



Data Animator

Authoring Expressive Animated Data Graphics

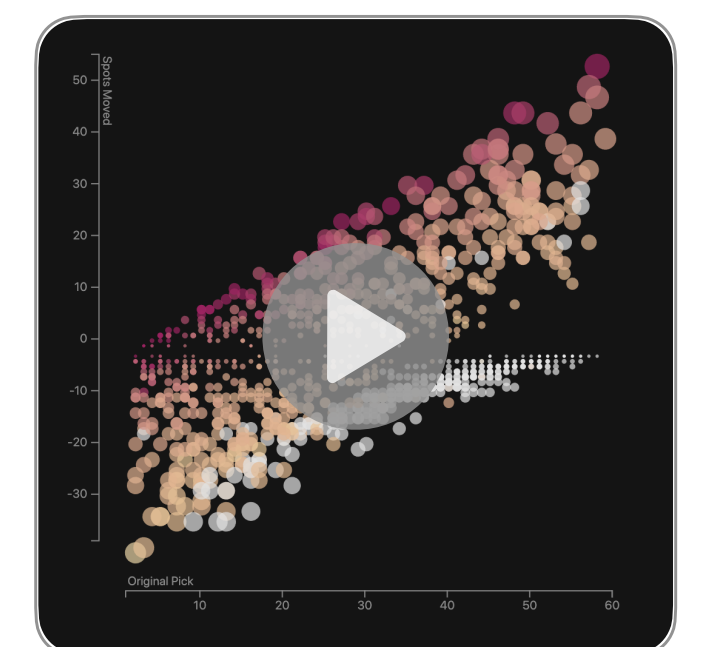
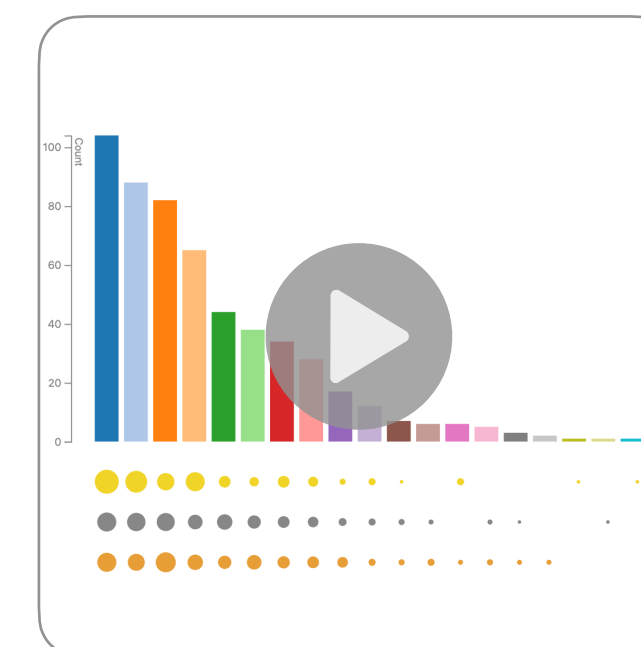
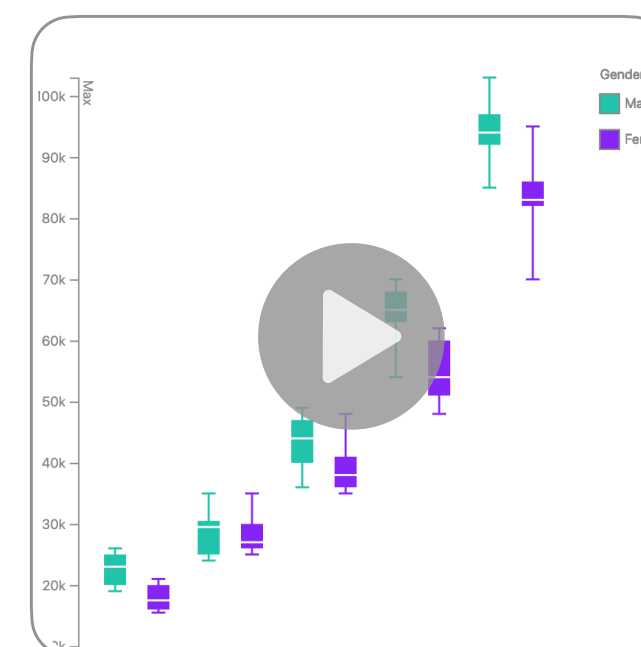
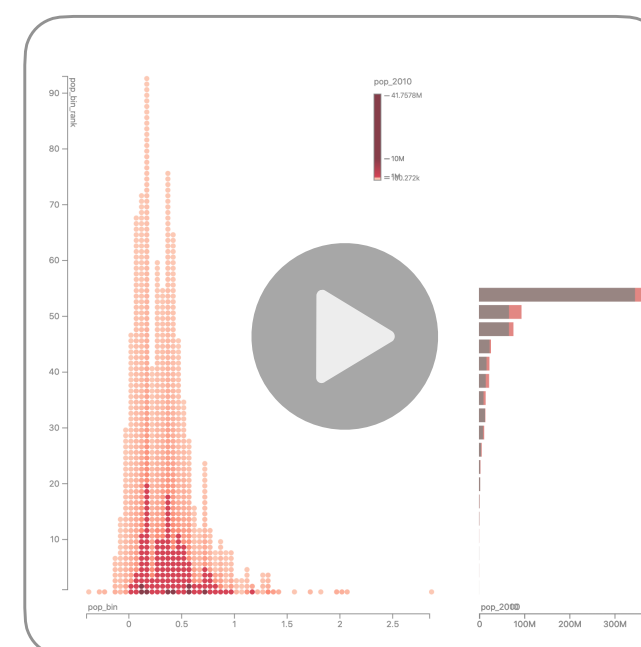
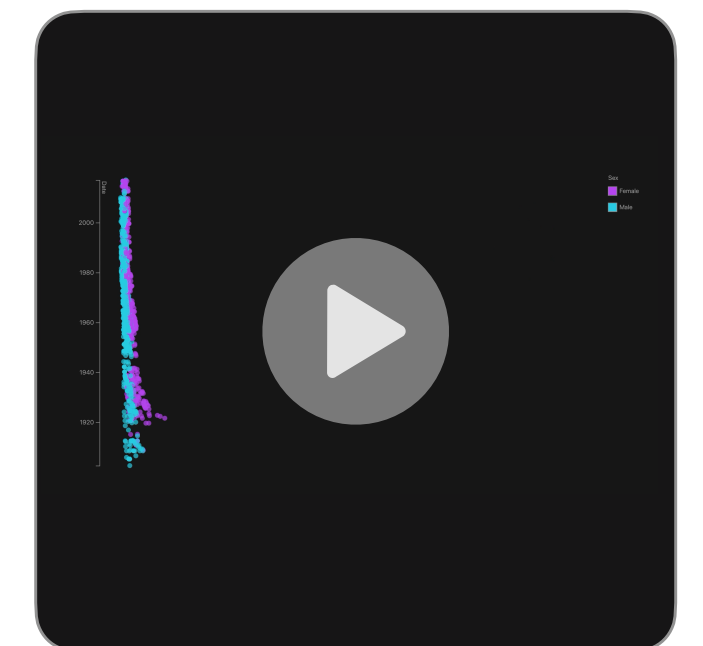
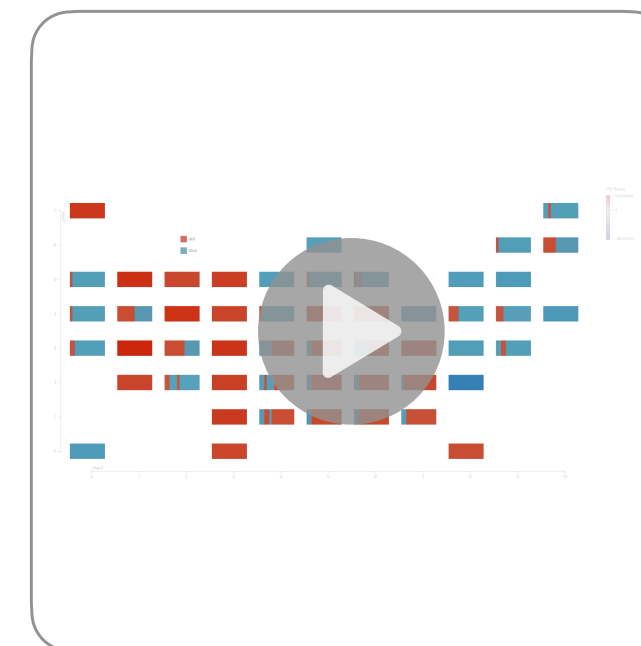
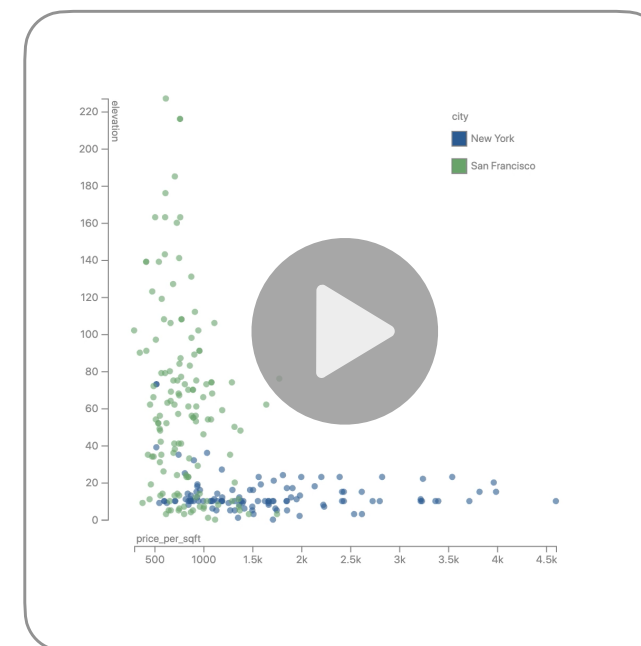
<https://data-animator.com>

John Thompson, John Stasko

Georgia Institute of Technology

Leo Zhicheng Liu

University of Maryland
(Adobe Research)





Nadieh Bremer
Creative Programmer

Urbanization in East Asia between 2000 and 2010

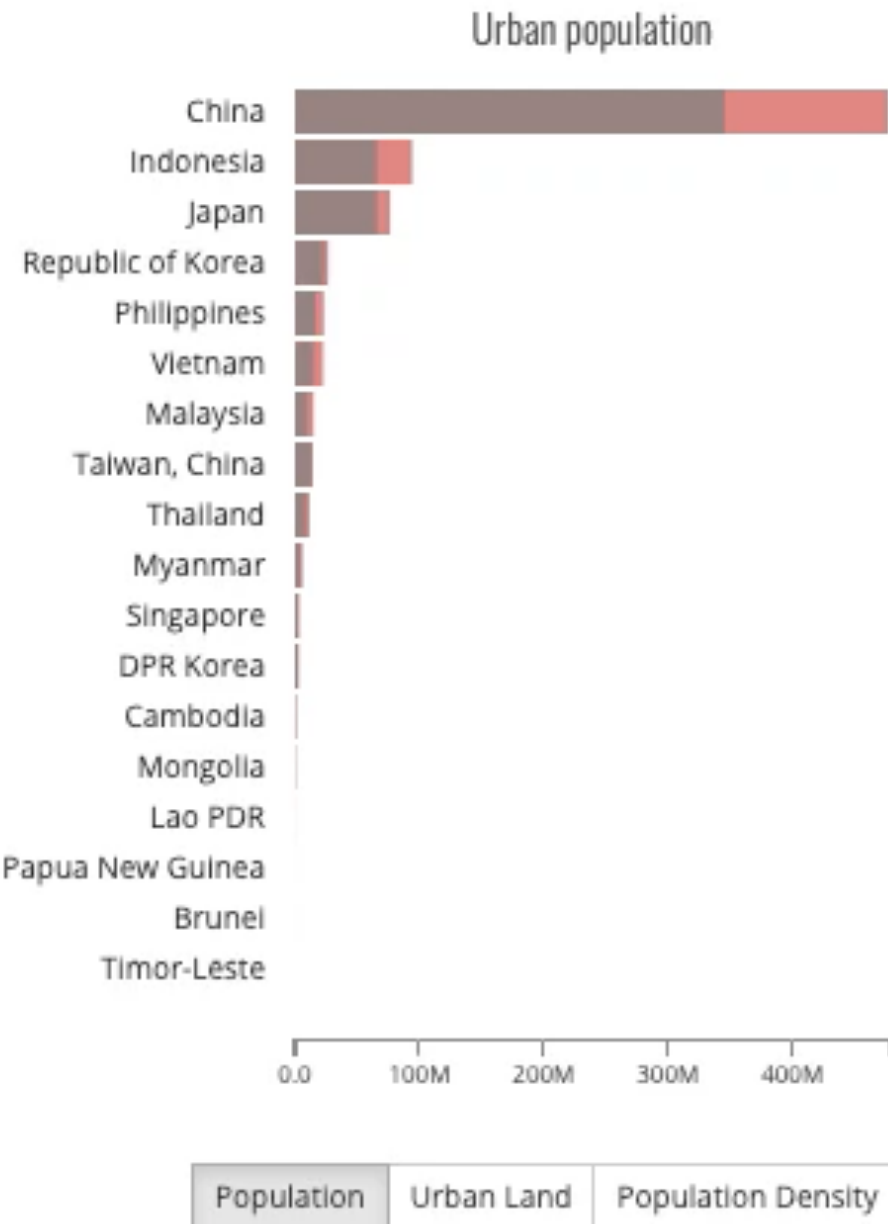


Cities with over 100,000 inhabitants

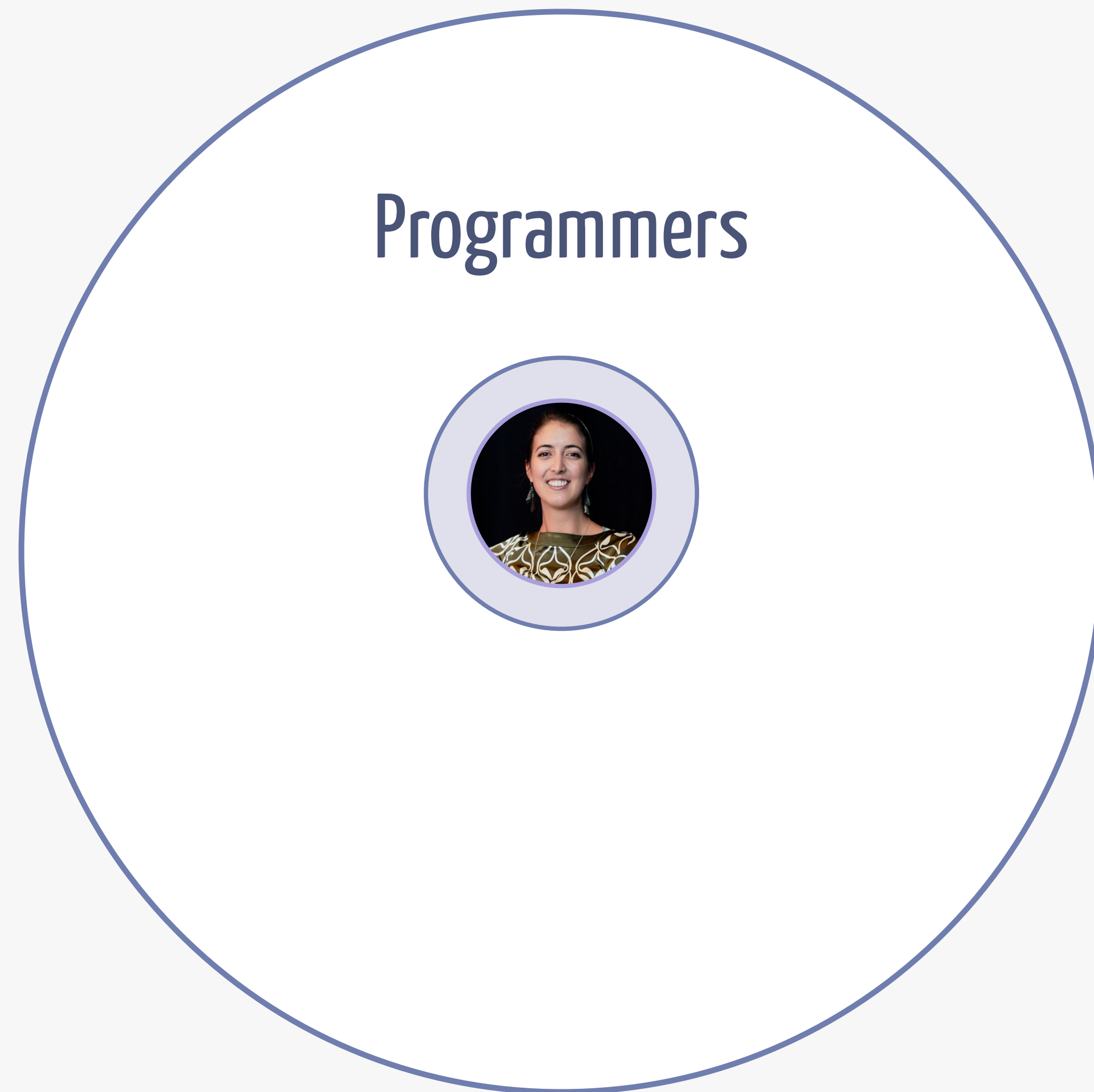
The urban areas in this research have 100,000 or more inhabitants in 2010. In 2000 there were already 580 million people living in these 869 cities and just one decade on this number grew to 780 million. That's 200 million people more!

With this amount of people on the move, it becomes imperative for cities to plan for their arrival in terms of housing and infrastructure

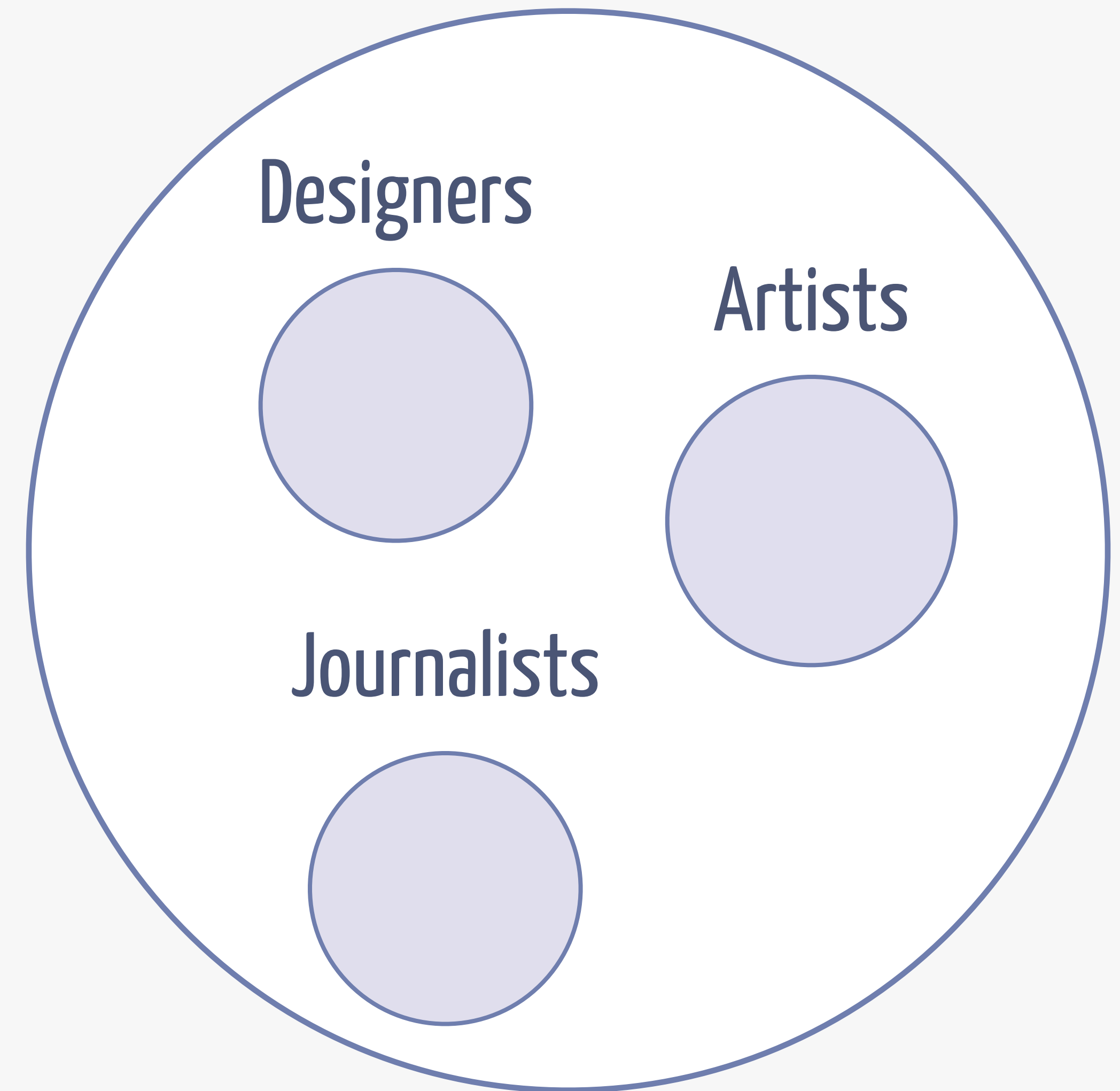
Click on the buttons below to see the differences of the urban population, urban land or urban population density per city or hover over the plots to get more detailed information



Can create...

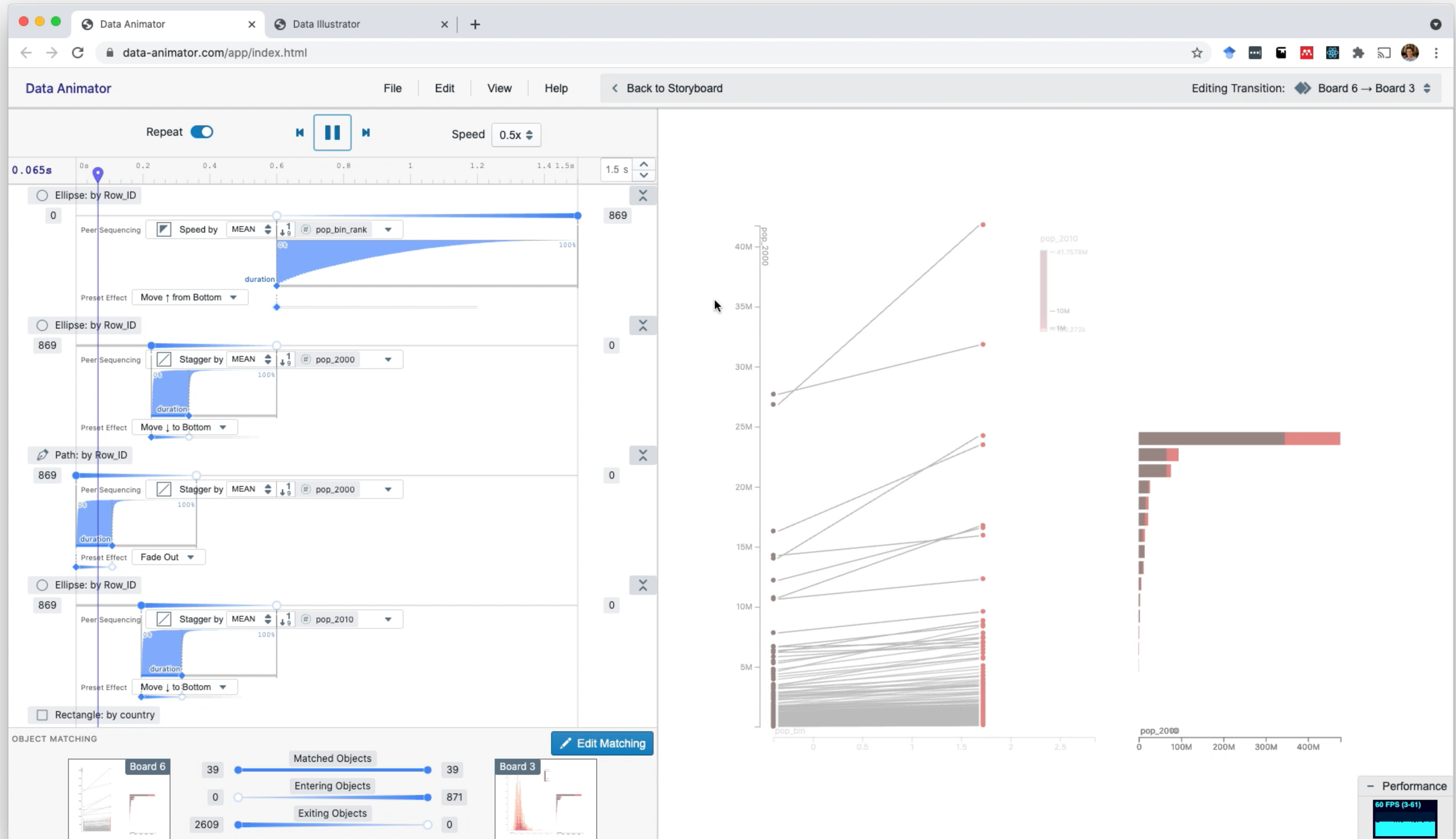


Difficult to create for...





Data Animator



Example

East Asia Urbanization from 2000 to 2010

Showing population growth in urban areas

869 data rows
Population in 2000 vs. Population in 2010

Source:
Nadieh Bremer, World Bank

Row	City	Country	Pop 2000	Pop 2010	...
1	Shanghai	China	14.0M	24.2M	...
2	Beijing	China	10.8M	16.7M	...
3	Tokyo	Japan	27.7M	31.8M	...
4	Osaka	Japan	10.6M	12.3M	...
...	...	...	...	...	...
868	Manado	Indonesi	235k	325k	...
869	Jakarta	Indonesi	16.3M	23.4M	...

Example

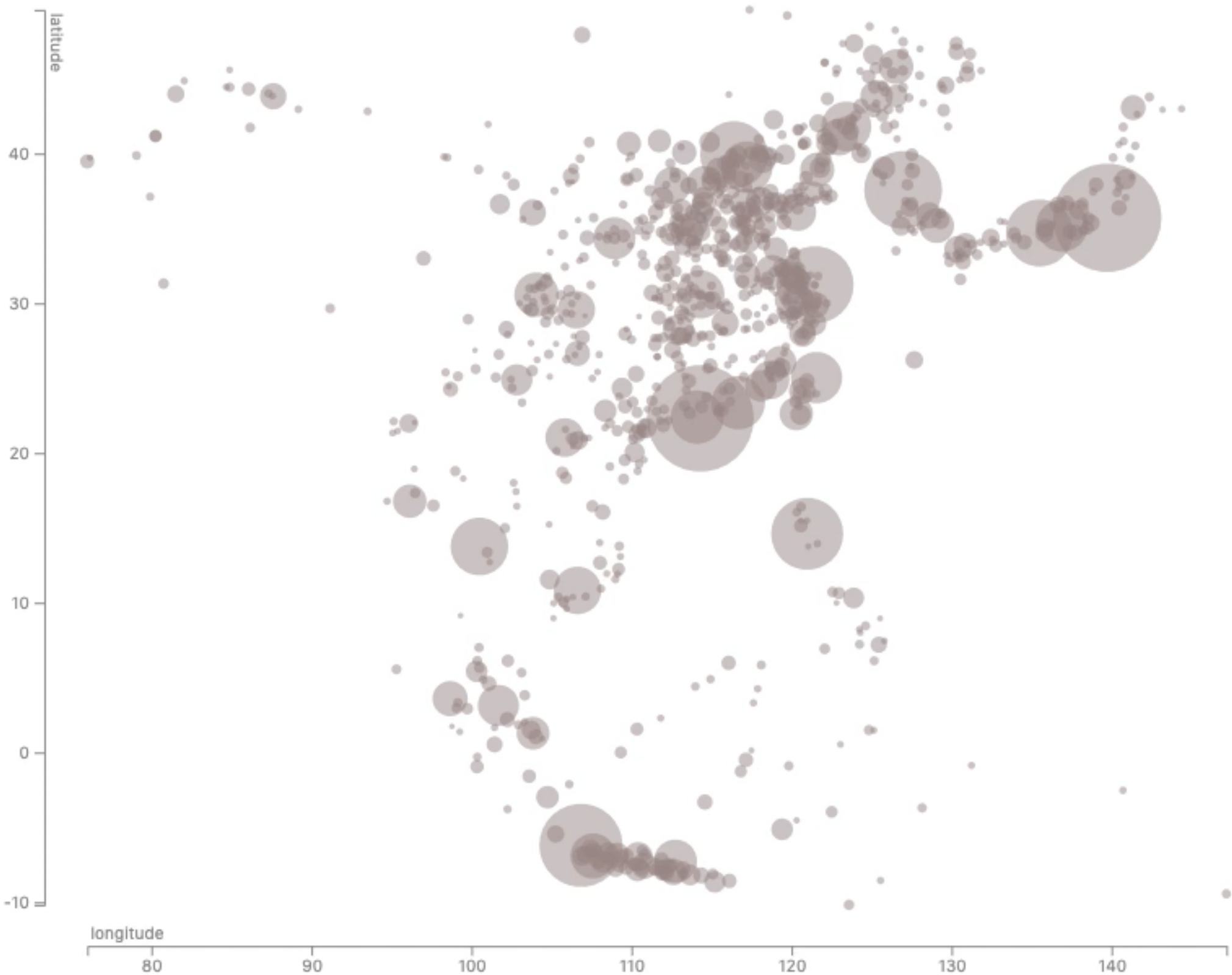
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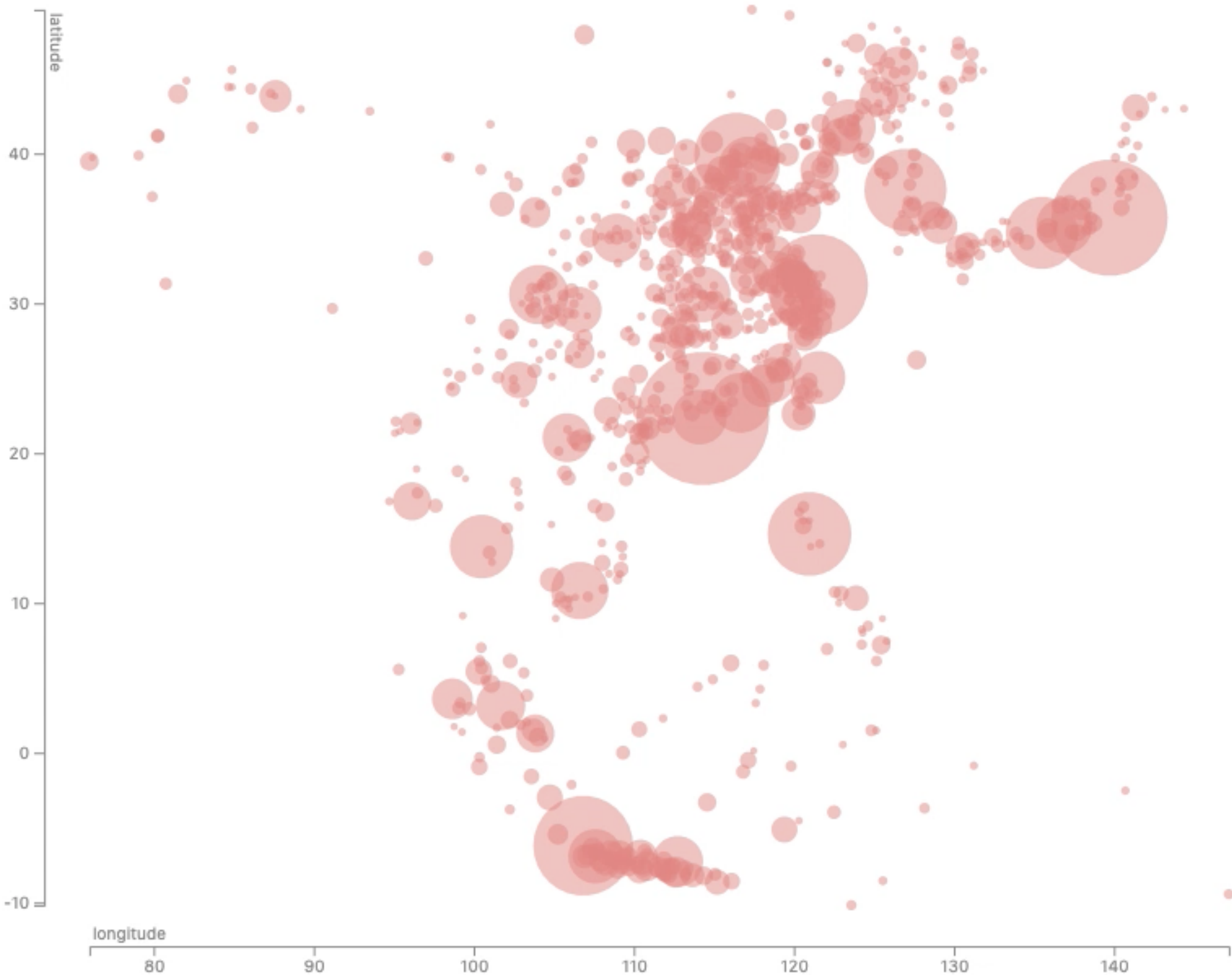
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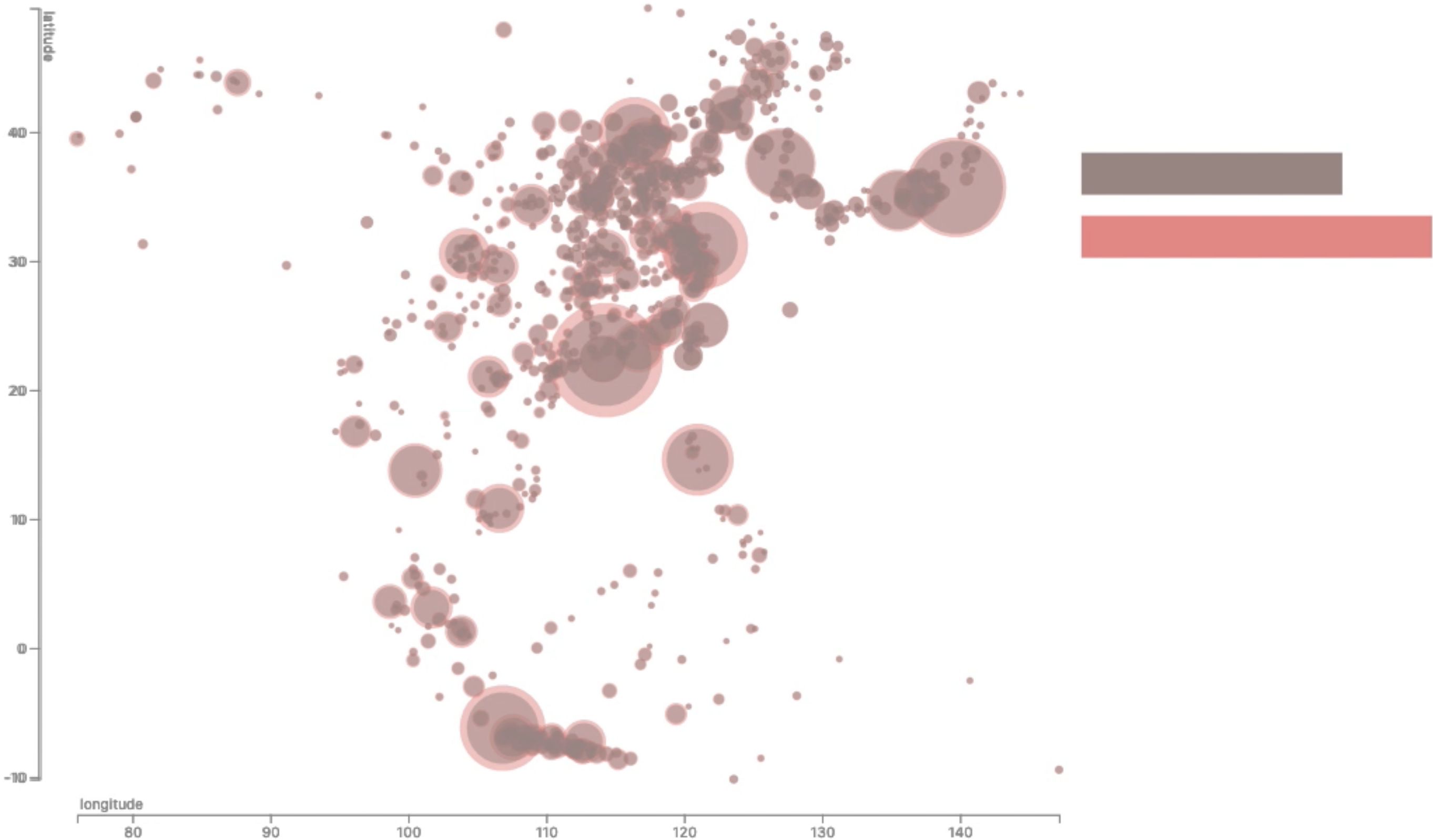
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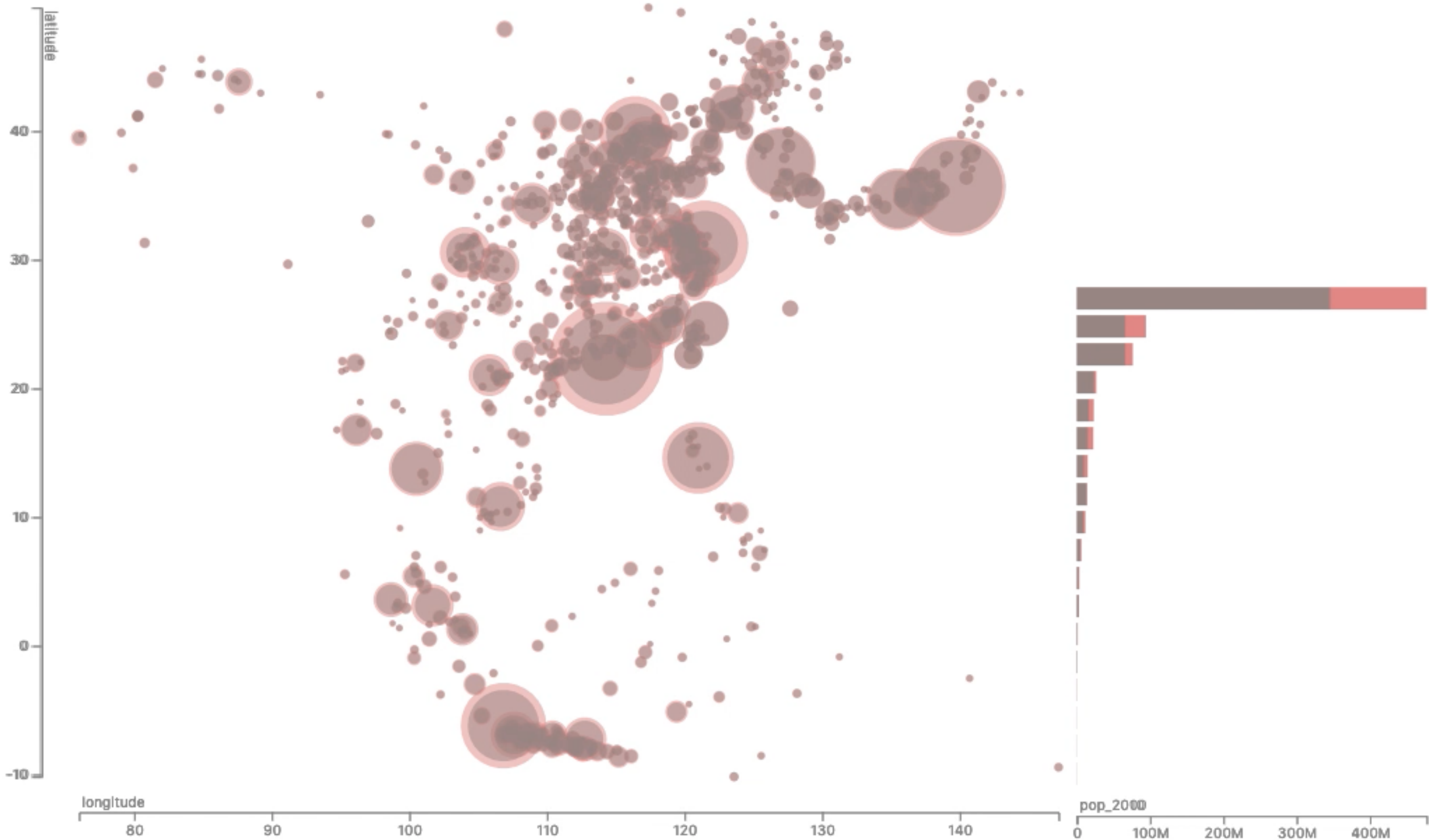
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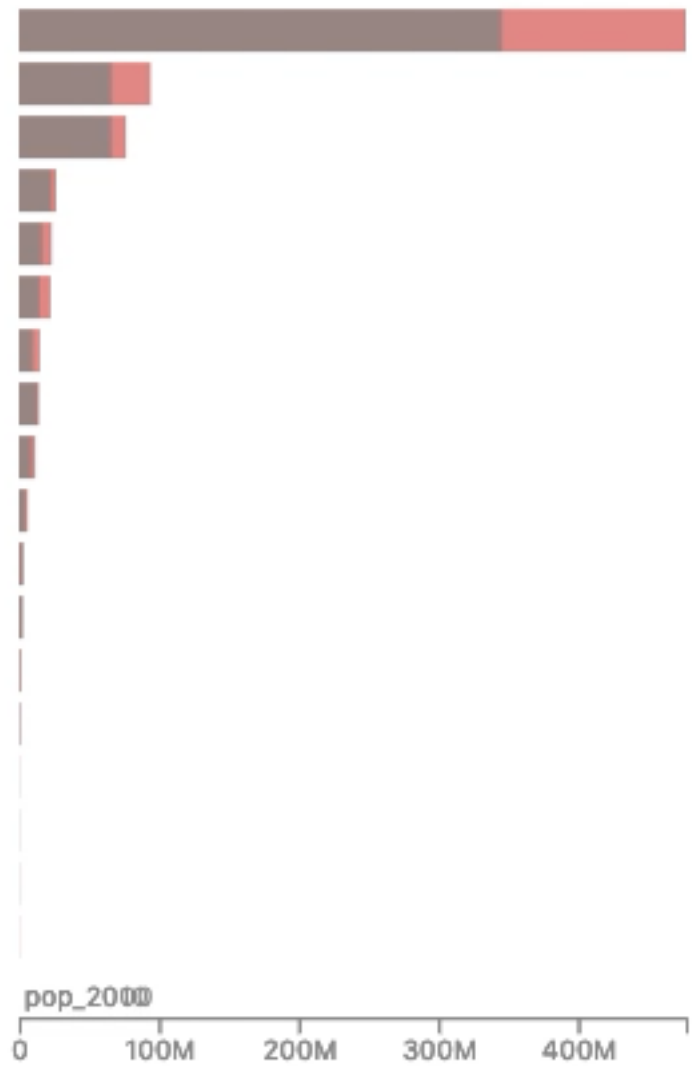
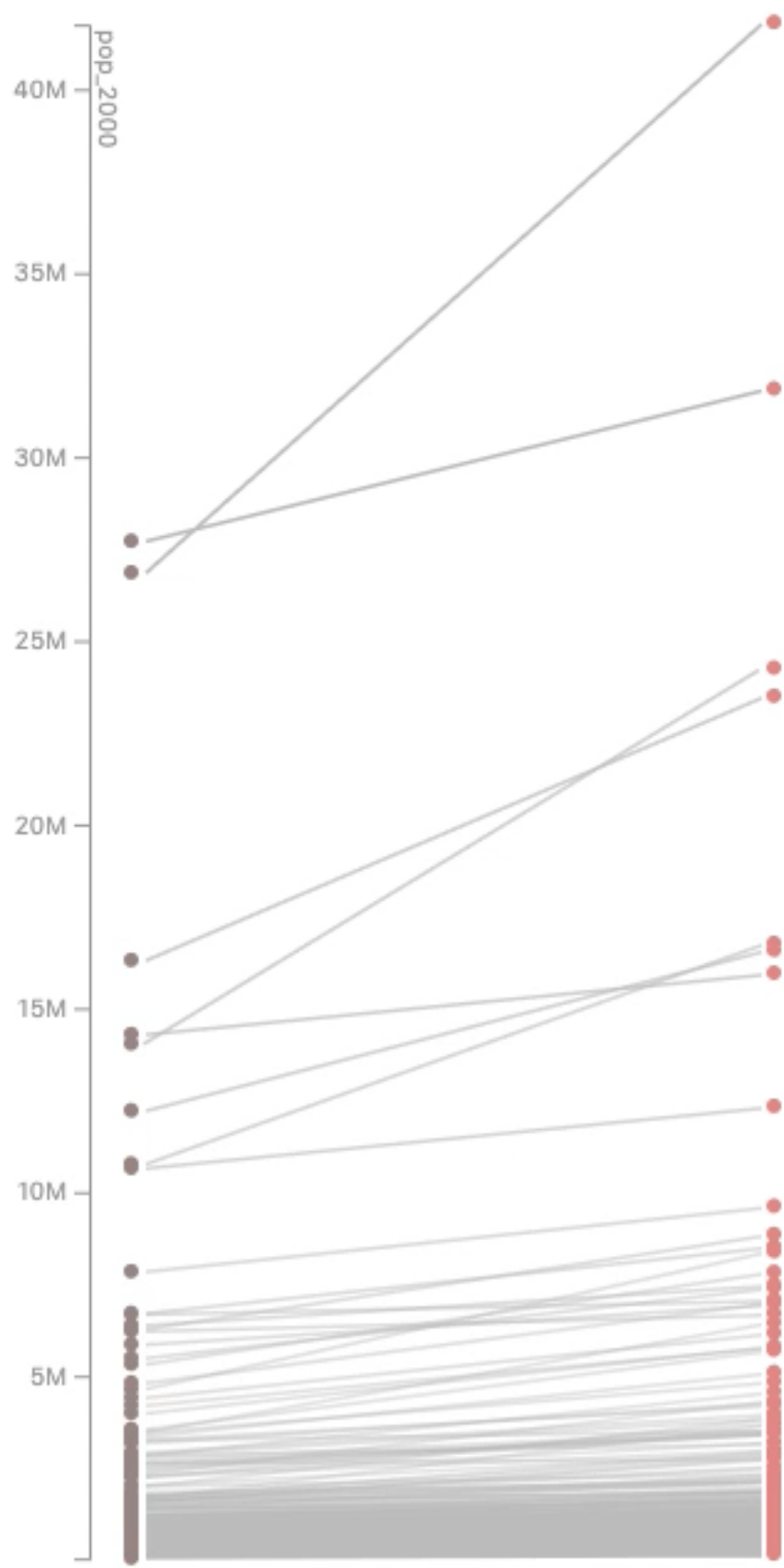
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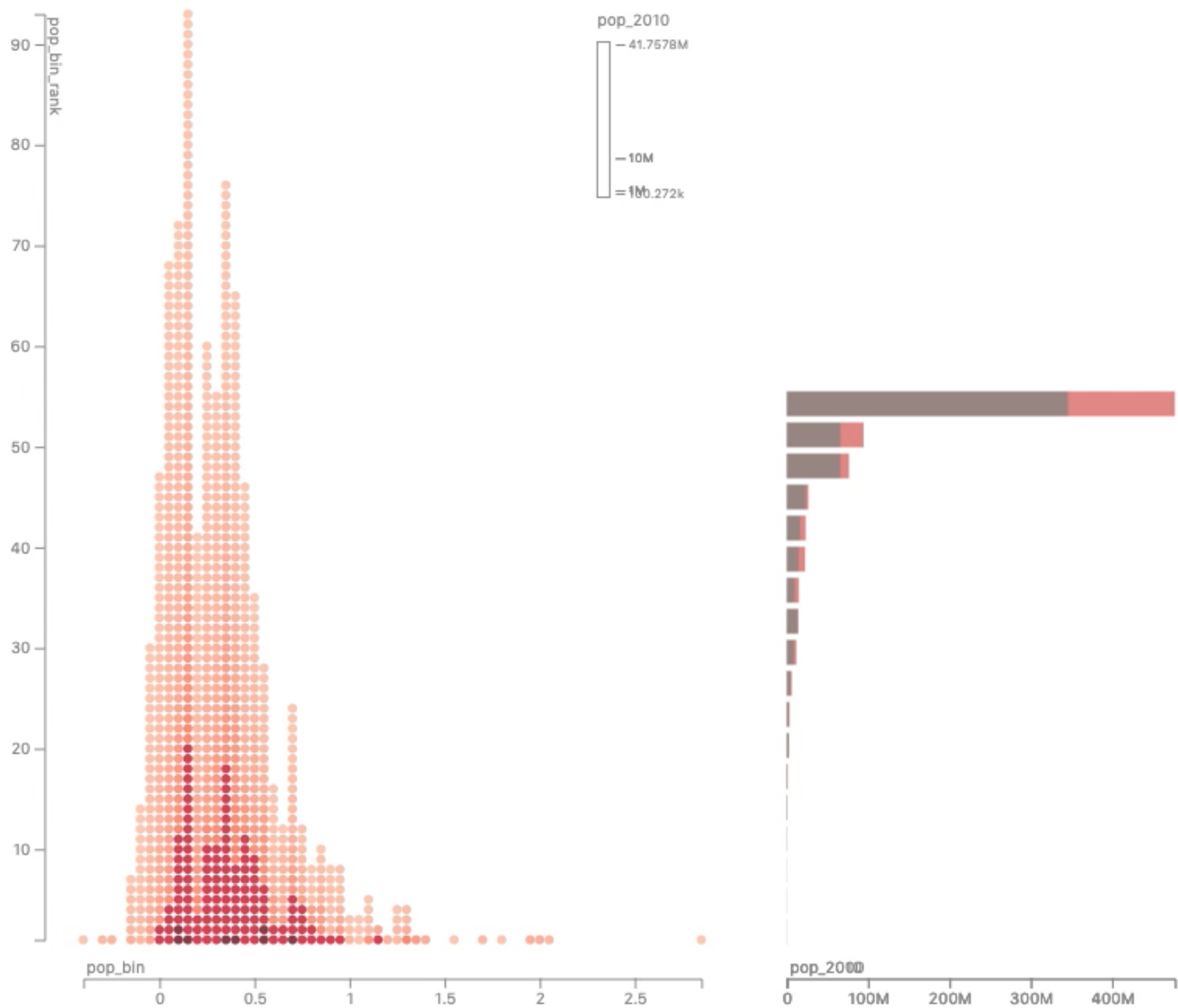
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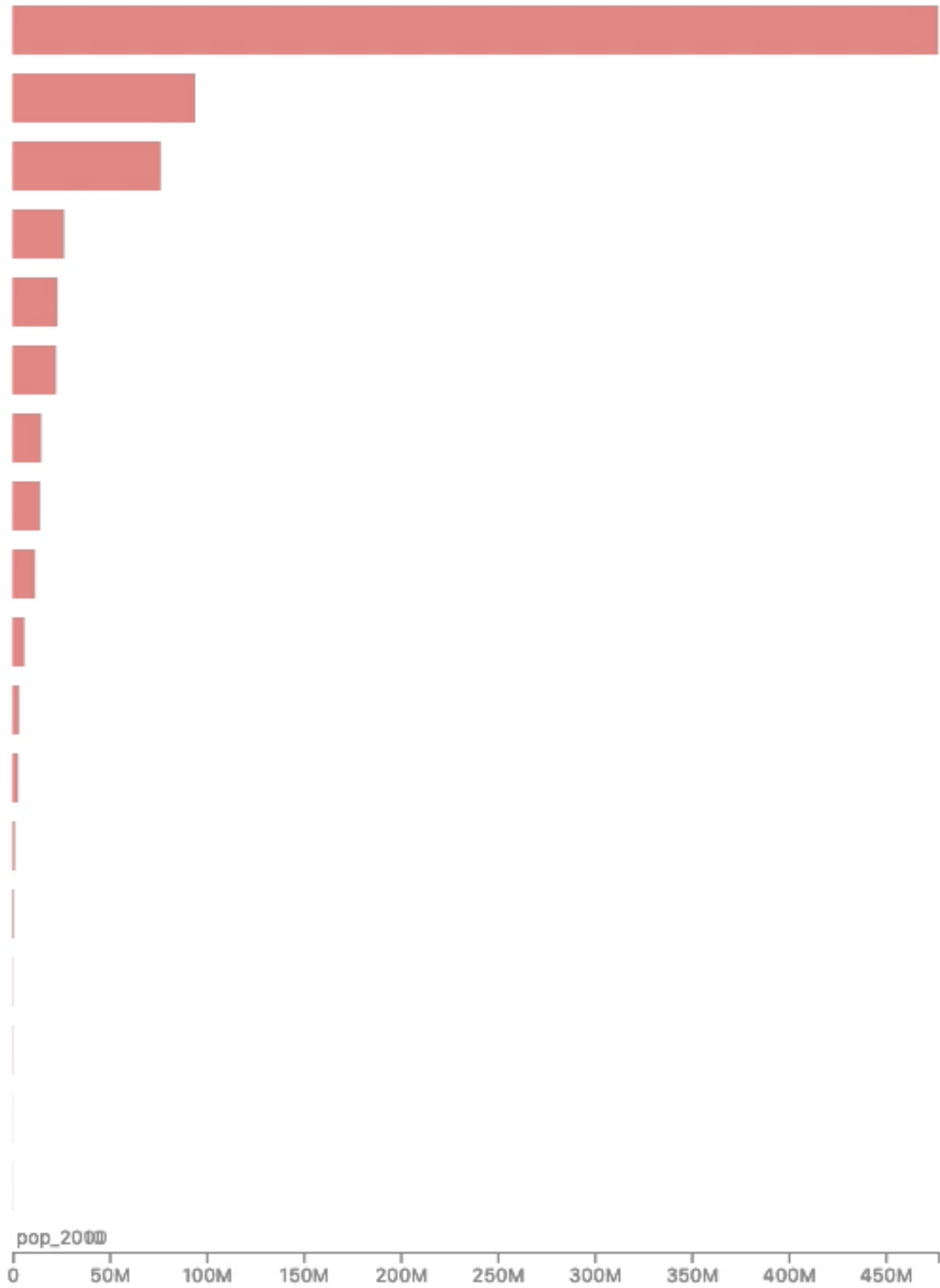
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Data Animator



Data Animator

○ ↔ ○ Automated Object Matching

Match objects based on underlying data spec.
Rapidly generates animated transitions by default.

Source

Destination



ID	City	Country	...
1	Ulaanbaatar	Mongolia	...
2	Pearl River Delta	China	...
...	...	...	...
869	Jakarta	Indonesia	...

match

match

match

ID	City	...
1	Ulaanbaatar	...
2	Pearl River Delta	...
...	...	...
869	Jakarta	...

○ Ellipse: by Row_ID

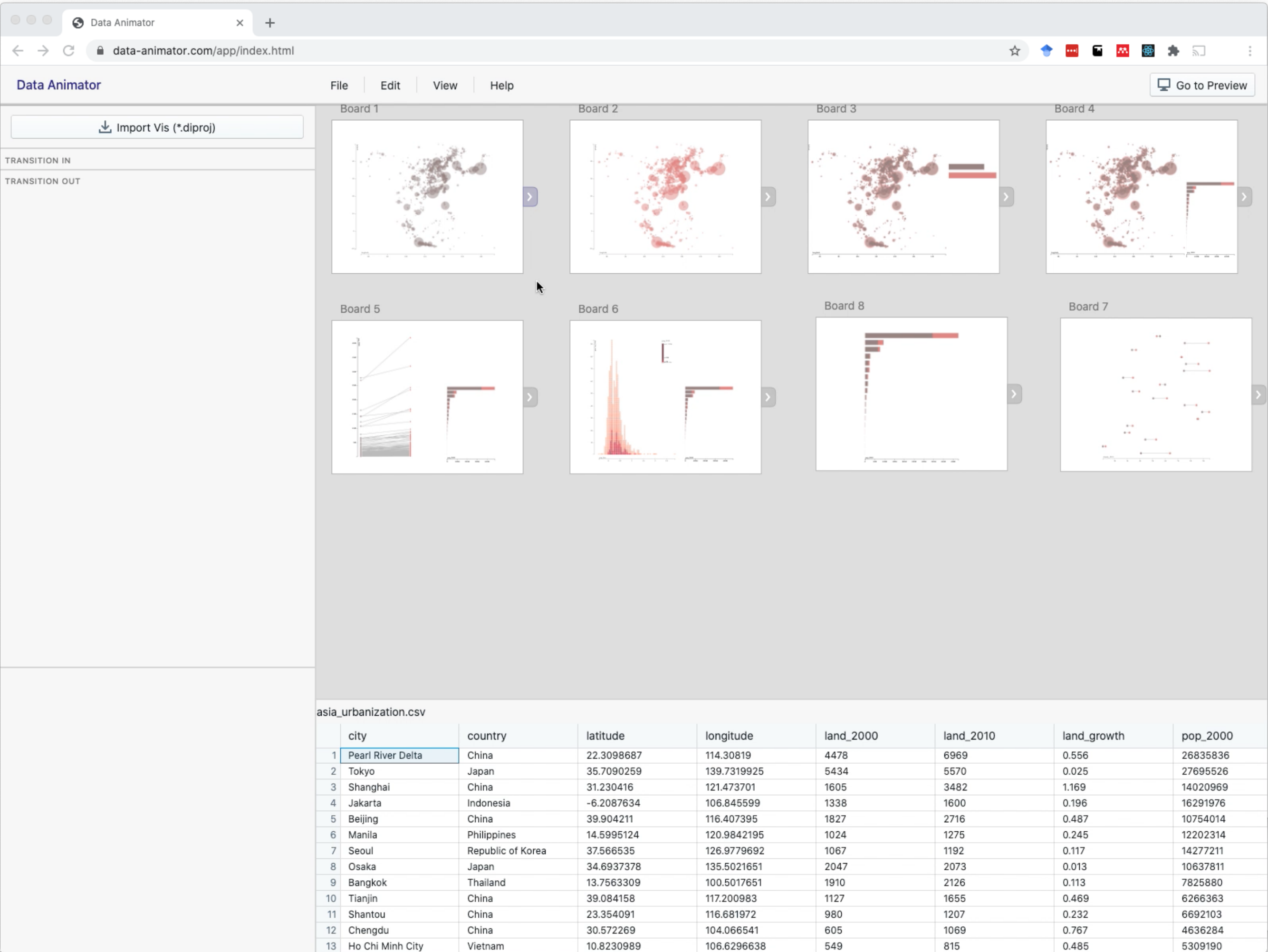
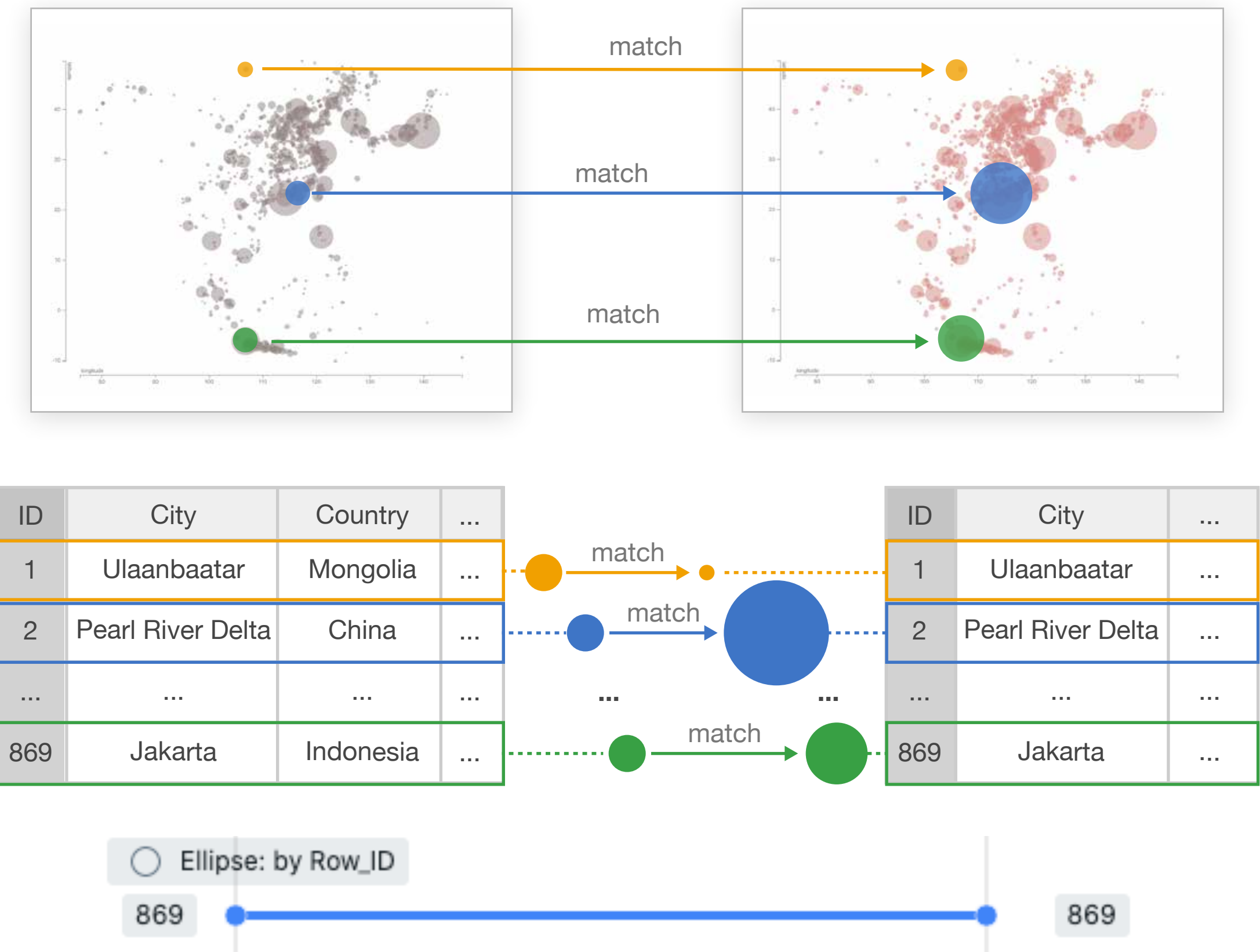
869

869

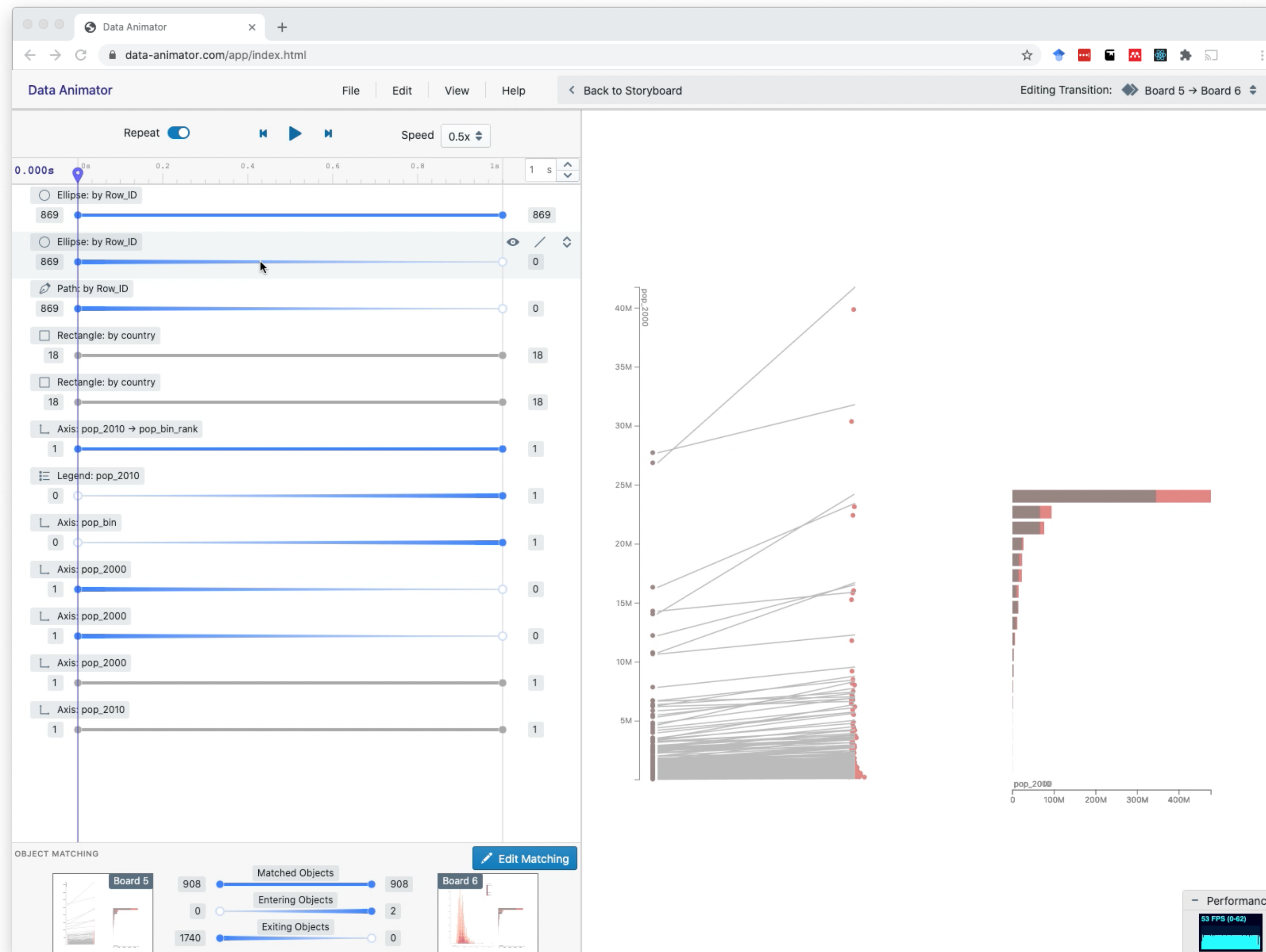
Object Matching (one-to-one)

Source

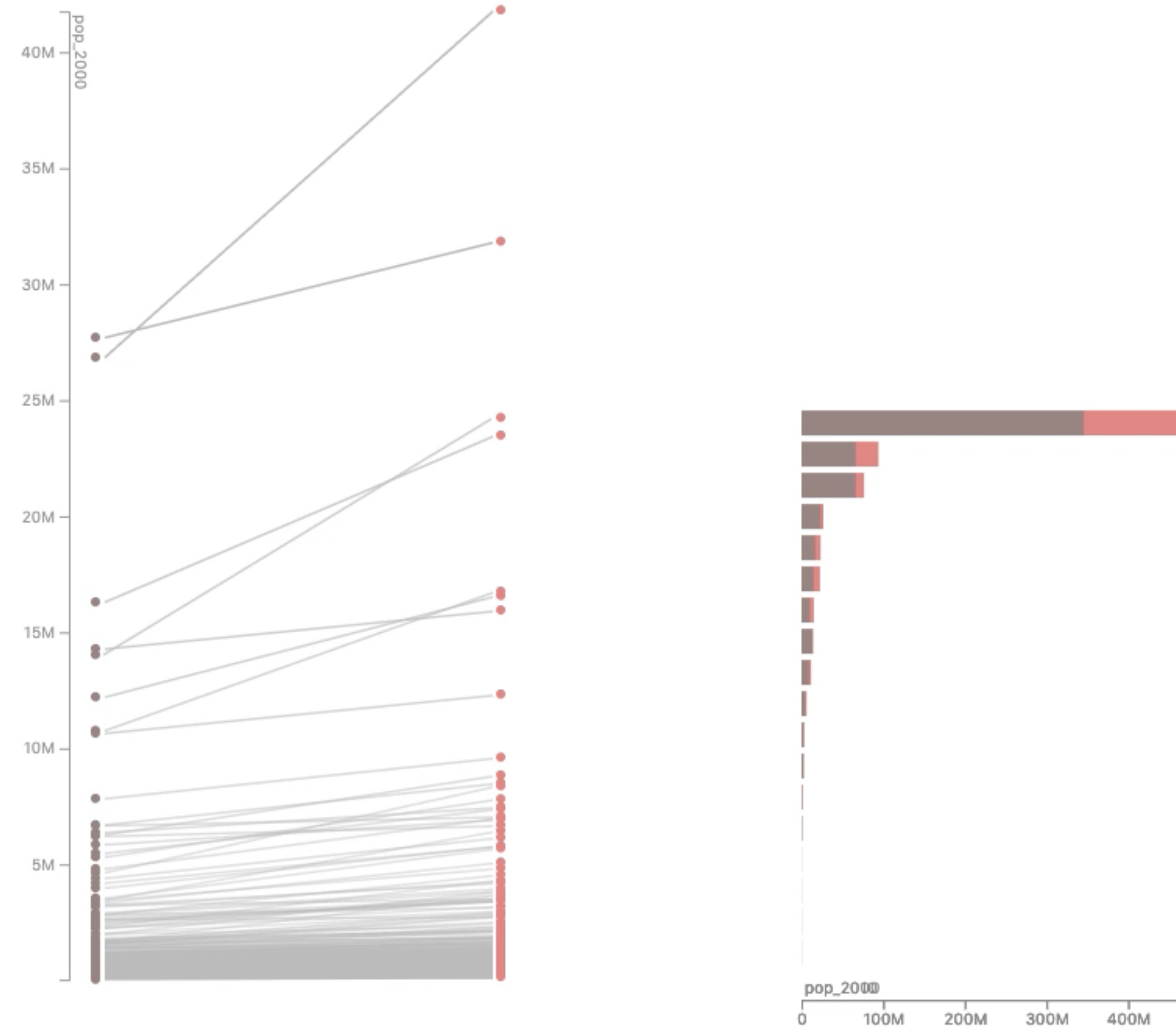
Destination



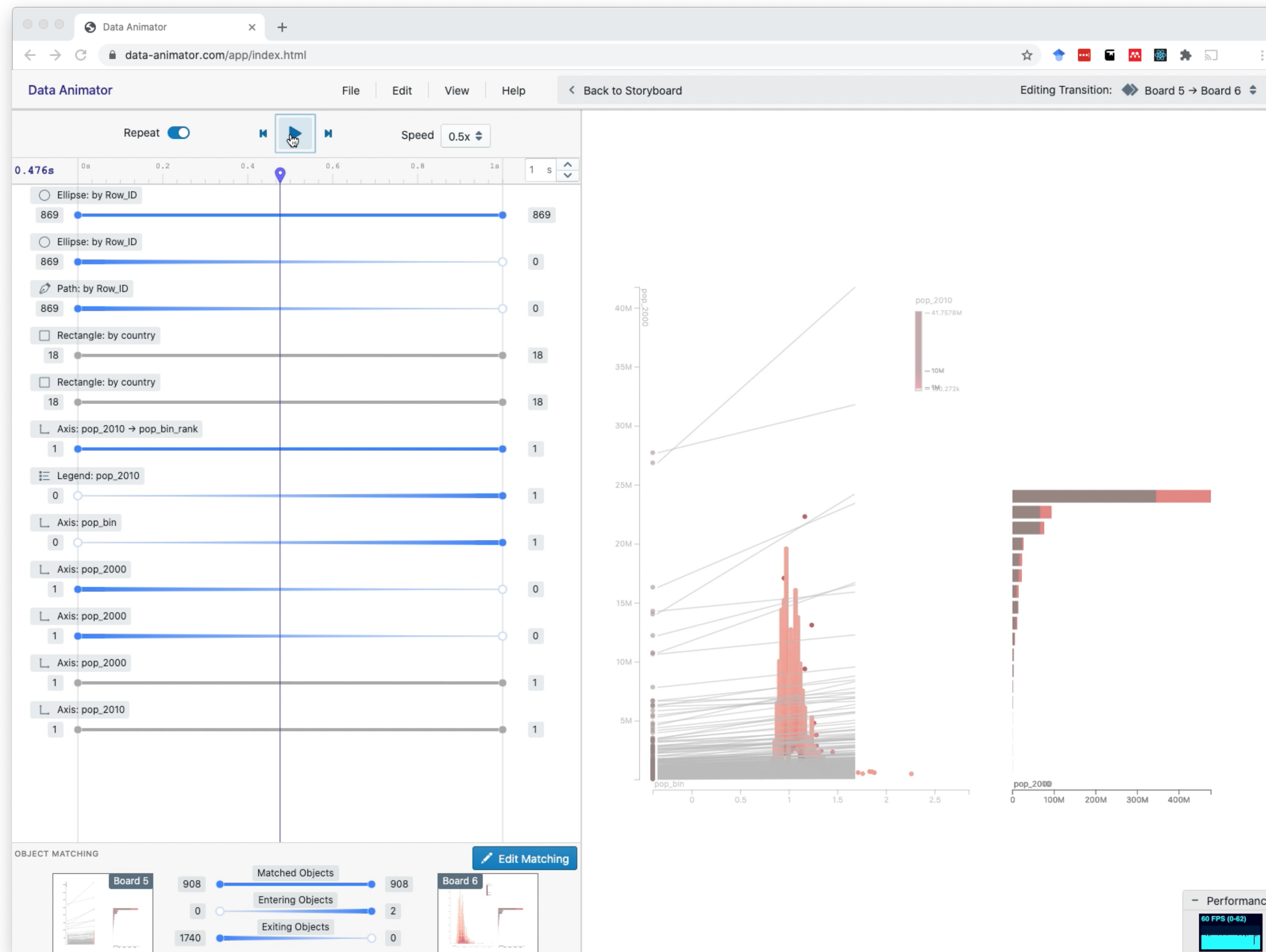
Object Matching (one-to-one)



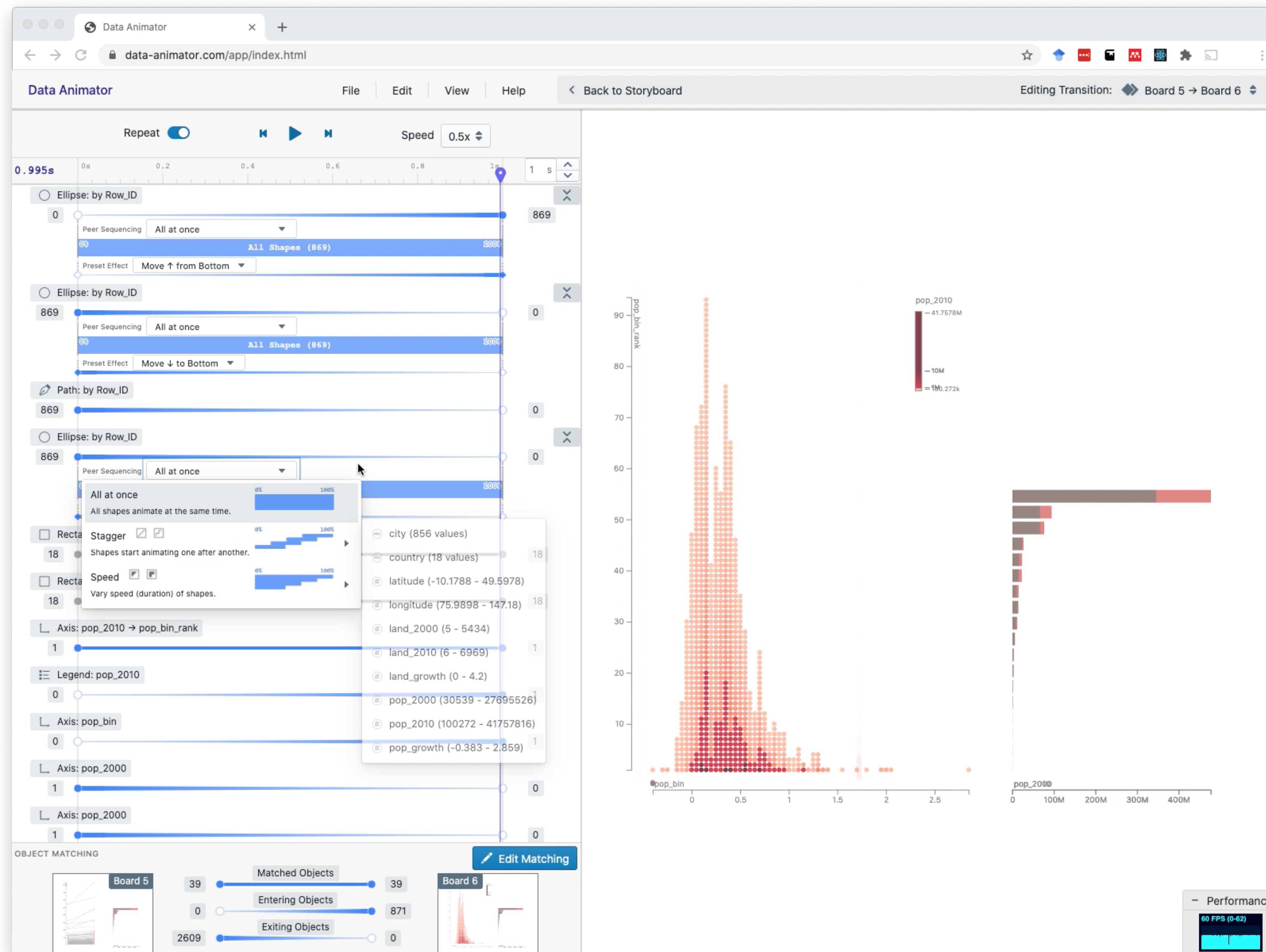
Object Matching (Entering/Exiting)



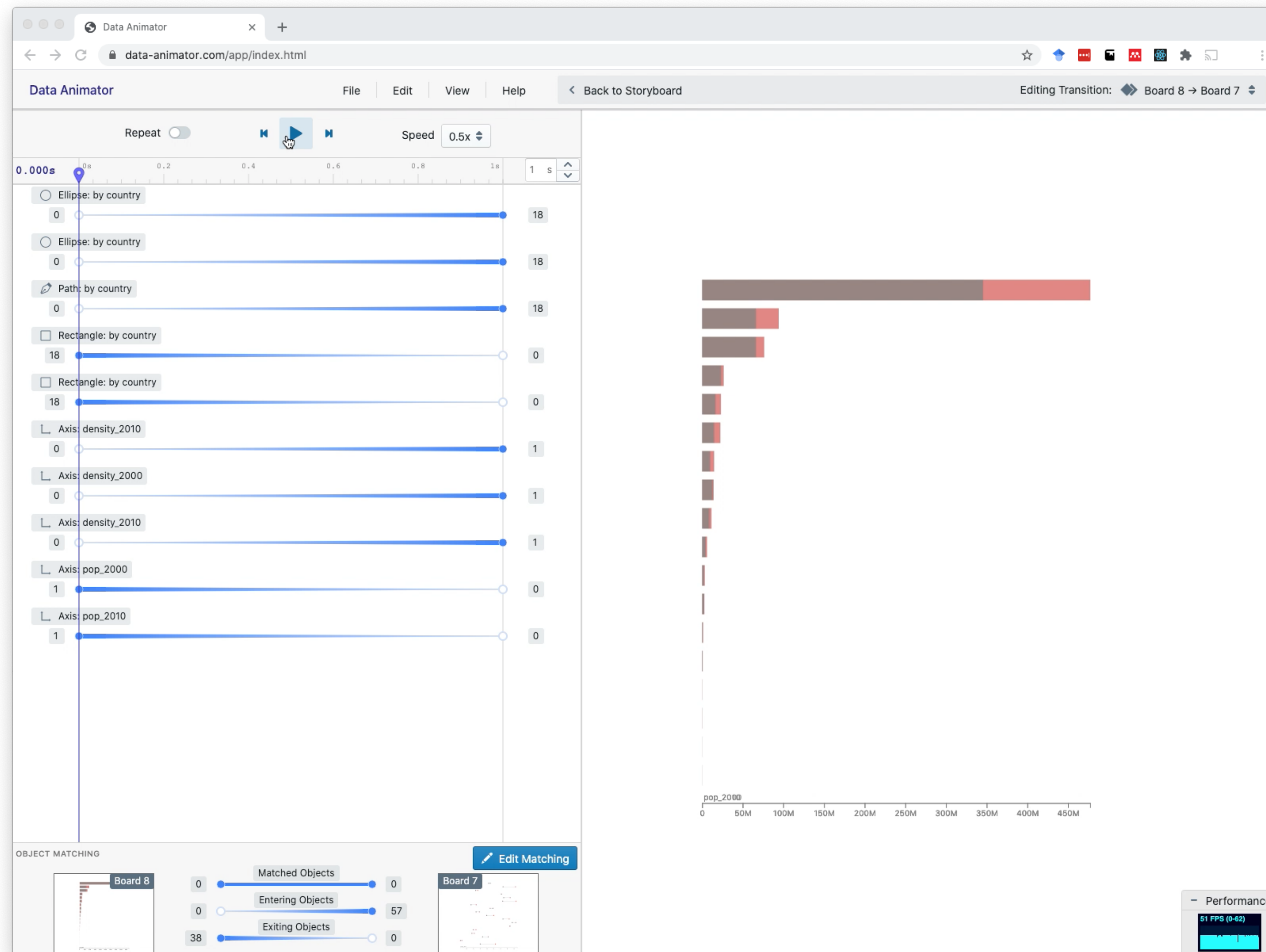
Object Matching (Entering/Exiting)



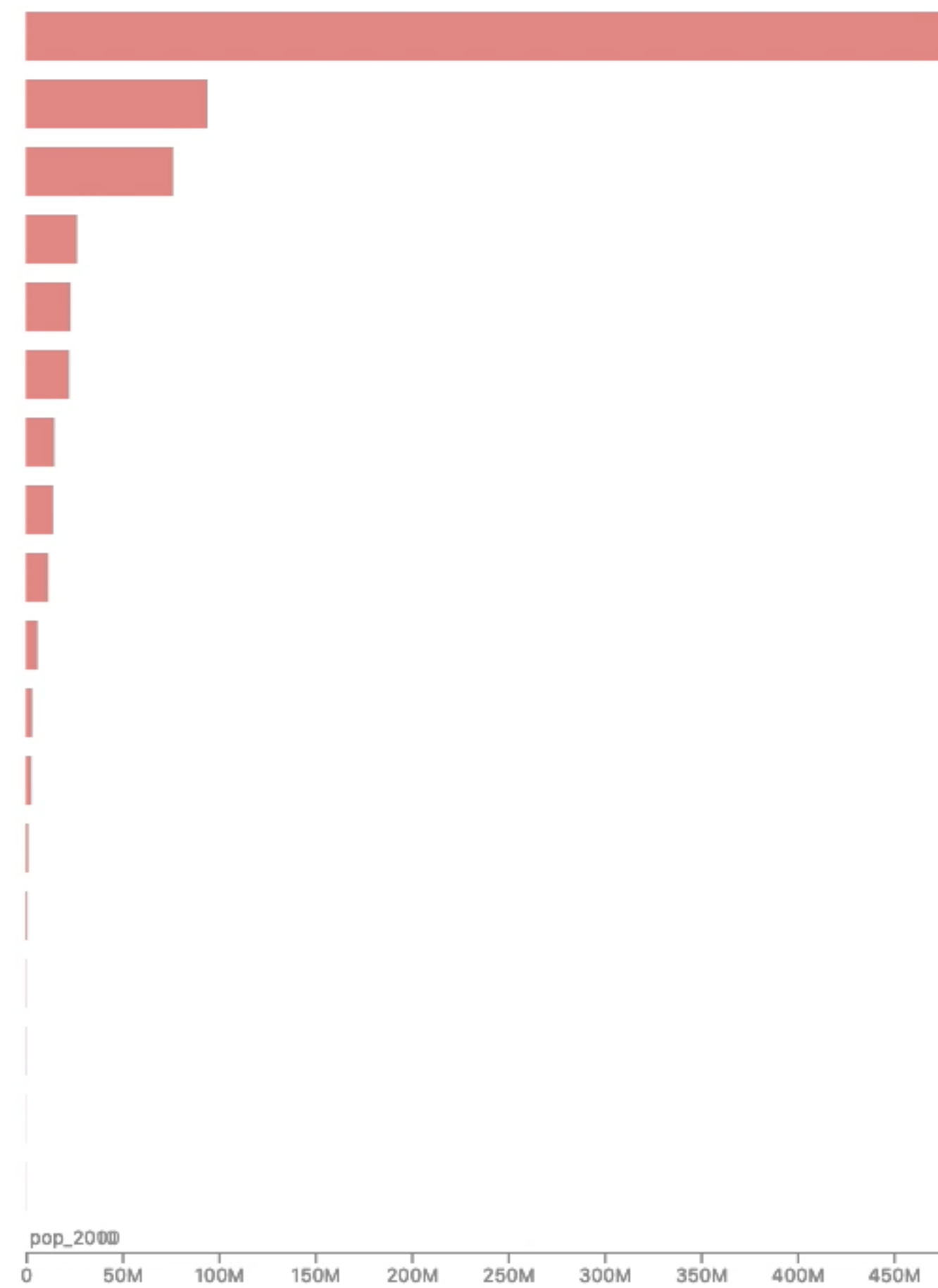
Object Matching (Entering/Exiting)



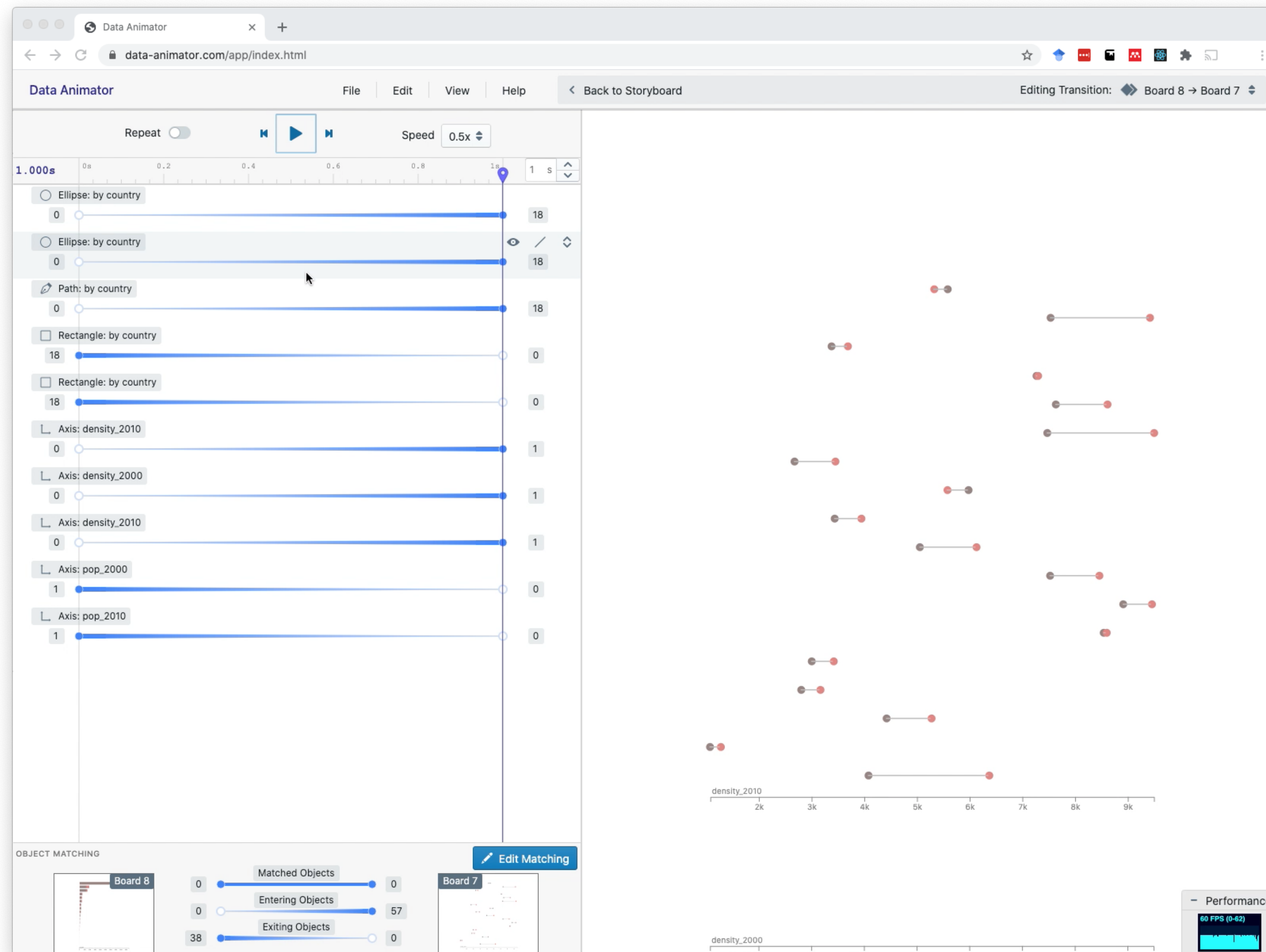
Object Matching (Entering/Exiting)



Object Matching (manual)



Object Matching (manual)



Object Matching (manual)

Data Animator

File Edit View Help < Back to Storyboard Editing Transition: Board 8 → Board 7

0 Selected Clear Unmatch Match Done Matching

Board 8 Board 7

Rectangle: by country 18 18

Rectangle: by country 18 18

Path: by country 0 18

Axis: density_2010 0 1

Axis: density_2000 0 1

Axis: density_2010 0 1

Axis: pop_2000 1 0

Axis: pop_2010 1 0

Link objects by: Select column... Show link for: Select value...

Board 8 Board 7

OBJECT MATCHING

Board 8 Board 7

Matched Objects 0 0

Entering Objects 0 57

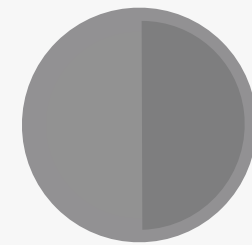
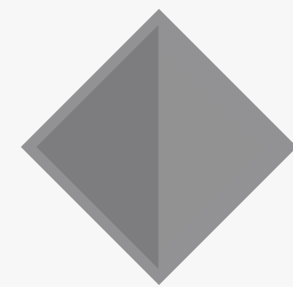
Exiting Objects 38 0

Done Matching

Object Matching (manual)

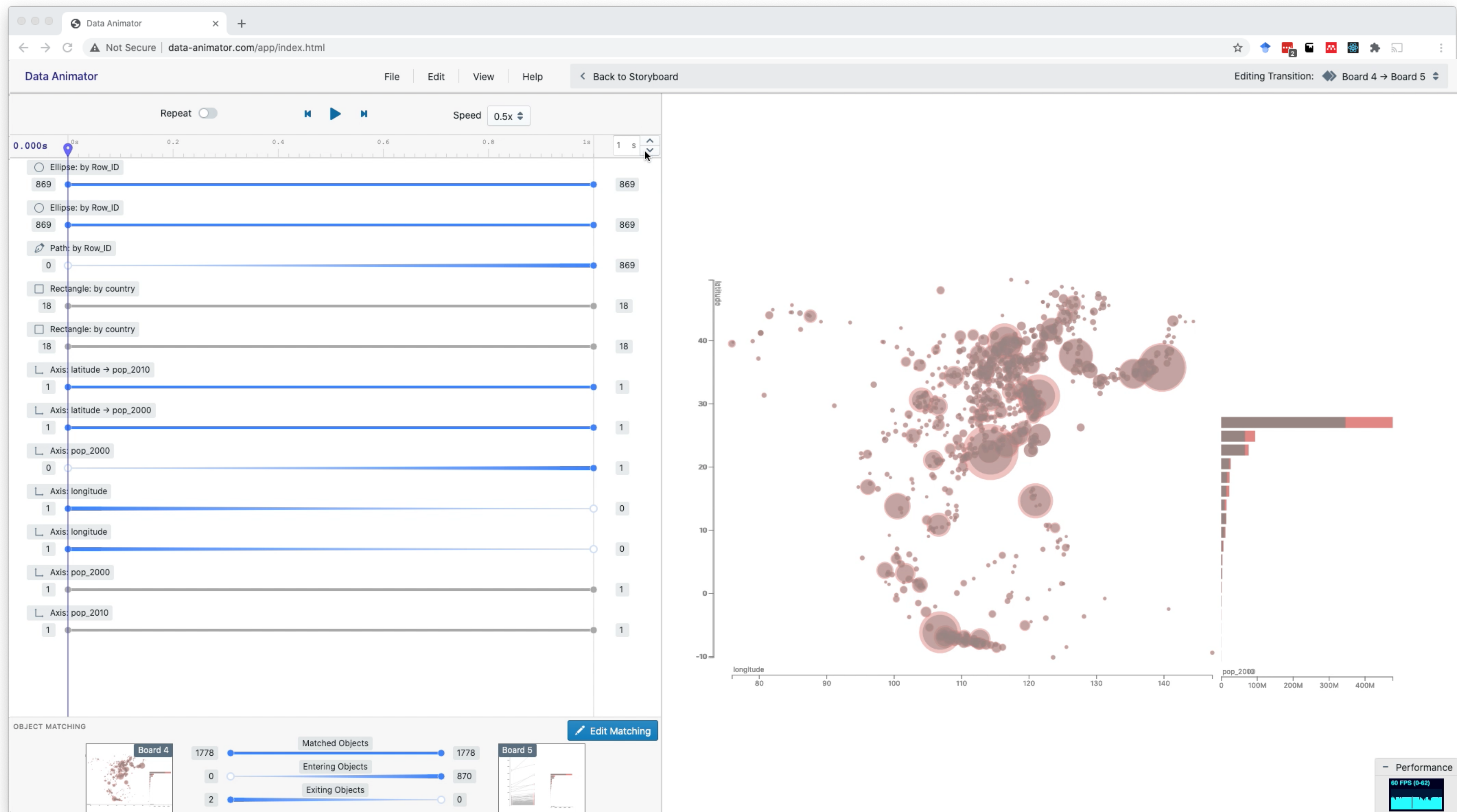


Data Animator

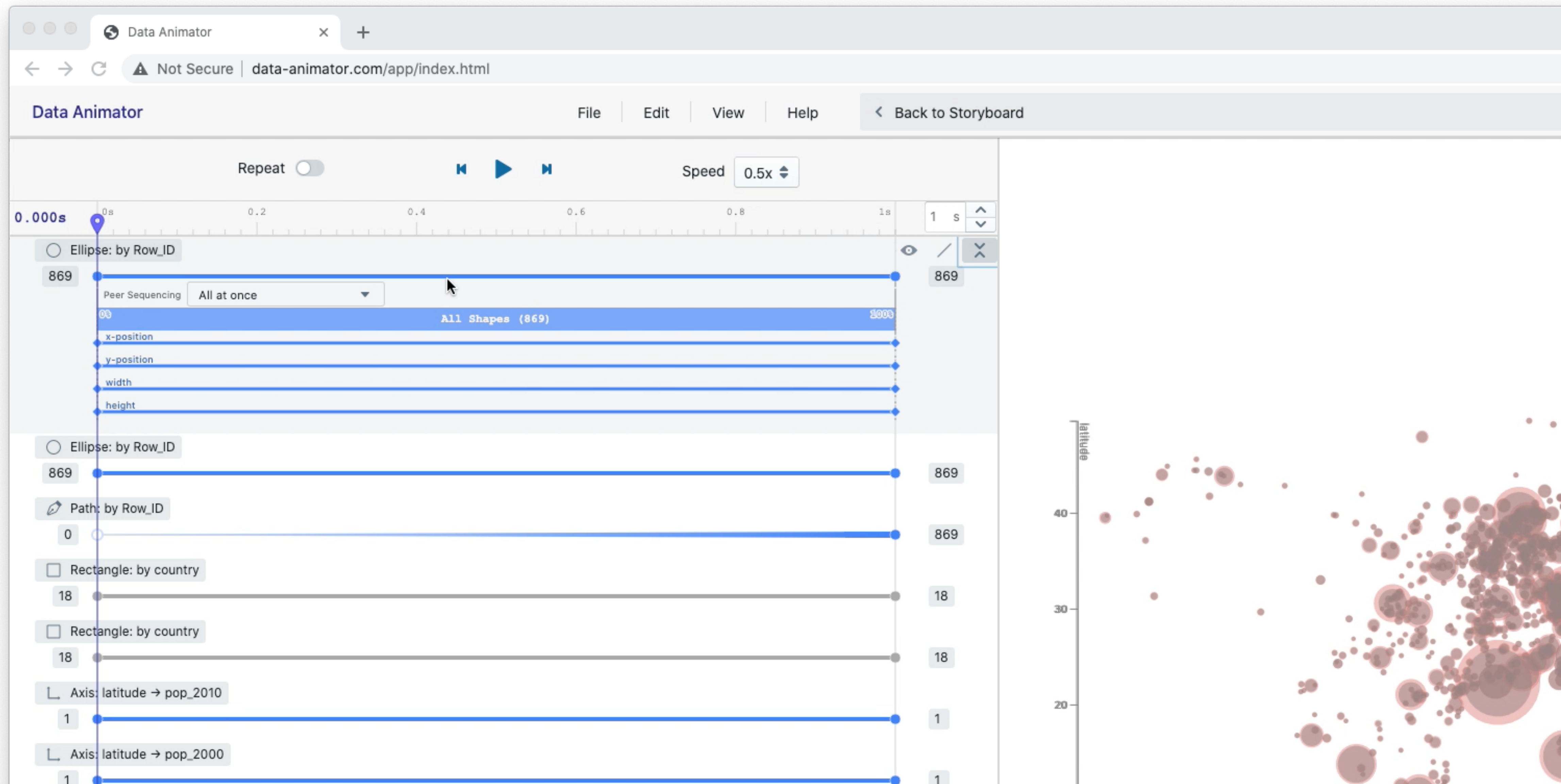


Hierarchical Keyframes

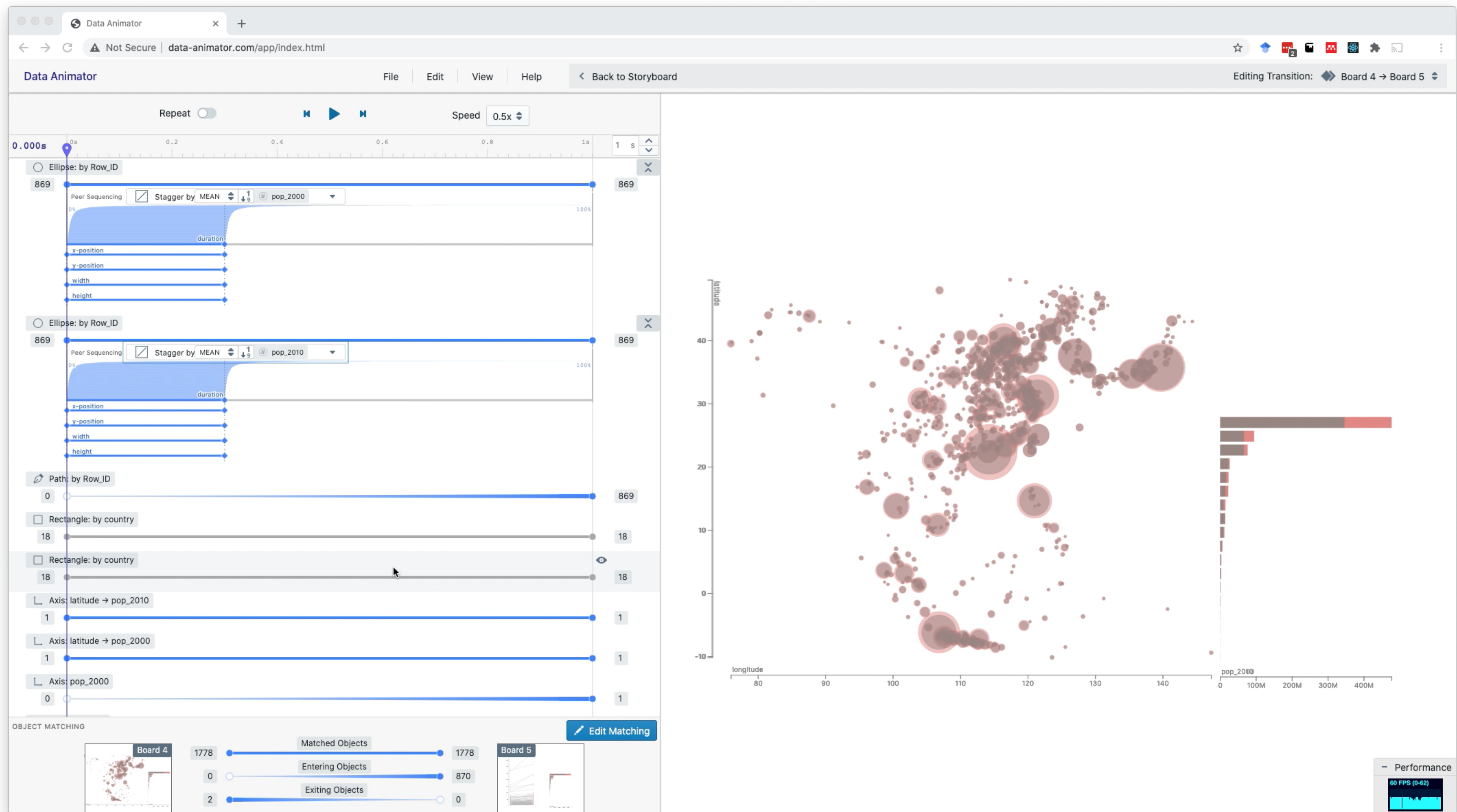
Combine stage, stagger, & speed pacing techniques in timeline interface



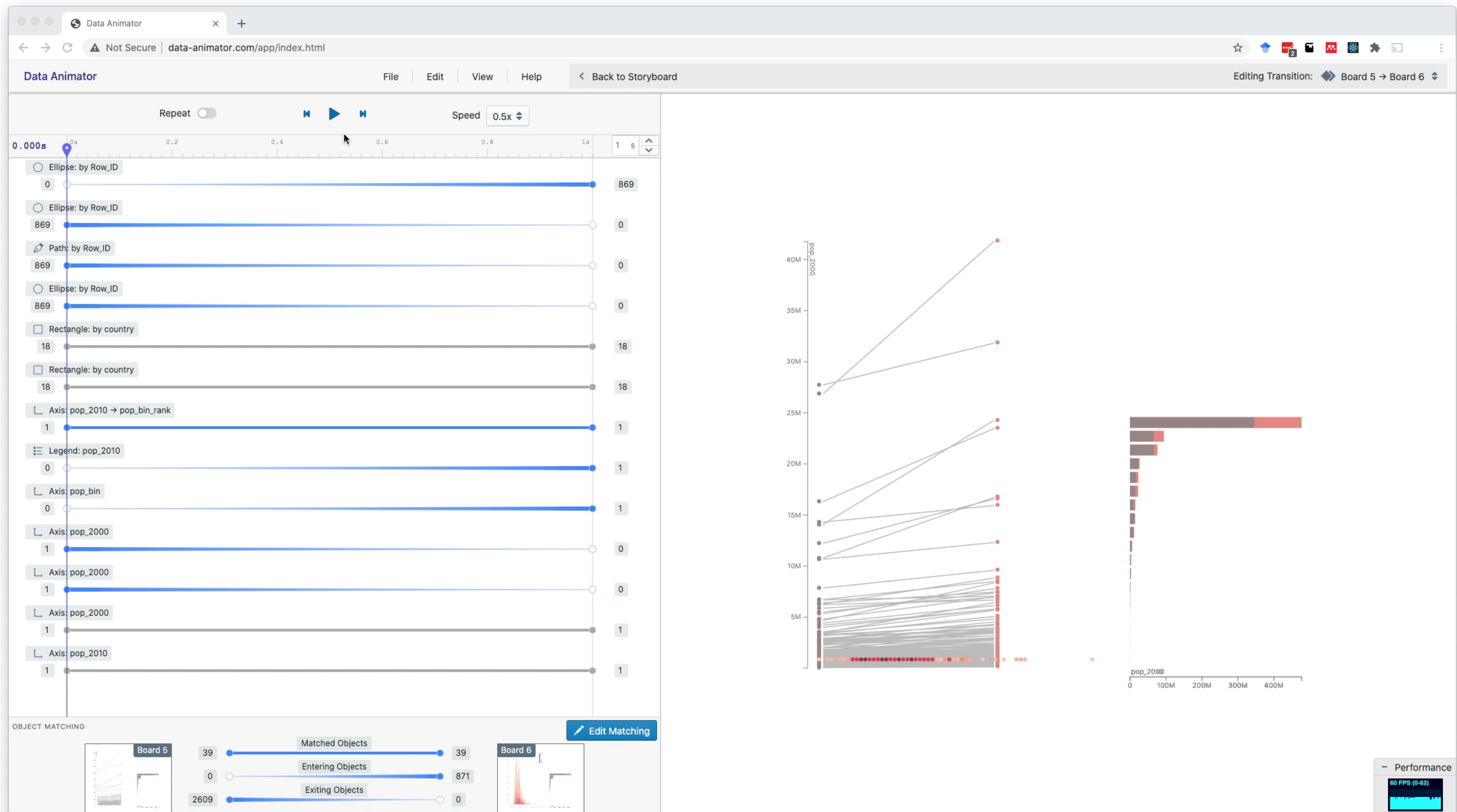
Sequencing (Stagger)



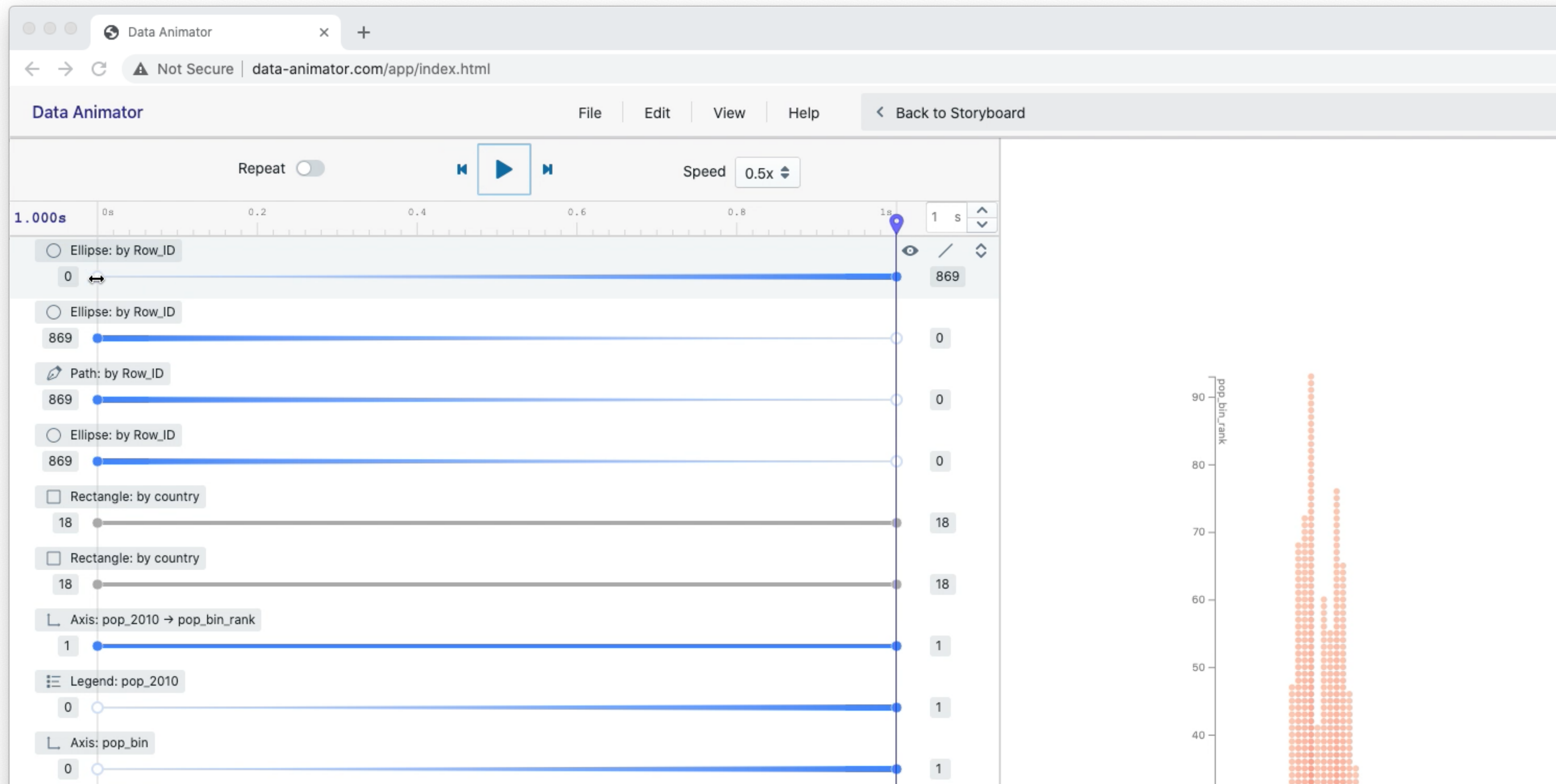
Sequencing (Stagger)



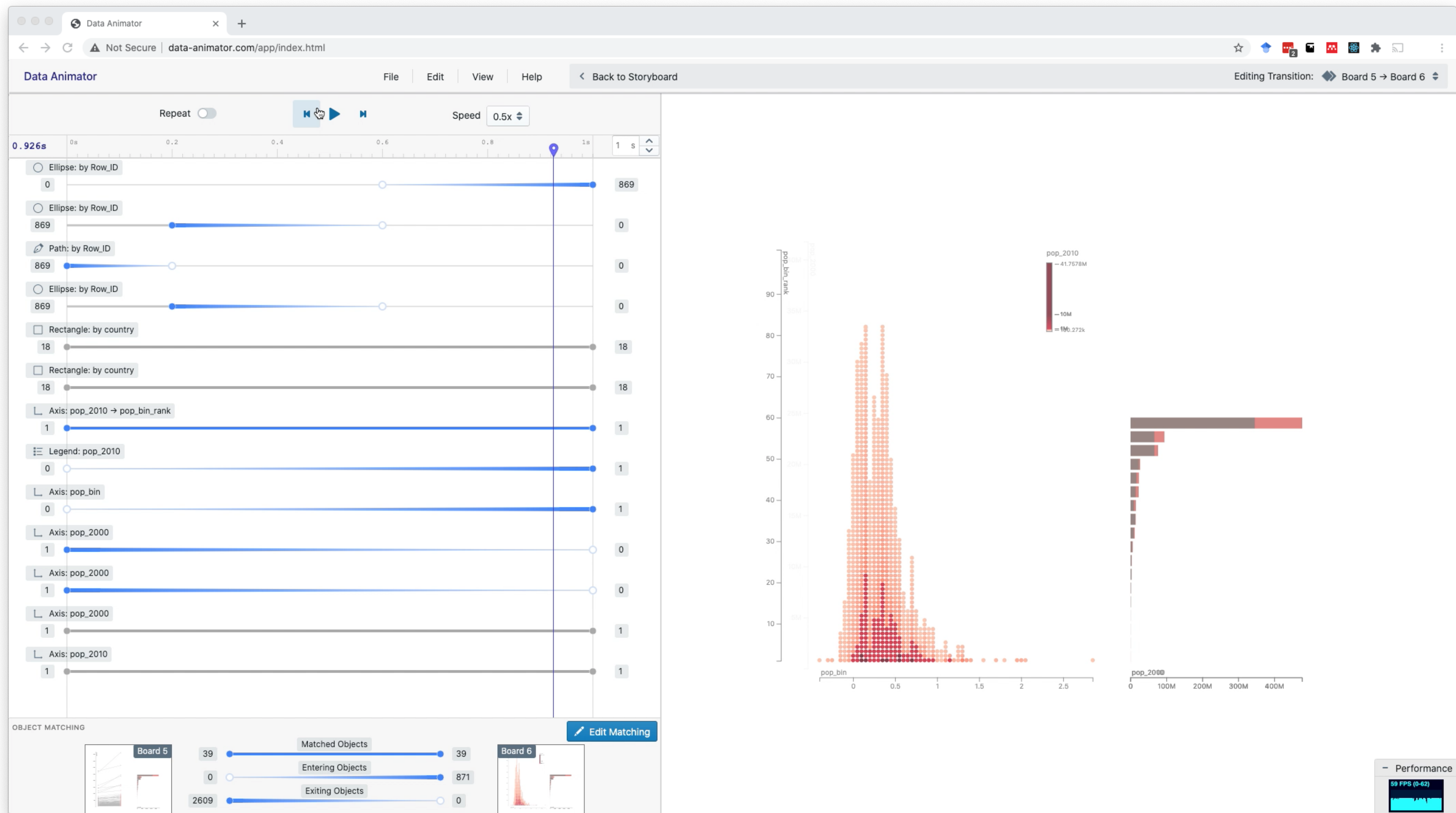
Sequencing (Stagger)



Staging (Objects)



Staging (Objects)



Staging (Objects)



Data Animator

1. Expressivity - “can the tool build that visualization design?”
2. Usability - “how effective and easy is the tool to learn?”



Data Animator

- ▶ 1. Expressivity - “can the tool build that visualization design?”
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Gallery | Data Animator

data-animator.com/gallery/index.html

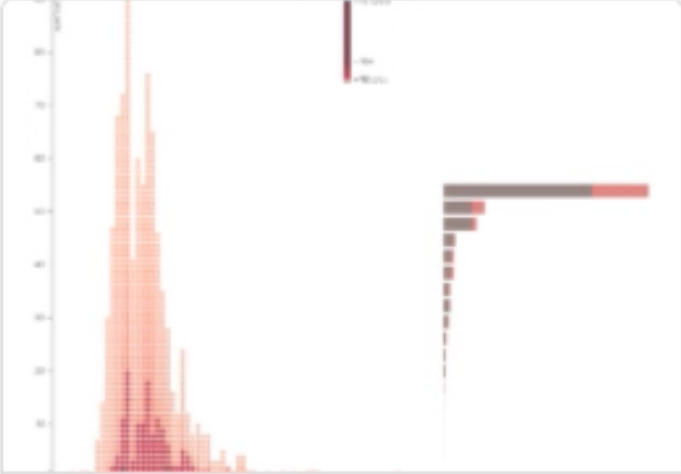
☆

Data Animator

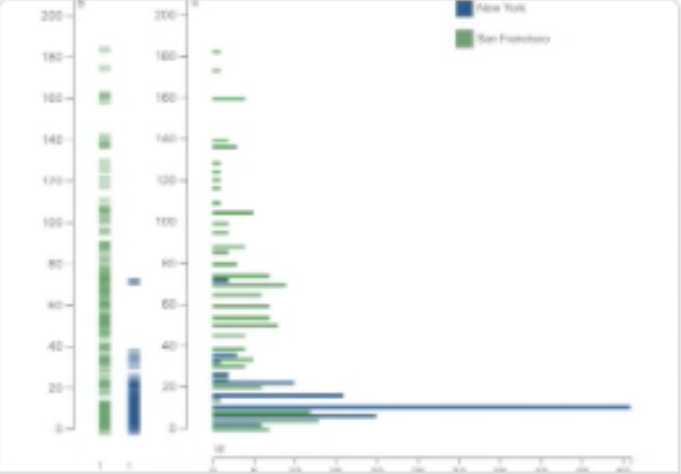
HomeGalleryAboutLaunch (Beta)

Gallery

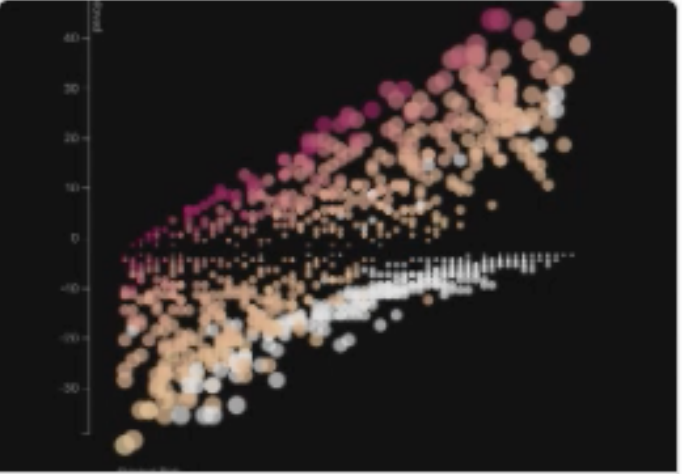
Create incredible motion graphics and visual effects.



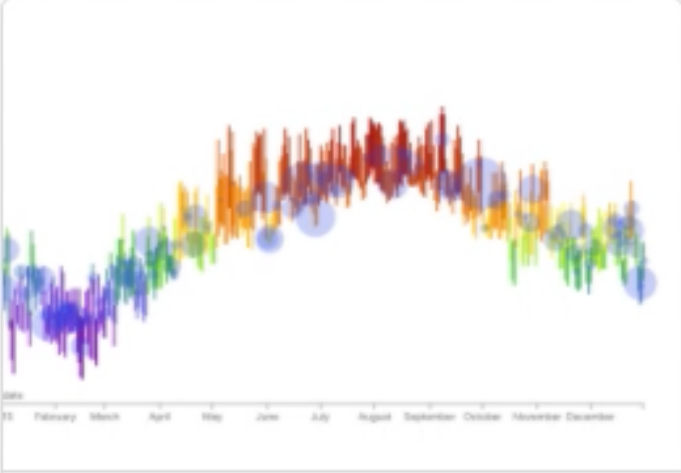
Urbanization in East Asia between 2000 and 2010



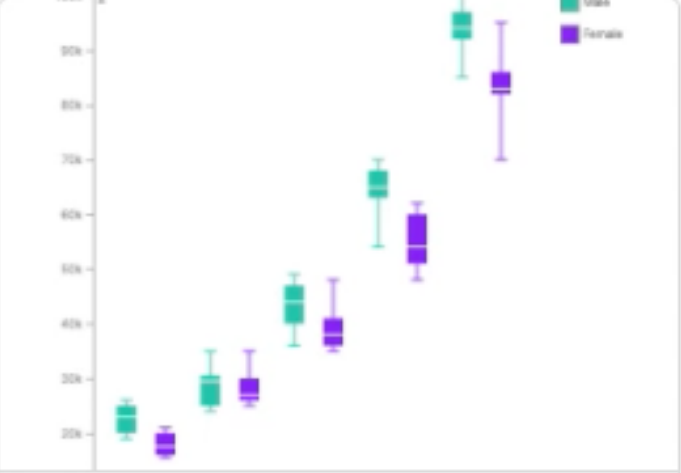
A visual introduction to machine learning



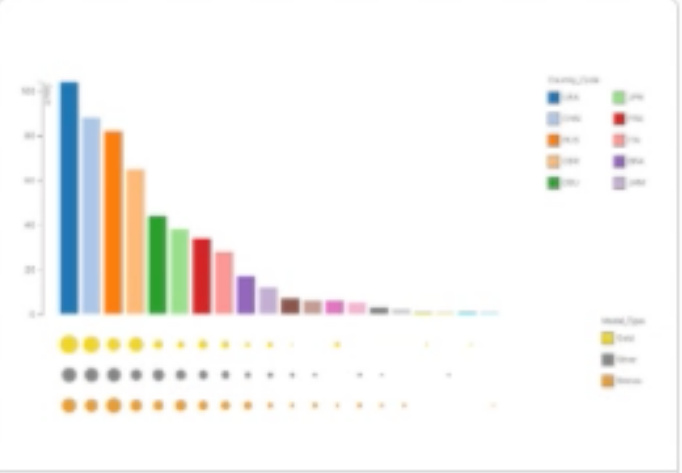
Redrafting 20 years of NBA players with stats



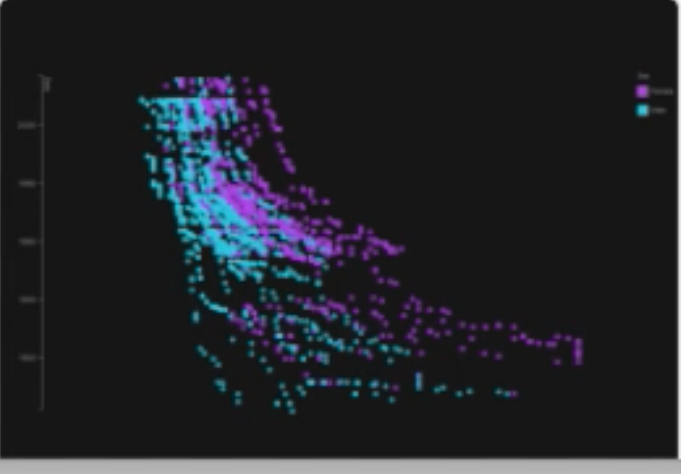
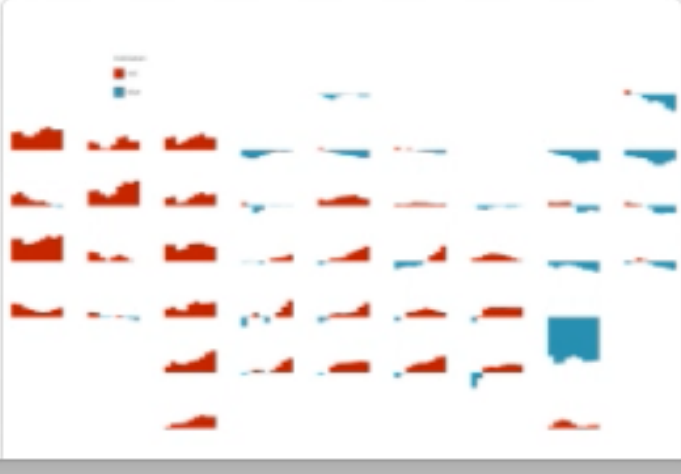
Boston weather in a year



Stephen Few's box plot



Medal counts from the 2012 Olympic Games





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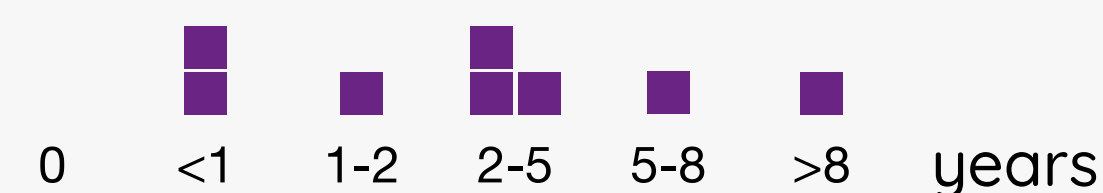
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Re-creation Study

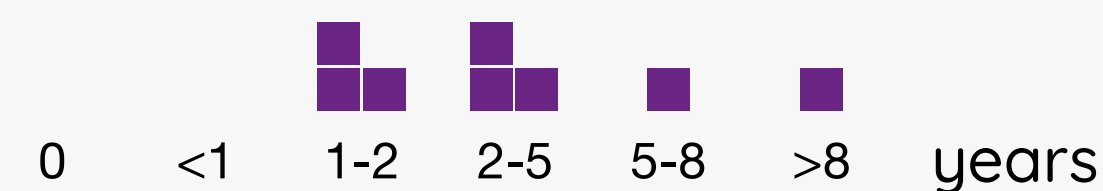
8 designers
(7 male, 1 female)

Study duration:
1.25 hours

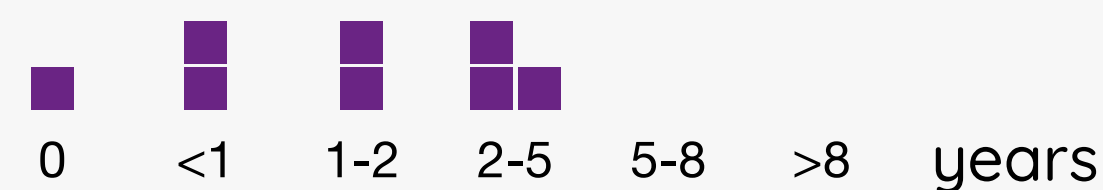
Design experience:



Visualization experience:

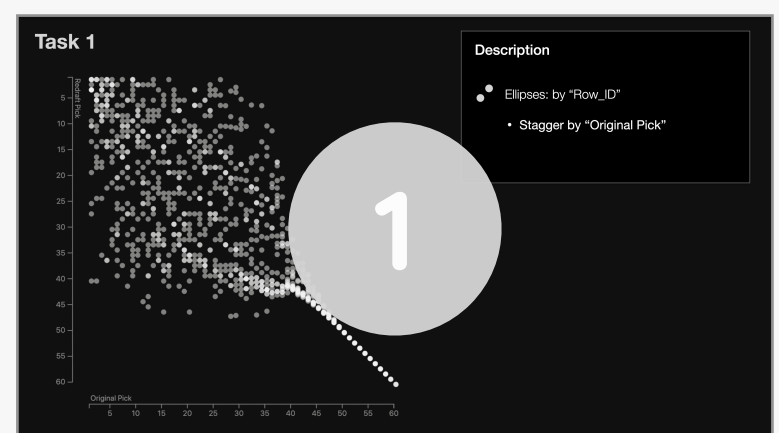


Animation experience:

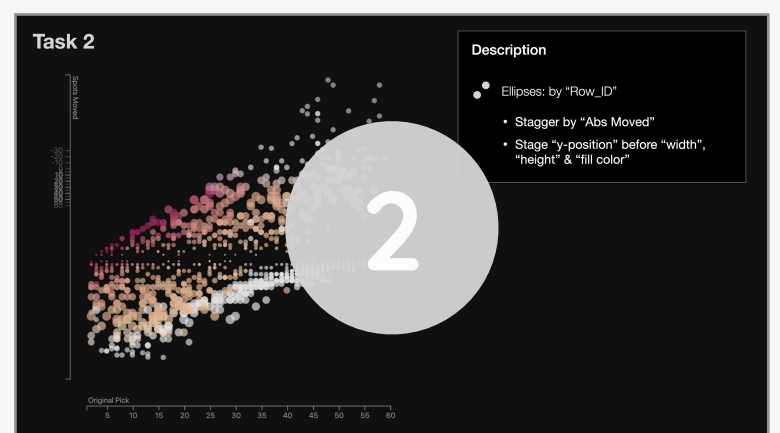


Tutorial session:
~25 minutes

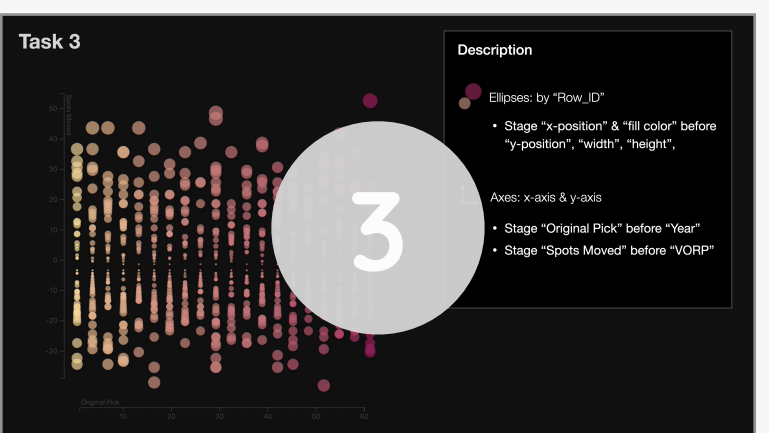
Study Tasks:
6 animated transitions
Provided w/ static visualizations



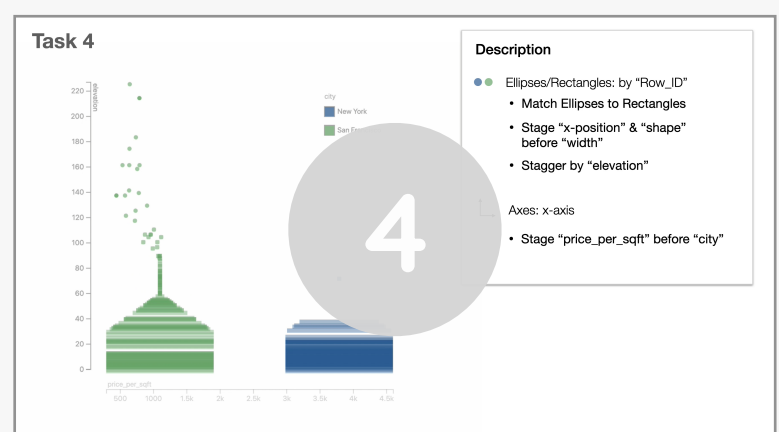
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sd: **00:26**



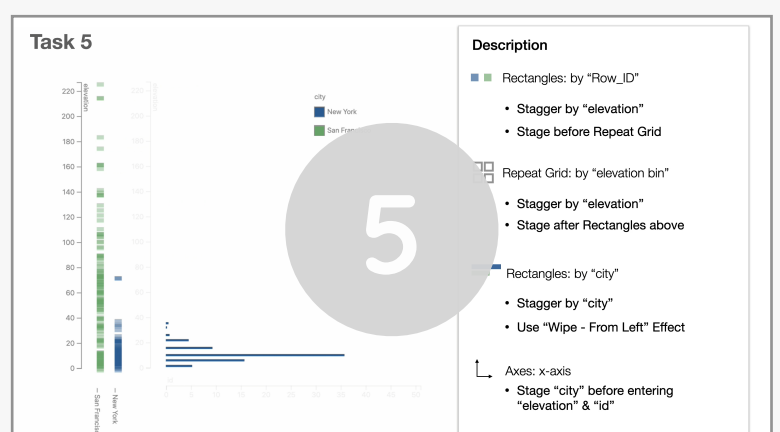
mean: **02:17**
sd: **00:53**



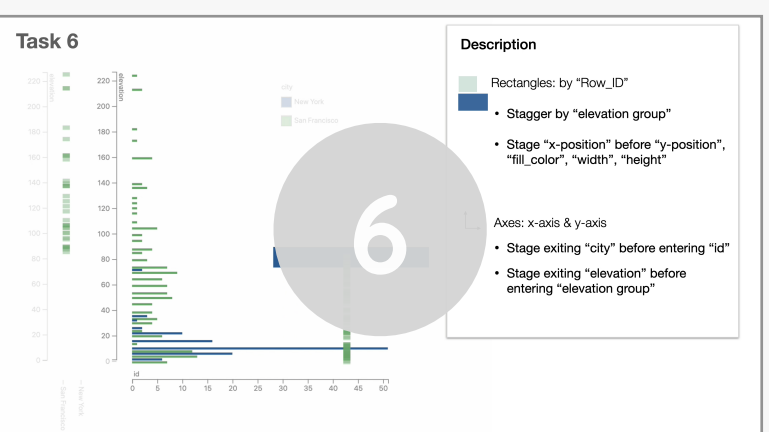
mean: **02:53**
sd: **00:53**



mean: **03:27**
sd: **01:35**



mean: **03:44**
sd: **01:40**



mean: **02:55**
sd: **01:18**



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Georgia Institute of Technology

Leo Zhicheng Liu

University of Maryland
(Adobe Research)

