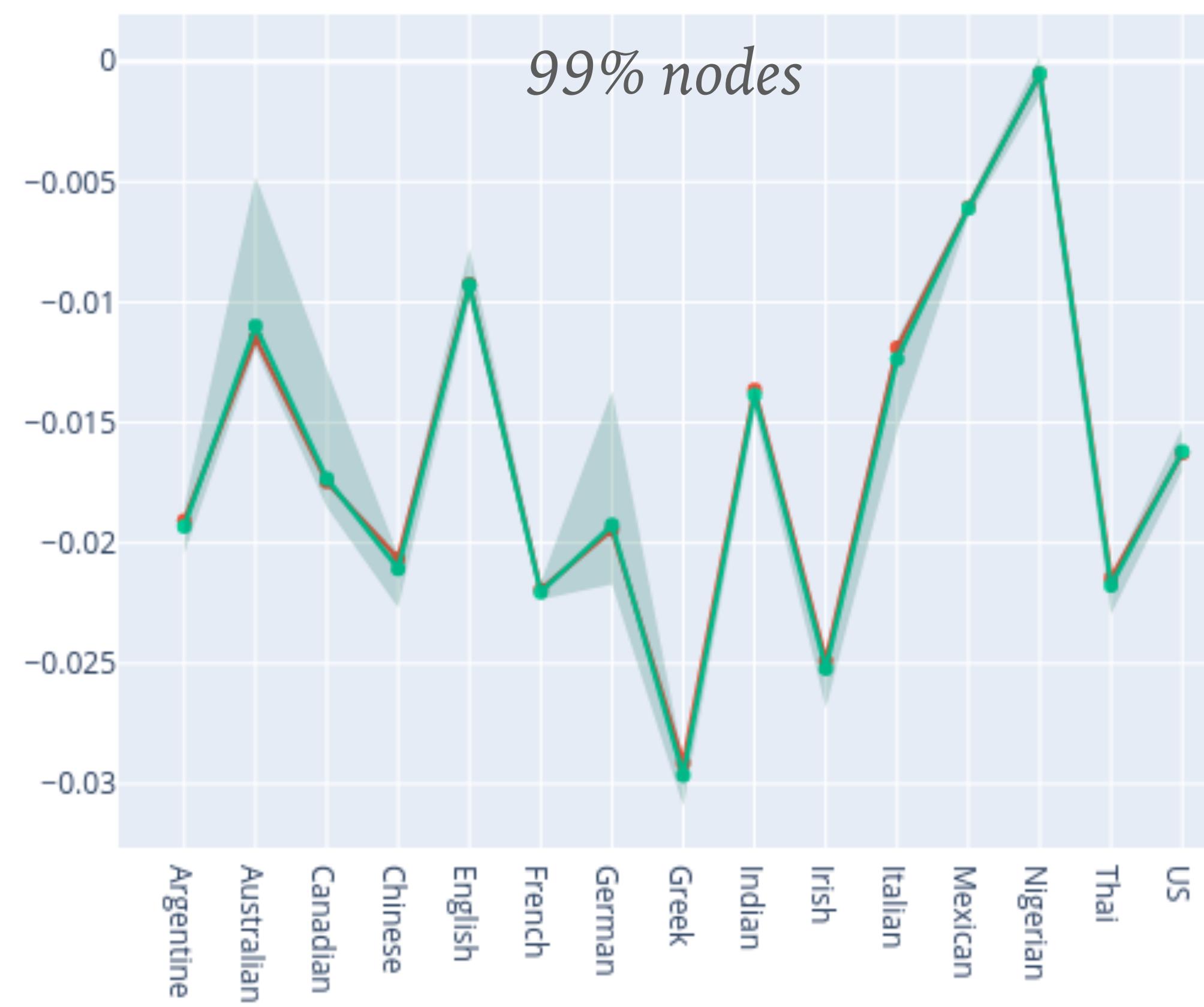
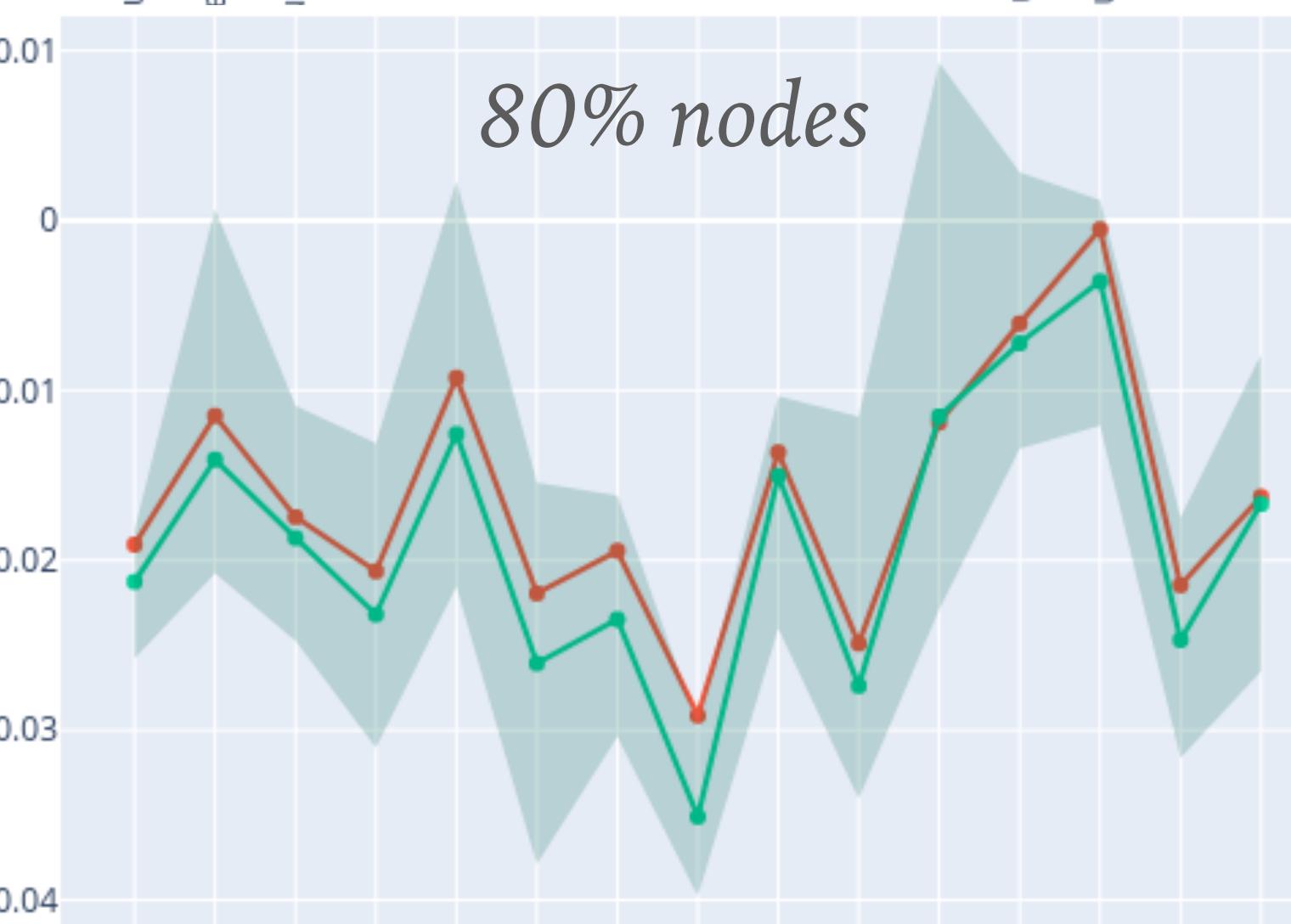
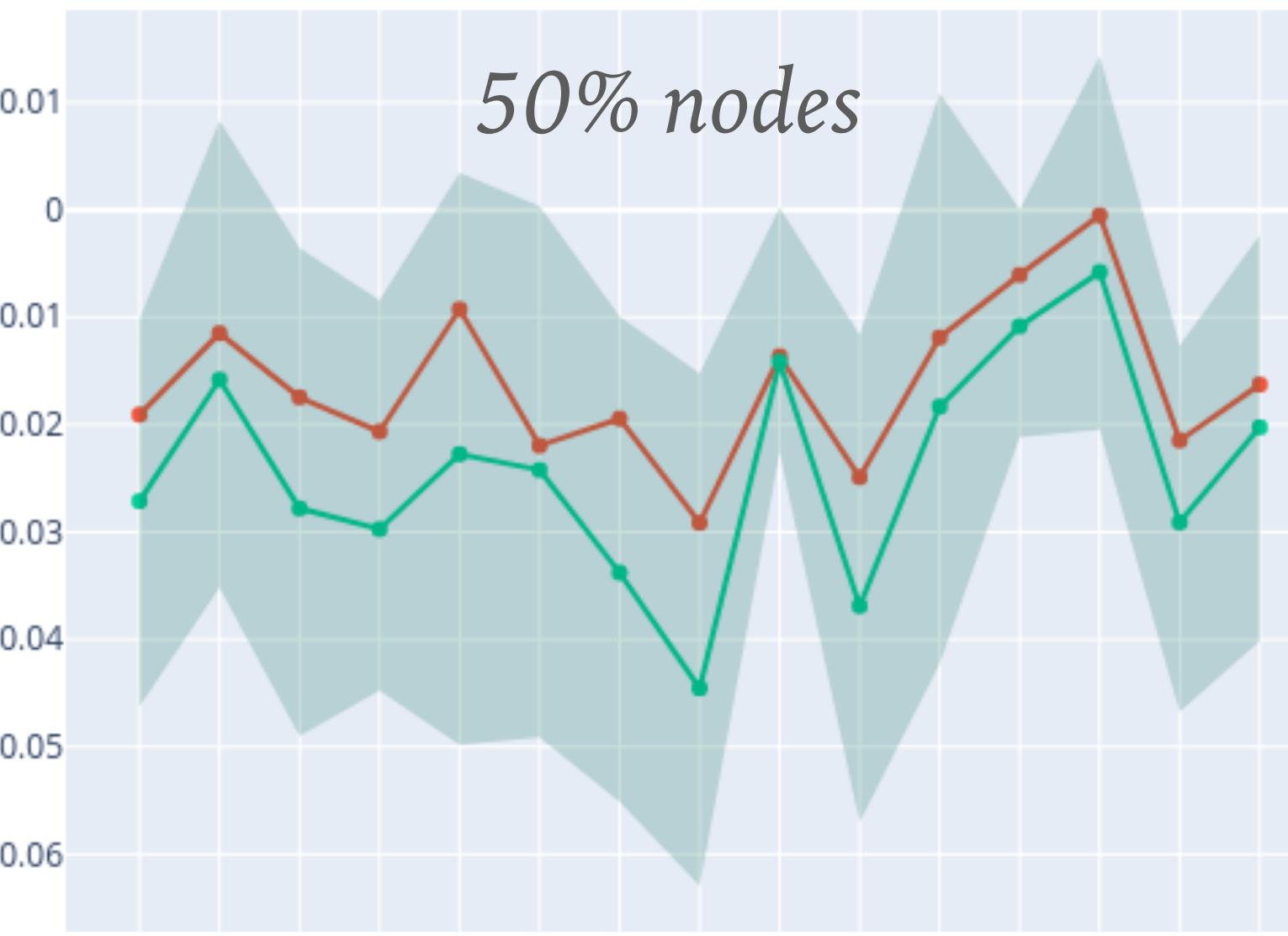
INGREDIENT ASSORTATIVITY (+ SAMPLING):

FATS, CARBS, PROTEINS

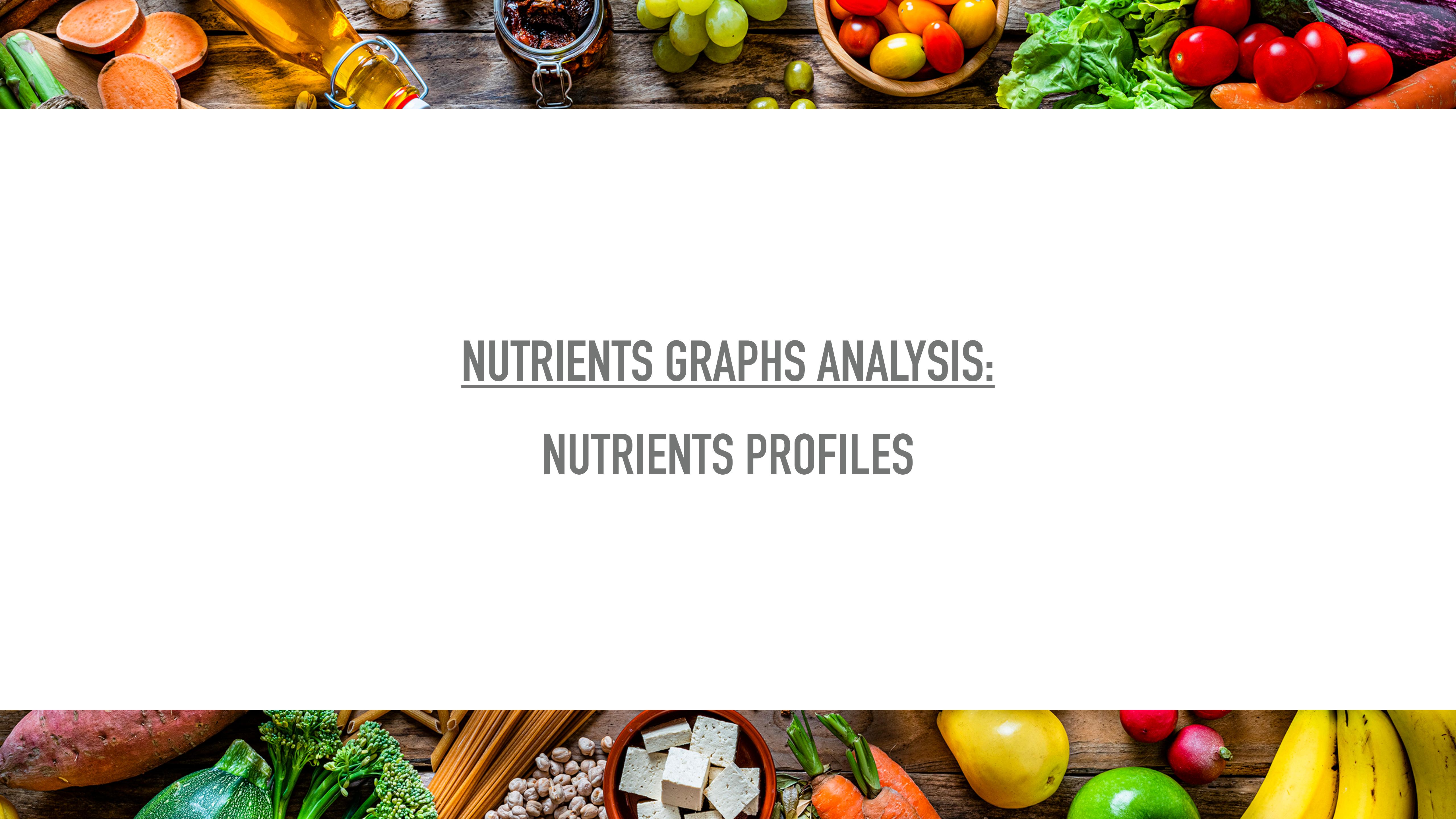
MODULARITY (Q) FOR INGREDIENTS IN 3 GROUPS: FATS, CARBS, PROTEINS



MODULARITY (Q) FOR INGREDIENTS IN 3 GROUPS: FATS, CARBS, PROTEINS



- Generally: modularity < 0 = disassortative
- ingredients tend to be used with other ingredients with different macro-nutrient content

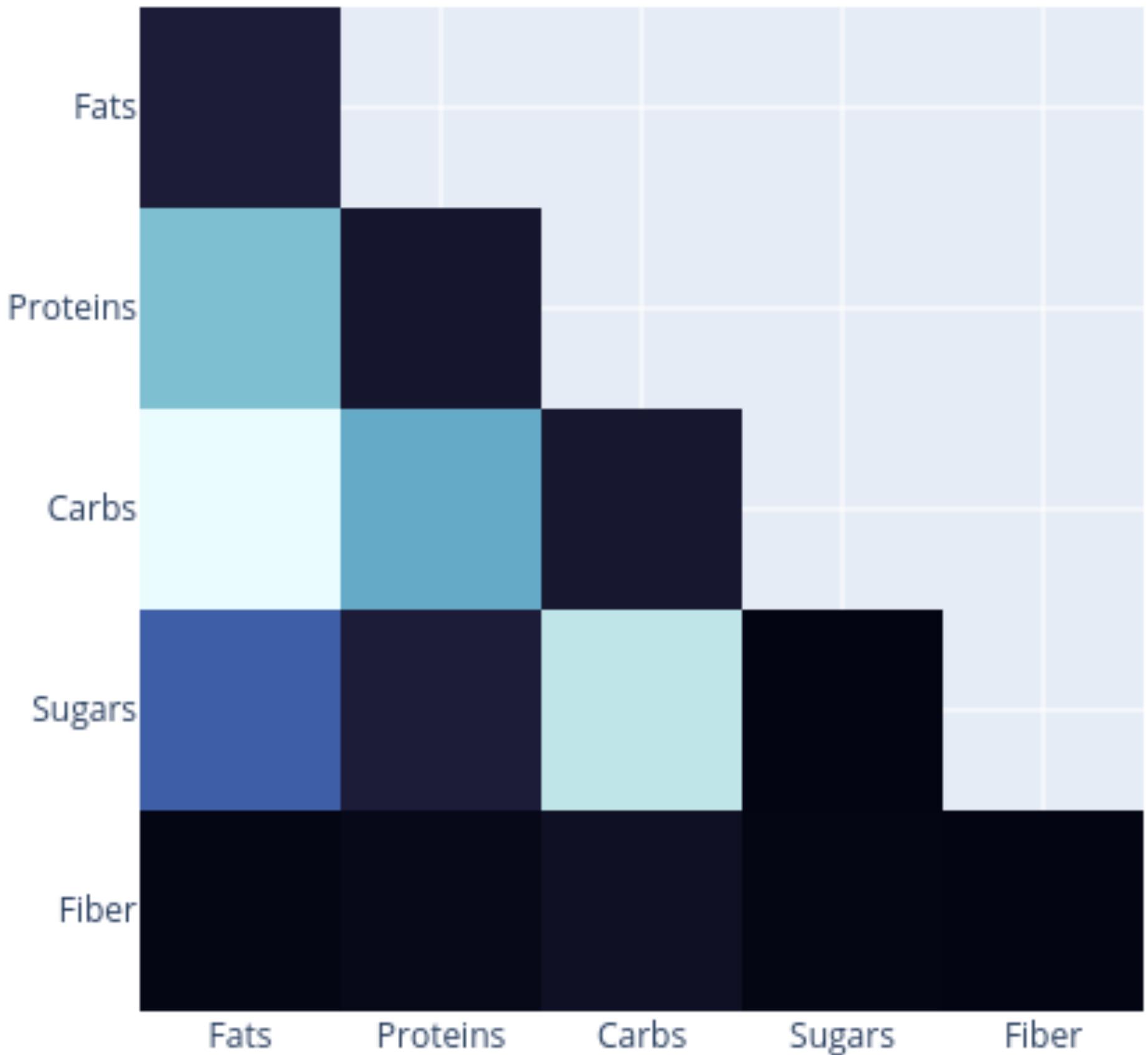


NUTRIENTS GRAPHS ANALYSIS:

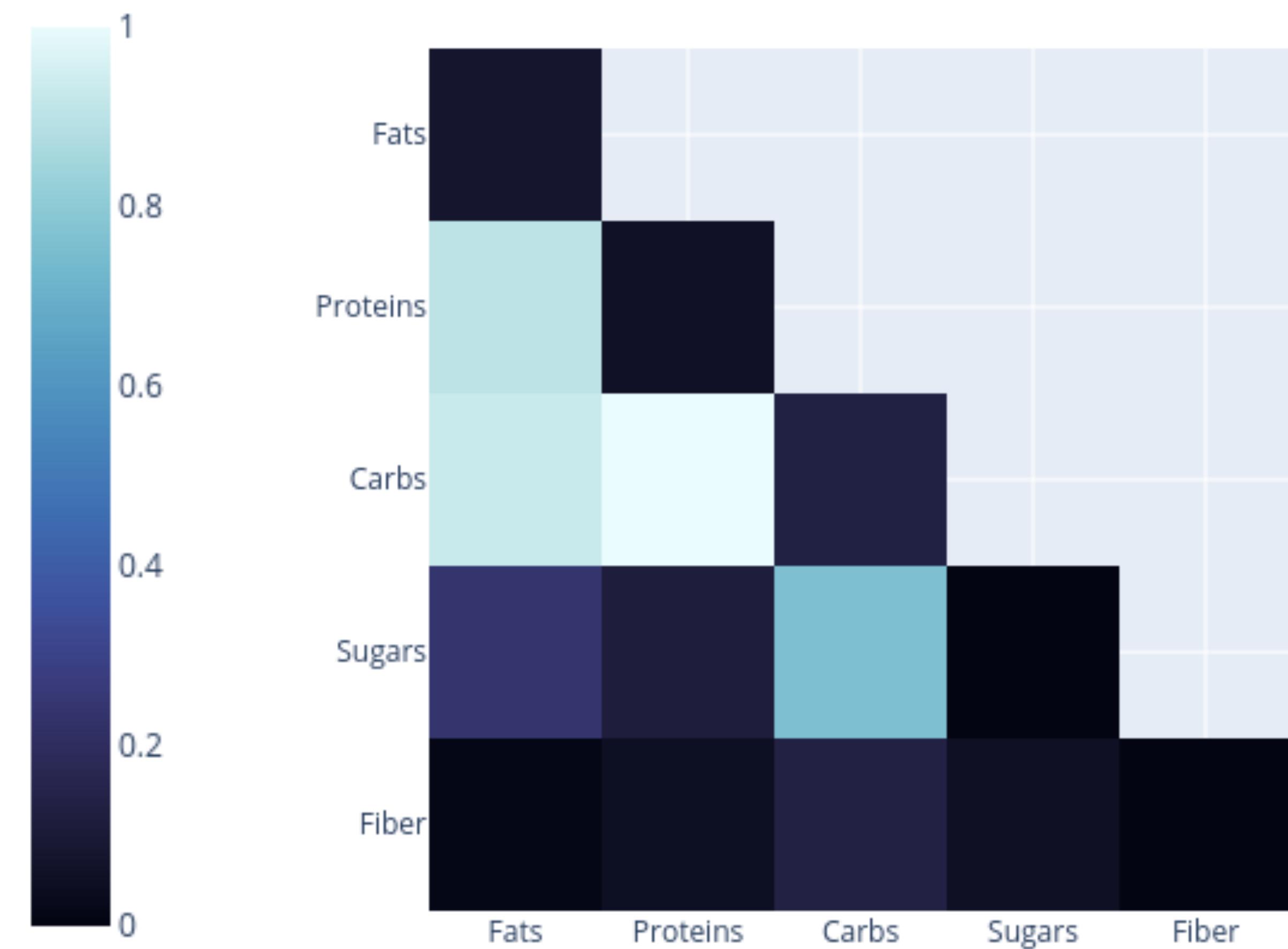
NUTRIENTS PROFILES

NUTRIENTS GRAPH: PROFILES - COUNTRY

Nutrients for country US data

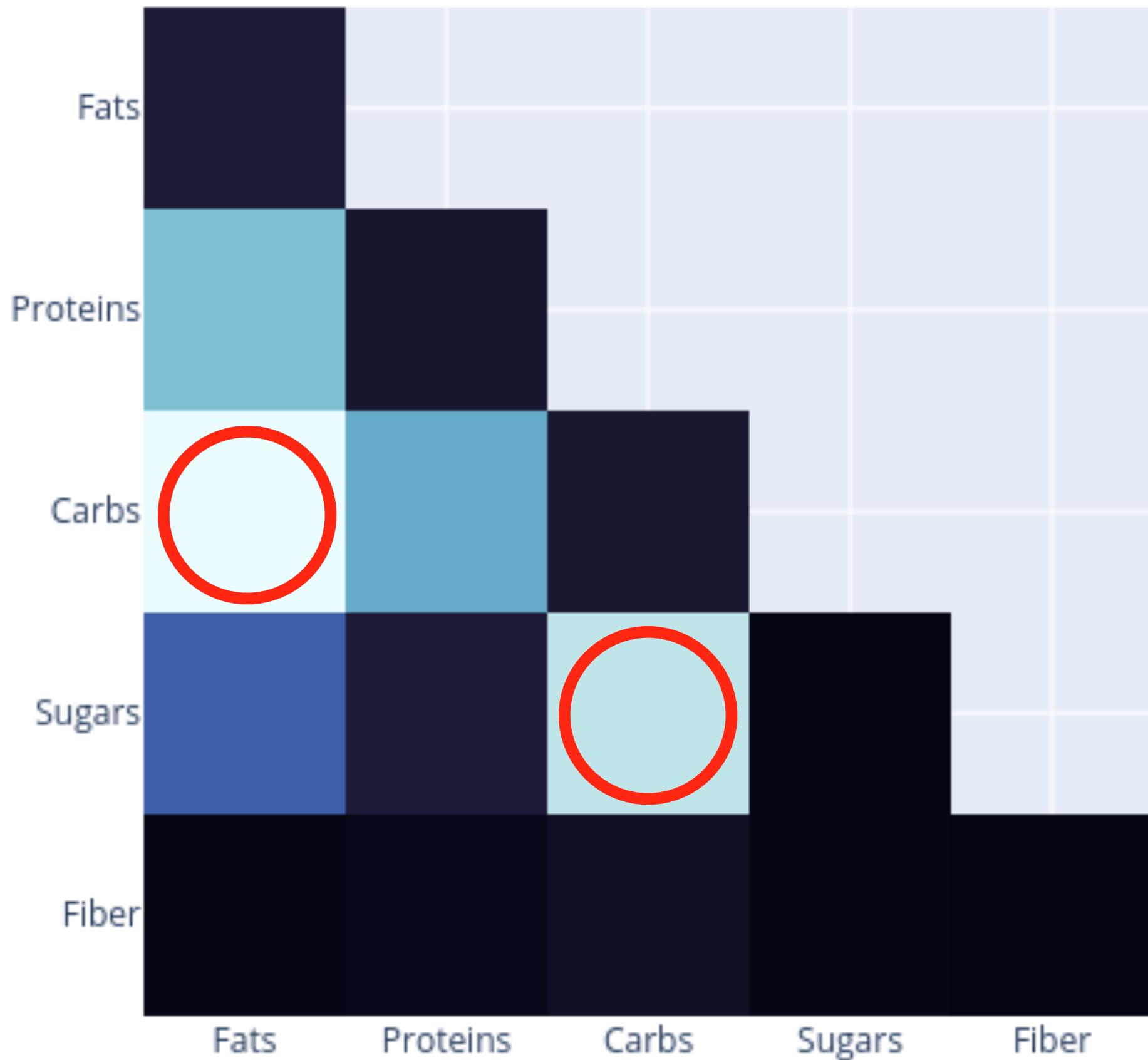


Nutrients for country Mexican data

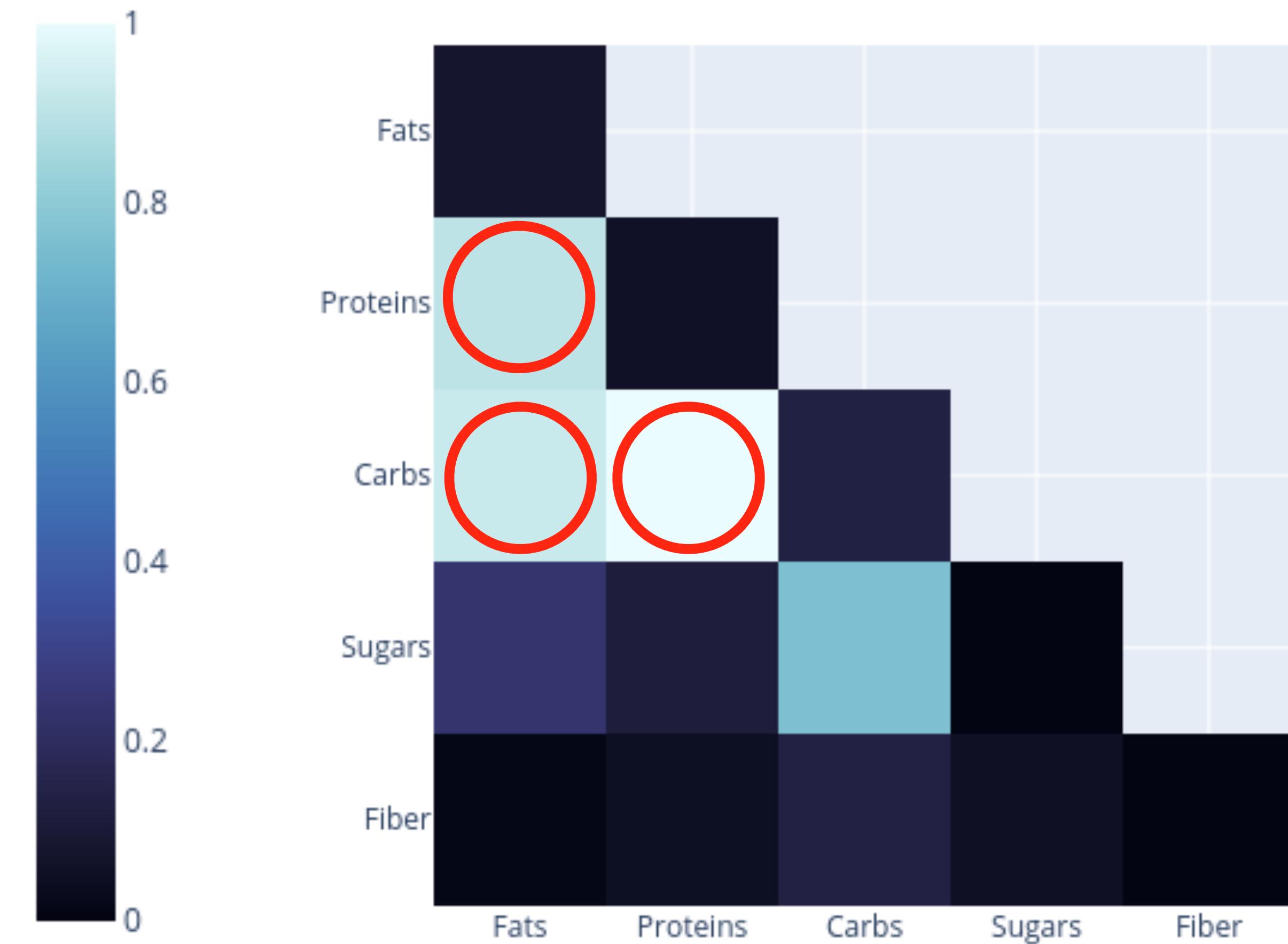


NUTRIENTS GRAPH: PROFILES - COUNTRY

Nutrients for country US data

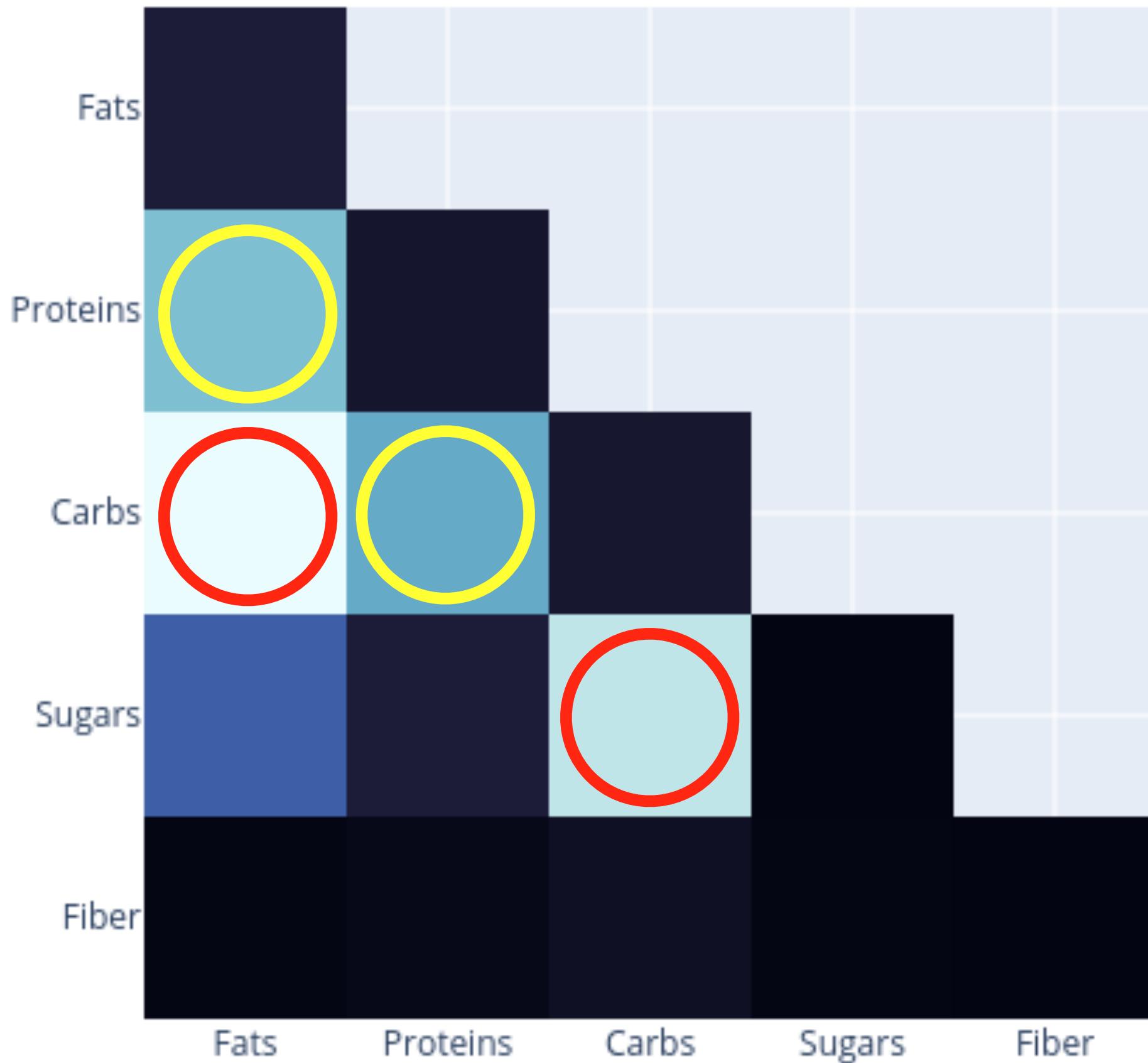


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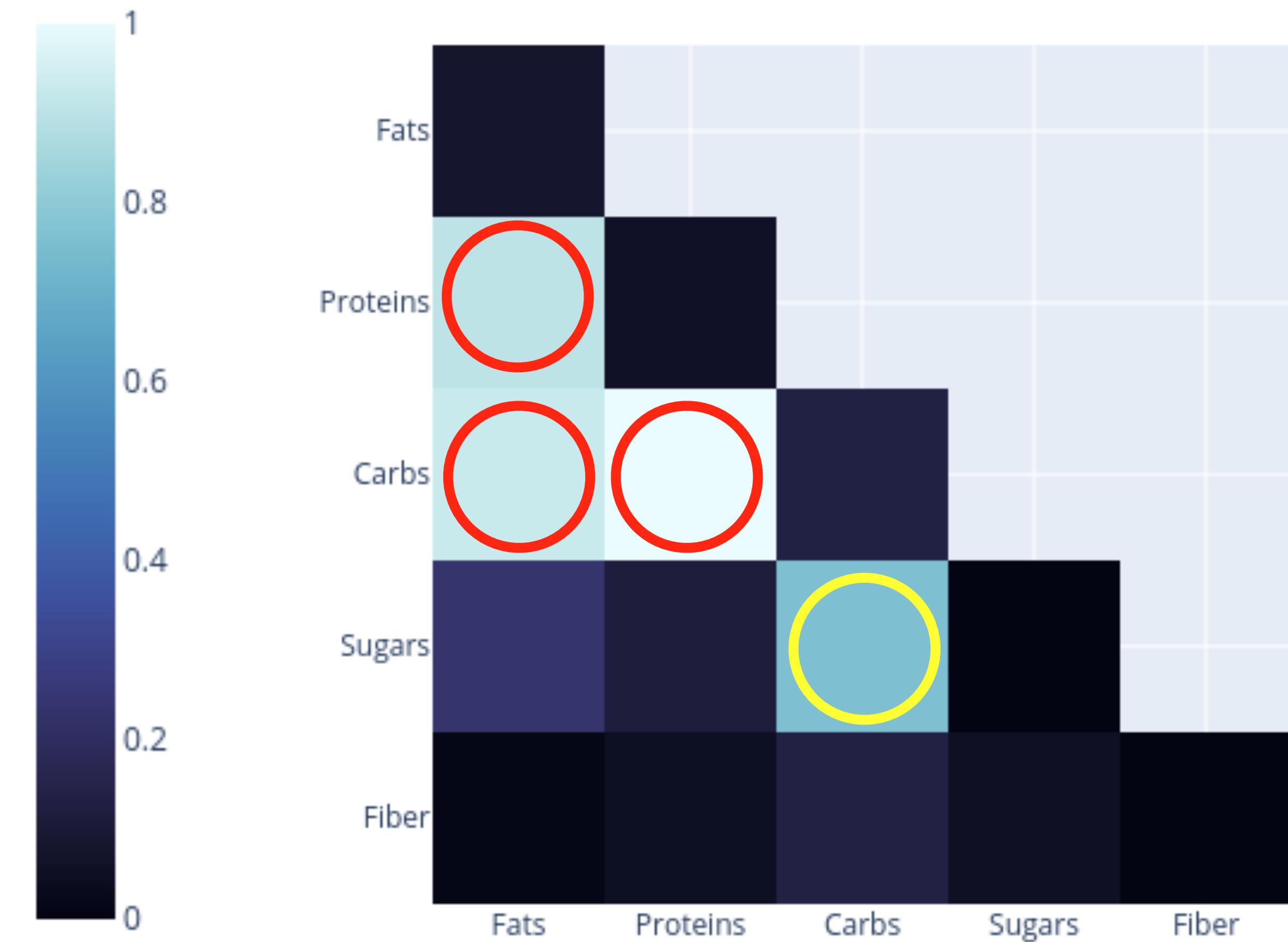


NUTRIENTS GRAPH: PROFILES - COUNTRY

Nutrients for country US data

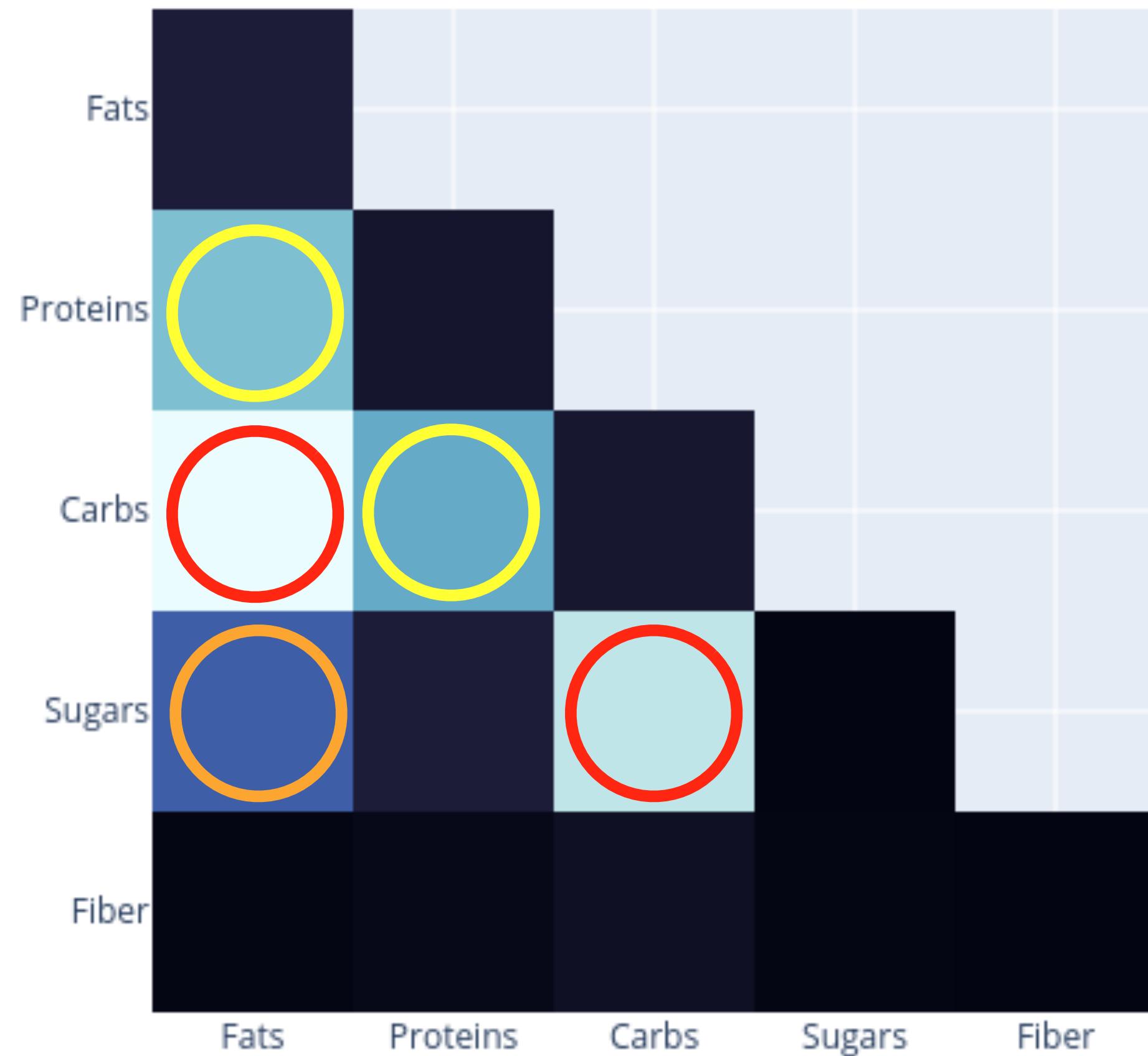


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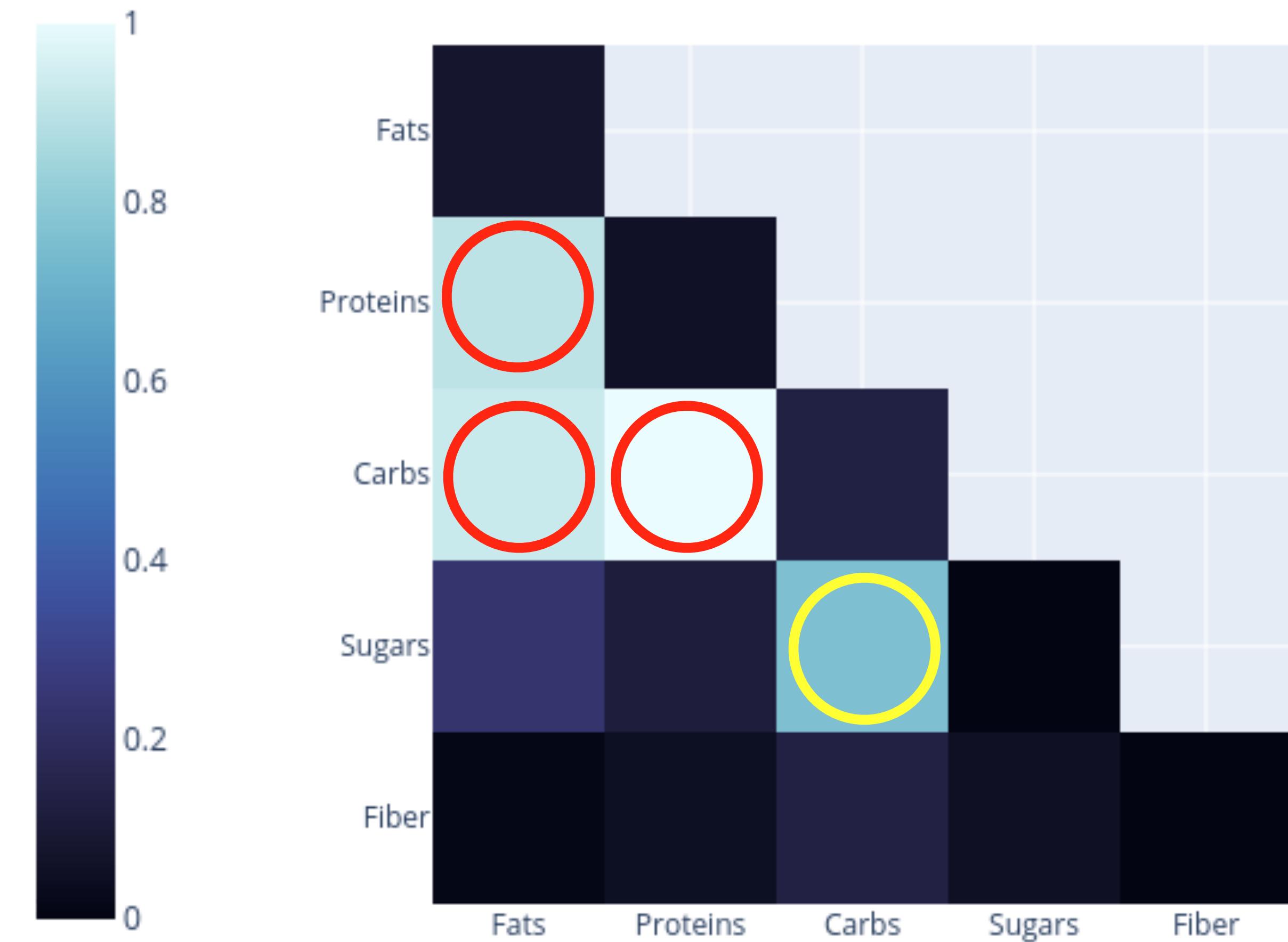


NUTRIENTS GRAPH: PROFILES - COUNTRY

Nutrients for country US data

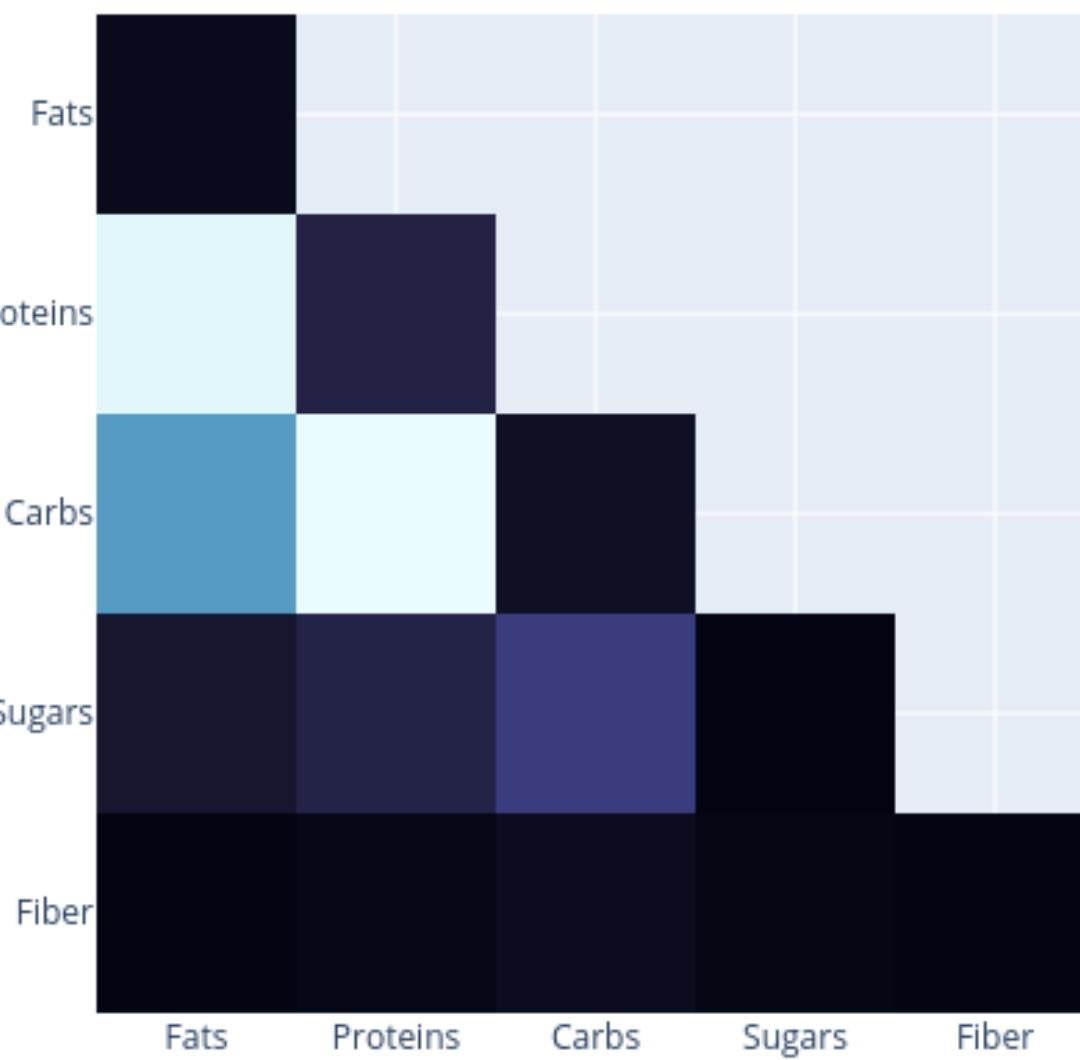


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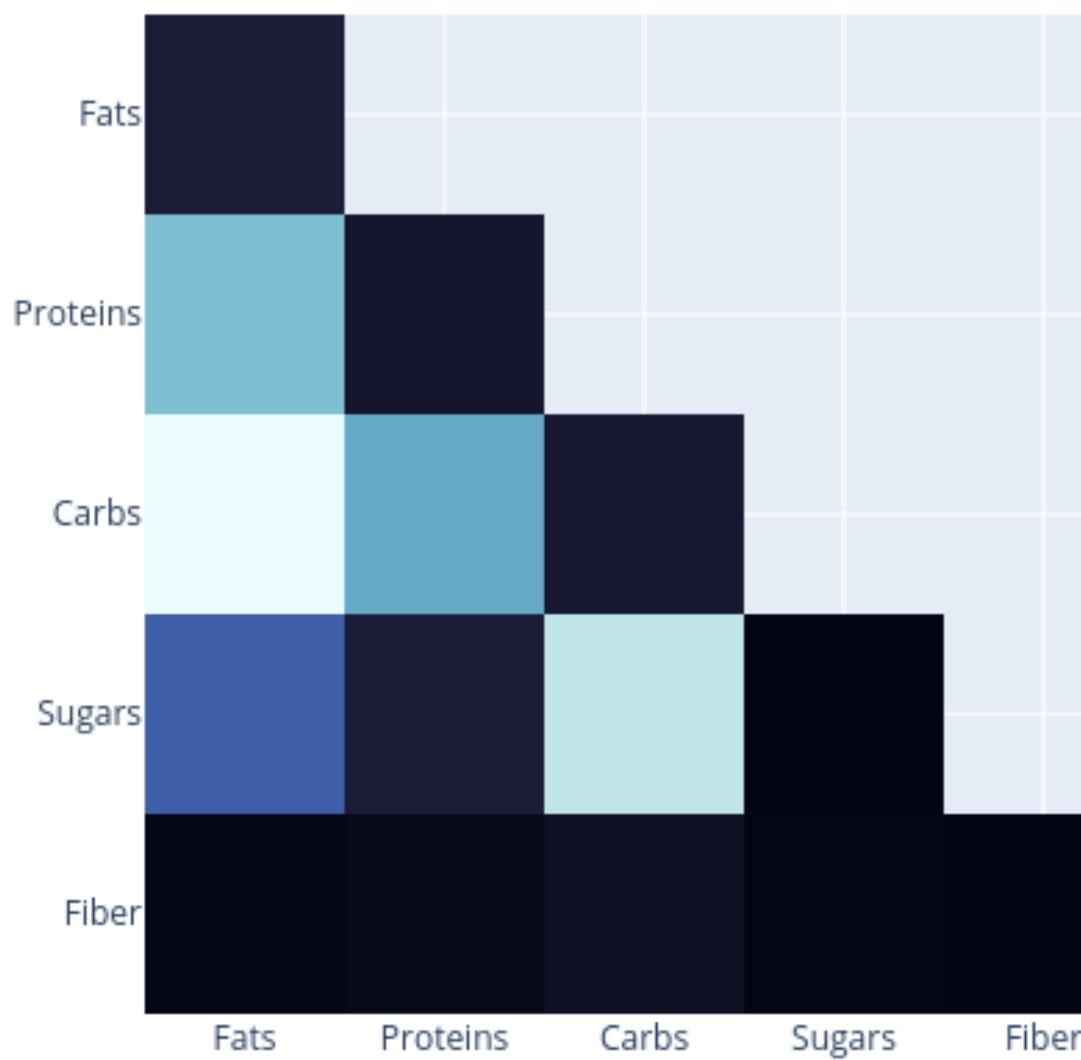


NUTRIENTS GRAPH: PROFILES - COUNTRIES

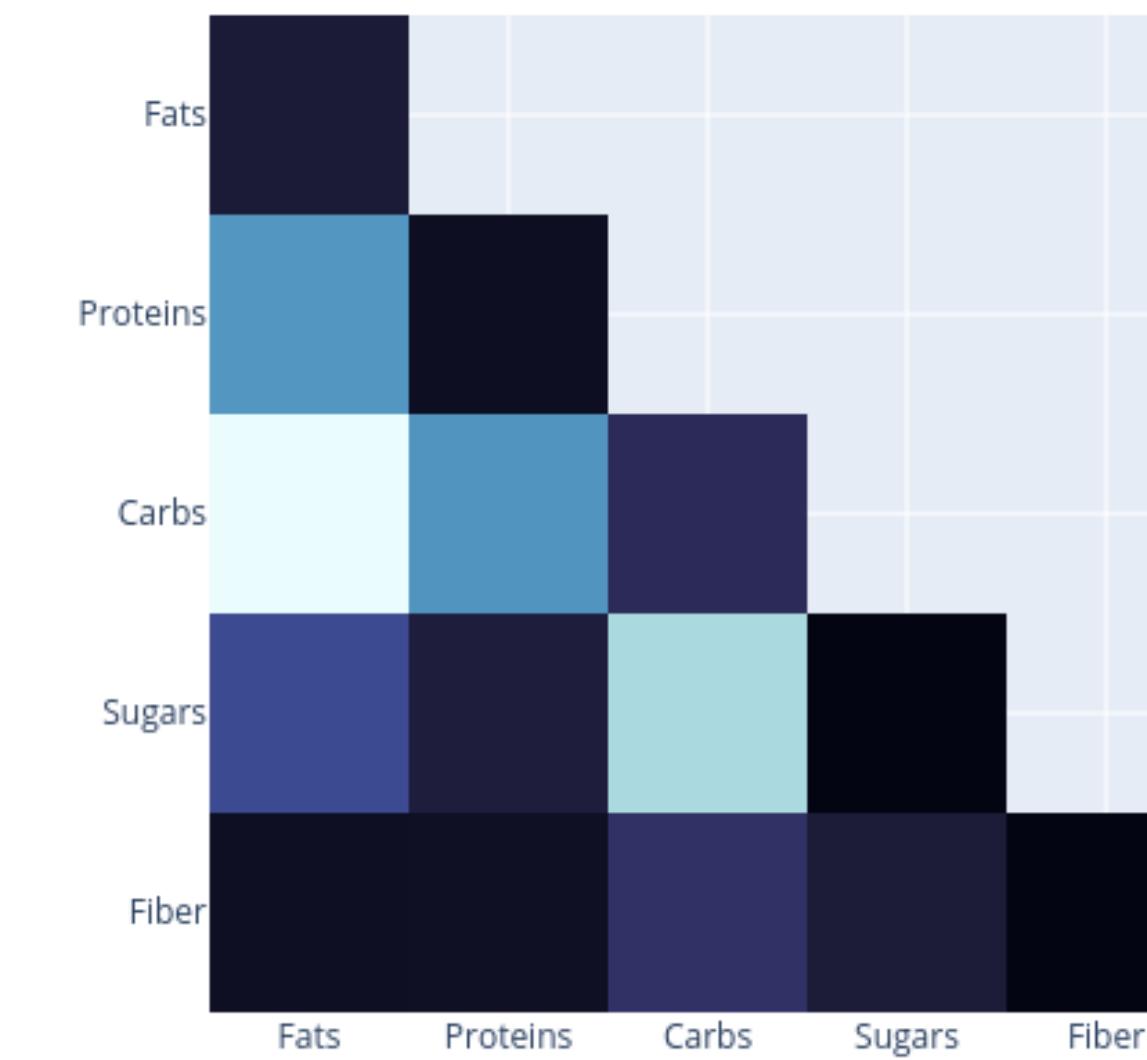
Nutrients for country Argentine data



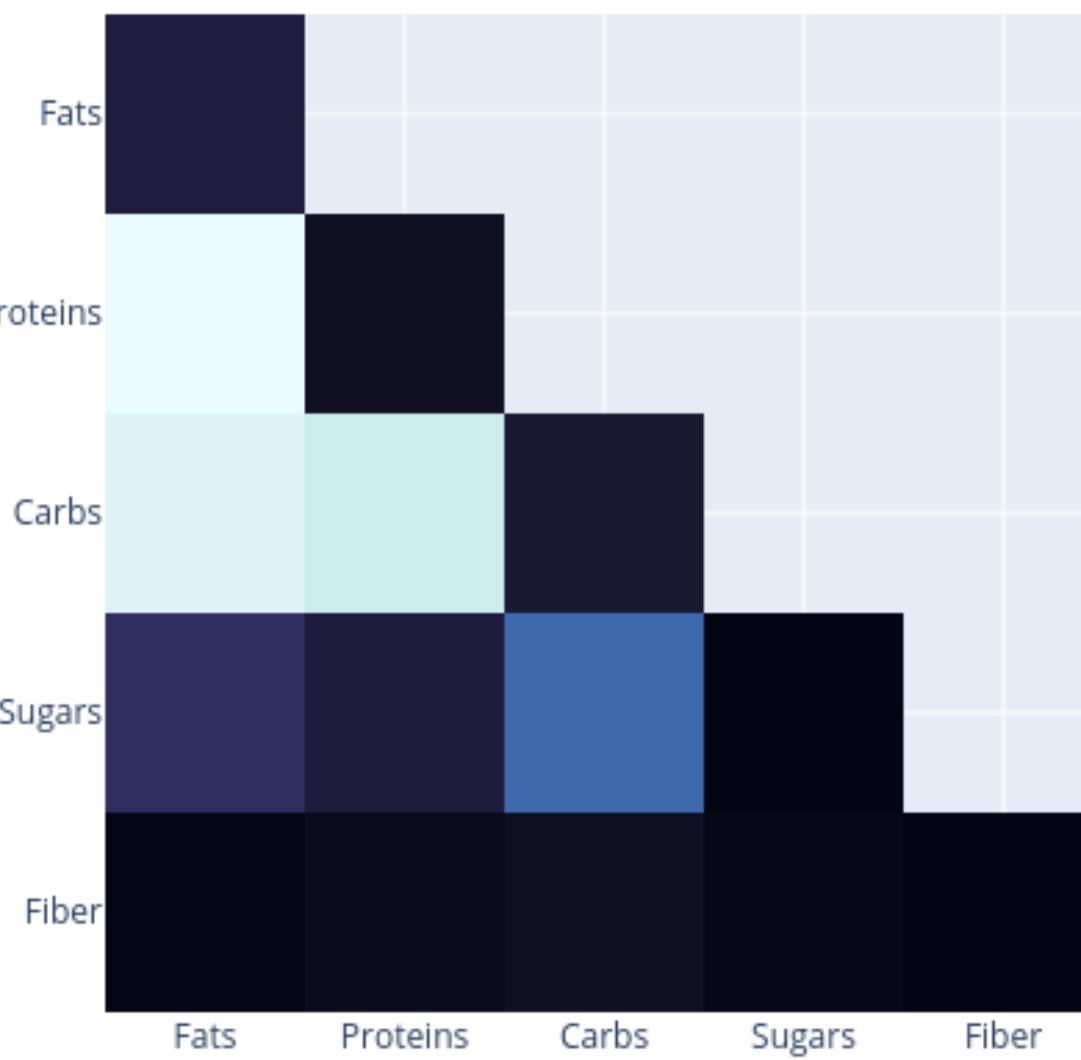
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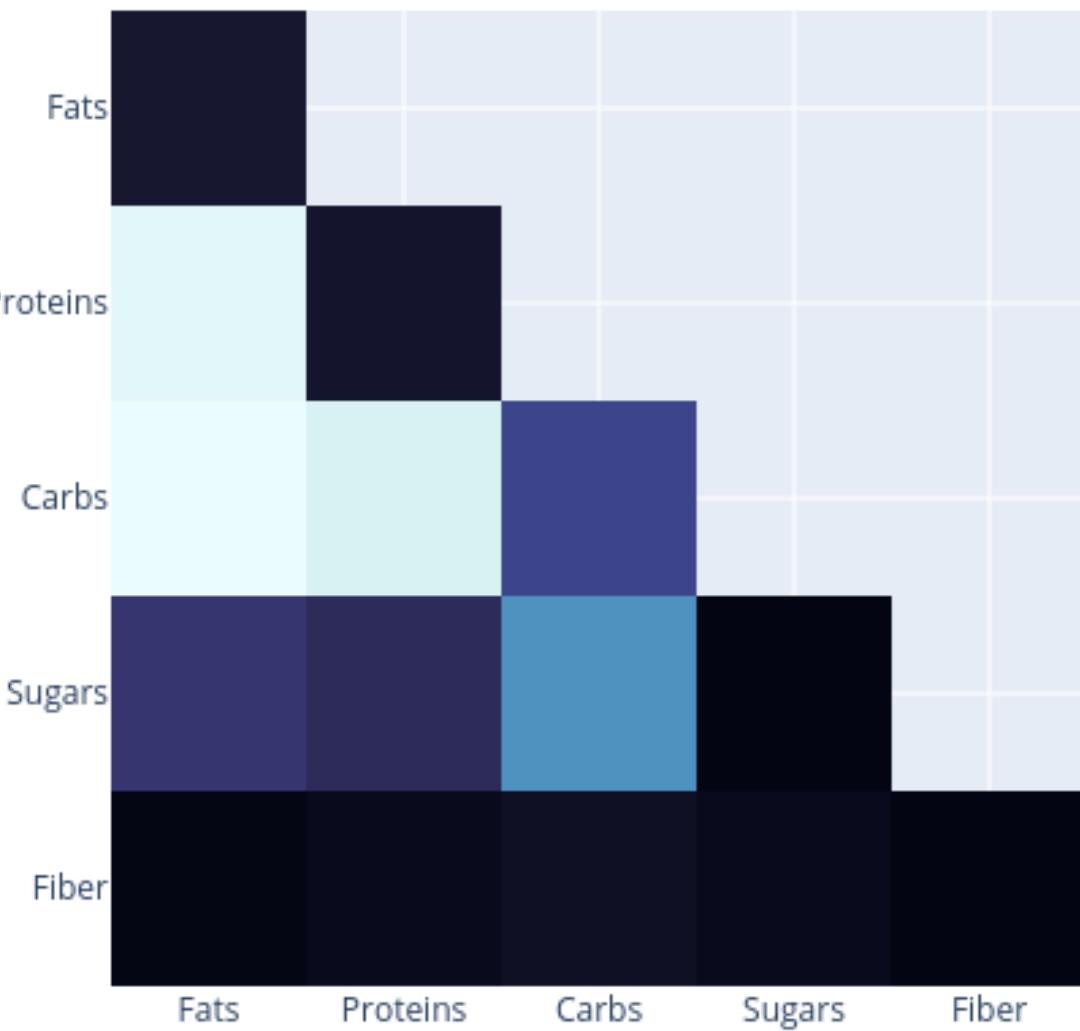
Nutrients for country Indian data



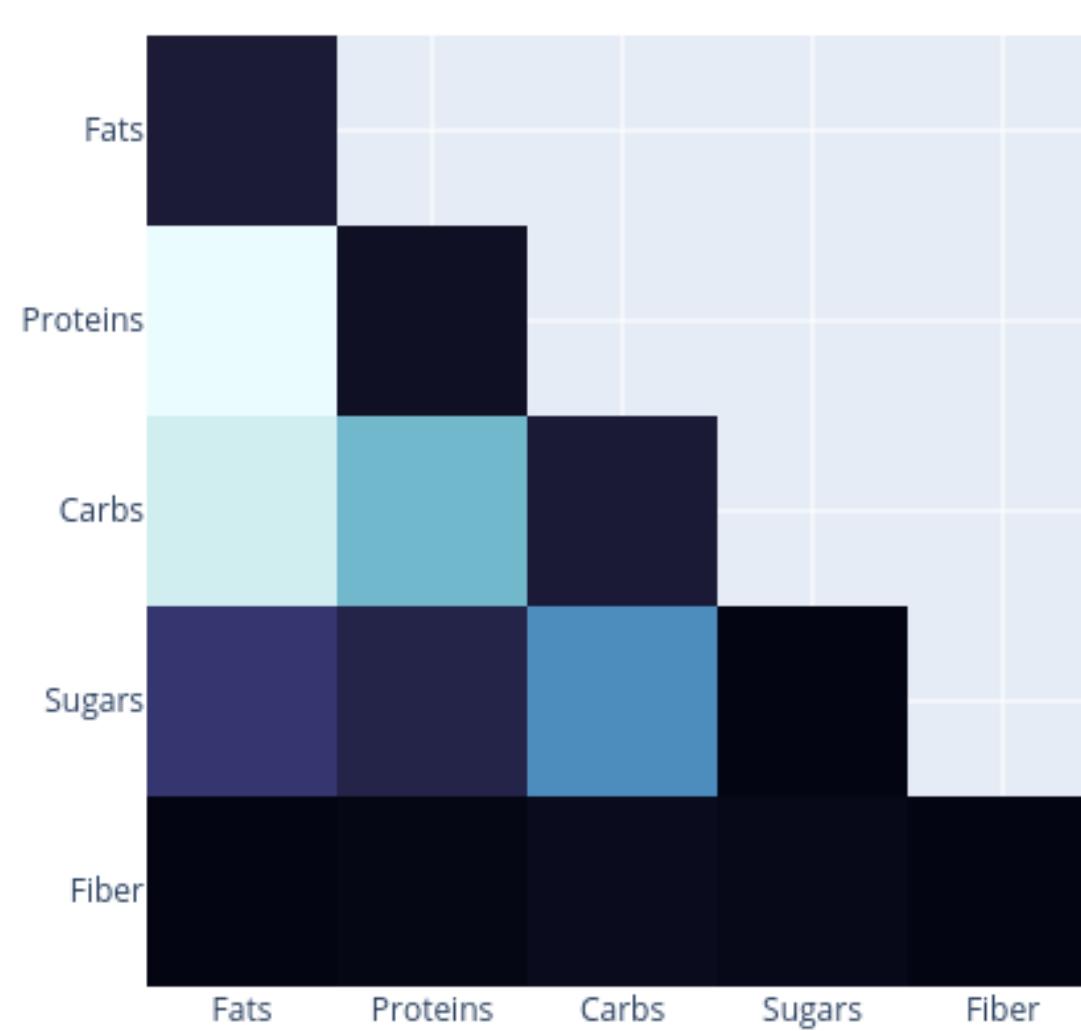
Nutrients for country Italian data



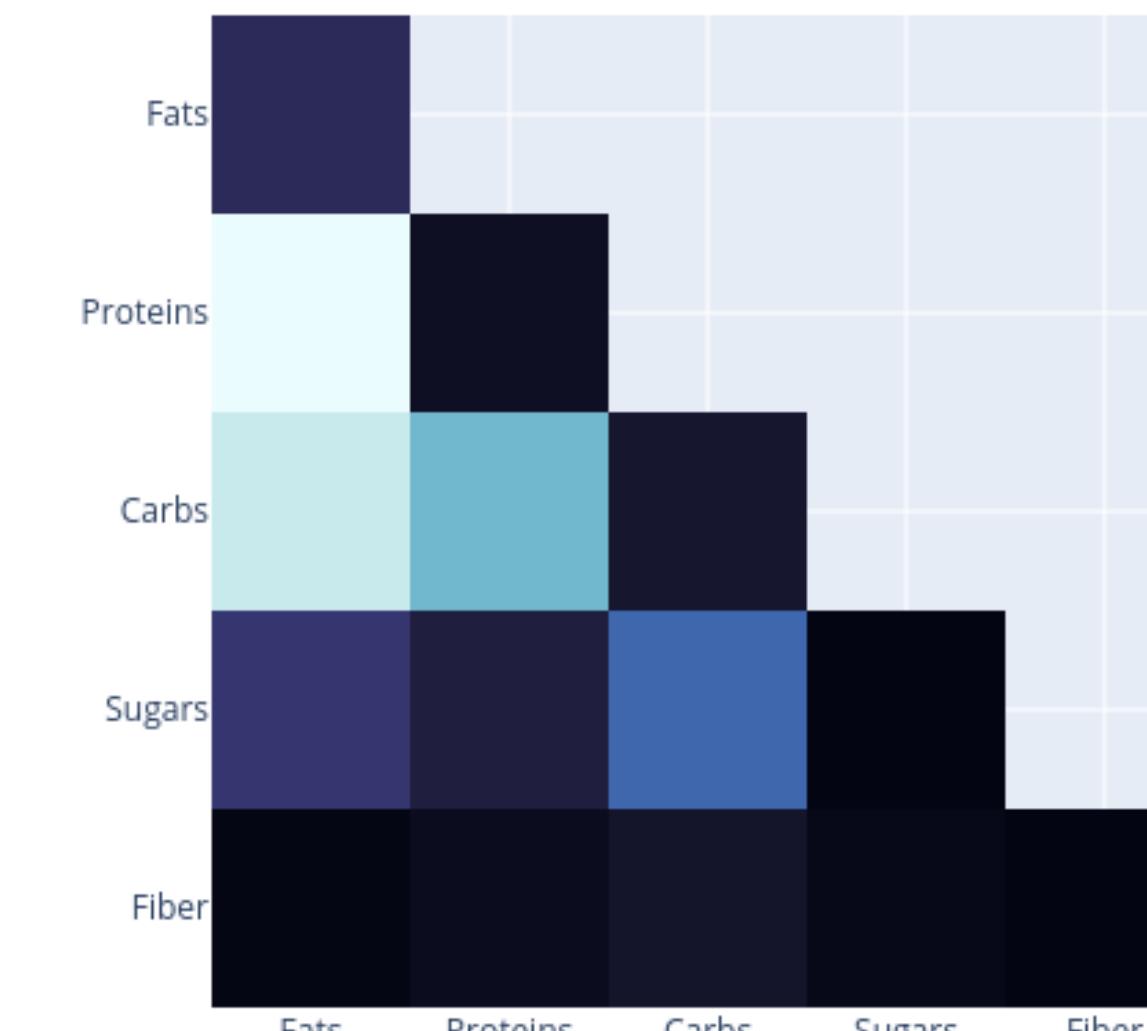
Nutrients for country Chinese data



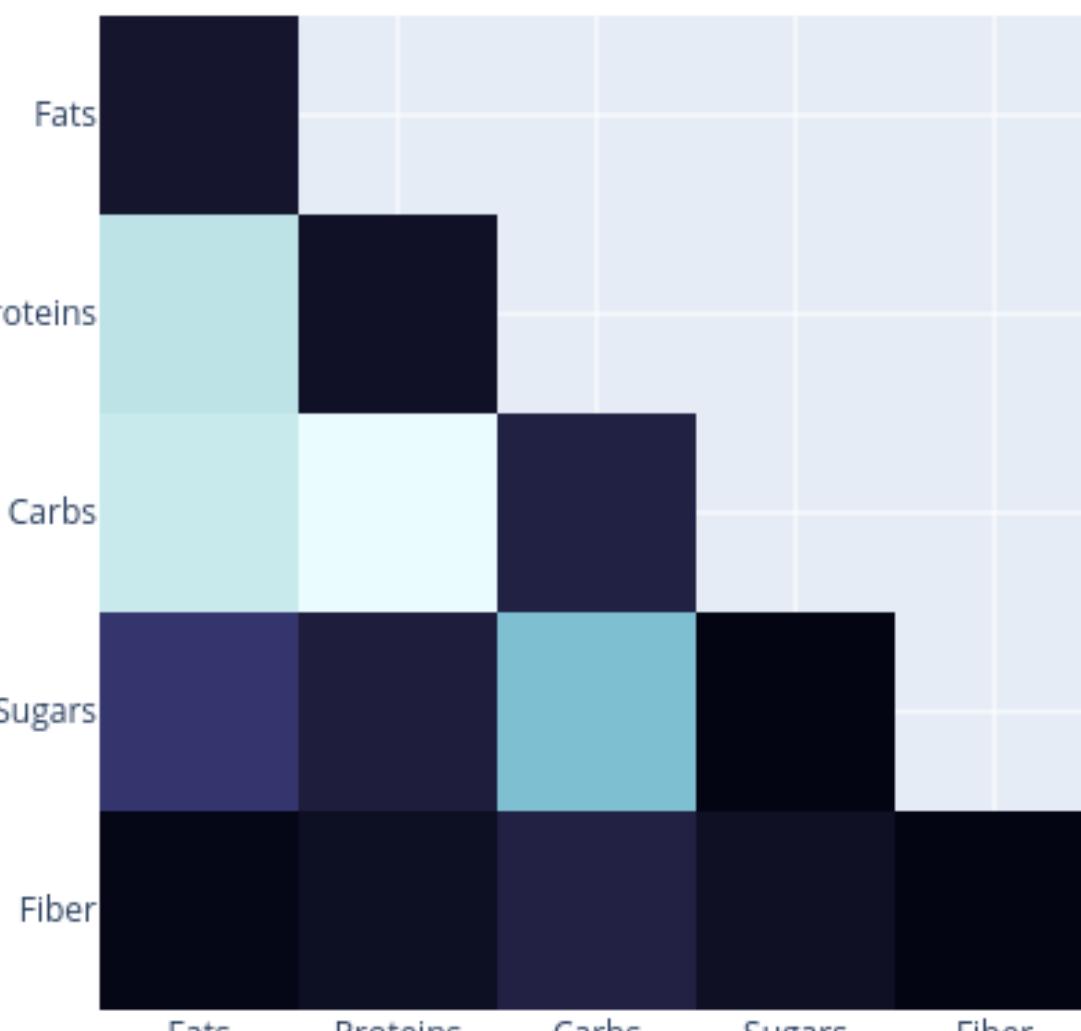
Nutrients for country Thai data



Nutrients for country Greek data

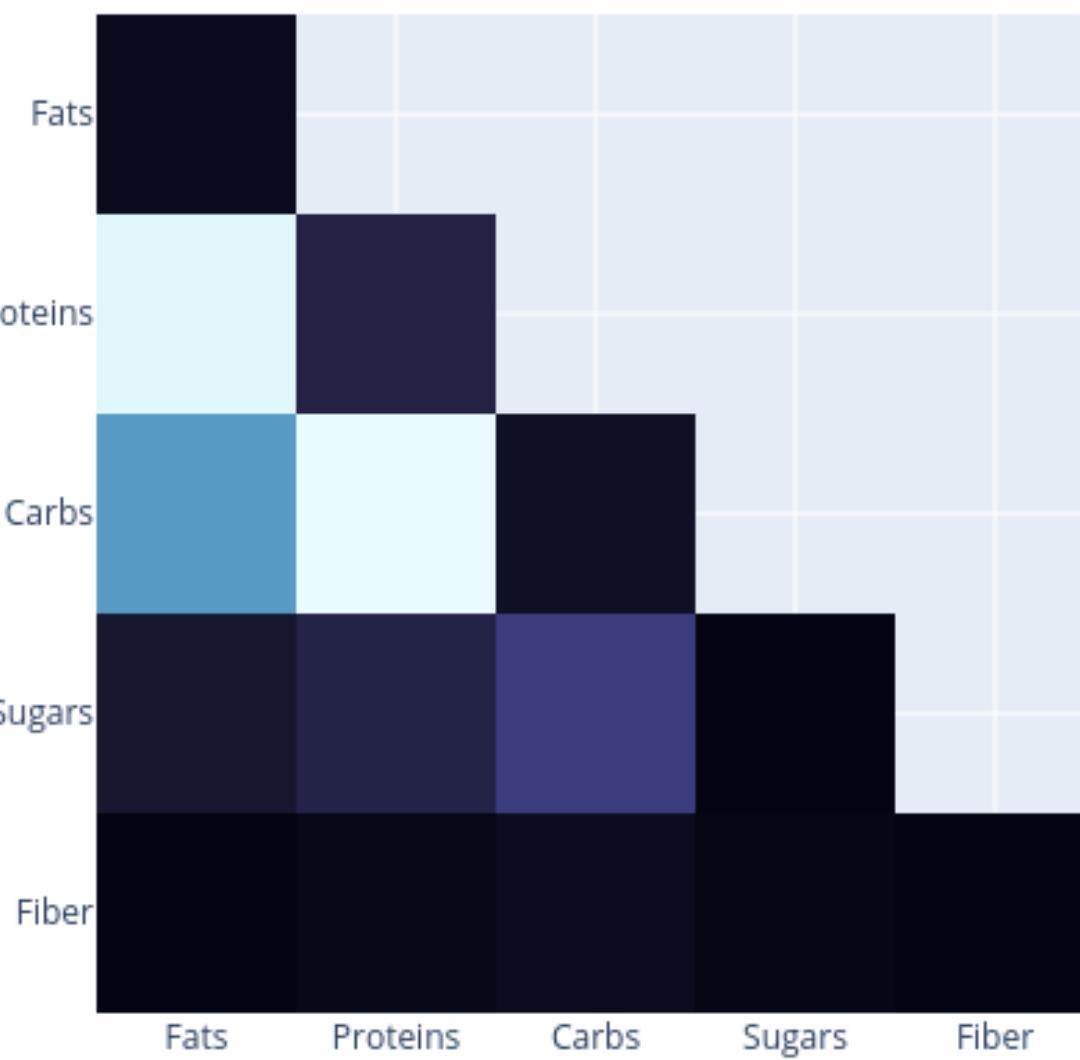


Nutrients for country Mexican data

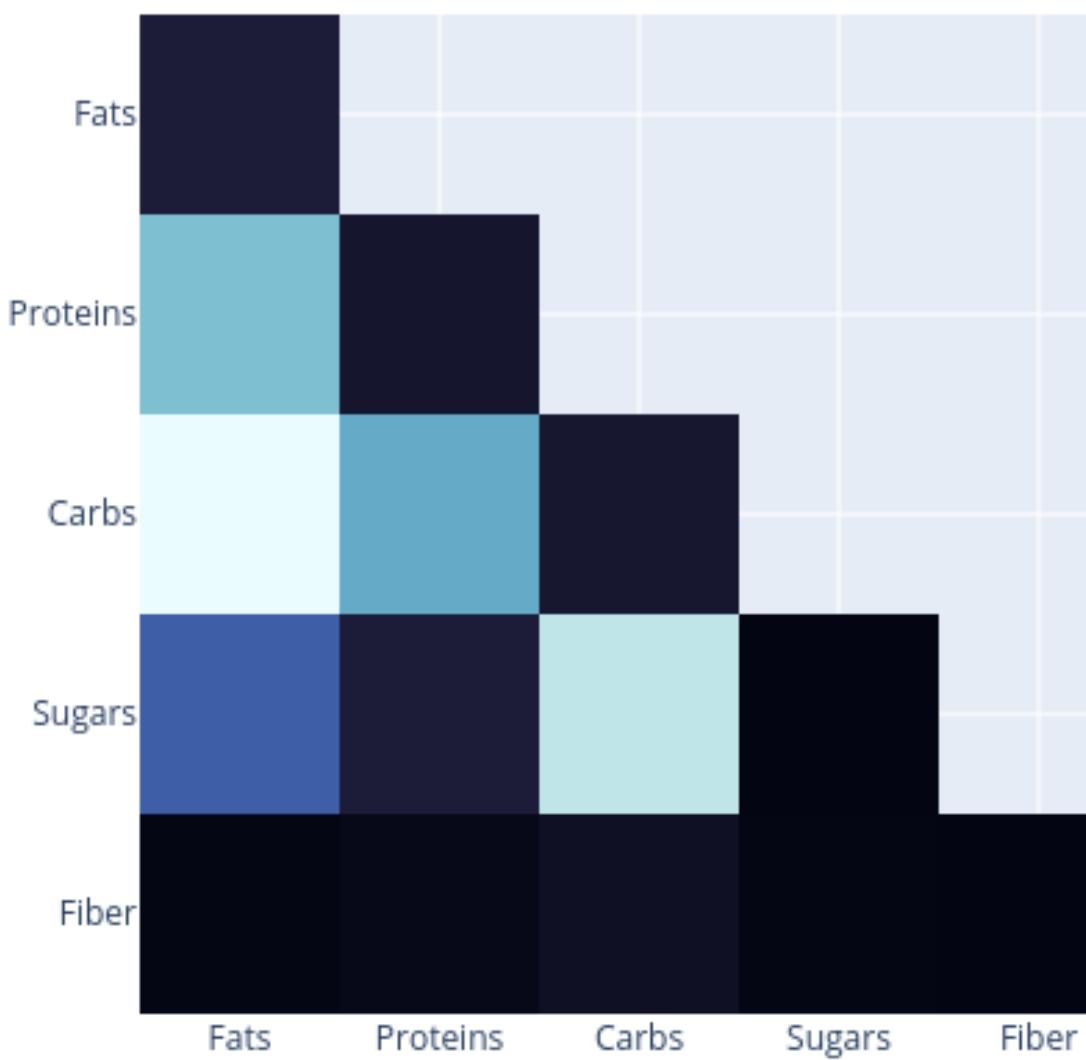


NUTRIENTS GRAPH: PROFILES - COUNTRIES

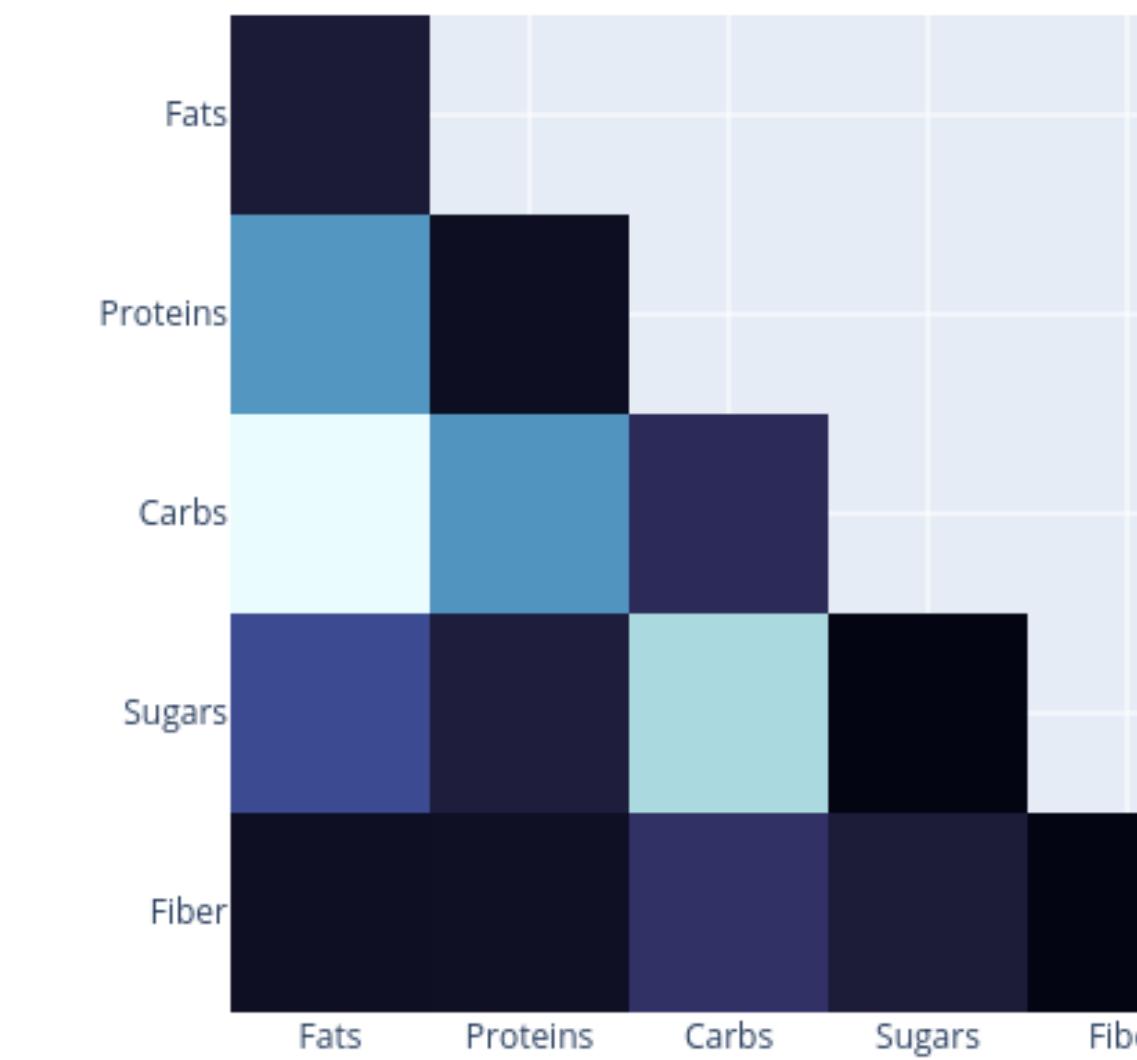
Nutrients for country Argentine data



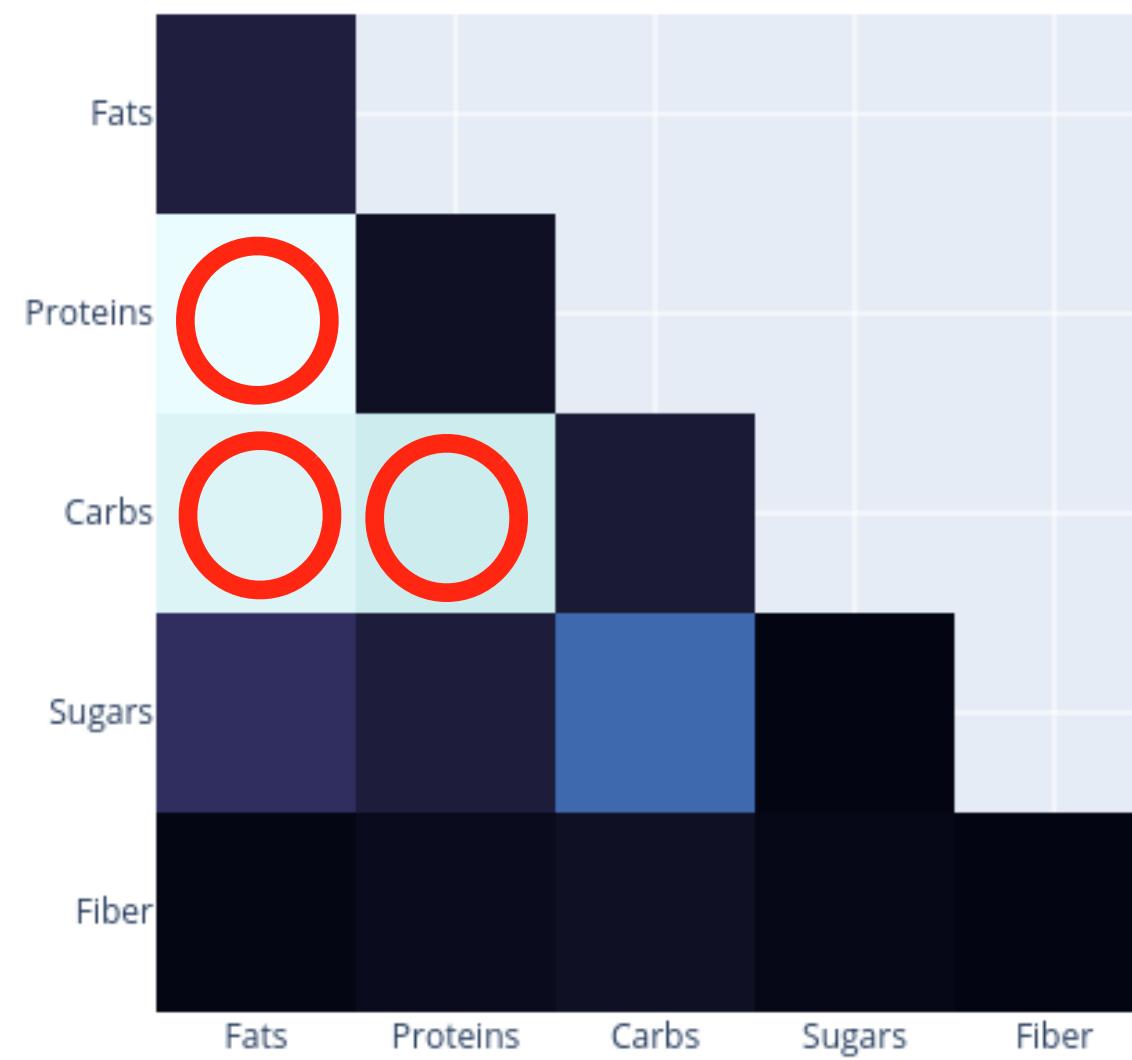
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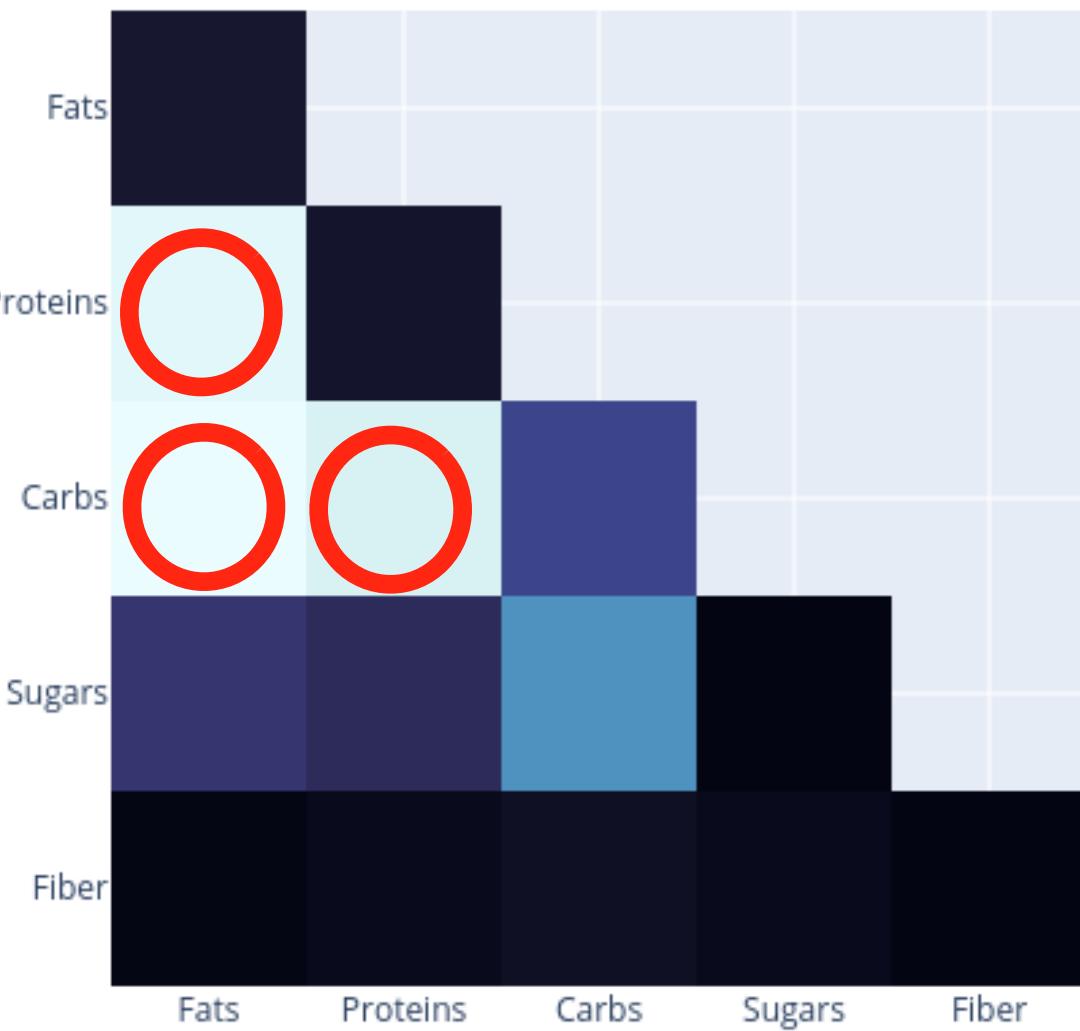
Nutrients for country Indian data



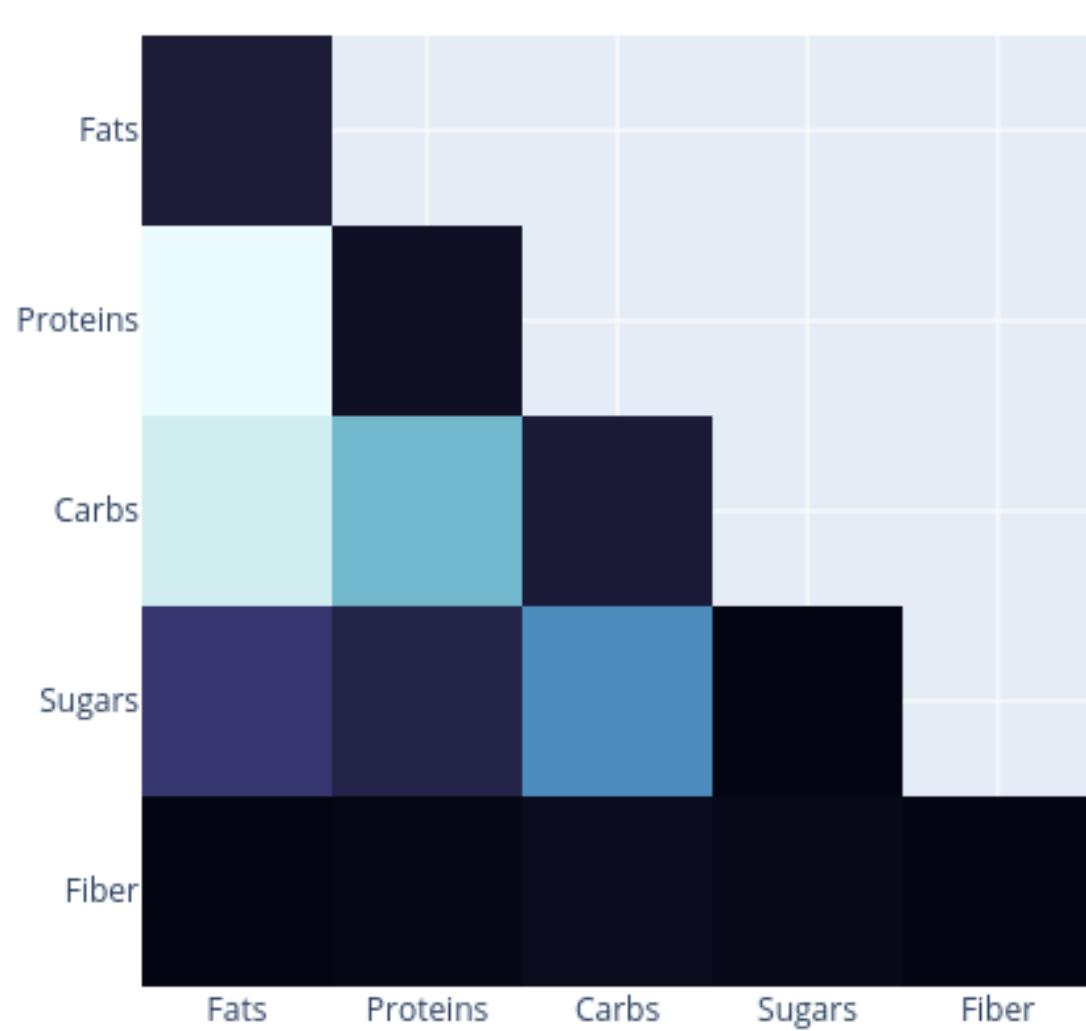
Nutrients for country Italian data



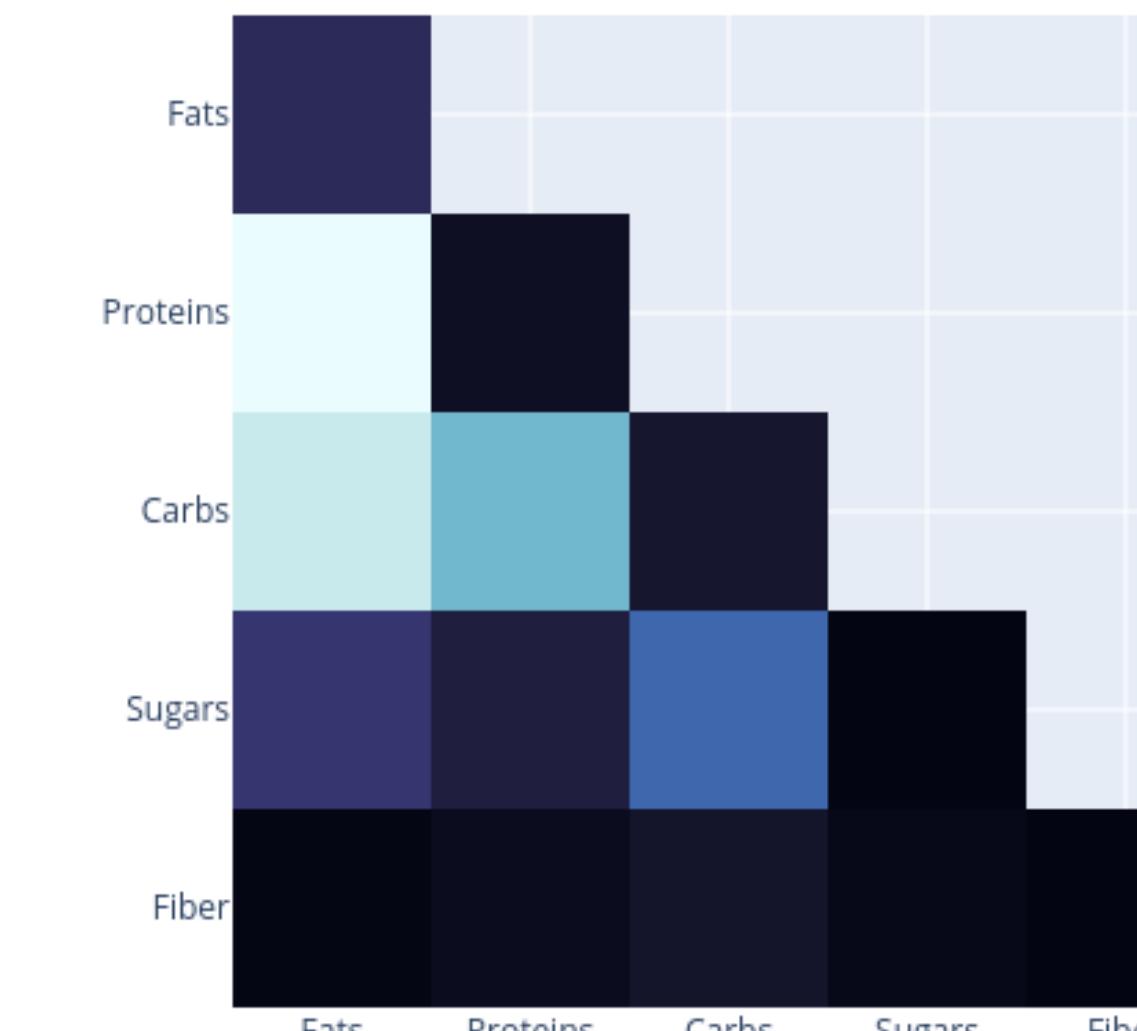
Nutrients for country Chinese data



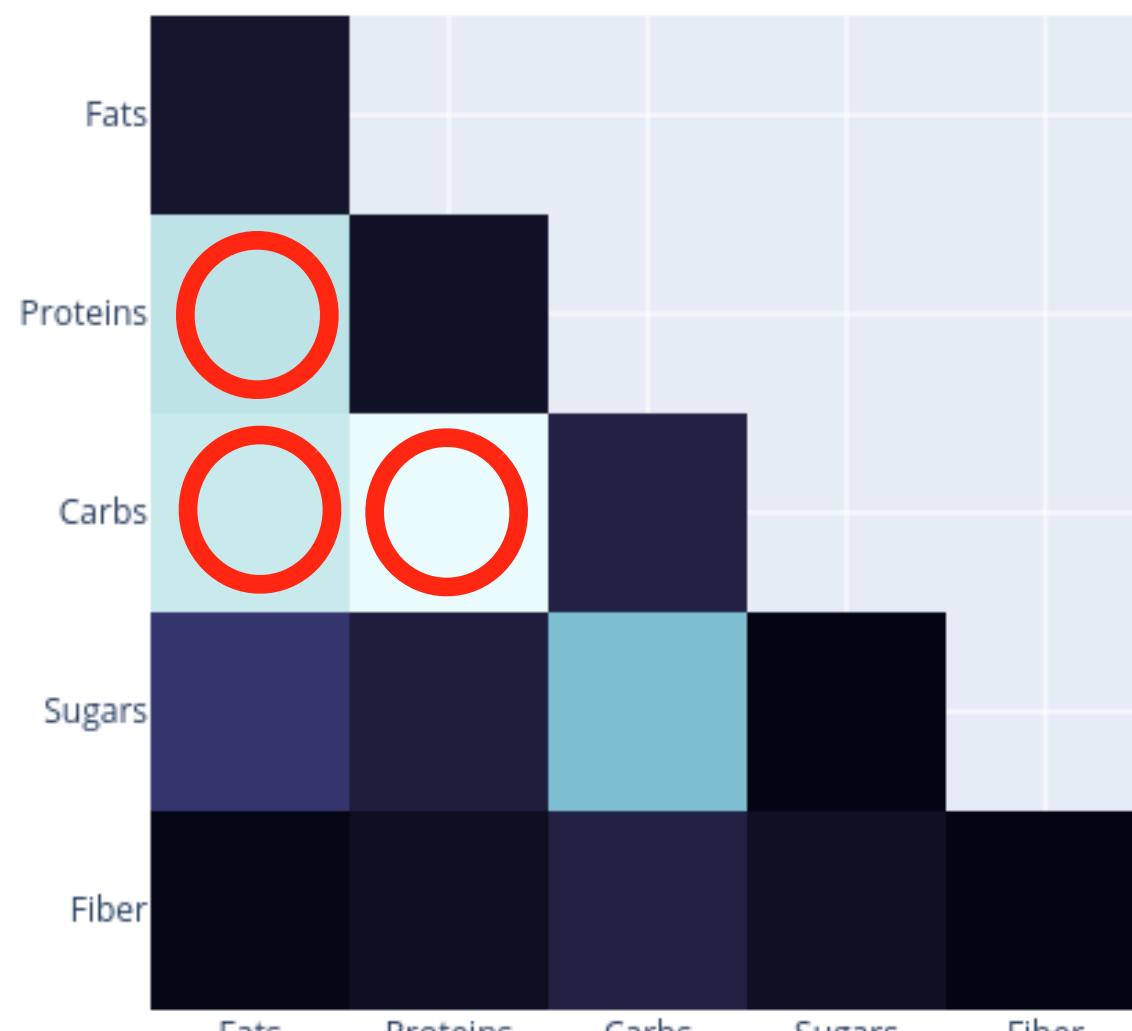
Nutrients for country Thai data



Nutrients for country Greek data

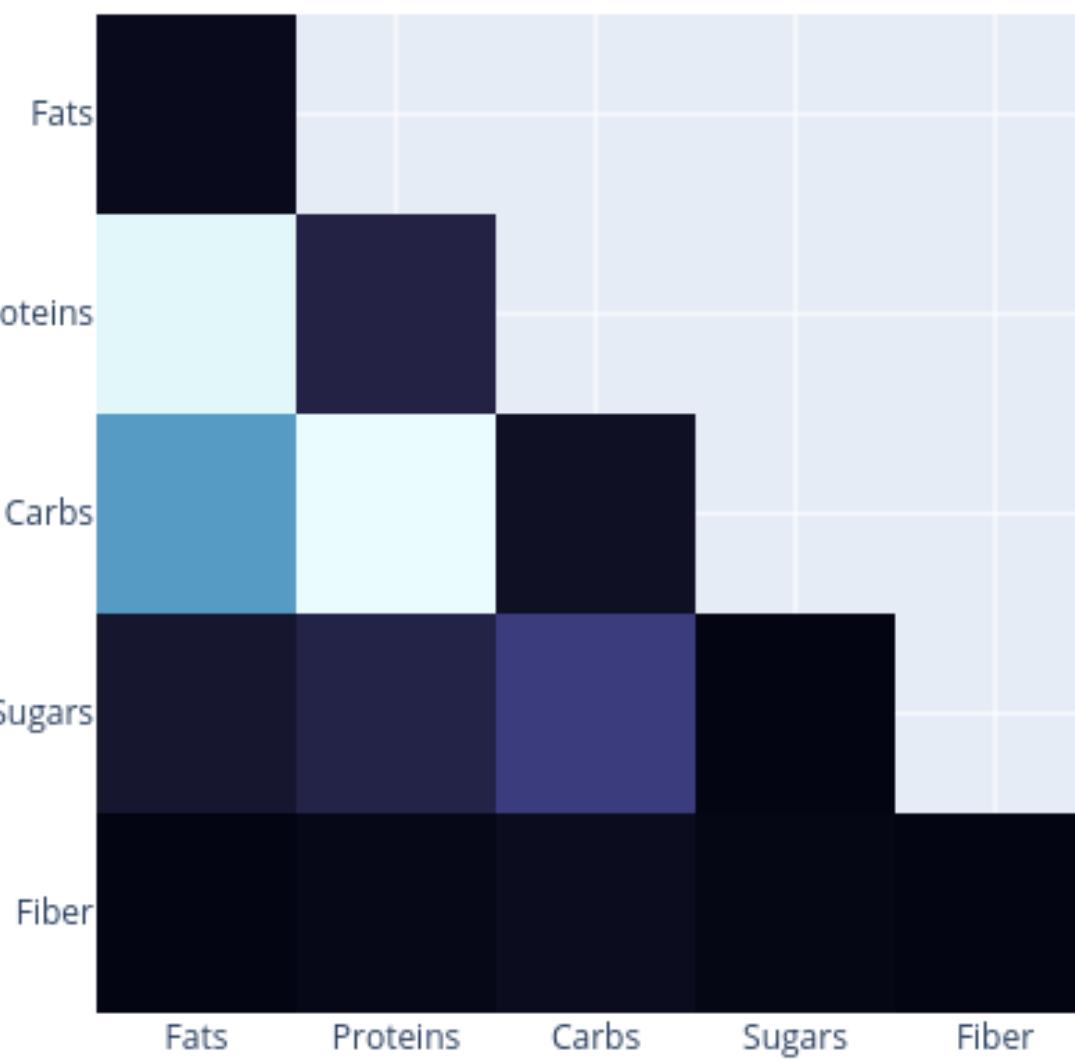


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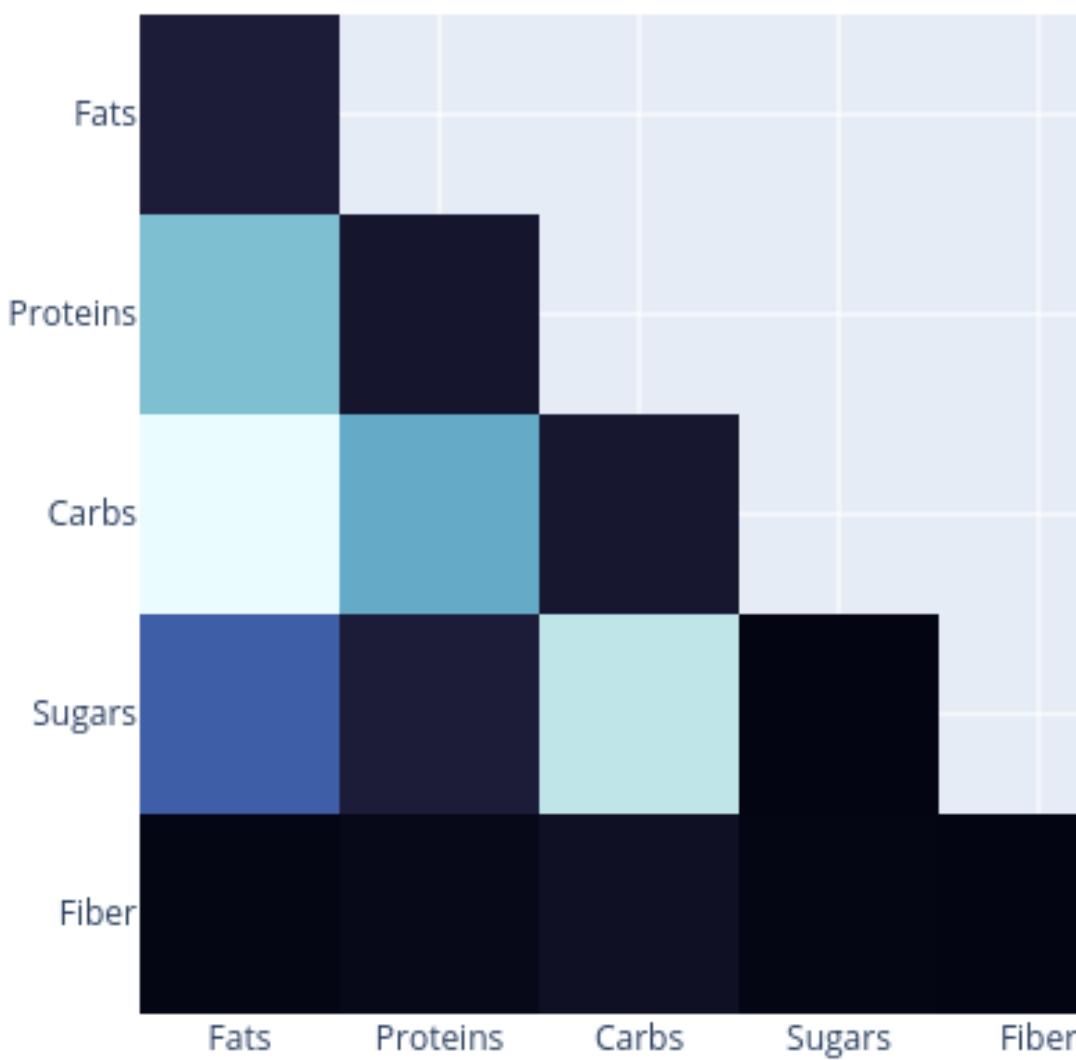


NUTRIENTS GRAPH: PROFILES - COUNTRIES

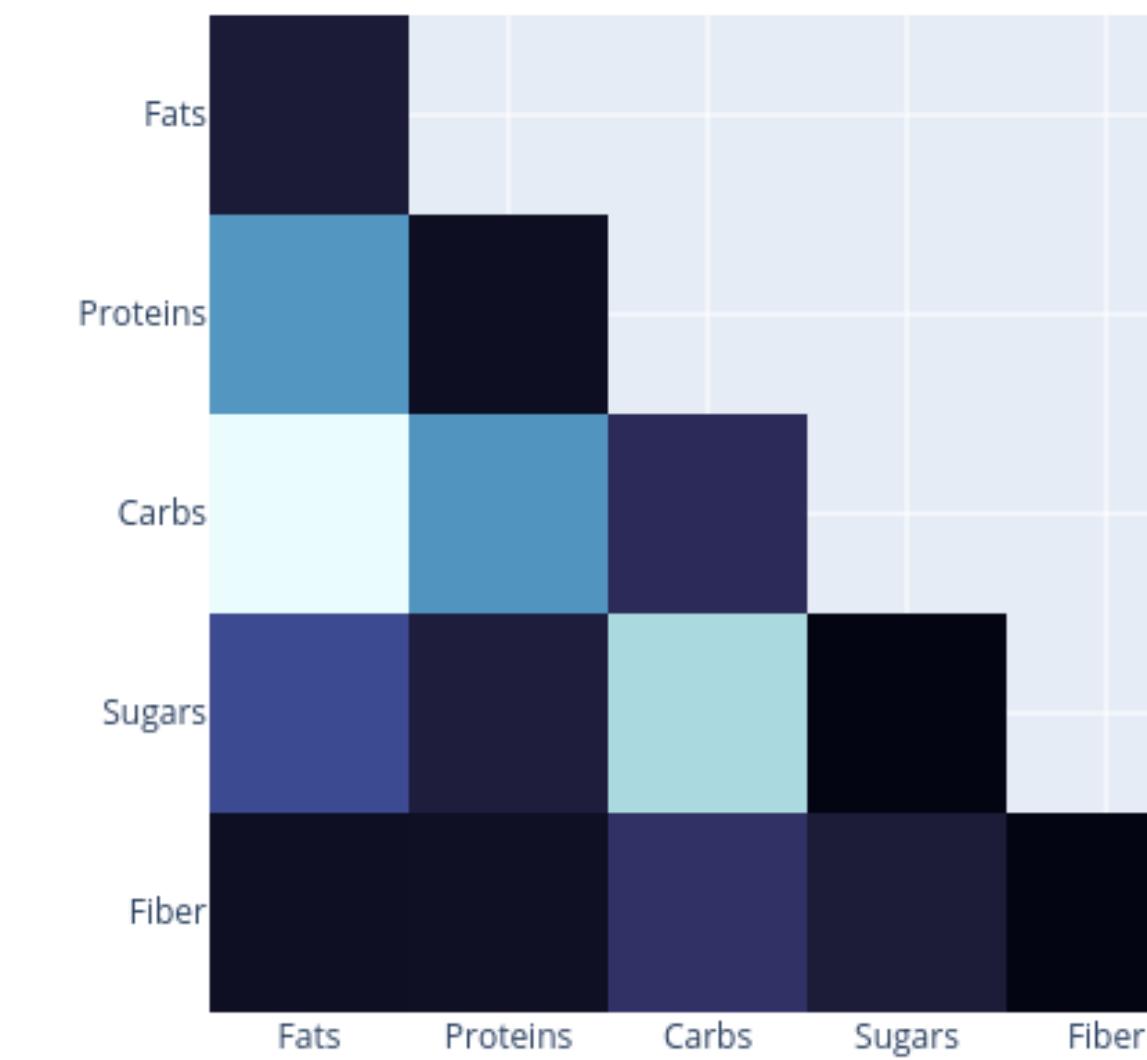
Nutrients for country Argentine data



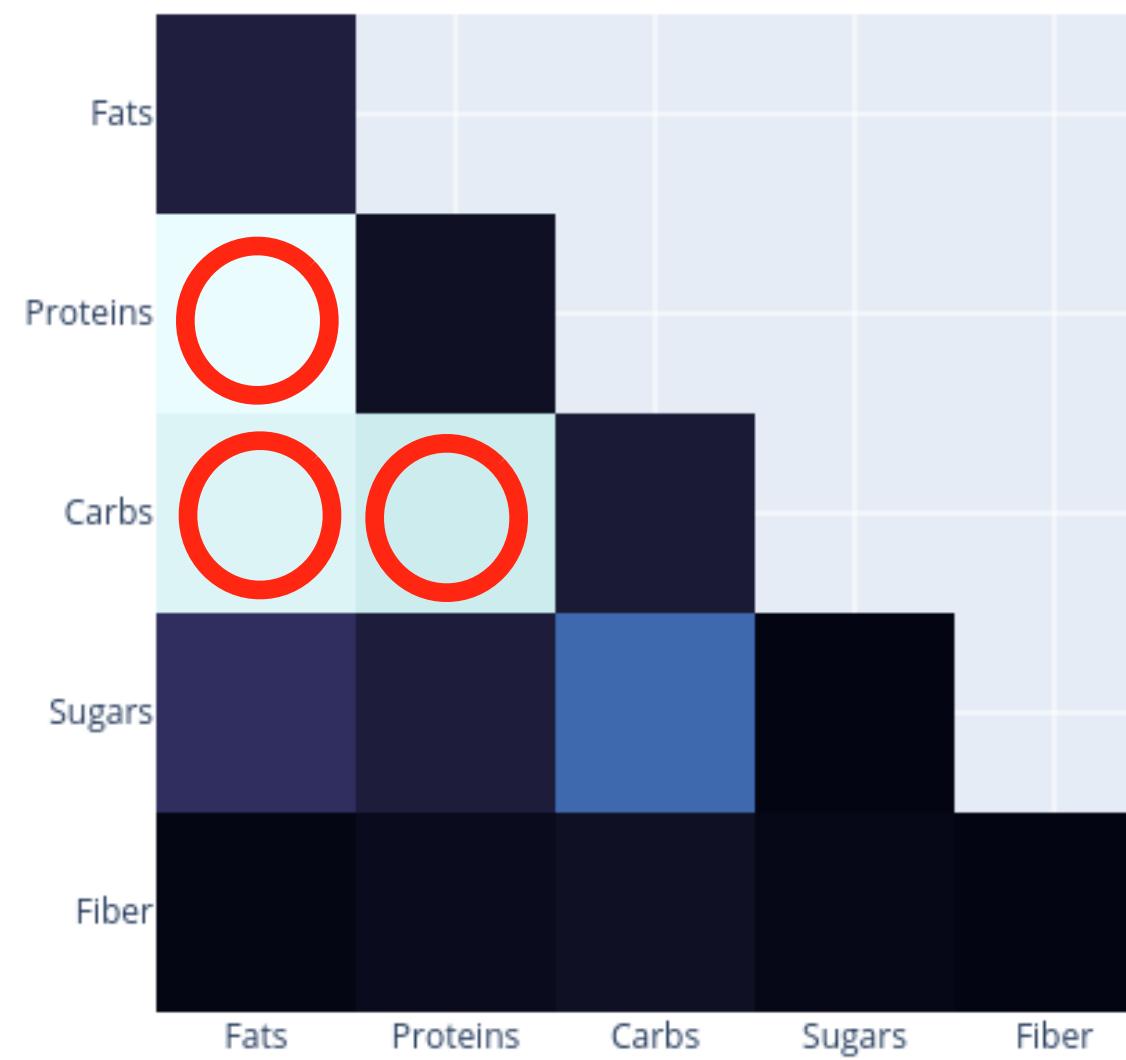
Nutrients for country US data



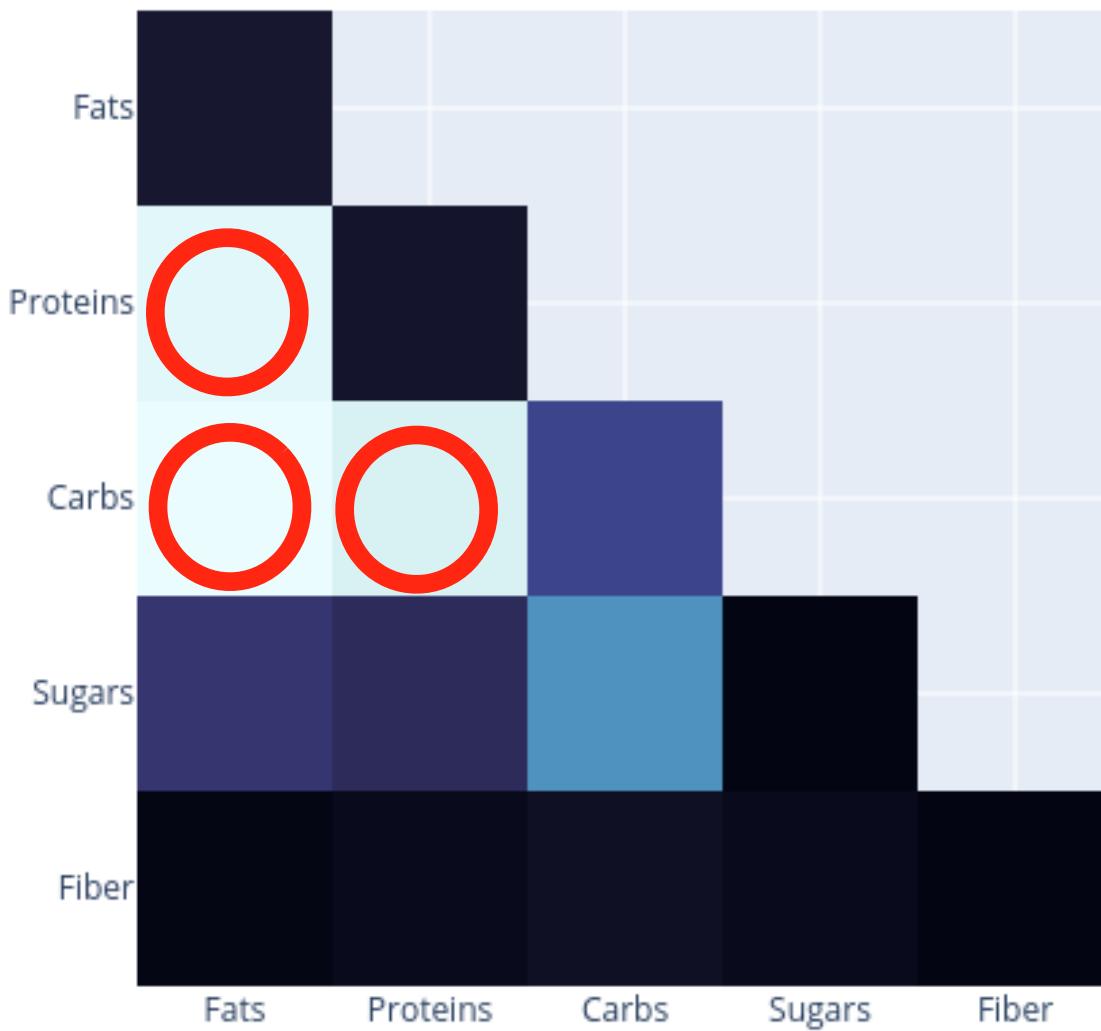
Nutrients for country Indian data



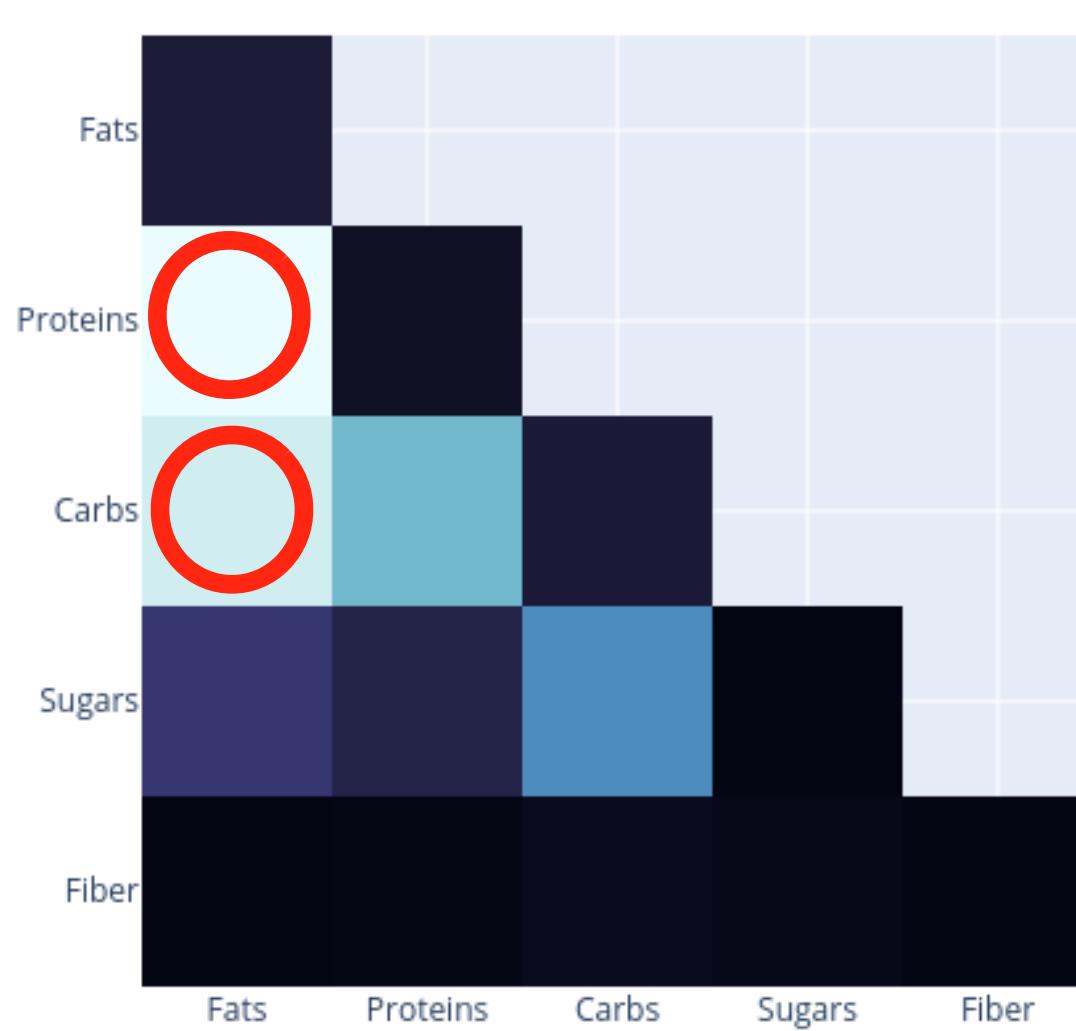
Nutrients for country Italian data



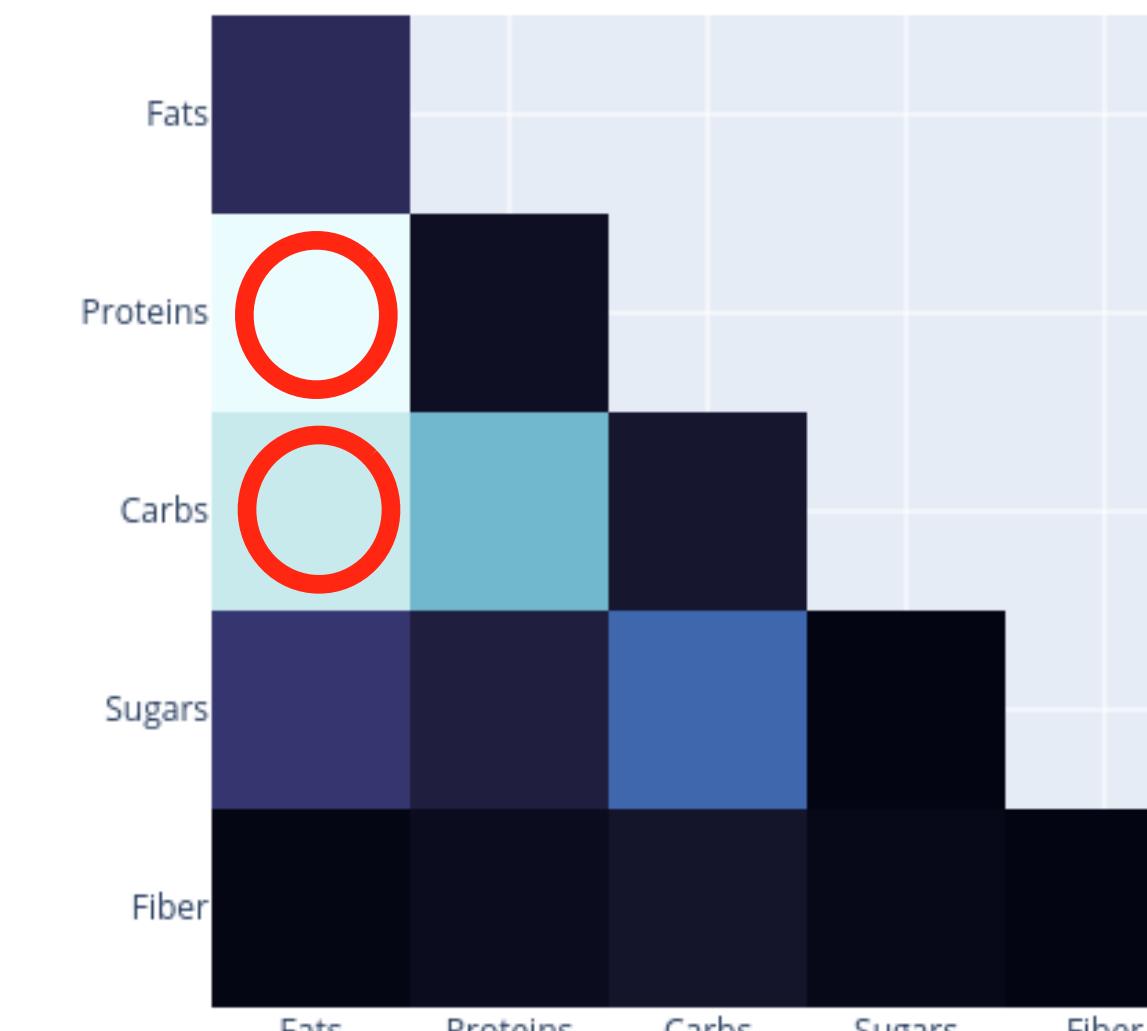
Nutrients for country Chinese data



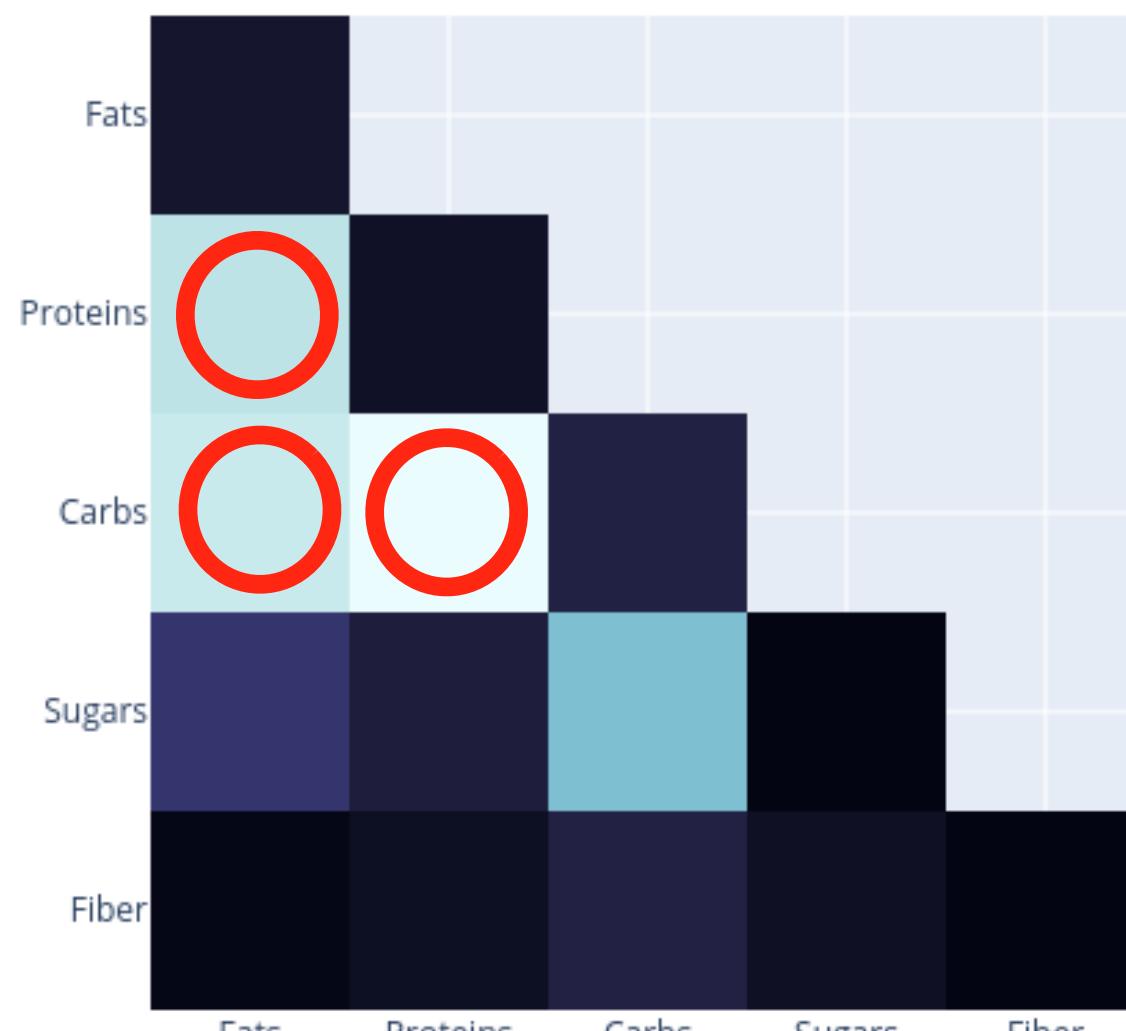
Nutrients for country Thai data



Nutrients for country Greek data

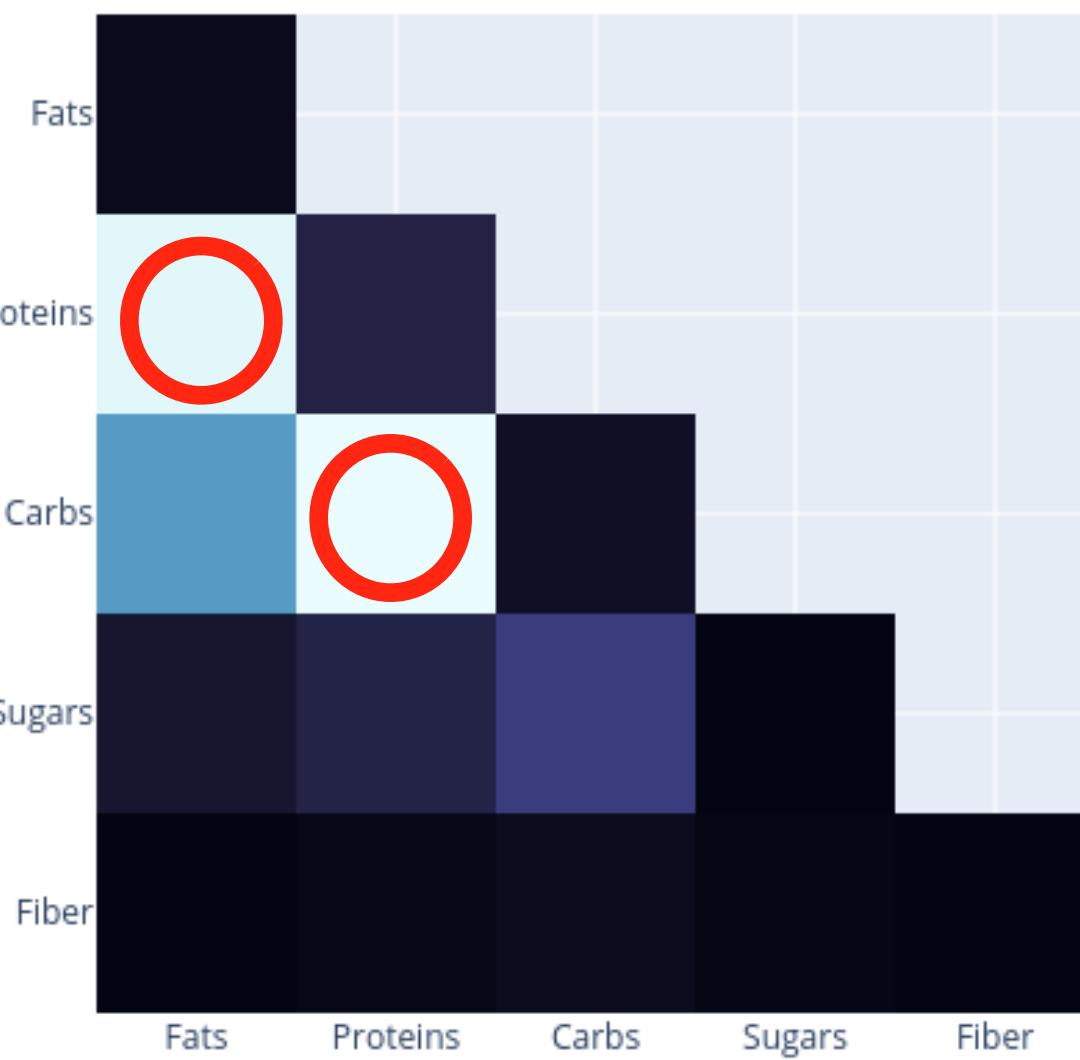


Nutrients for country Mexican data

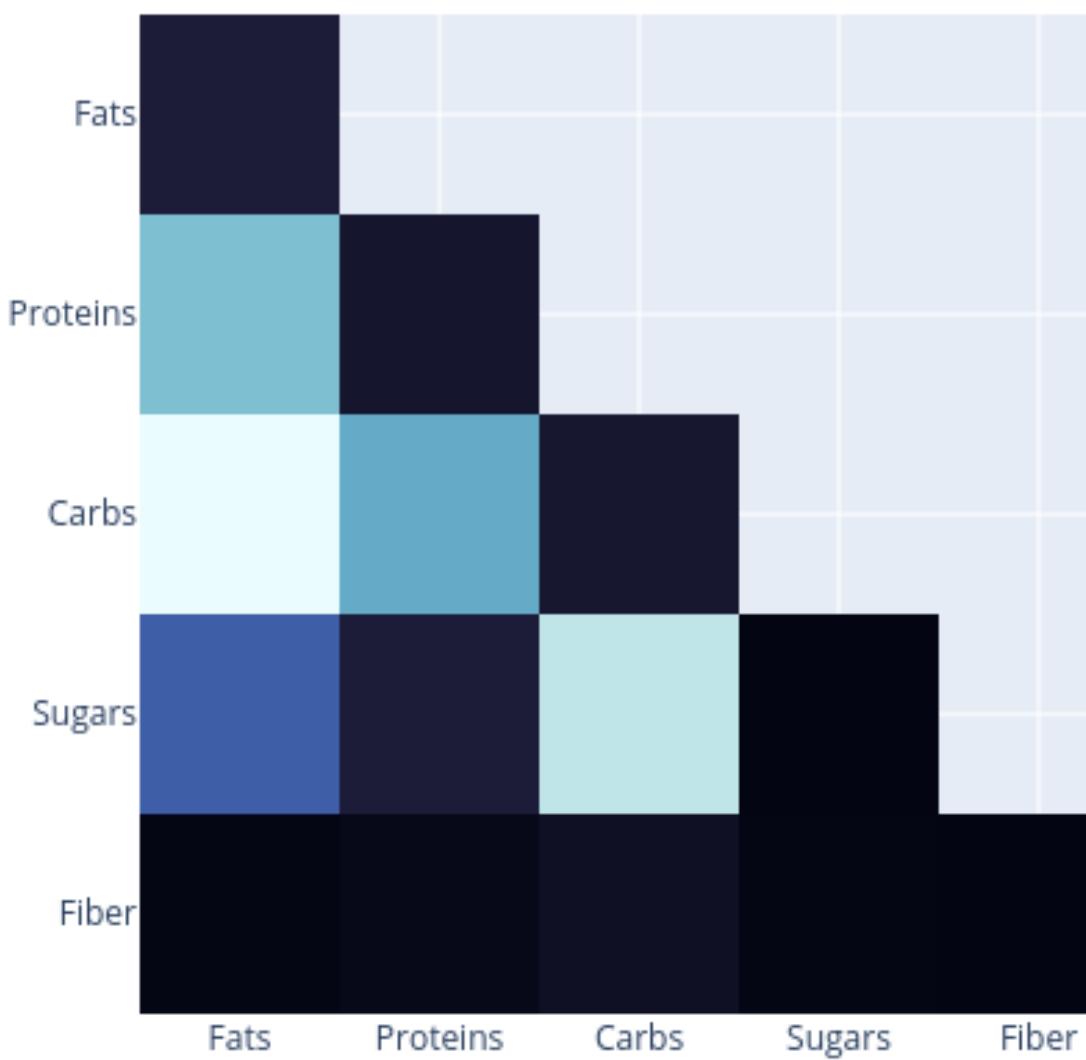


NUTRIENTS GRAPH: PROFILES - COUNTRIES

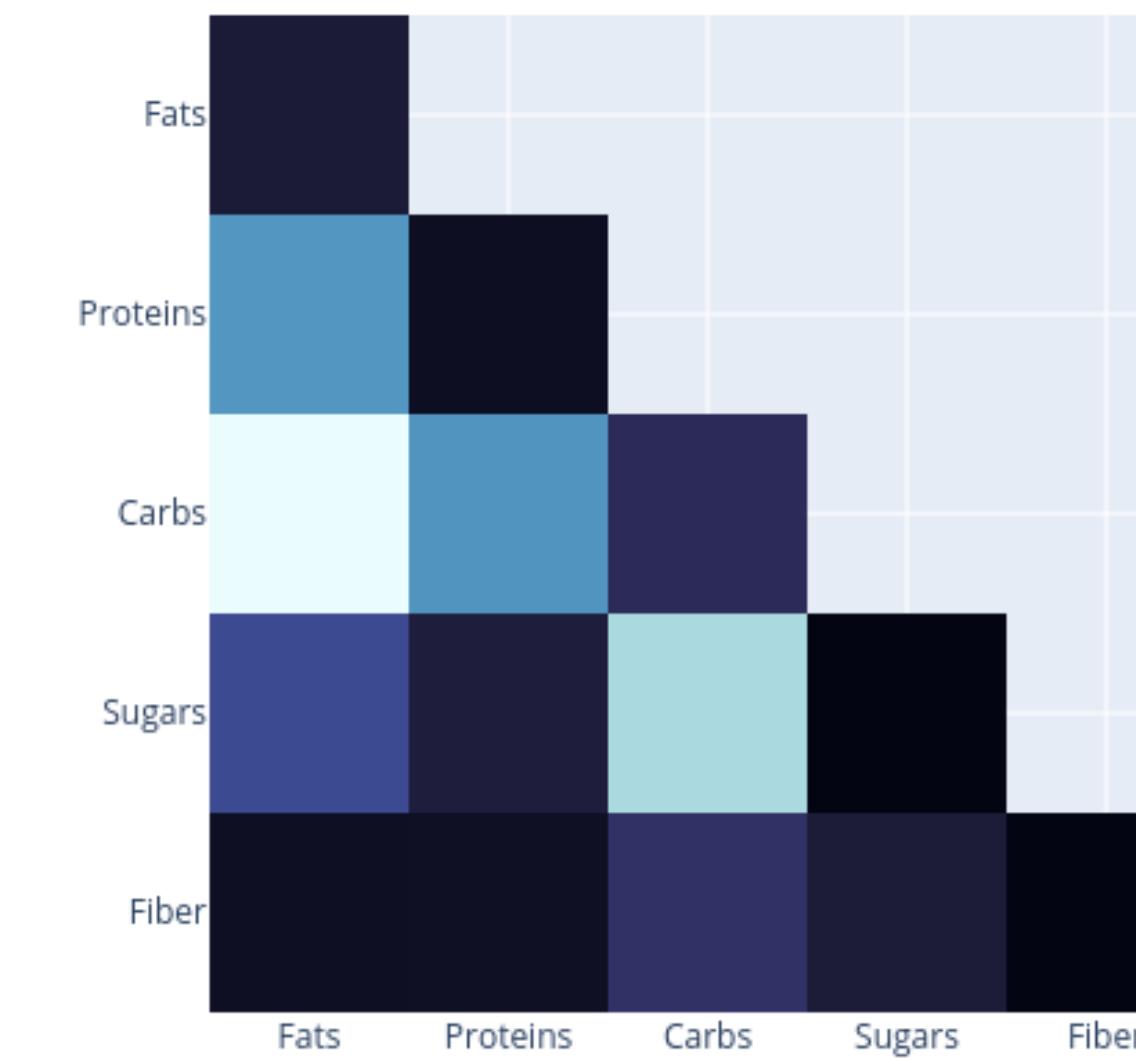
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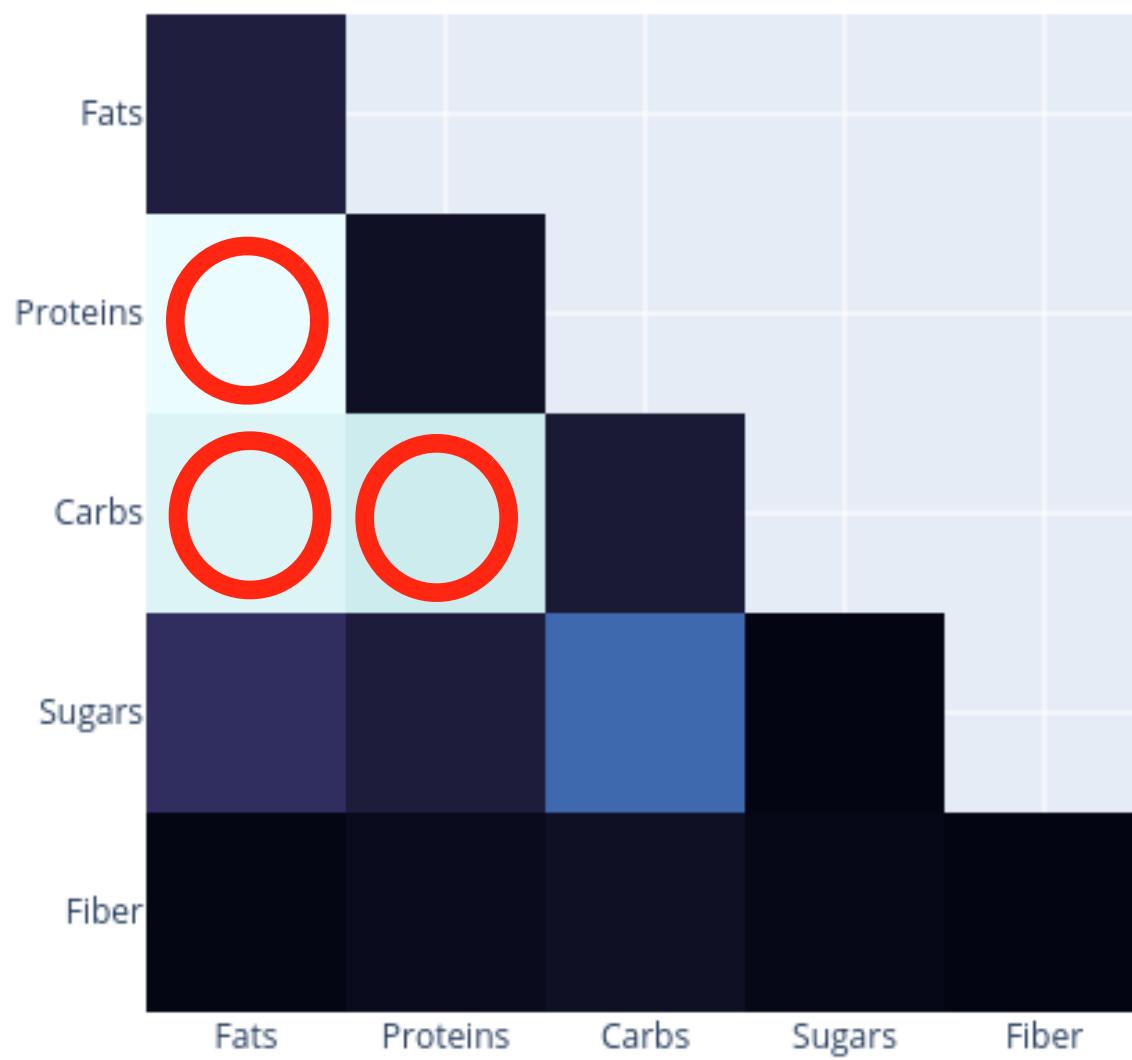
Nutrients for country US data



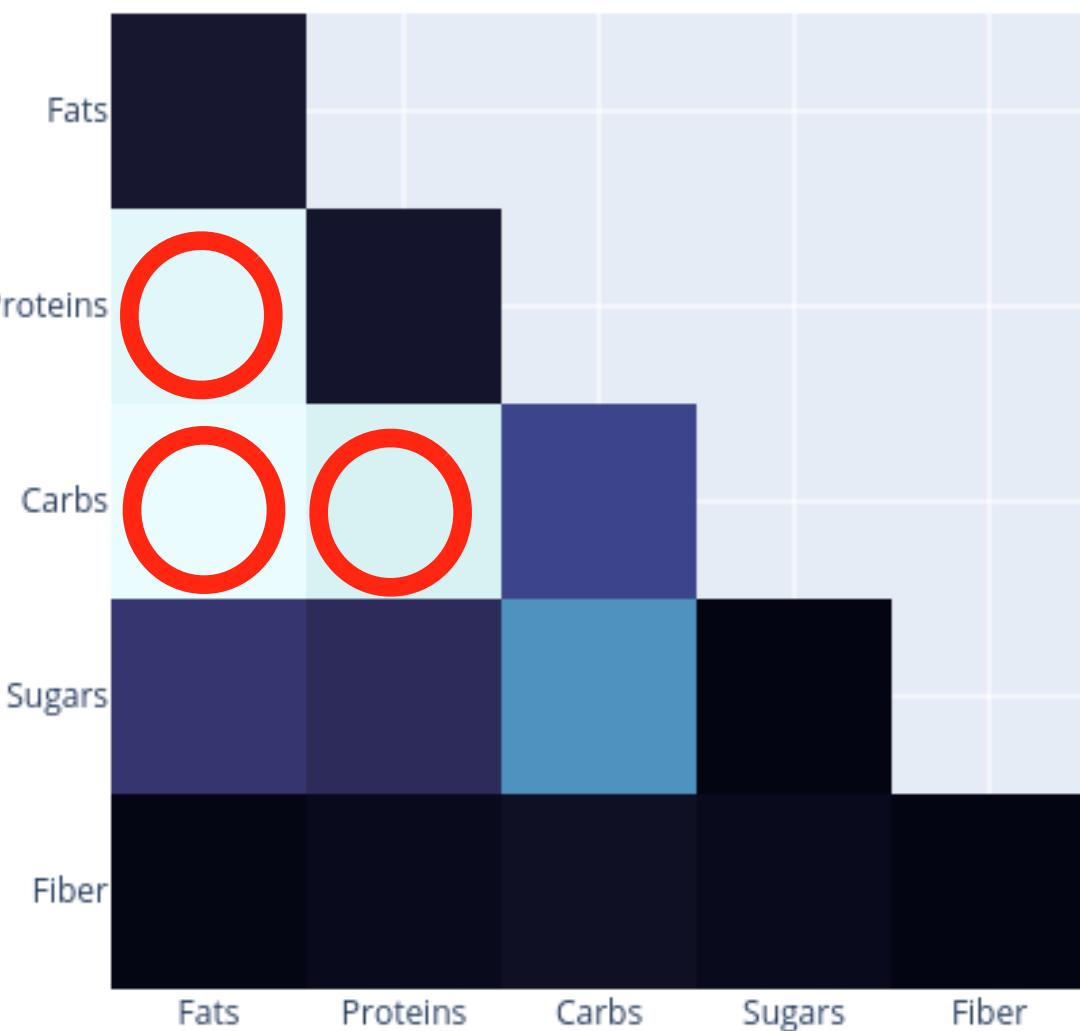
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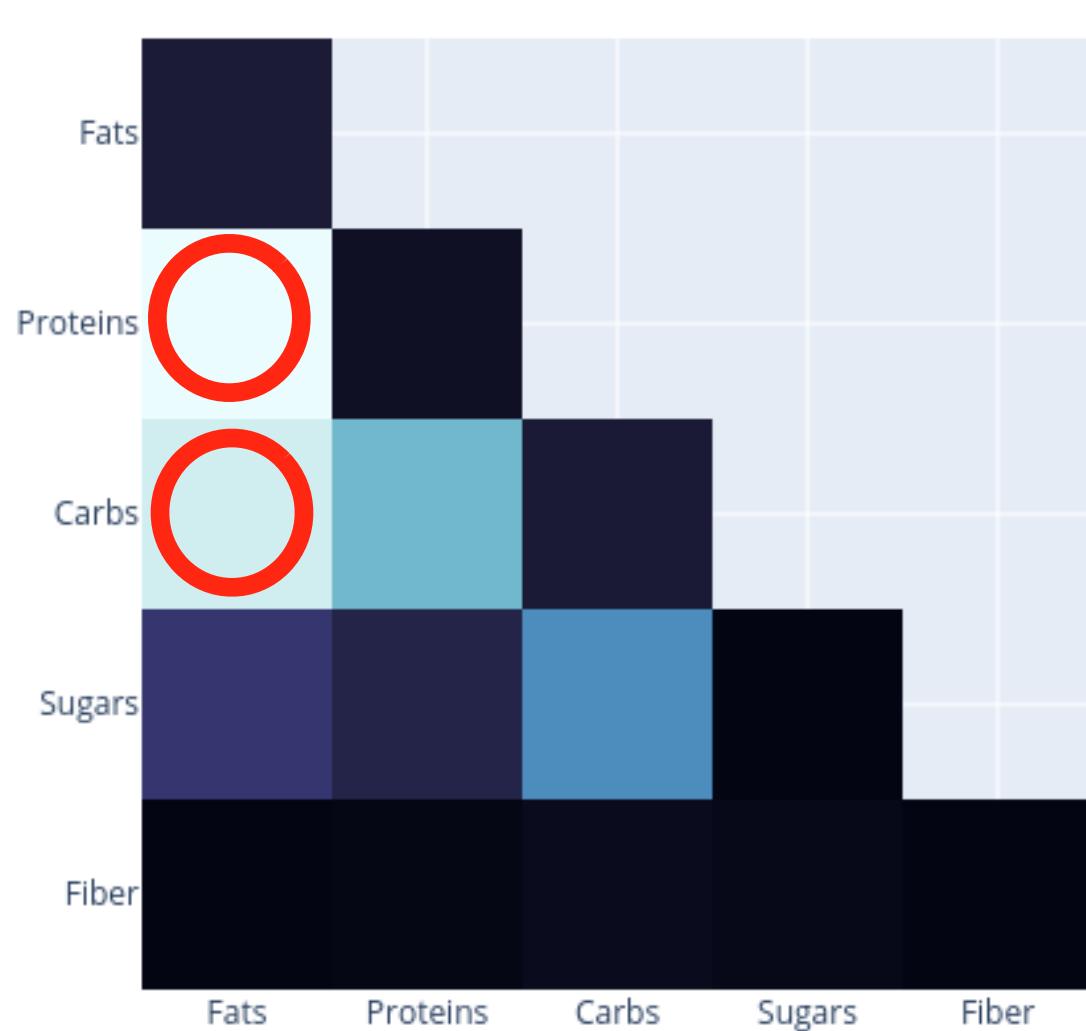
Nutrients for country Italian data



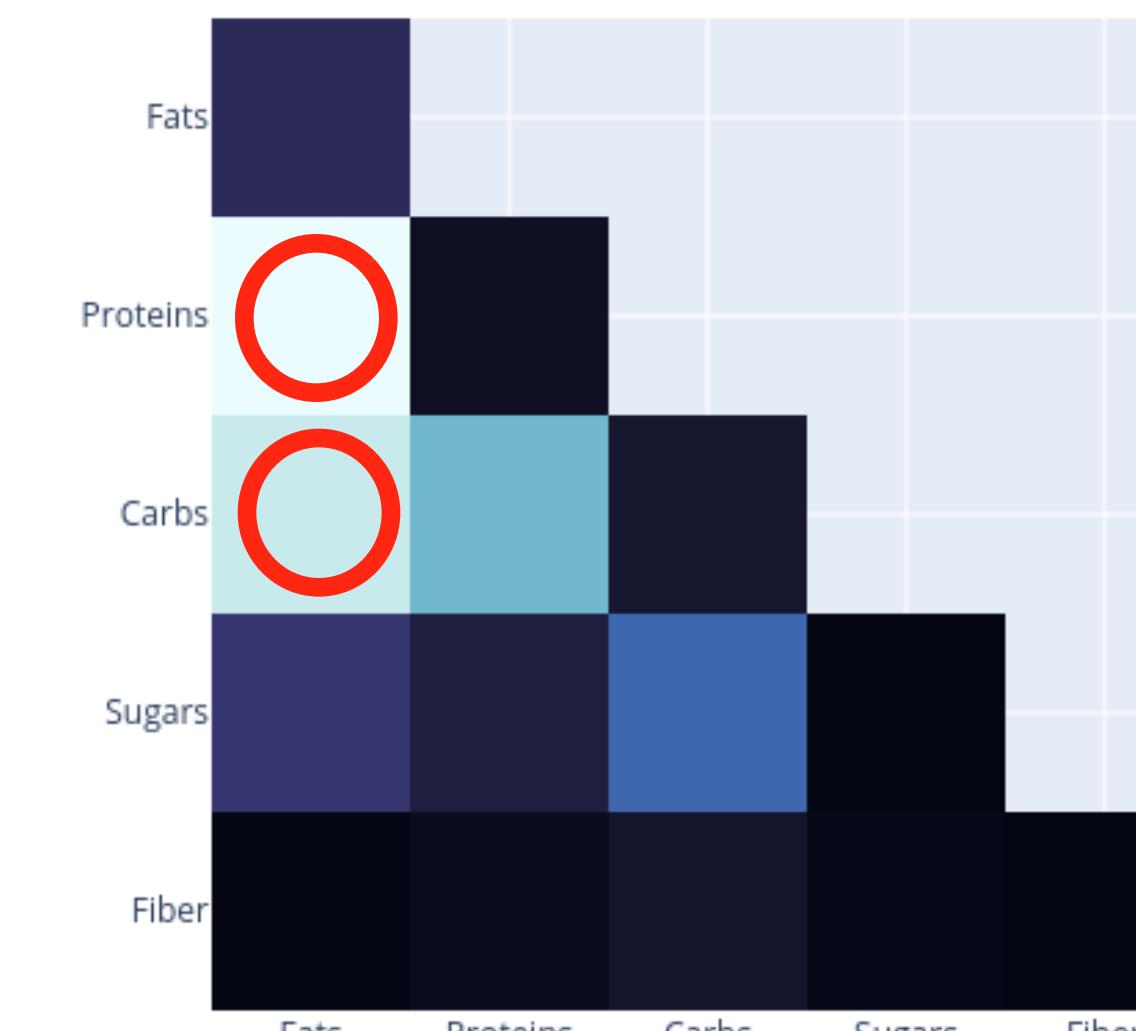
Nutrients for country Chinese data



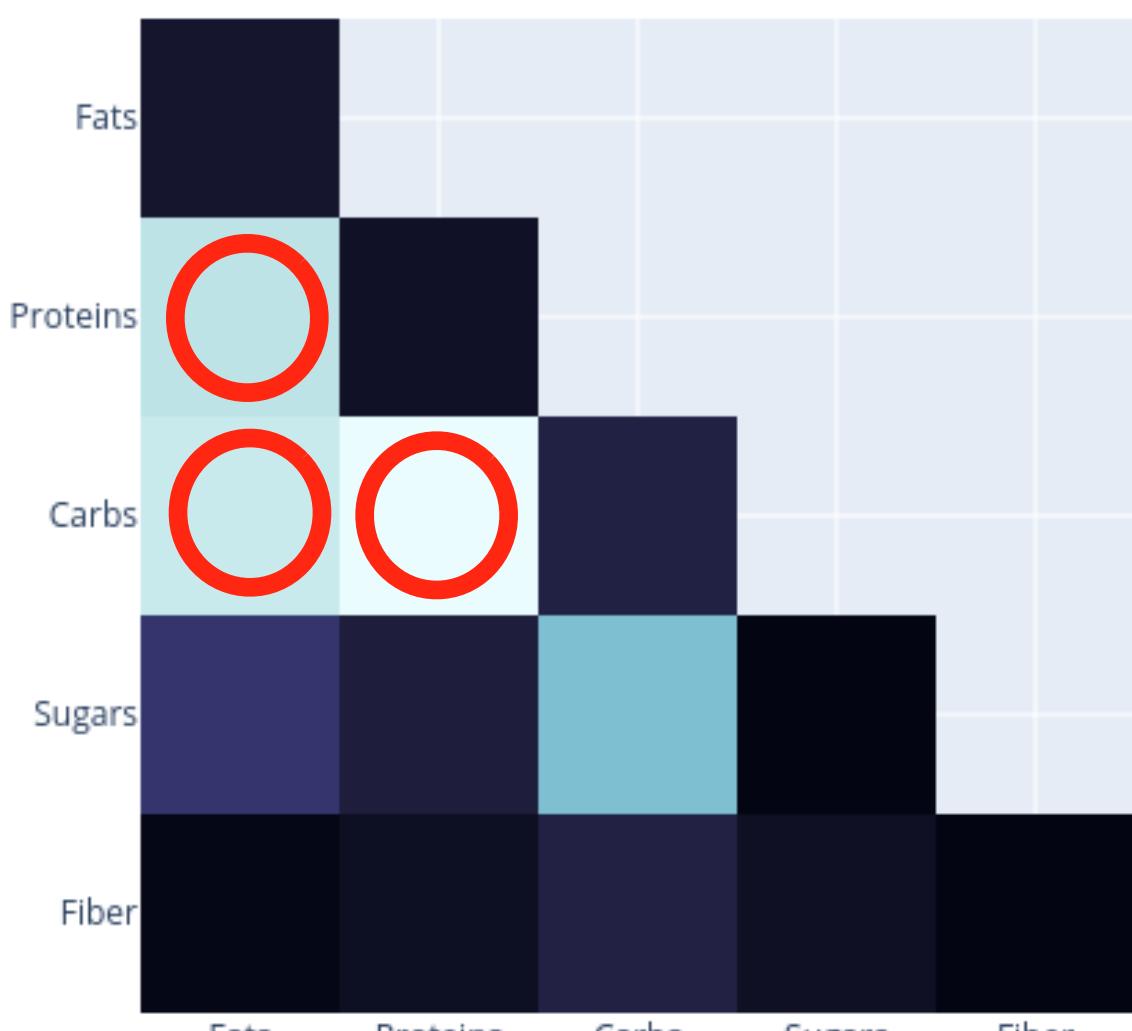
Nutrients for country Thai data



Nutrients for country Greek data

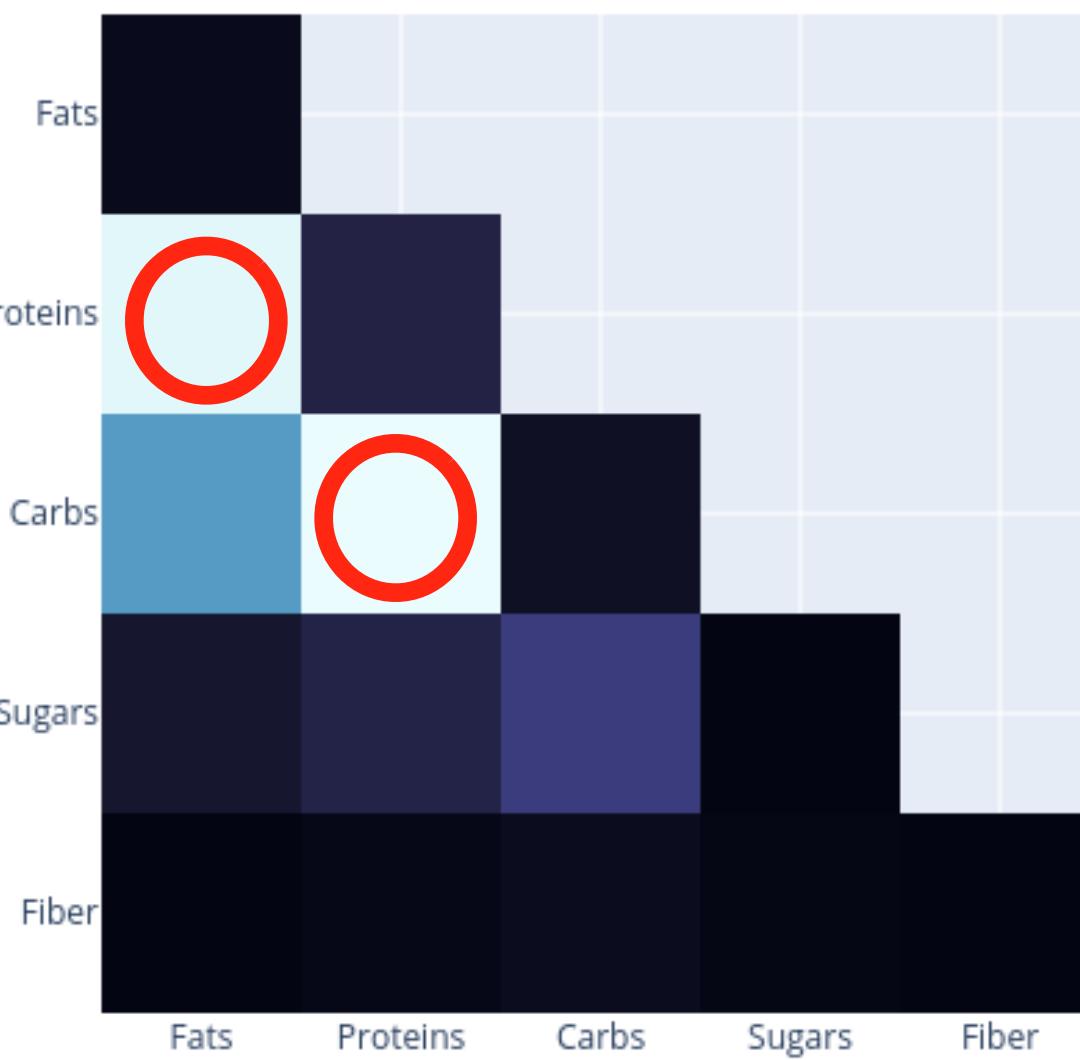


Nutrients for country Mexican data

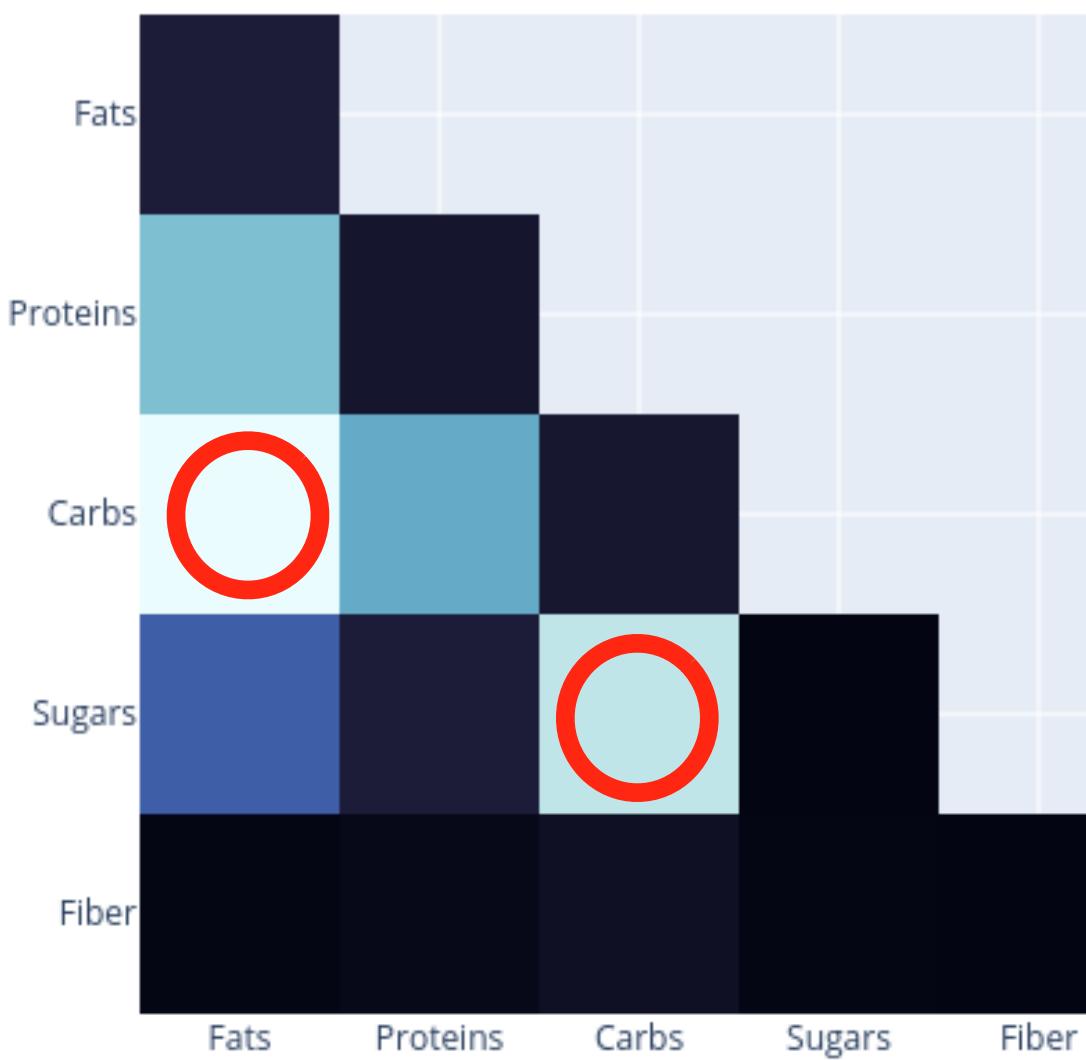


NUTRIENTS GRAPH: PROFILES - COUNTRIES

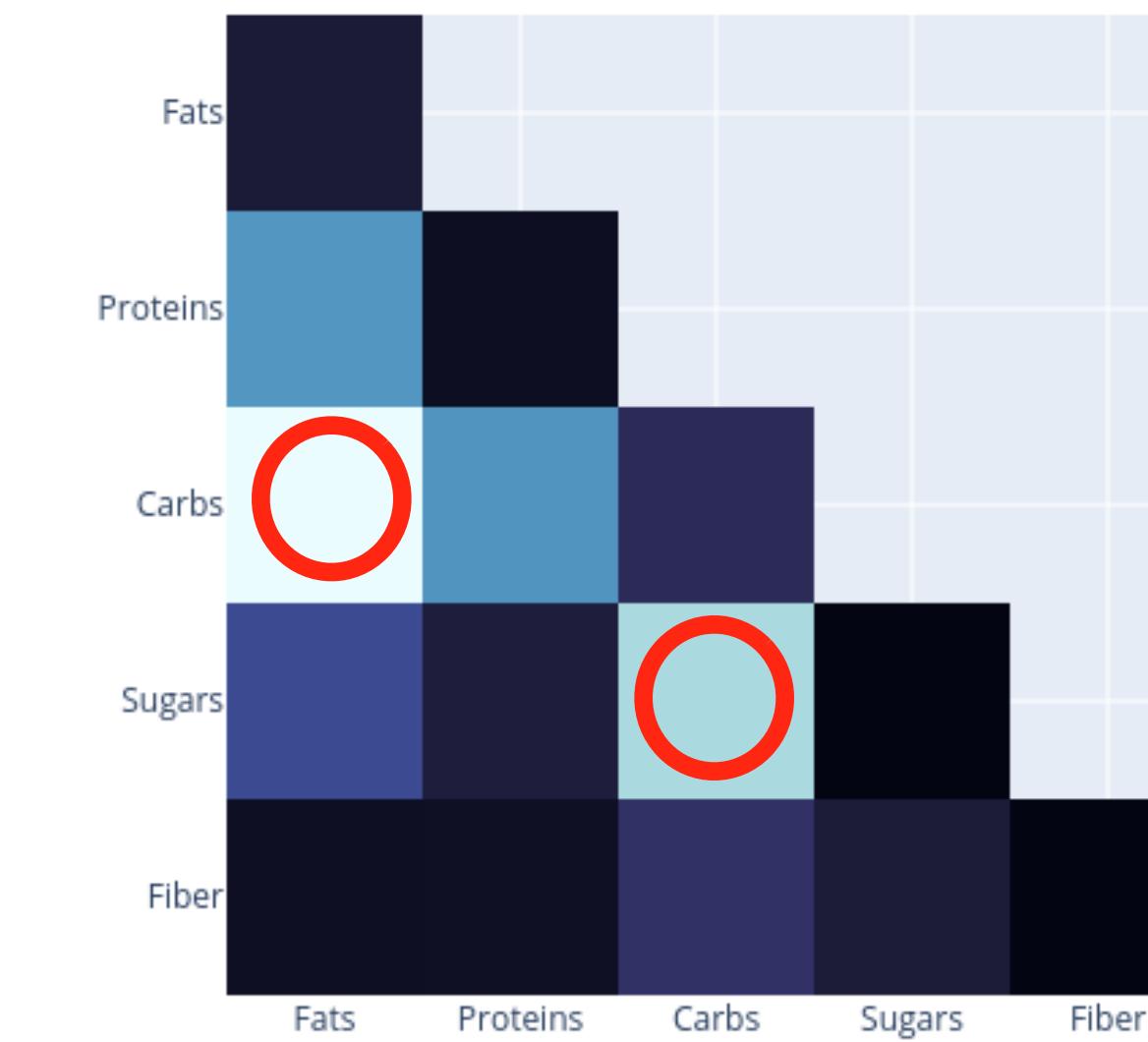
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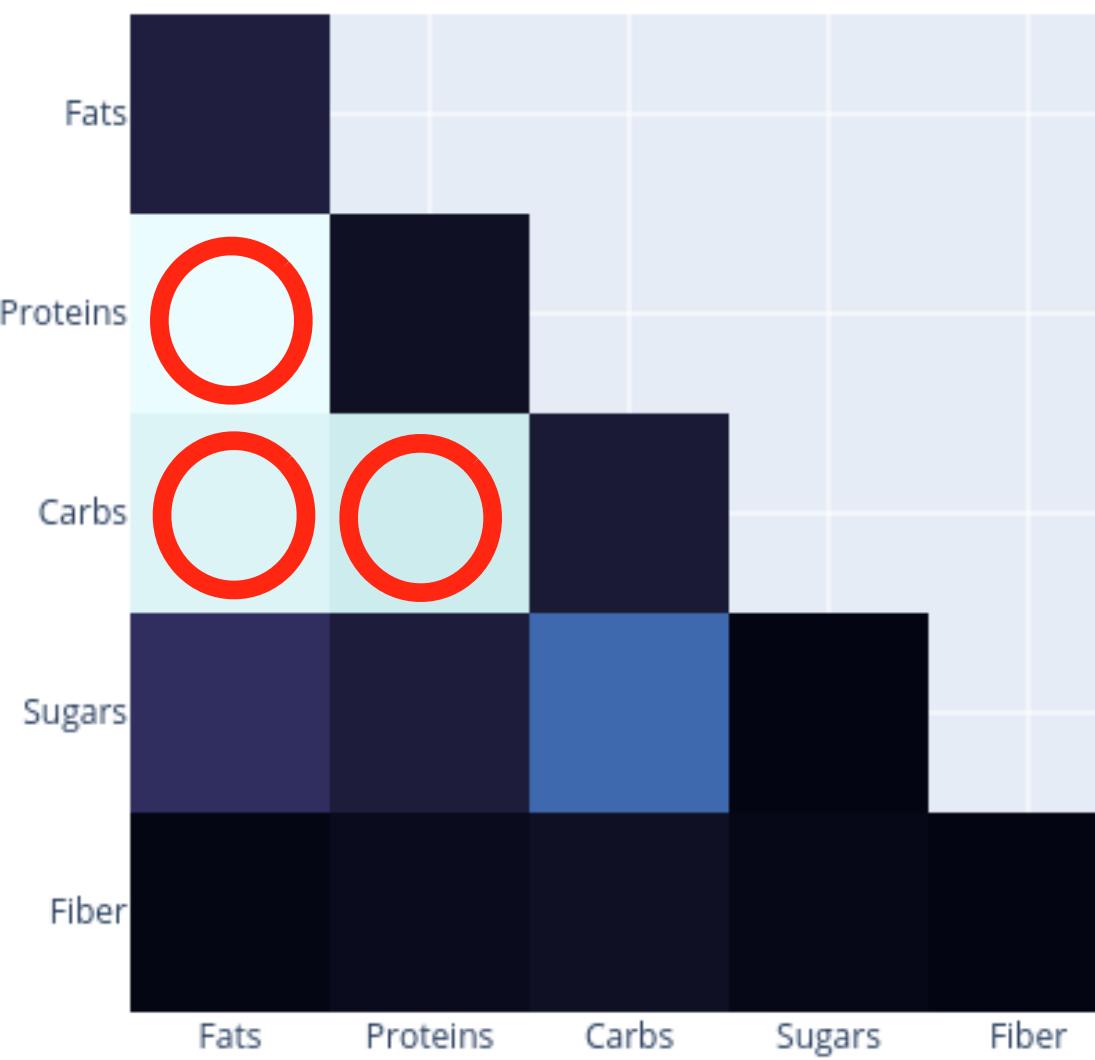
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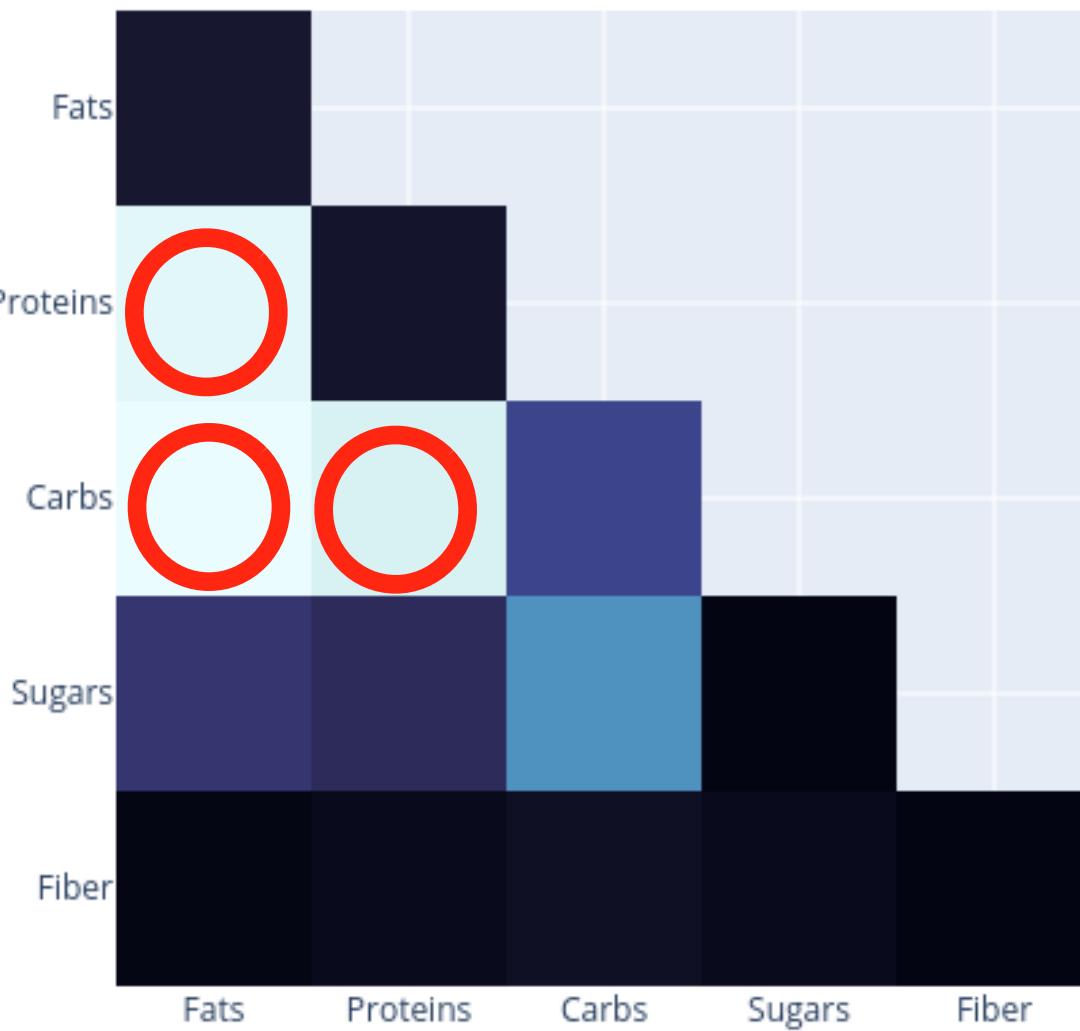
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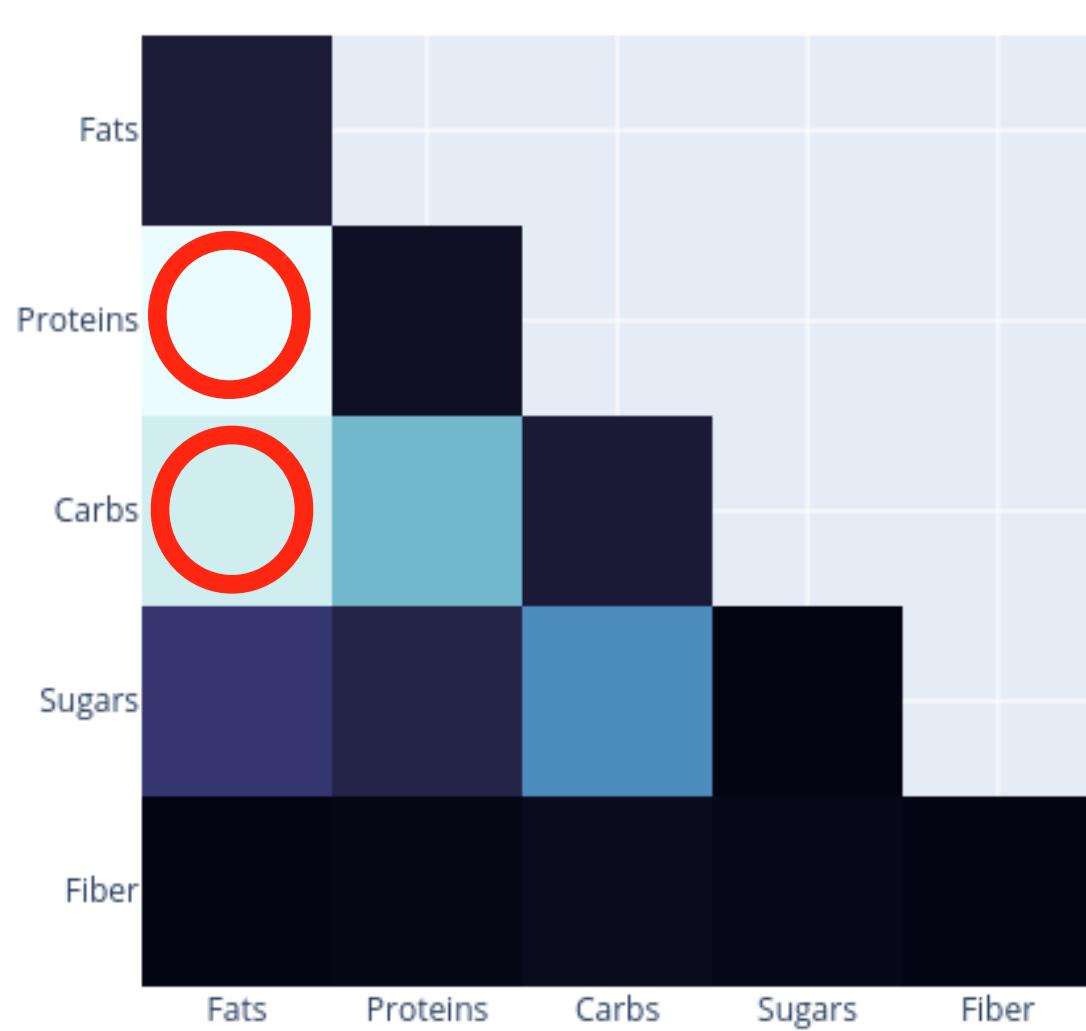
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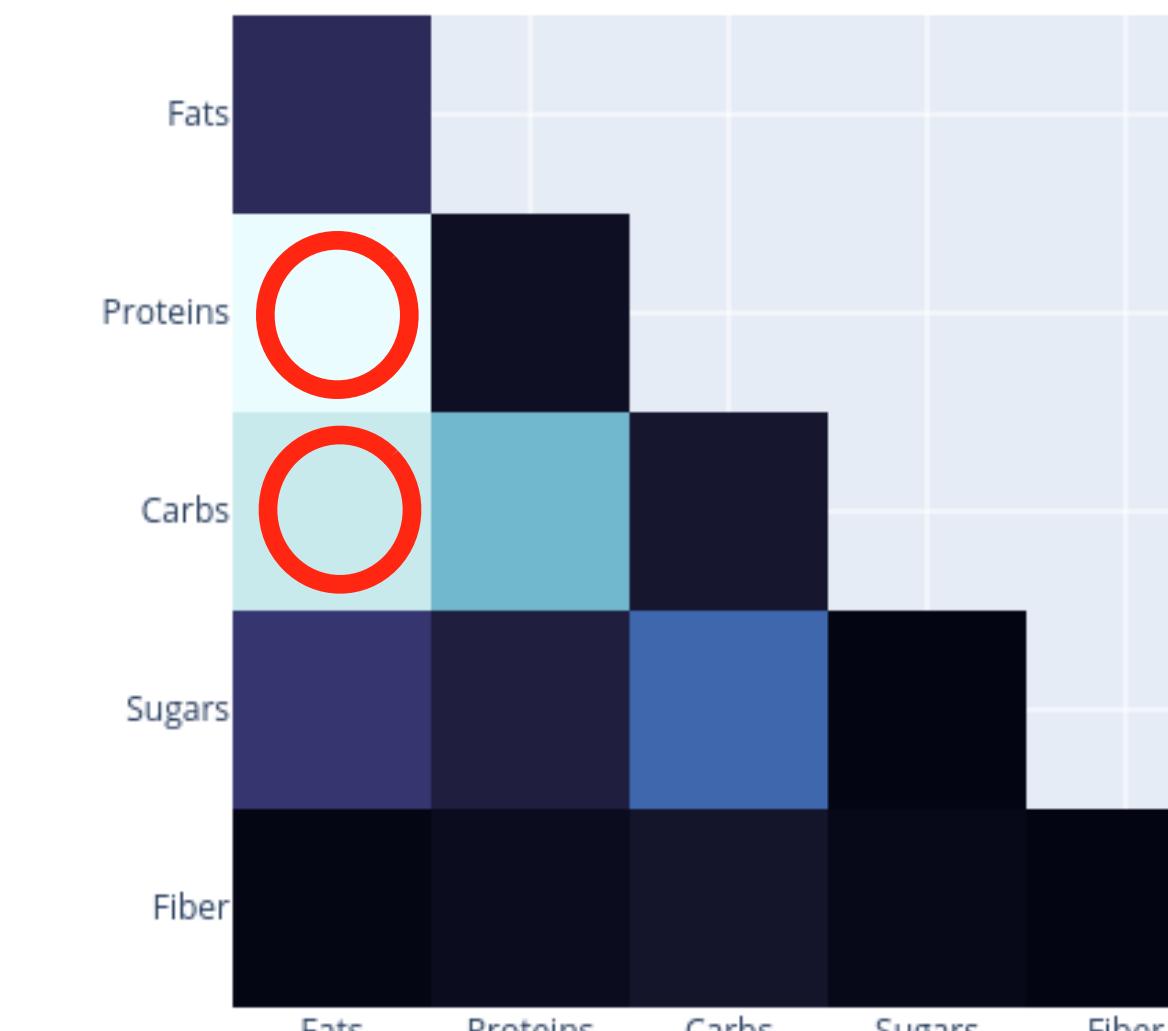
Nutrients for country Chinese data



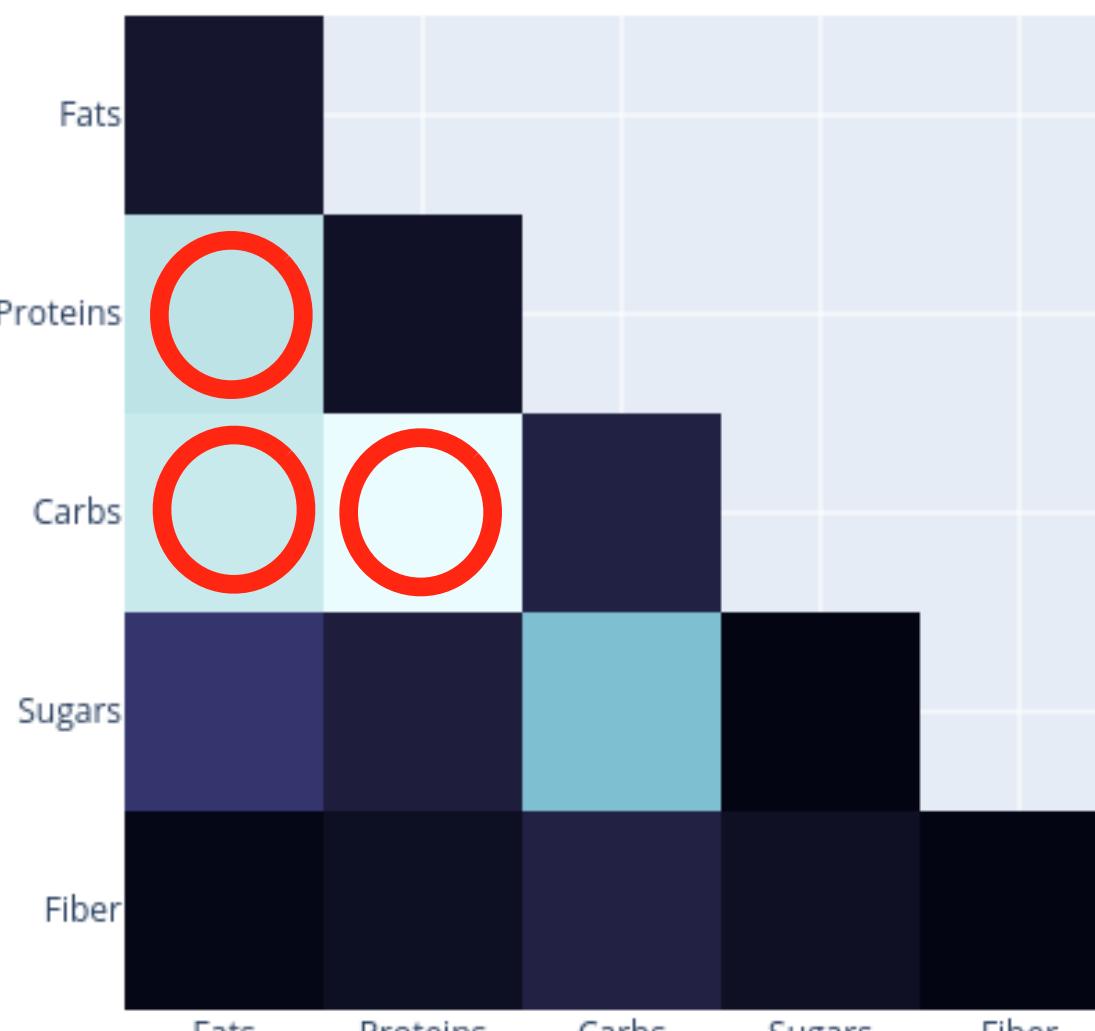
Nutrients for country Thai data



Nutrients for country Greek data

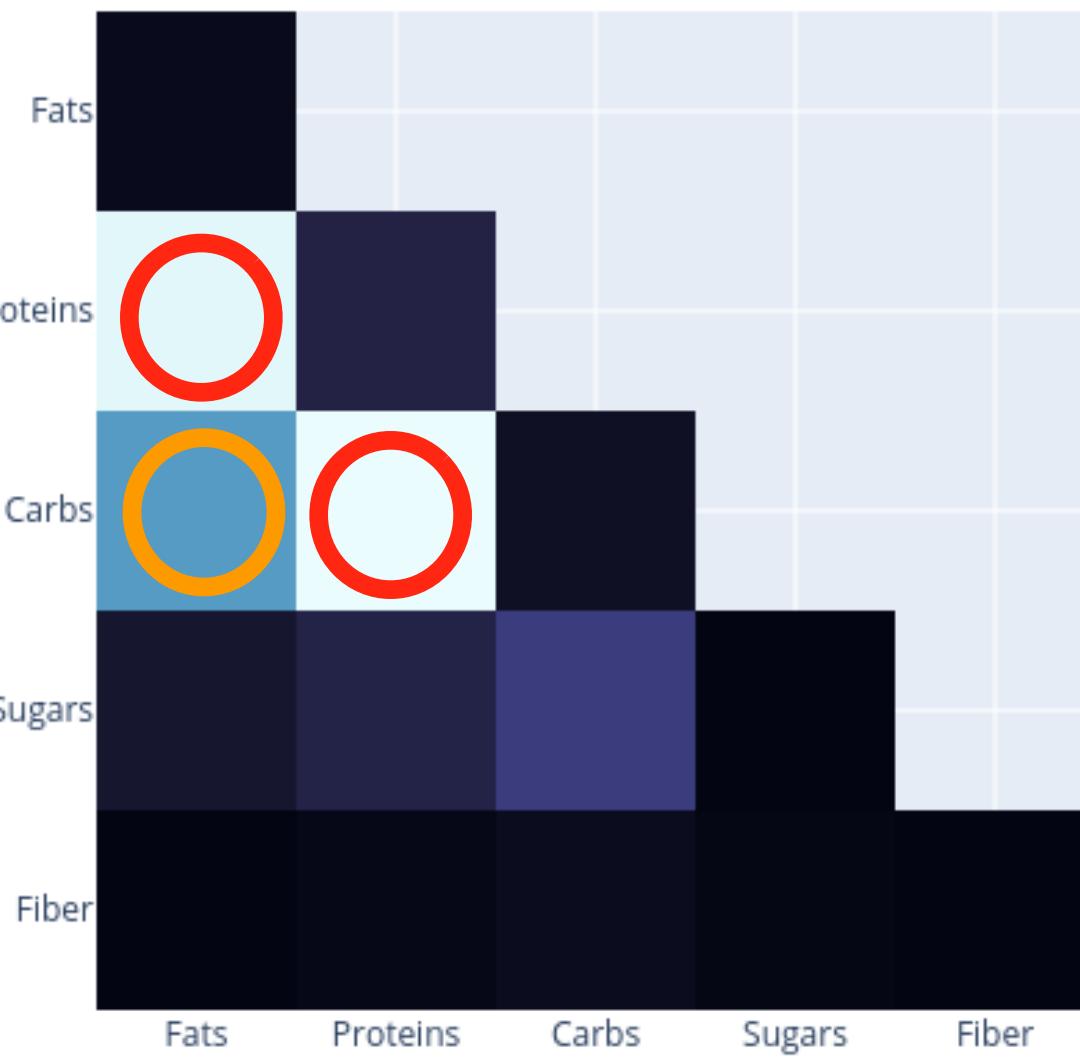


Nutrients for country Mexican data

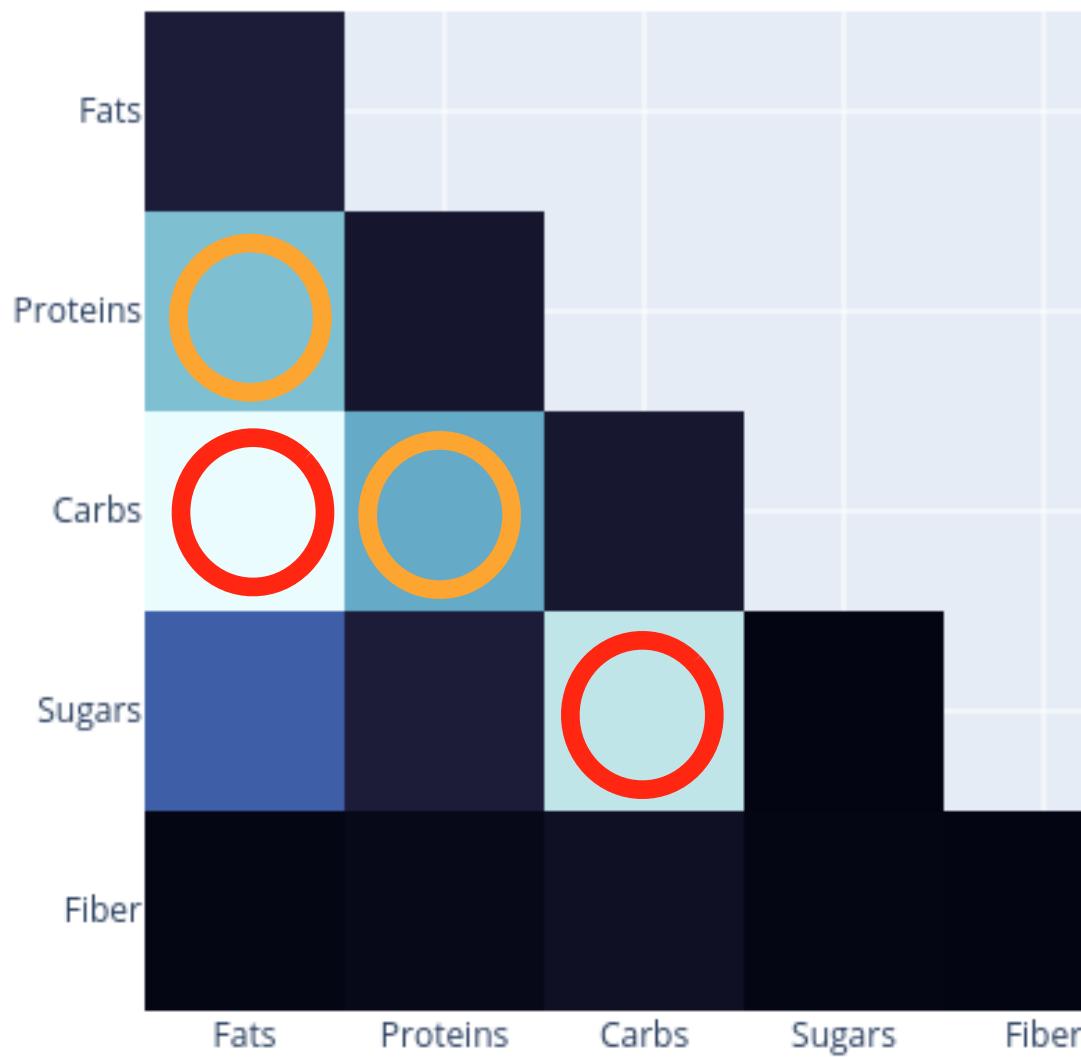


NUTRIENTS GRAPH: PROFILES - COUNTRIES

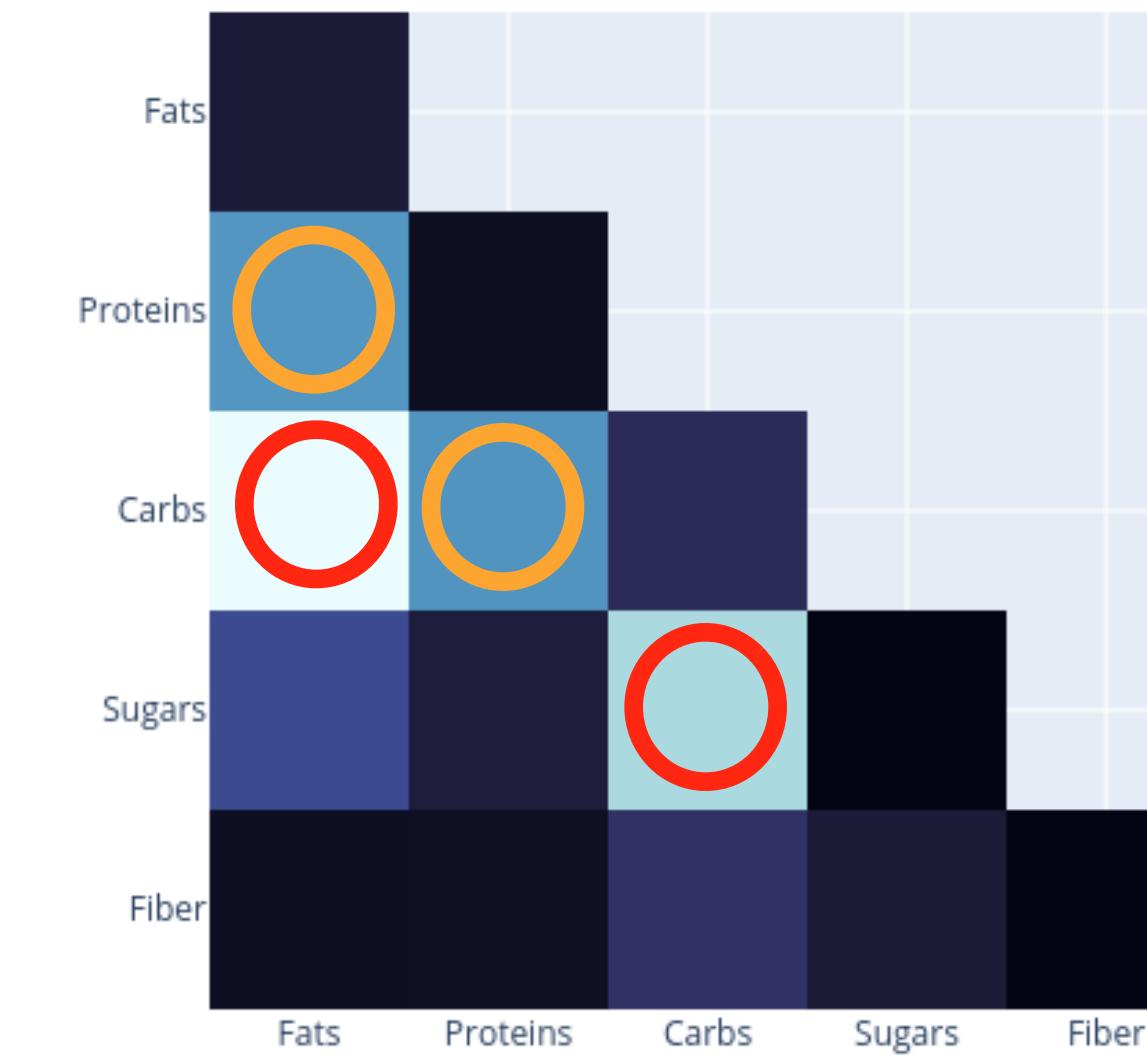
Nutrients for country Argentine data



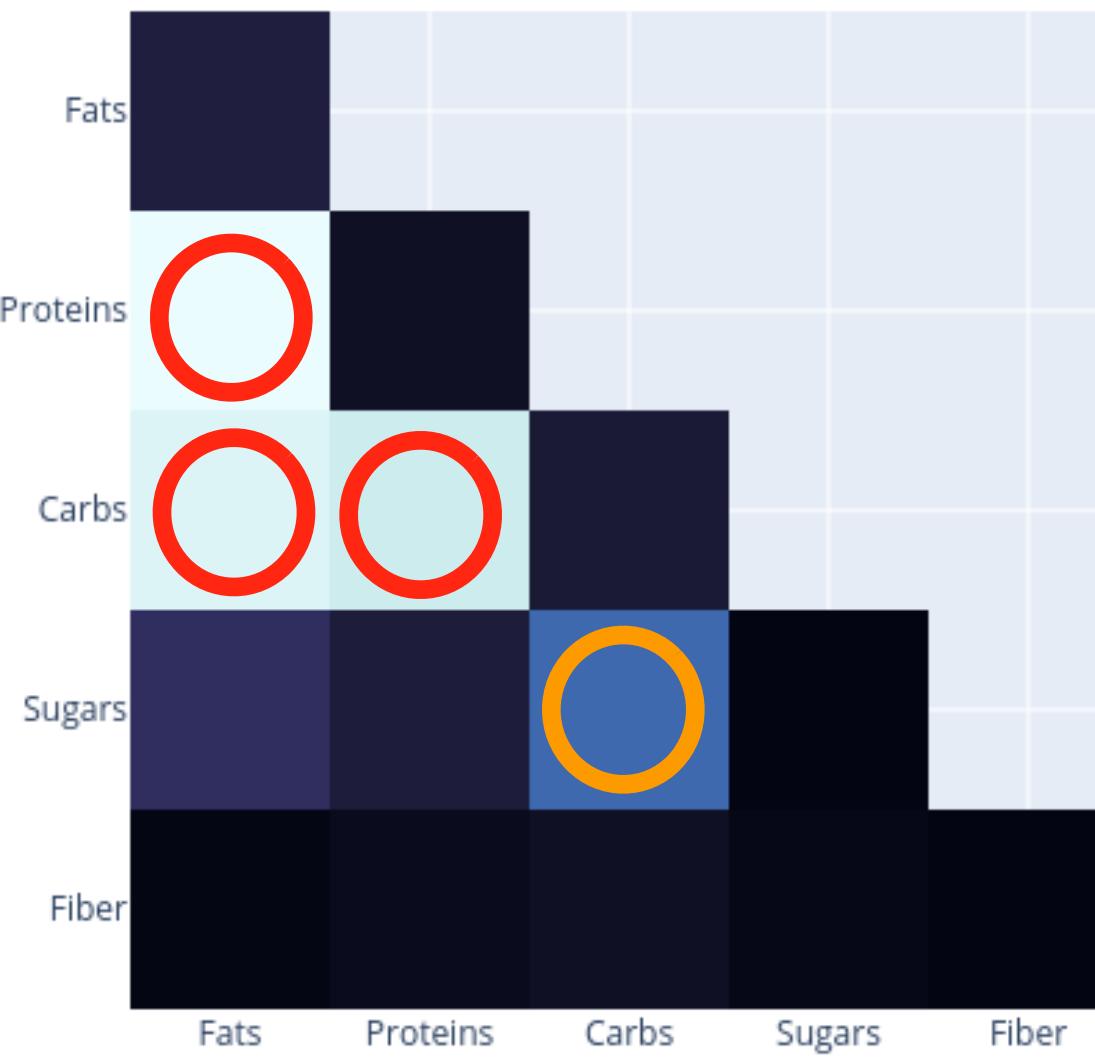
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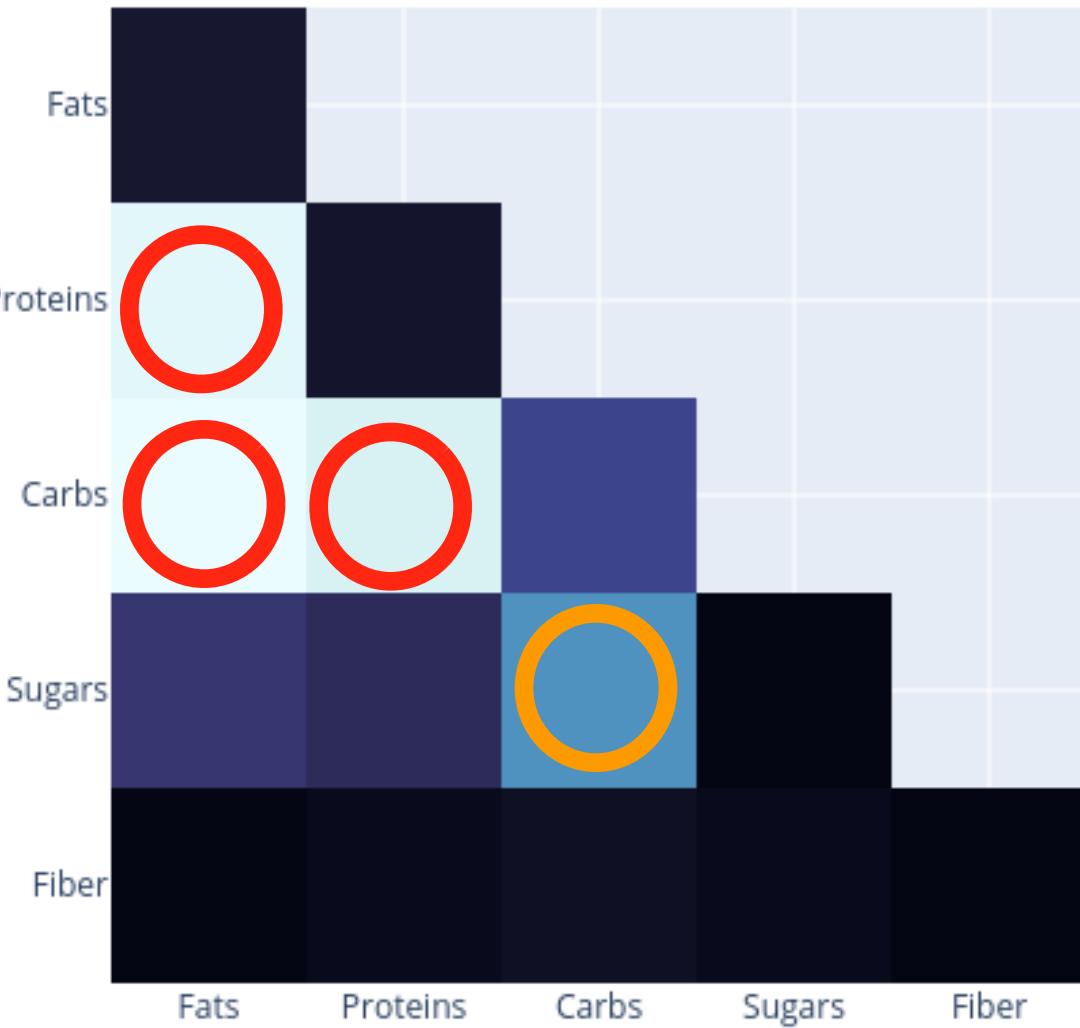
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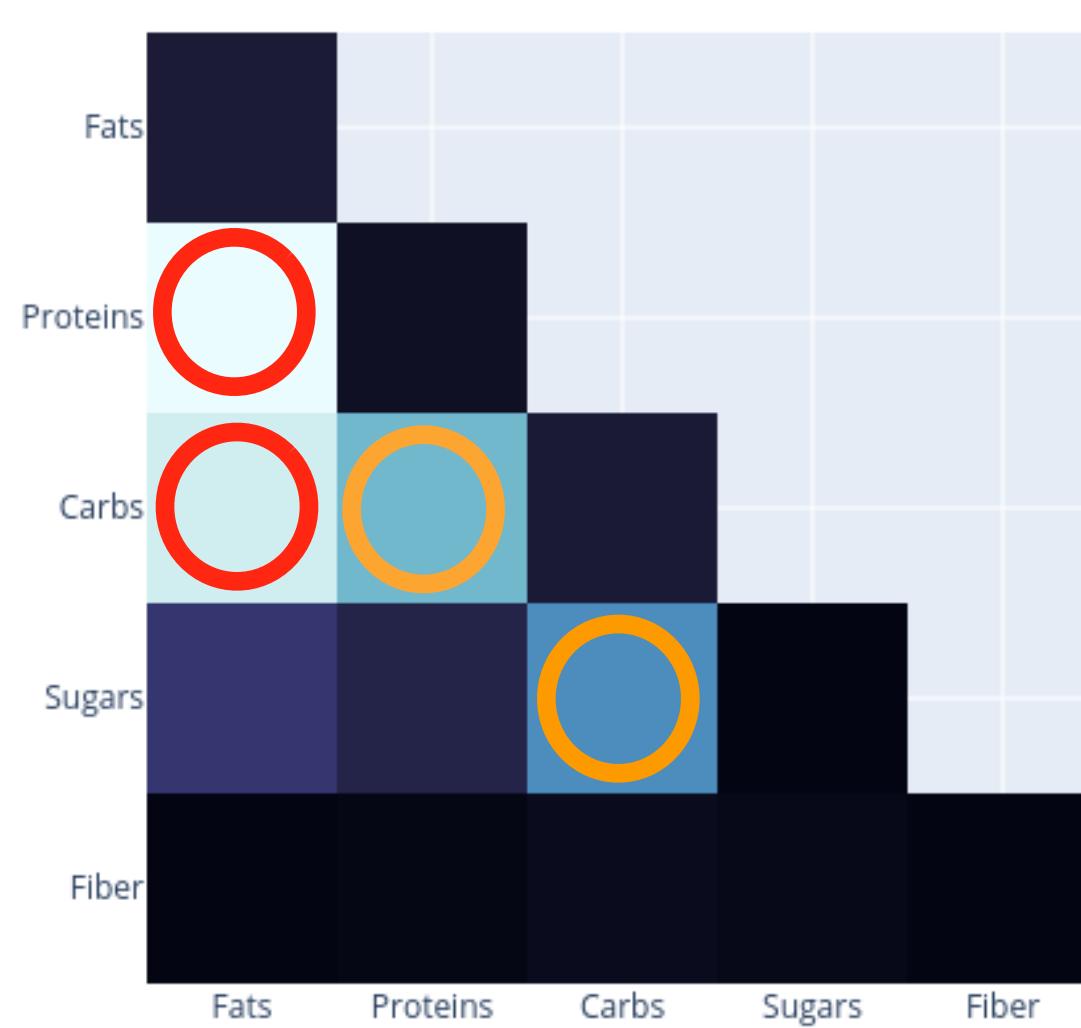
Nutrients for country Italian data



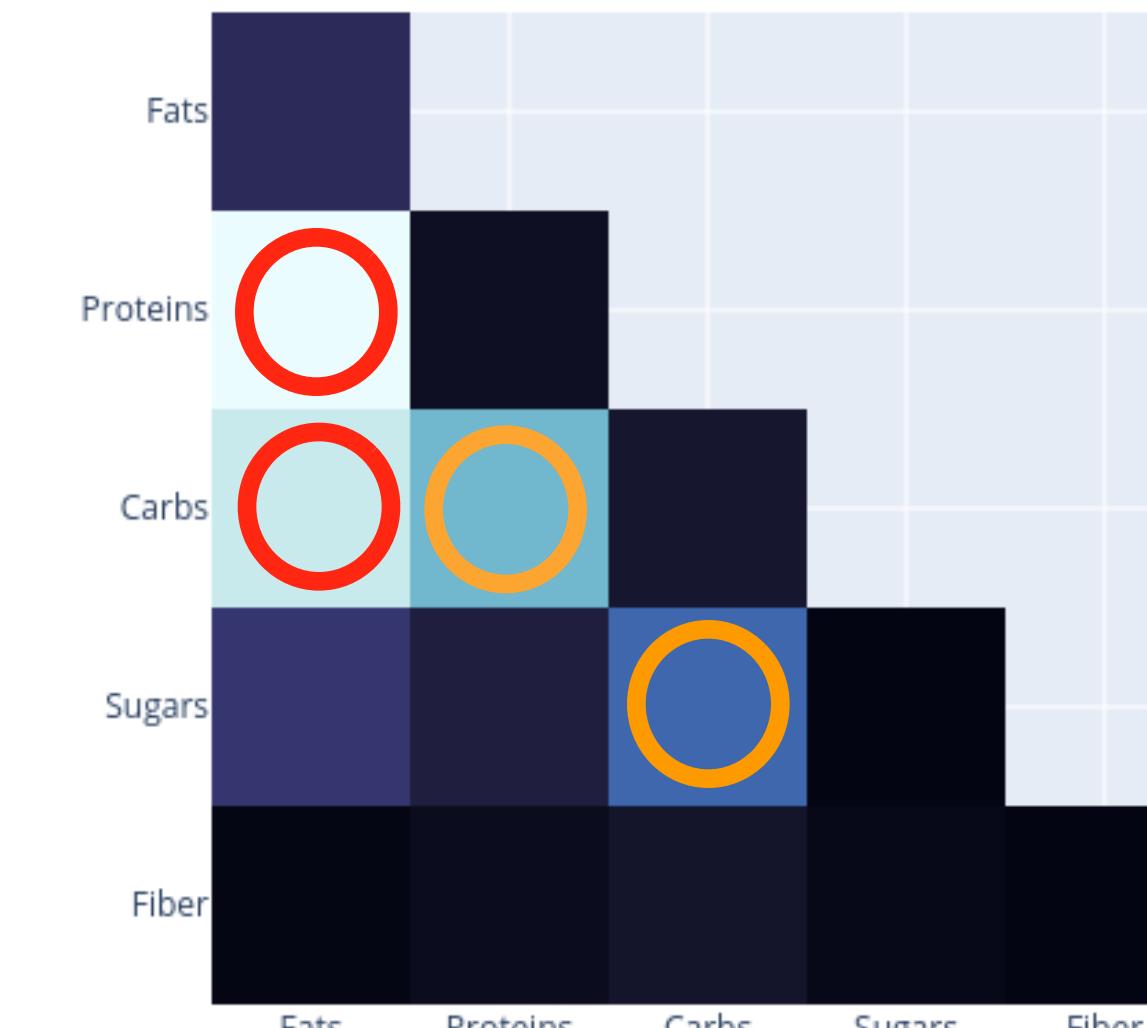
Nutrients for country Chinese data



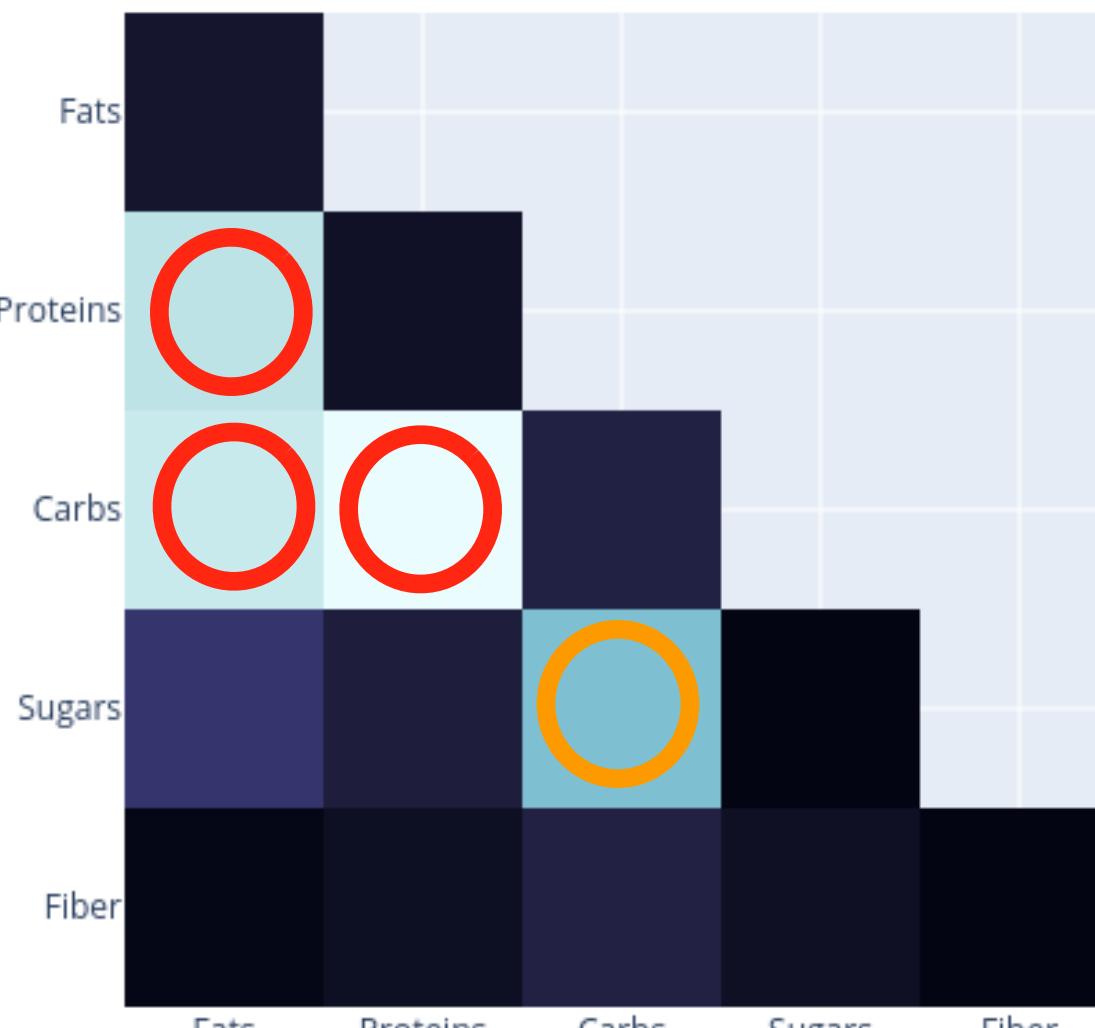
Nutrients for country Thai data



Nutrients for country Greek data

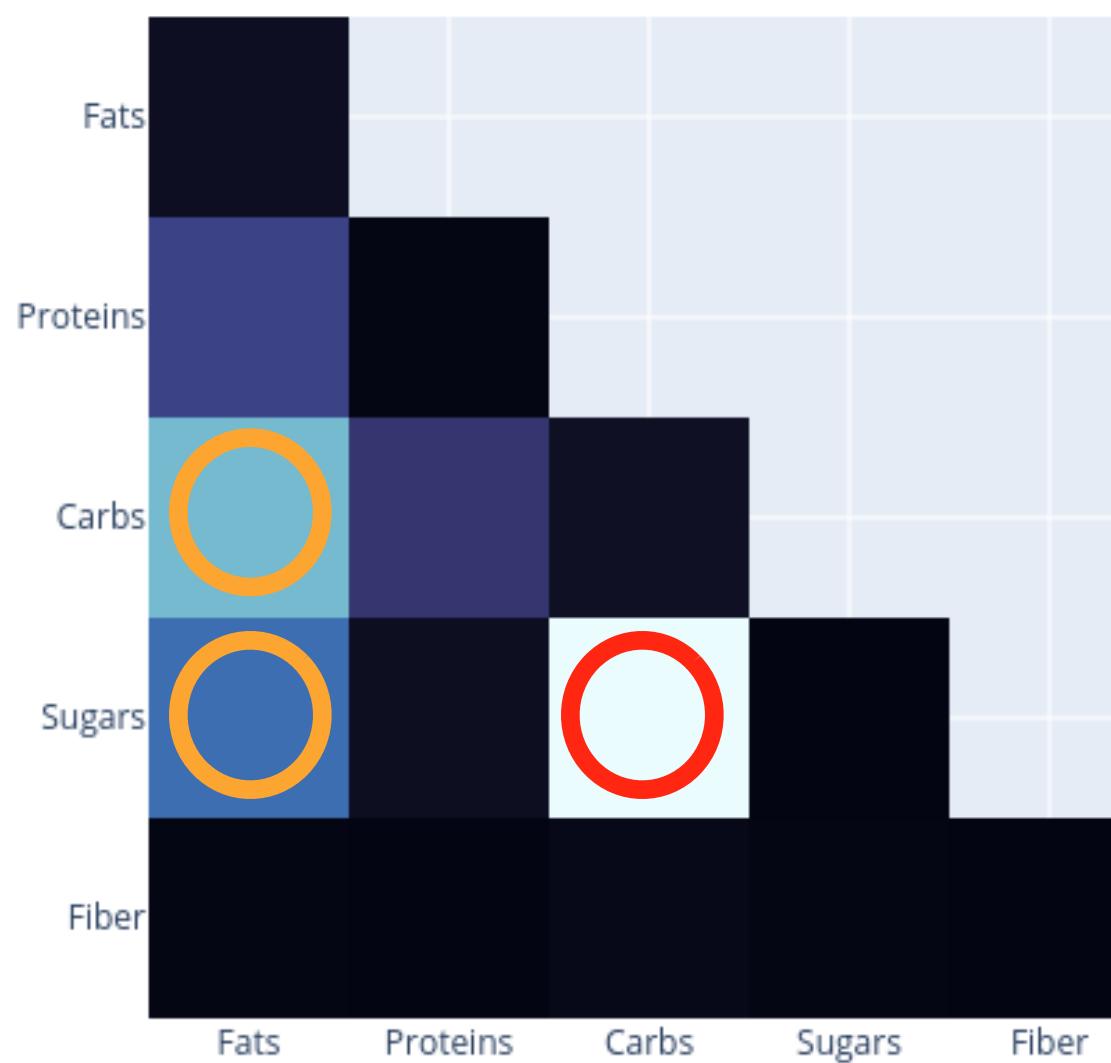


Nutrients for country Mexican data

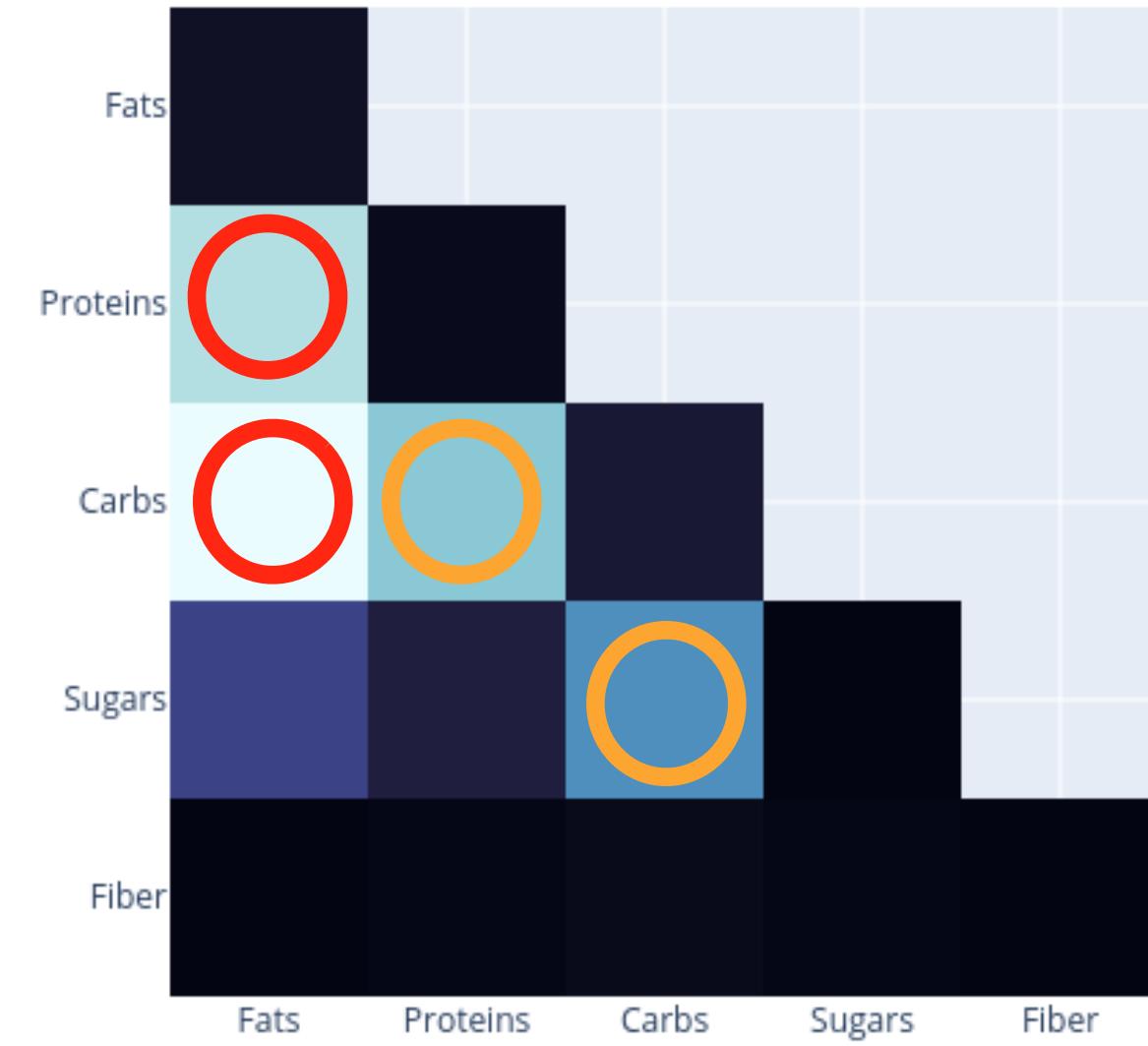


NUTRIENTS GRAPH: PROFILES - CONTINENT

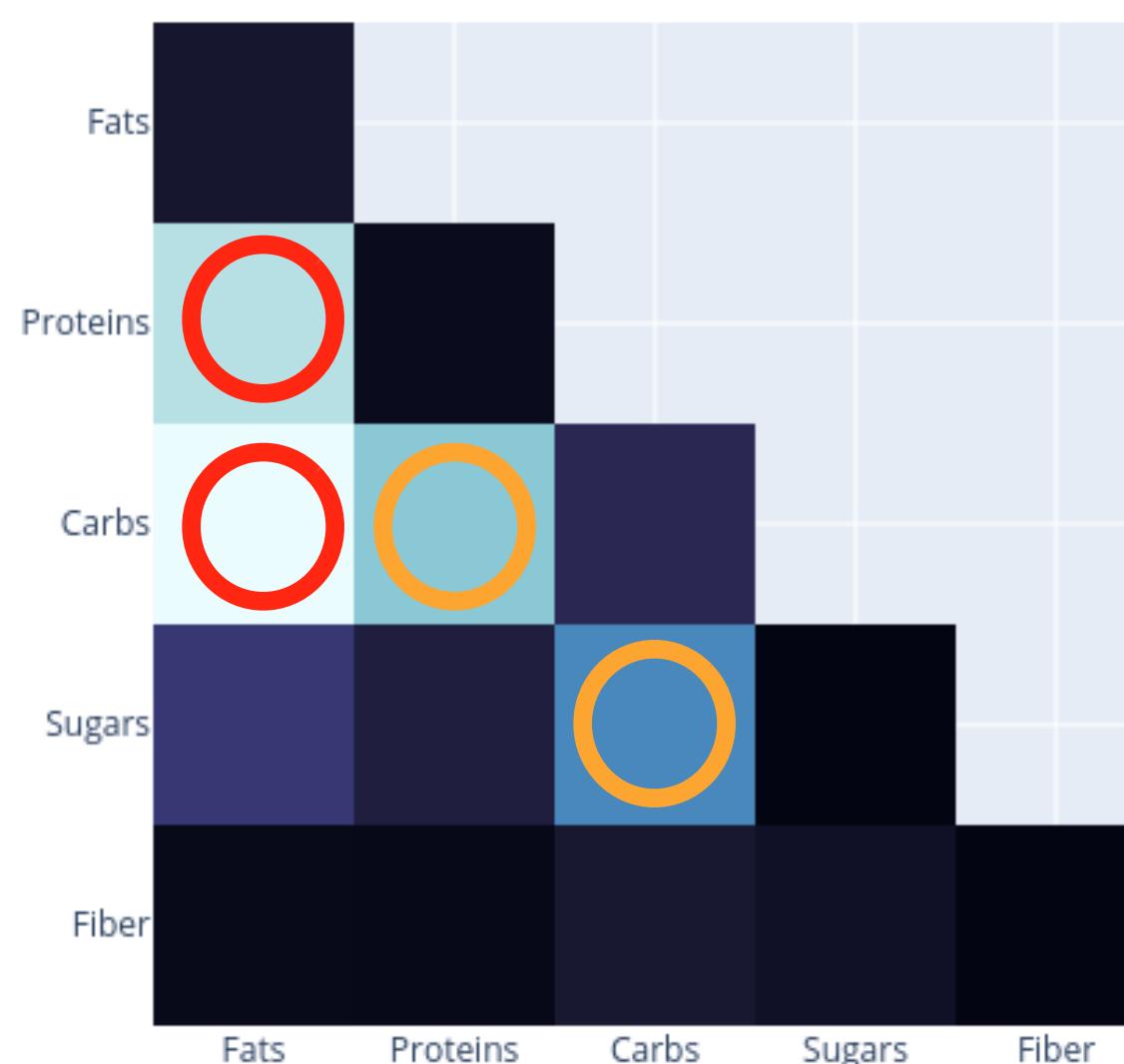
Nutrients for continent North American data



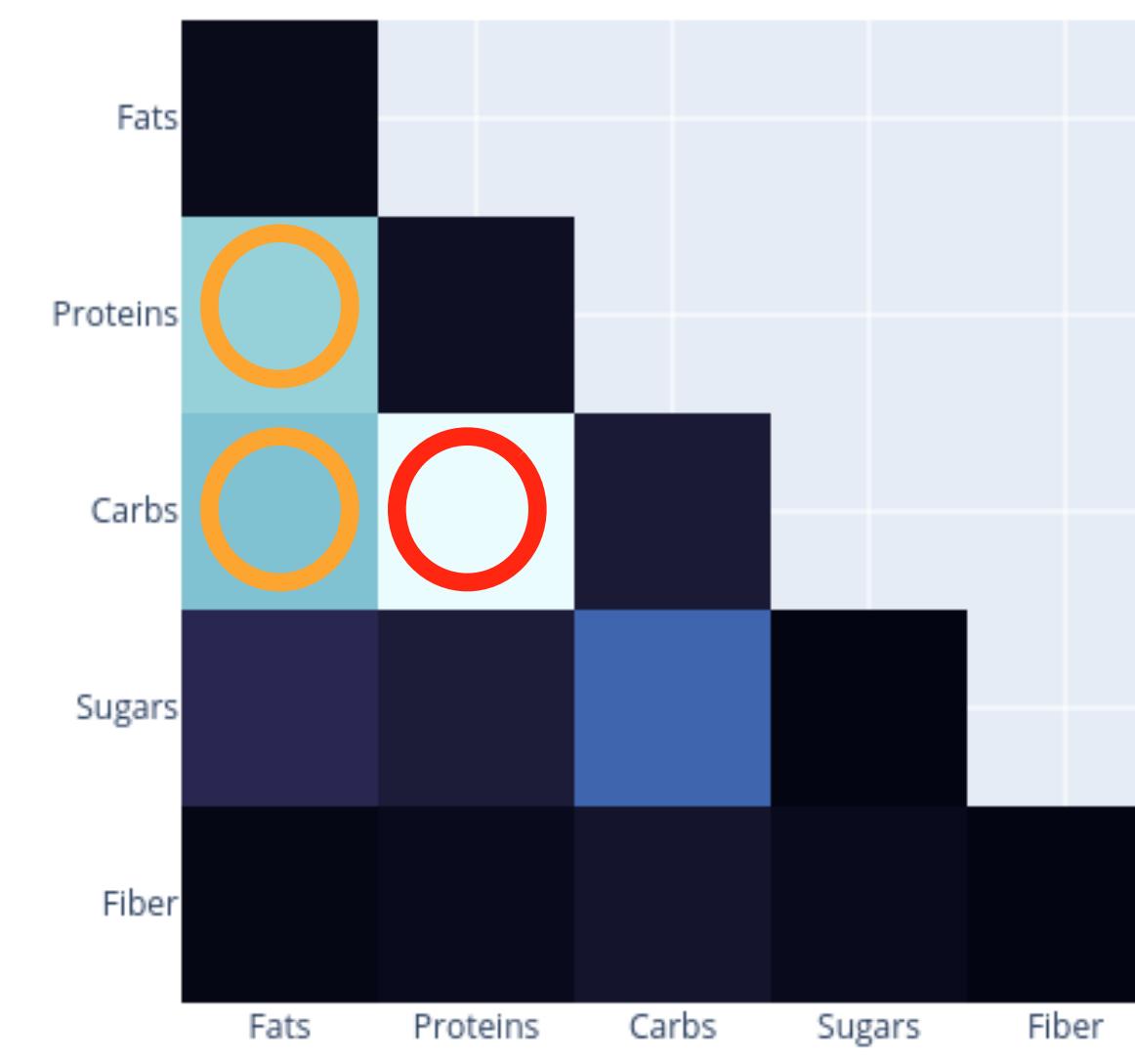
Nutrients for continent European data



Nutrients for continent Asian data

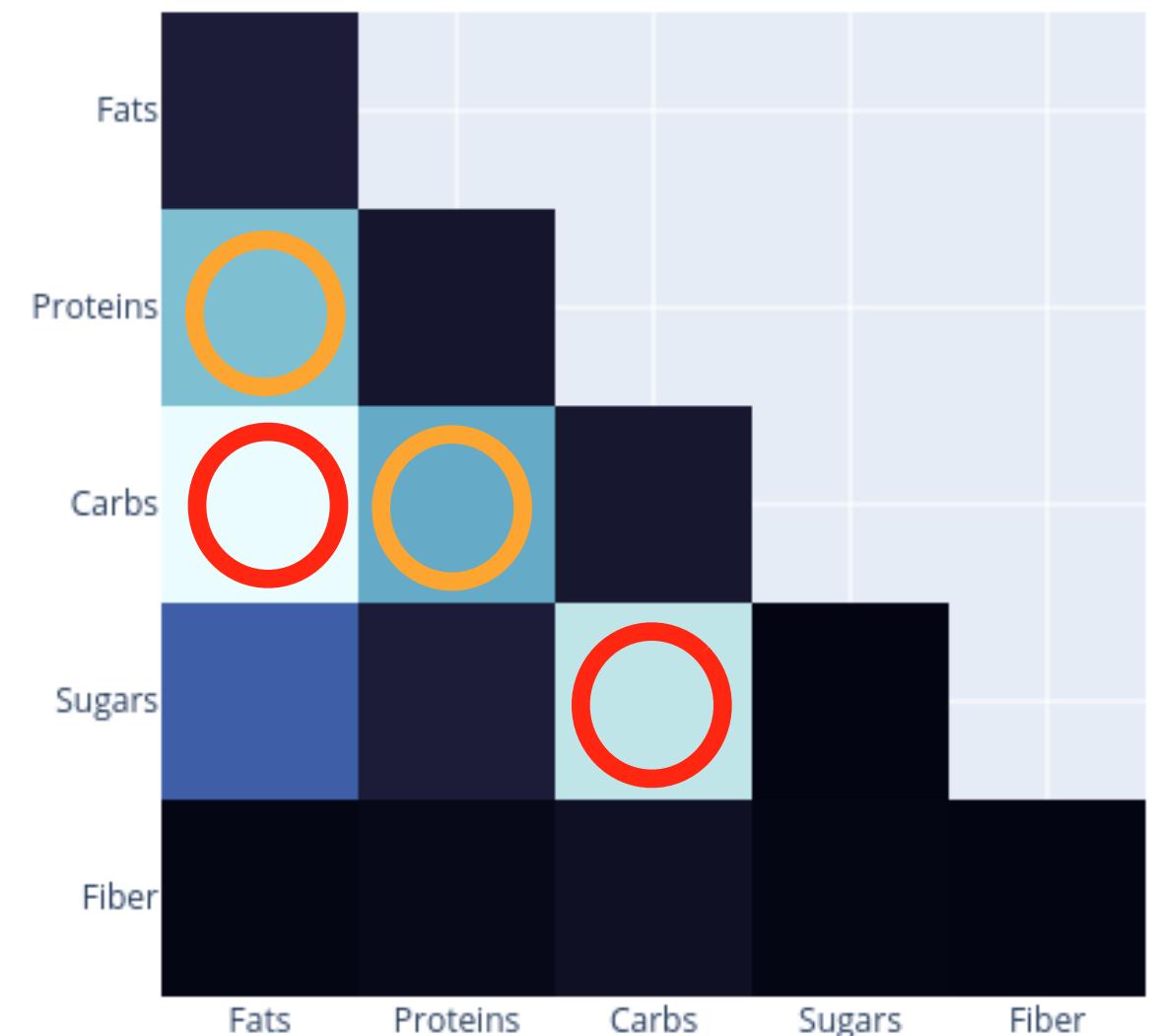


Nutrients for continent Latin American data

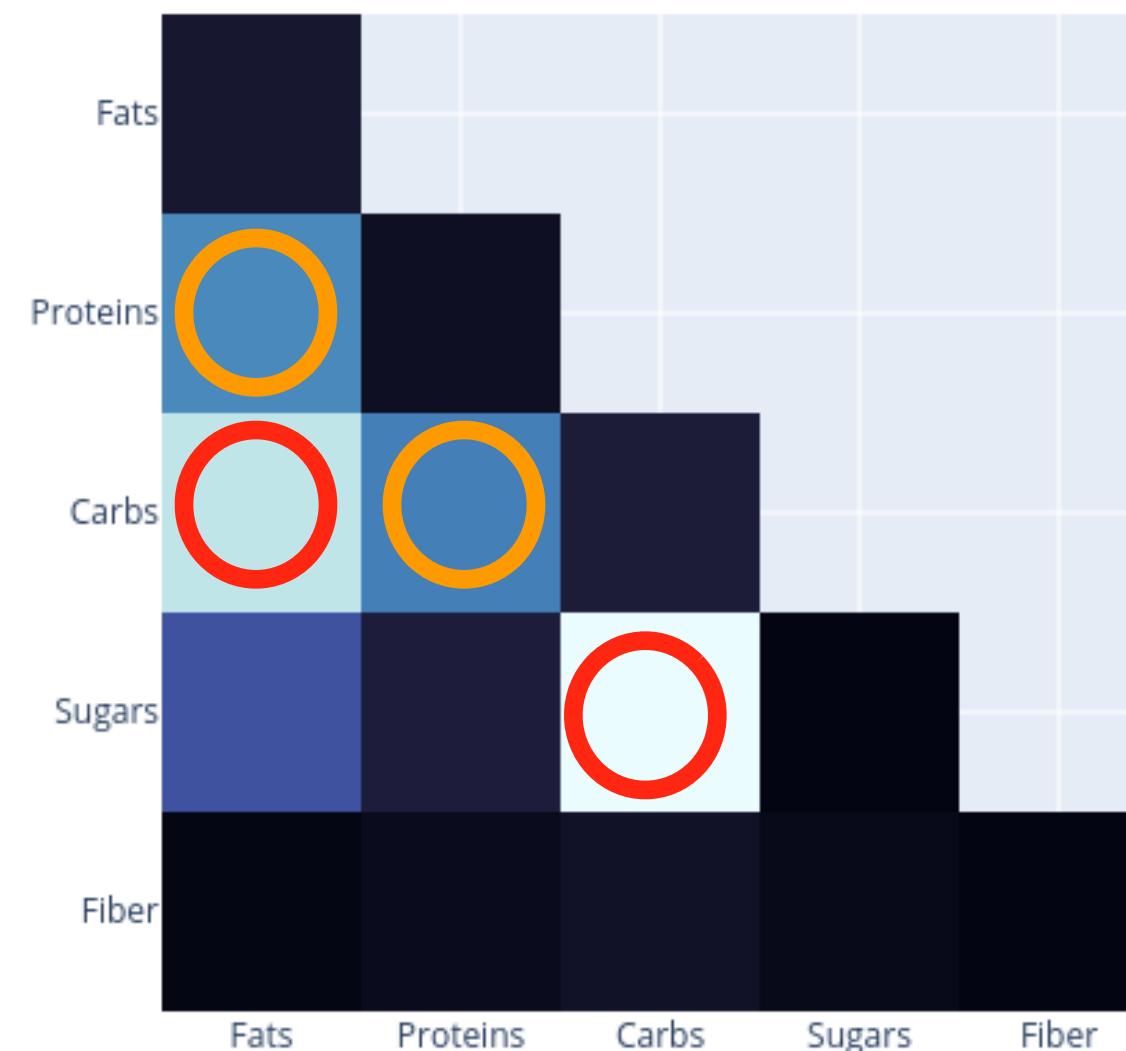


NUTRIENTS GRAPH: PROFILES - NORTH AMERICA

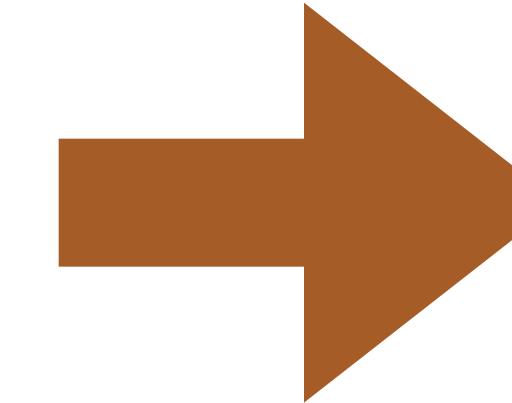
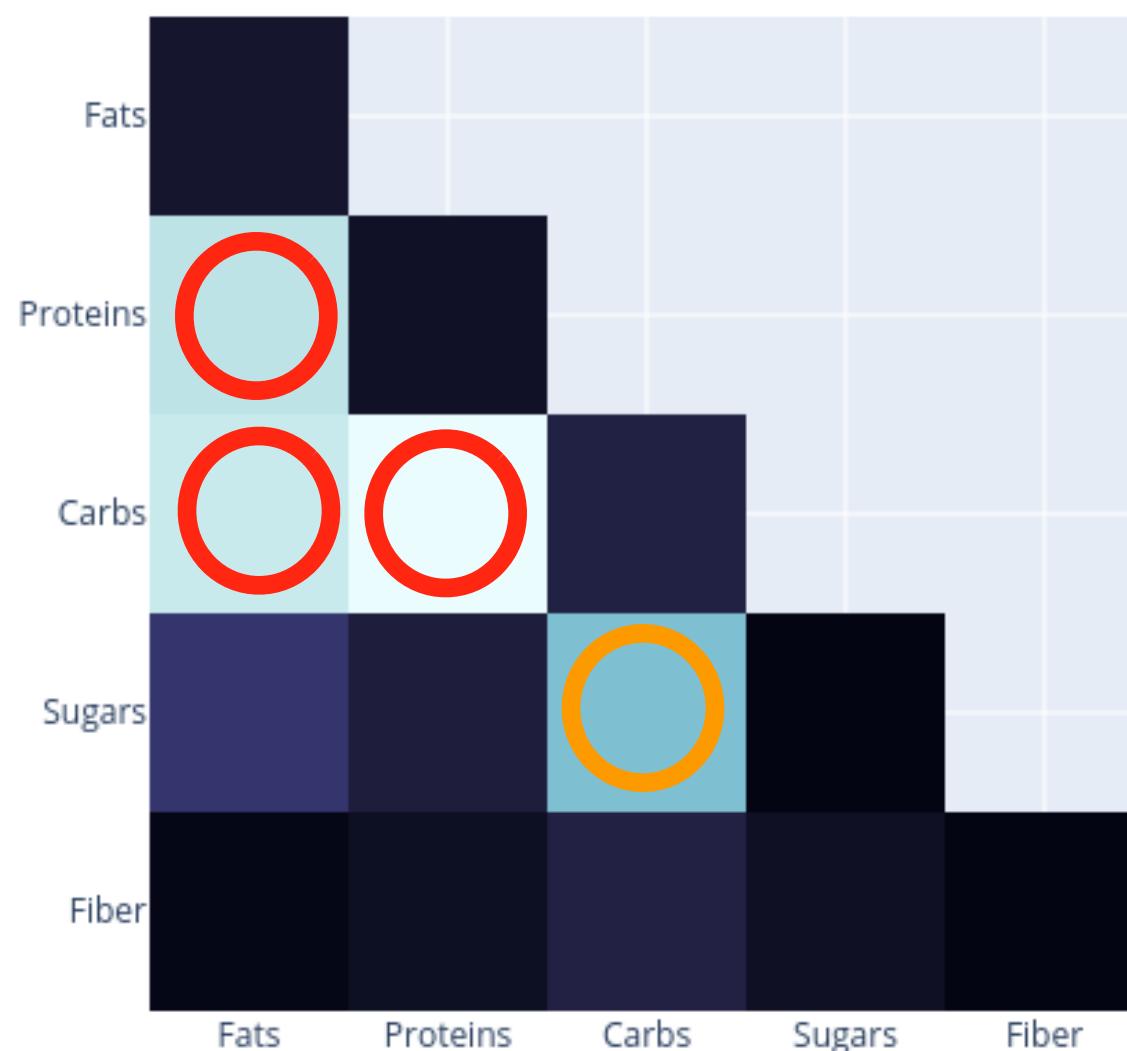
Nutrients for country US data



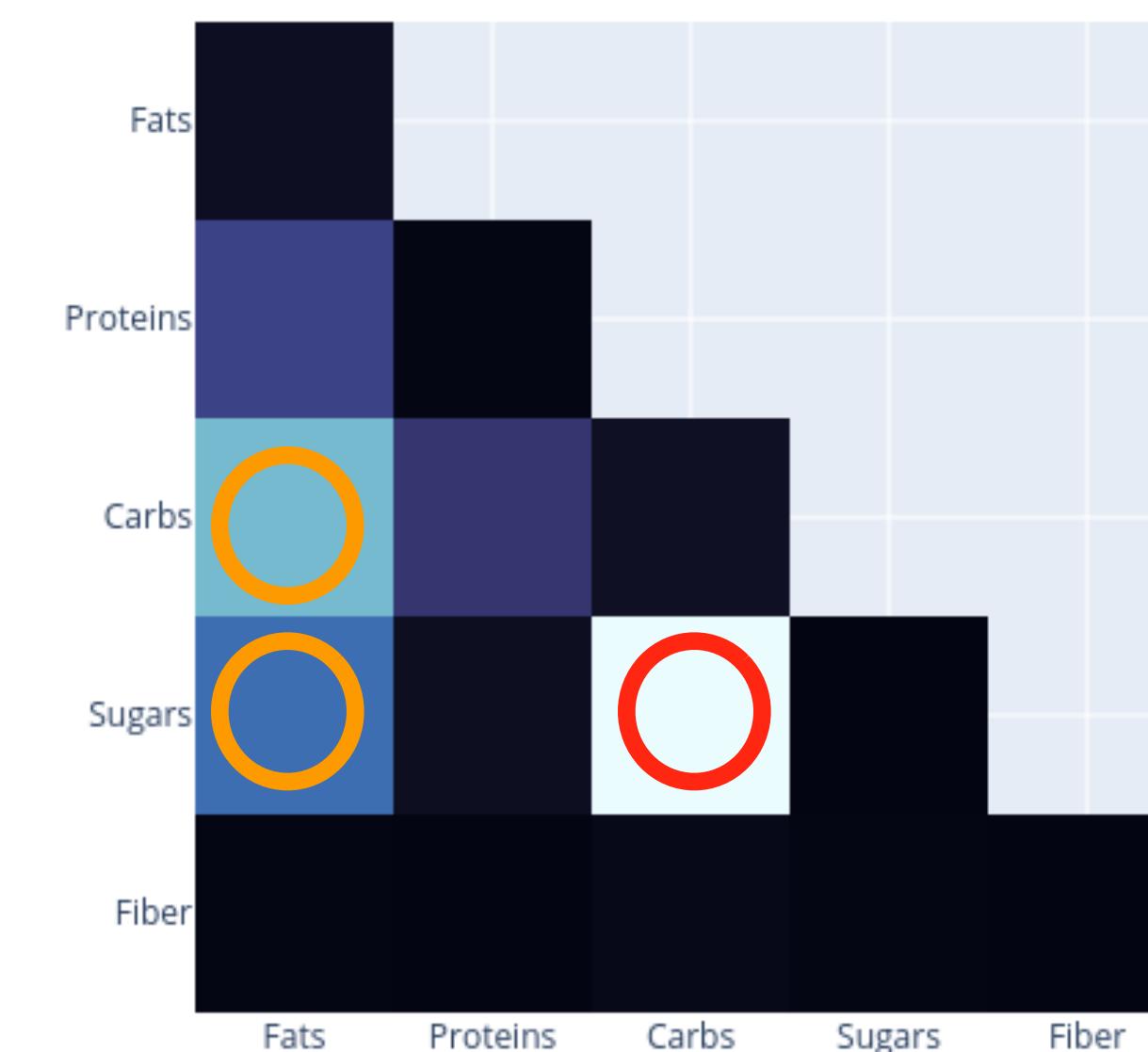
Nutrients for country Canadian data



Nutrients for country Mexican data



Nutrients for continent North American data



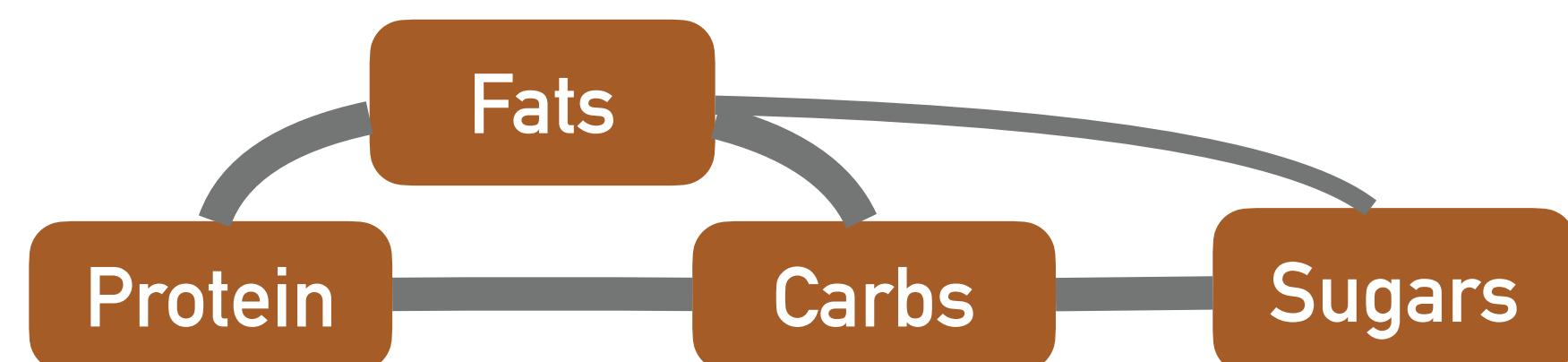
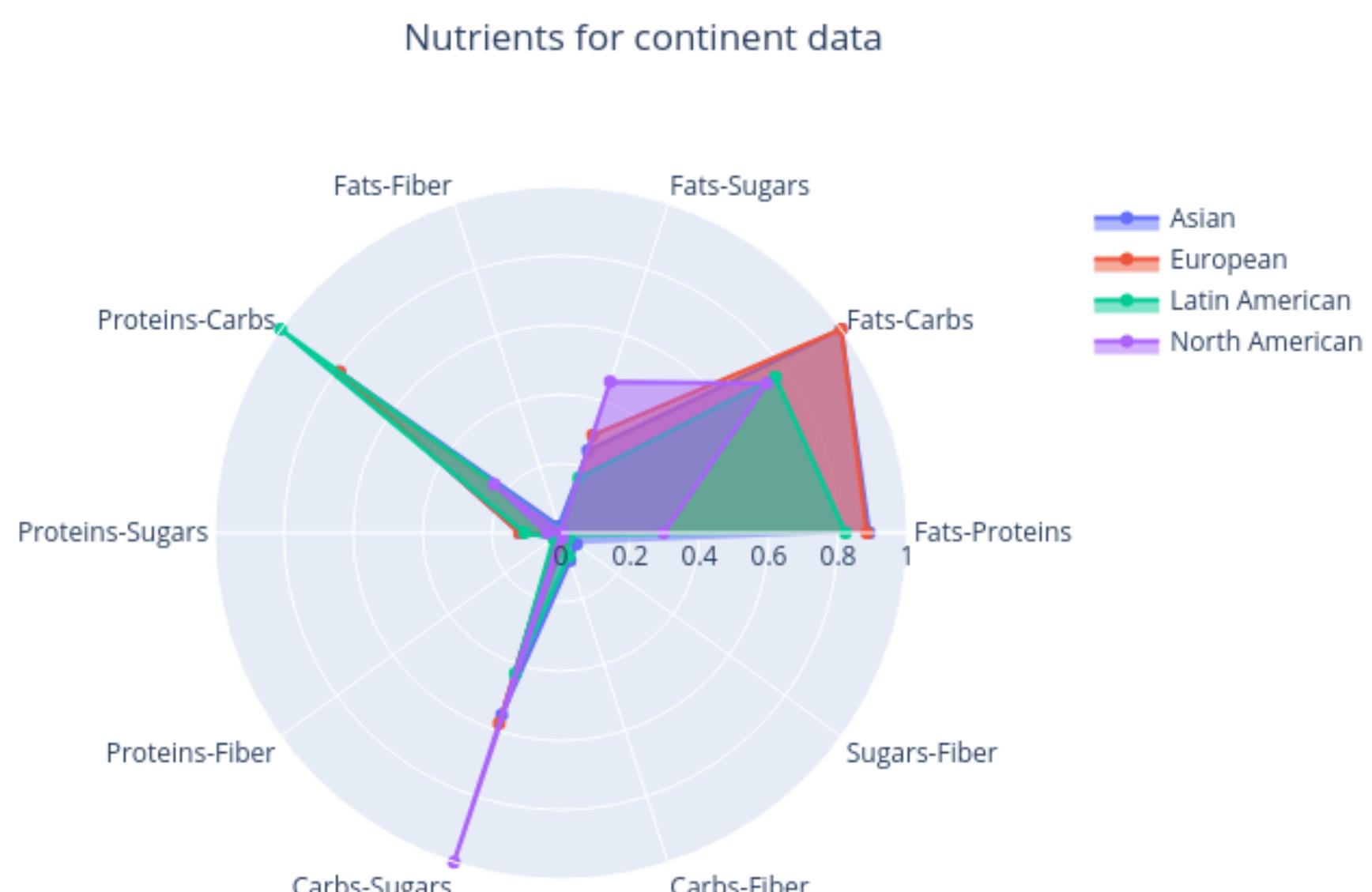
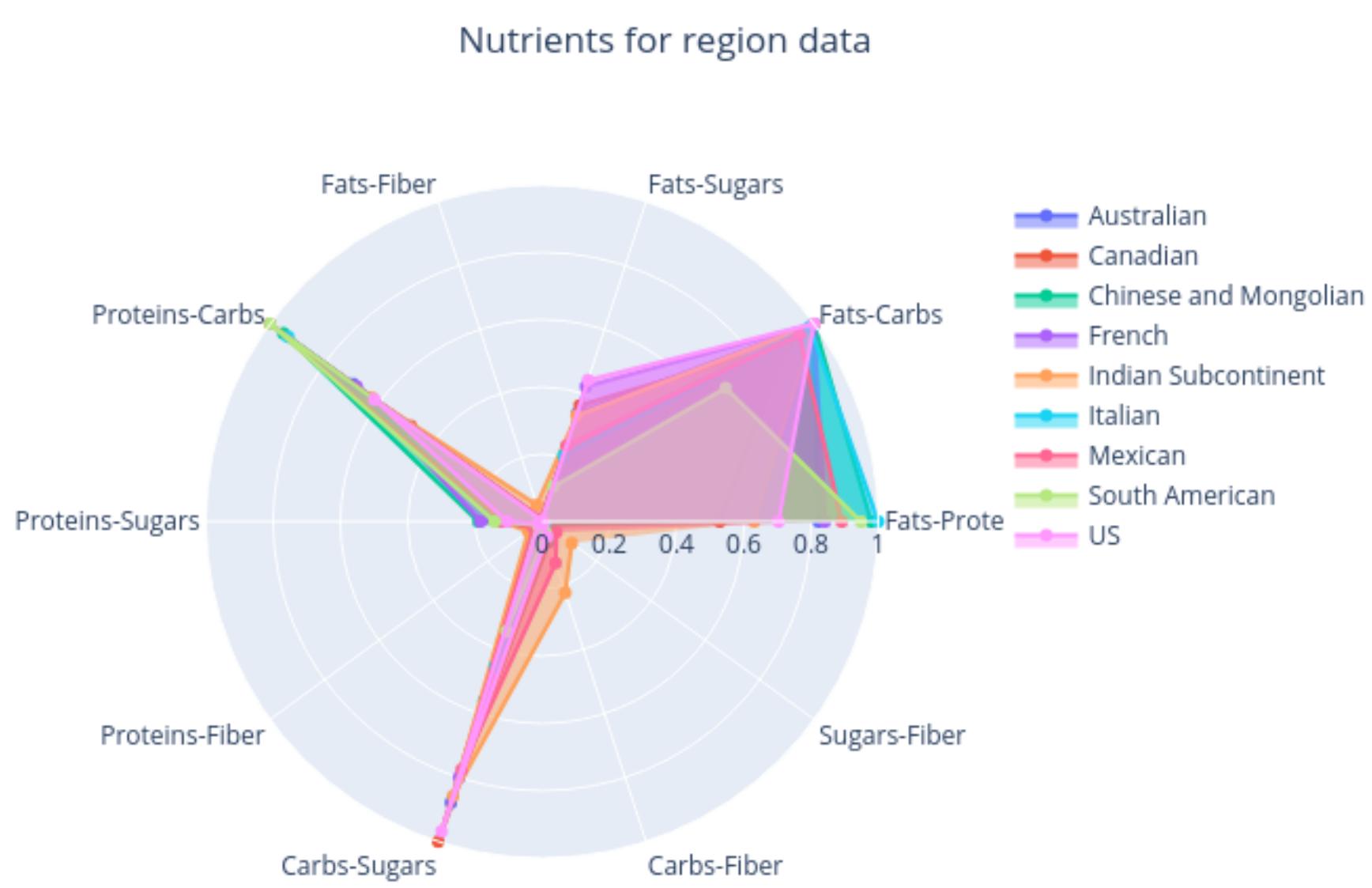
NUTRIENTS GRAPH: PROFILES

- Most recipes focus on:

- Fats-Protein: "Sweet & Sour Meatballs", "Bacon, Basil, Cheddar Muffin", "Shrimp in Lobster Sauce"
- Fats-Carbs: "Chocolate Chip Chunk Cookies", "Apple Banana Cupcakes", "Apple Almond Cake"
- Proteins-Carbs: "Clam Chowder", "Turkey Mushroom Stew", "Stuffed Chicken Breasts"
- Carbs-Sugars: "Cake Doughnut", "Yogurt Banana Bread", "Pecan Sticky Buns"

- Some have:

- Fats-Sugar: "Chocolate Chip Chunk Cookies", "Chocolate Cake", "Brownie Pudding"



SUMMARY

Ingredients	North America/Australia/Europe	Latin America/Asia
Focus	Ingredients (Baking, Pasta, & Stew)	Seasoning & Aromatics
Nutrient Assortativity	Disassortative	

	Fat-Protein	Fat-Carb	Carb-Protein	Carb-Sugar	Fat-Sugar
North America	low	medium	low	high	medium
Latin America	high	high	high	medium	low
Europe	high	high	medium	medium	low
Asia	high	high	medium	medium	low



THANK YOU!

EECS 6302 PROJECT

Sleiman Safaoui
May 4, 2023

GitHub Code + More Analysis

