



Map&Models

Map / Model

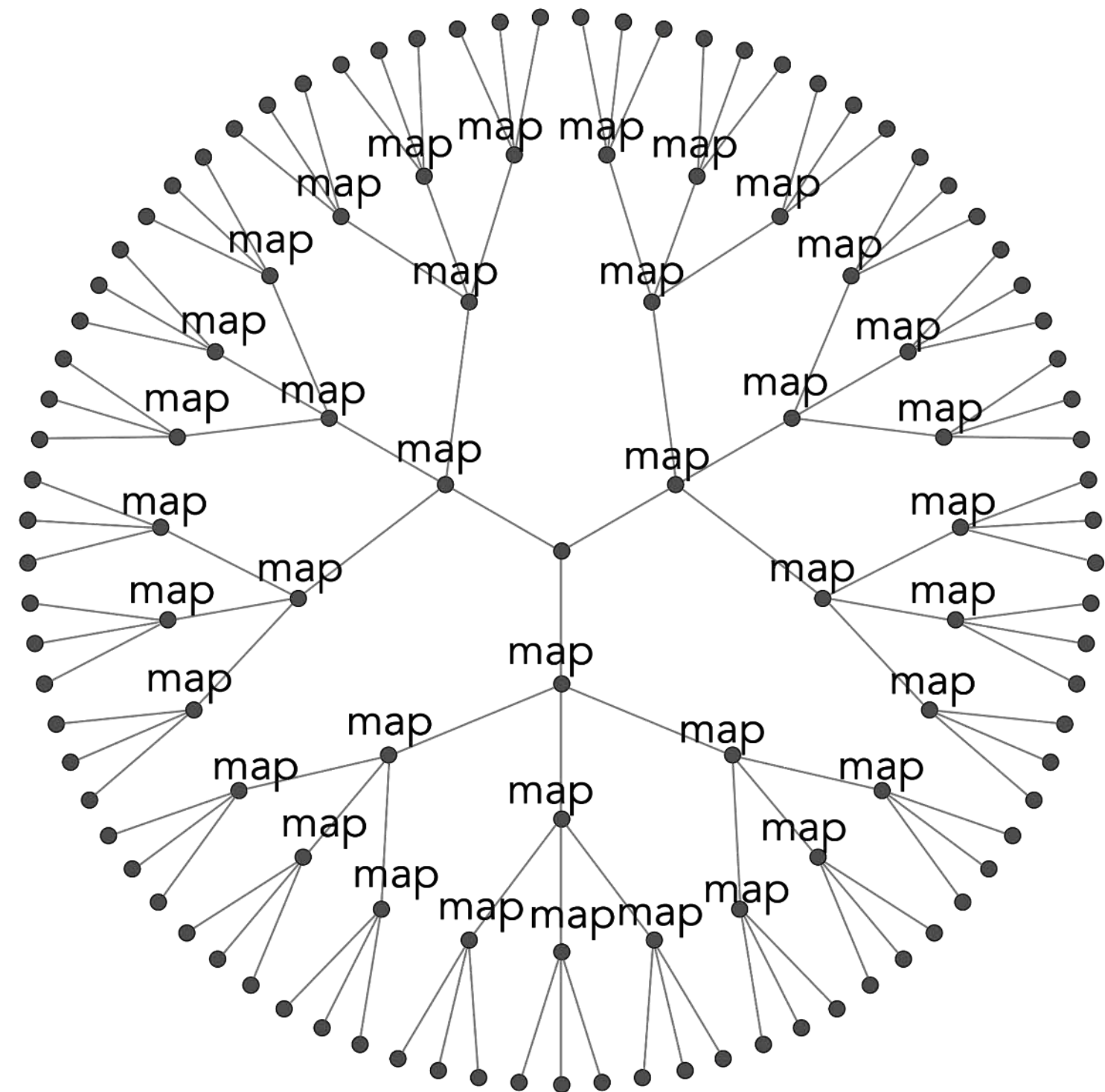
Data / Information

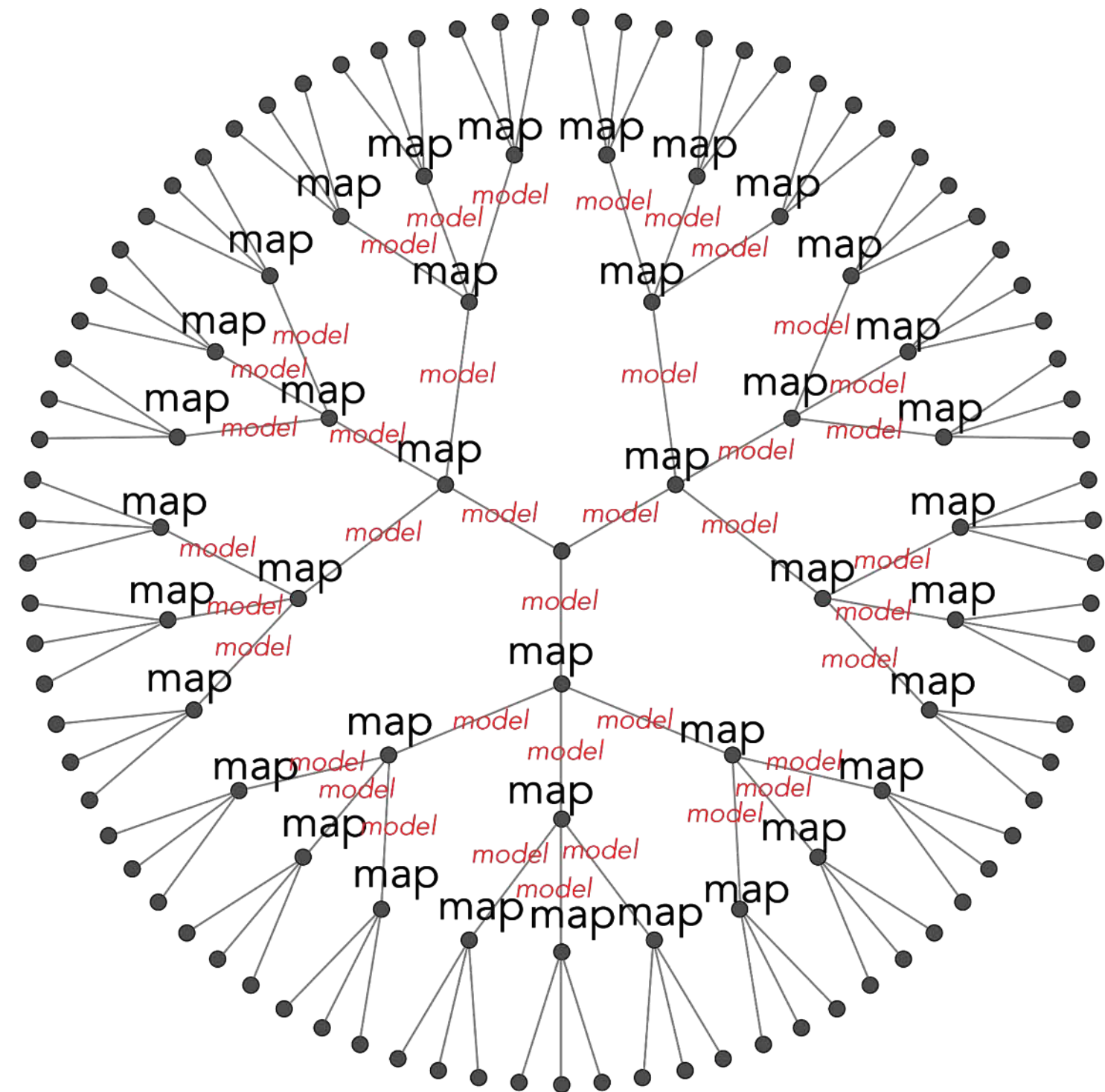
Machine Intelligence / Intelligent Human

Objective / Personal

Numbers / Geometry



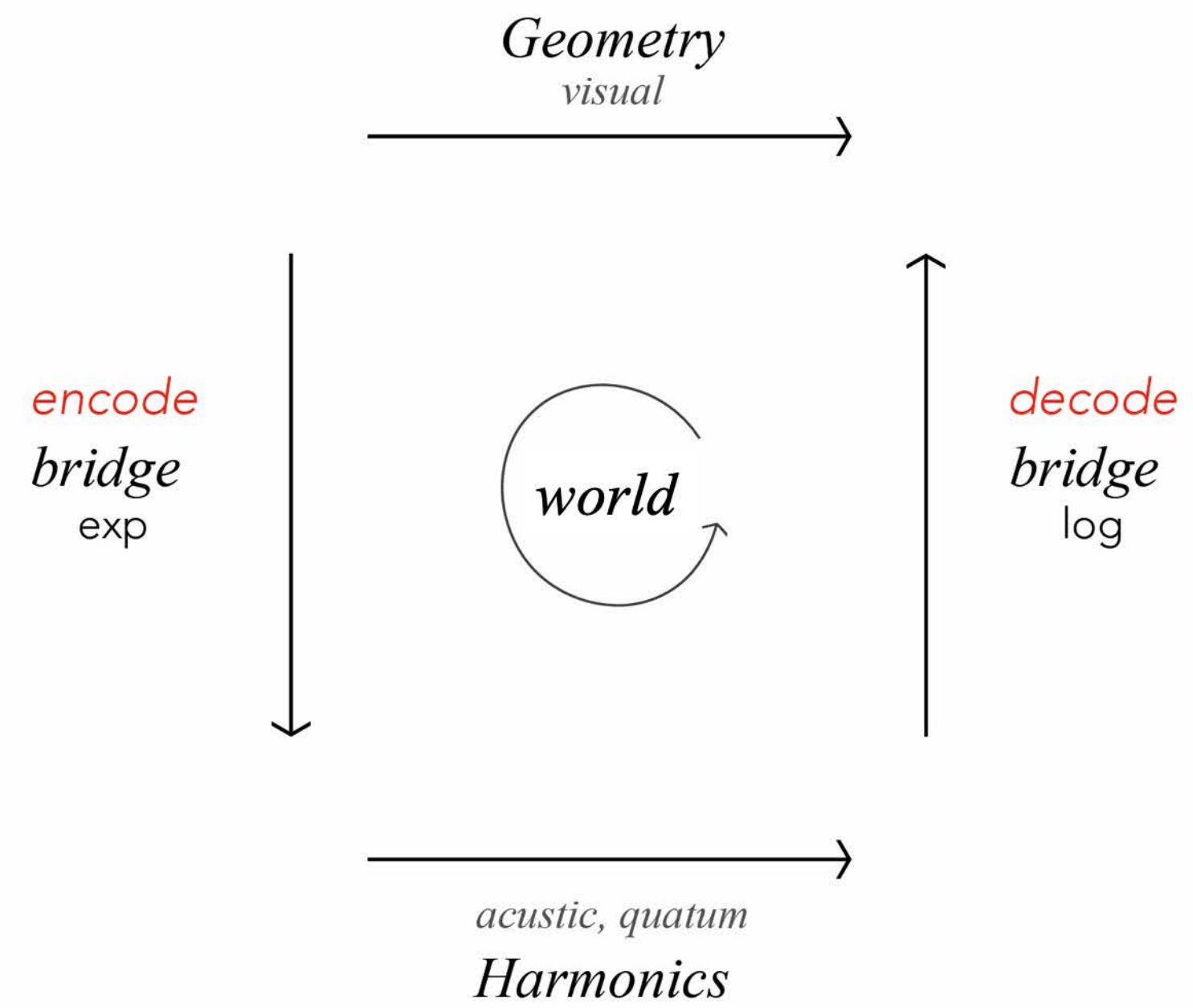




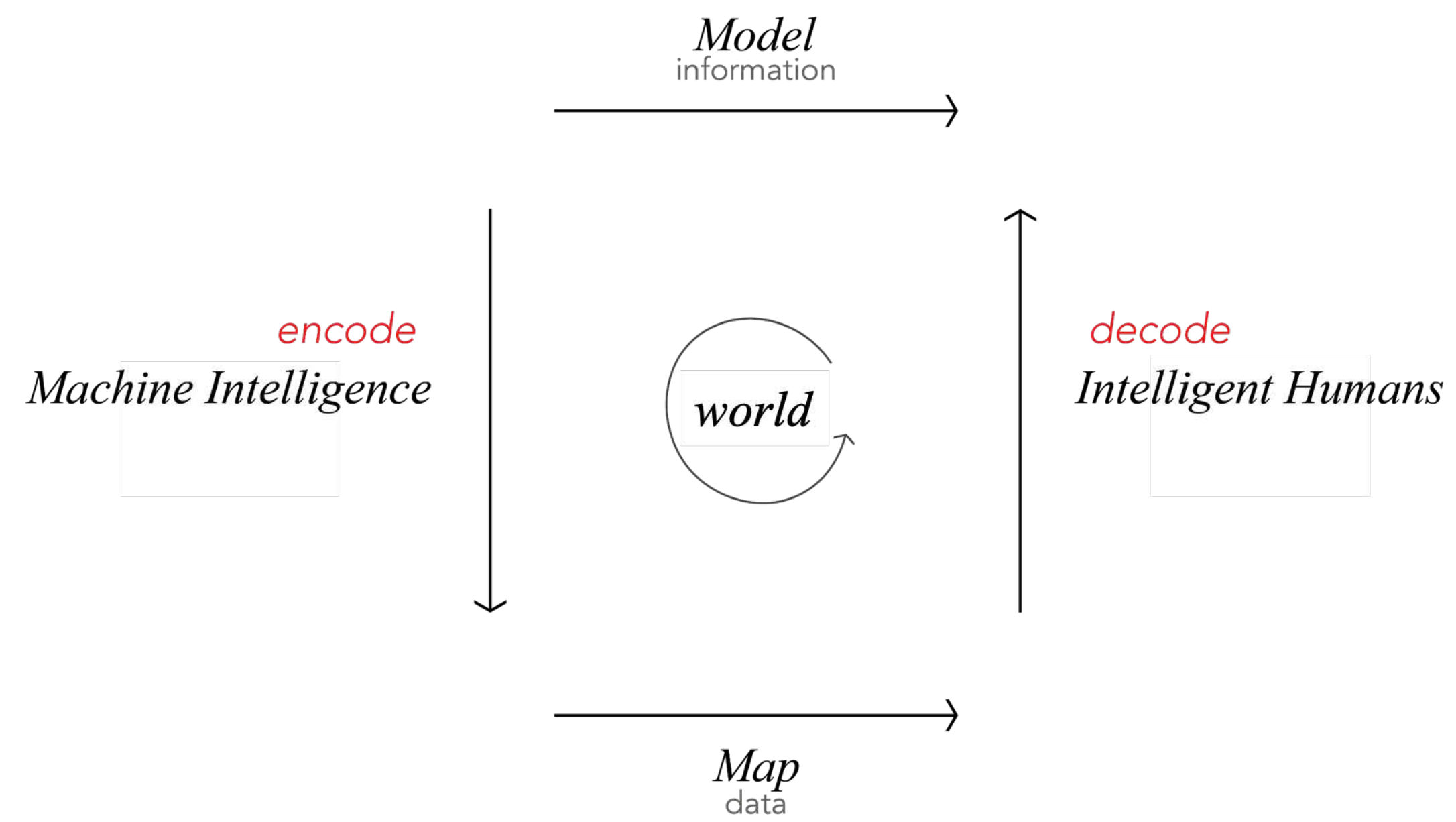
*In that Empire, the Art of Cartography reached such Perfection that the map of a single Province occupied a whole City, and the map of the Empire a whole Province. In the course of time, these Disproportionate Maps were found wanting, and the Colleges of Cartographers **elevated a Map of the Empire that was of the same scale as the Empire and coincided with it point for point.** Less Fond of the Study of Cartography, **Subsequent Generations understood that such an expanded Map was Useless,** and not without Irreverence they abandoned it to the Inclemencies of the Sun and of Winters. In the deserts of the West, tattered Ruins of the Map still abide, inhabited by Animals and Beggars; in the whole Country there is no other relic of the Disciplines of Geography.*

Jorge Luis Borges

Suárez Miranda, *Travels of Prudent Men*, Book Four, Ch. XLV, Lérida, 1658



Model of Natural communication, Elias Zafiris

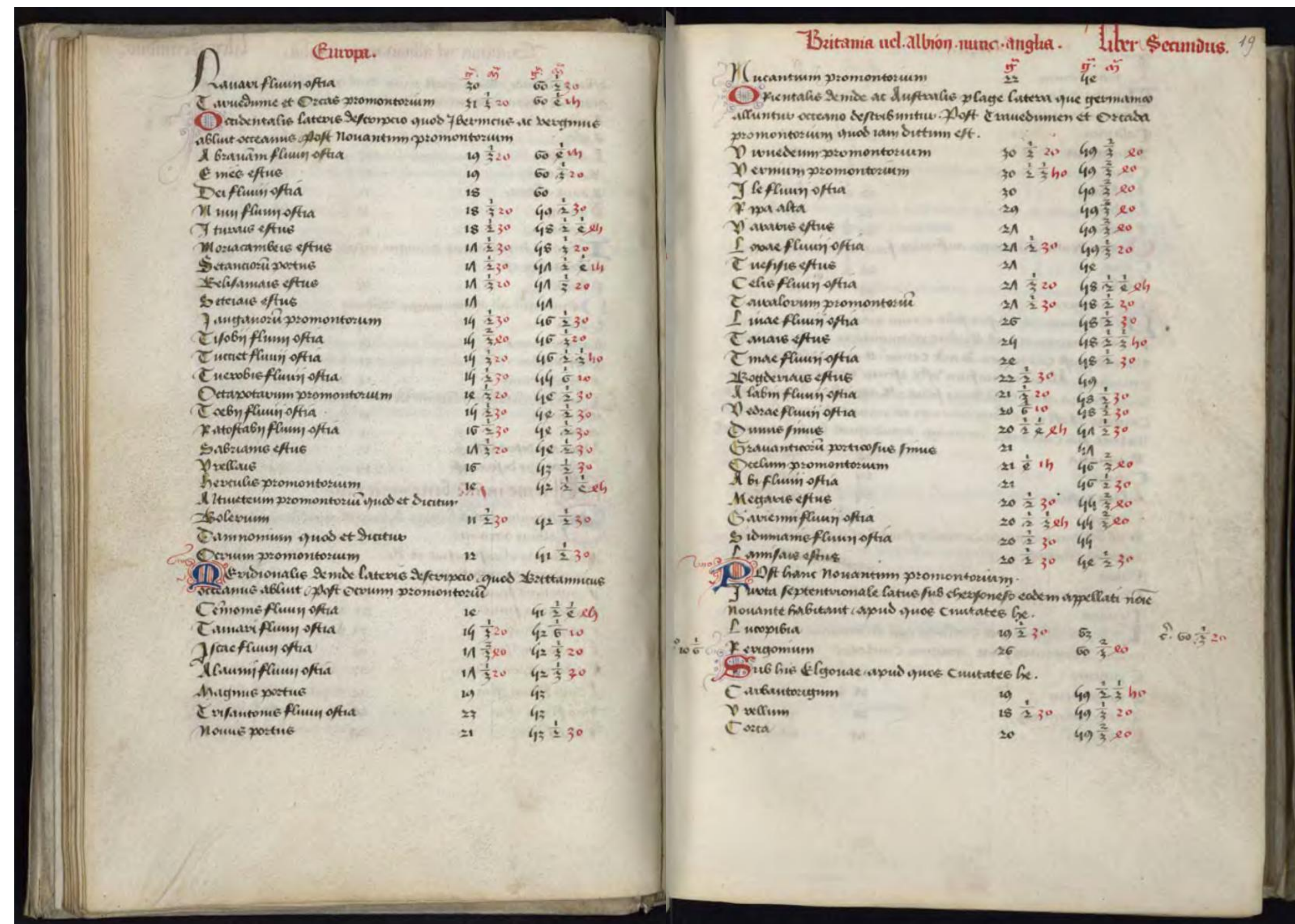


Model of Natural communication, Elias Zafiris

Maps

Eratosthenes teaching in Alexandria by Bernardo Strozzi (1635)



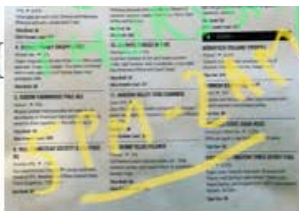


La Cosmographie de Claude Ptolémée, avec 27 cartes de Claus Clausson Swart. Manuscrit copié sur la demande de Guillaume Fillastre, cardinal de Saint Marc


Sex ratio (males per 100 females)	96.6
Population aged 0 to 14 years old (percentage)	18.3
Population aged 60+ years old (percentage)	25.
Population density	117.7
Surface area (thousand km2)	552
Population mid-year estimates (millions)	0.27
Population mid-year estimates for males (millions)	0.13
Population mid-year estimates for females (millions)	0.13
Sex ratio (males per 100 females)	100.
Population aged 0 to 14 years old (percentage)	33.9
Population aged 60+ years old (percentage)	7.9
Population density	3.3
Surface area (thousand km2)	84
Population mid-year estimates (millions)	0.28
Population mid-year estimates for males (millions)	0.14
Population mid-year estimates for females (millions)	0.14
Sex ratio (males per 100 females)	104.
Population aged 0 to 14 years old (percentage)	23.9
Population aged 60+ years old (percentage)	11.1
Population density	75.9

Maps of today

{40.6845, -73.9651}}, {




We are open Thursday for Thanksgiving.
m to 2am.
great tap list as usual. Long
list of Ciders and Mead and of course Whiskeys.
eermenus #craftbeer #clintonhill #brooklyn... , {40.6845, -73.9651}}




\$14.99
prime | FREE One-Day
Get FREE delivery Tomorrow if you order \$35 of qualifying items within 22 hrs and 5 mins and choose this date at checkout. Details

You like spicy, flavorful, natural and fresh condiments? Fresh condiment?? What? Yes I use Fresh ingredients to make my Food Snob Inc Harissa the way a grandma in Nabeul Tunisia did when... ,



{40.6845, -73.9651}}, {

Lobster Mac aka BK Claw aka Heaven in a tray
📱📱📱 Make sure you place your order for the Holidays. We will be open in Thanksgiving day From 8am-noon for pre orders. Please call 718-230-0727... ,



A large, multi-story building under construction or renovation, with scaffolding and workers visible. The building is surrounded by trees and a street with a white van and other vehicles. The scene is in a city, likely Zhangjiakou, China.





1459



1525



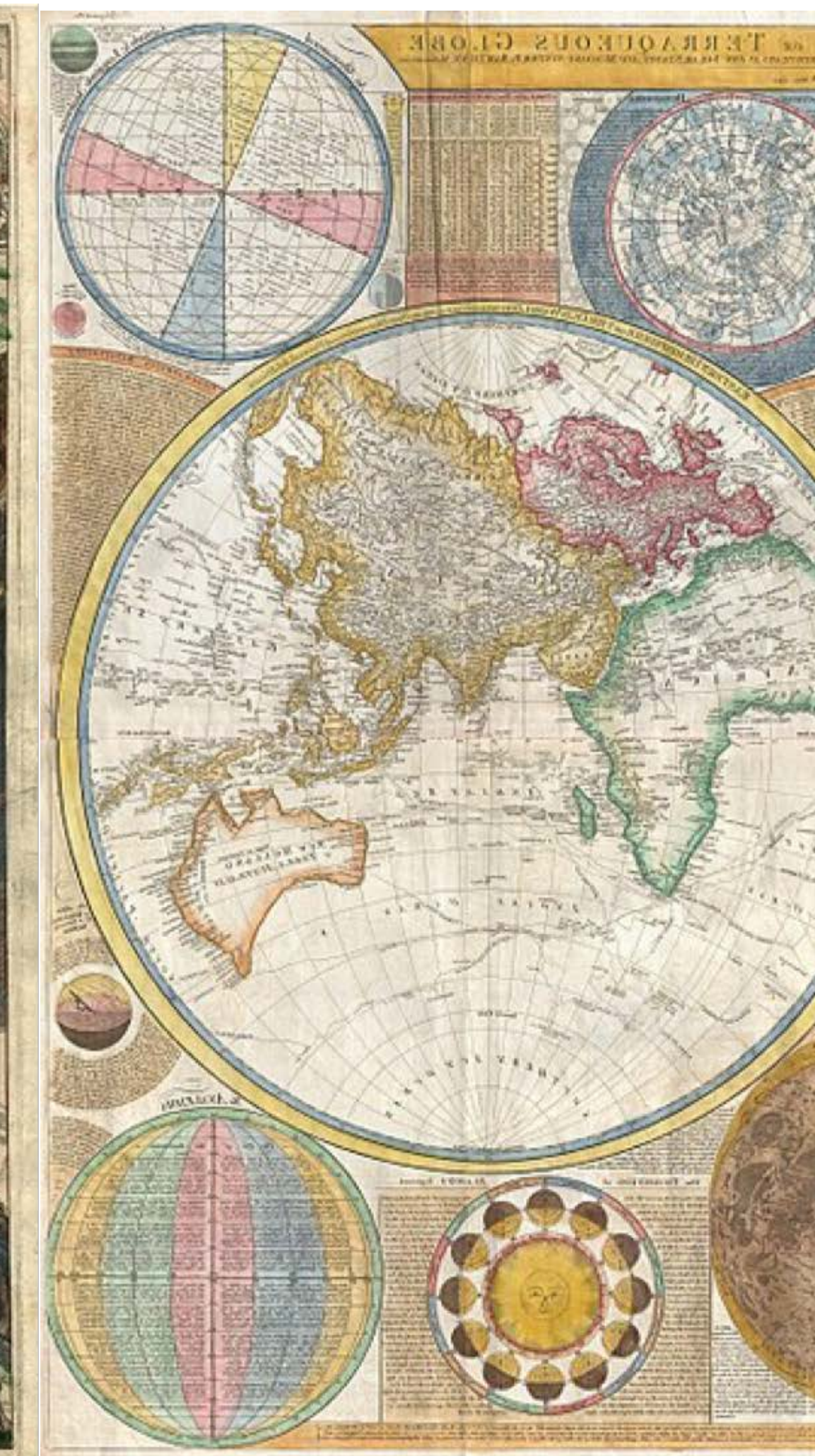
1597

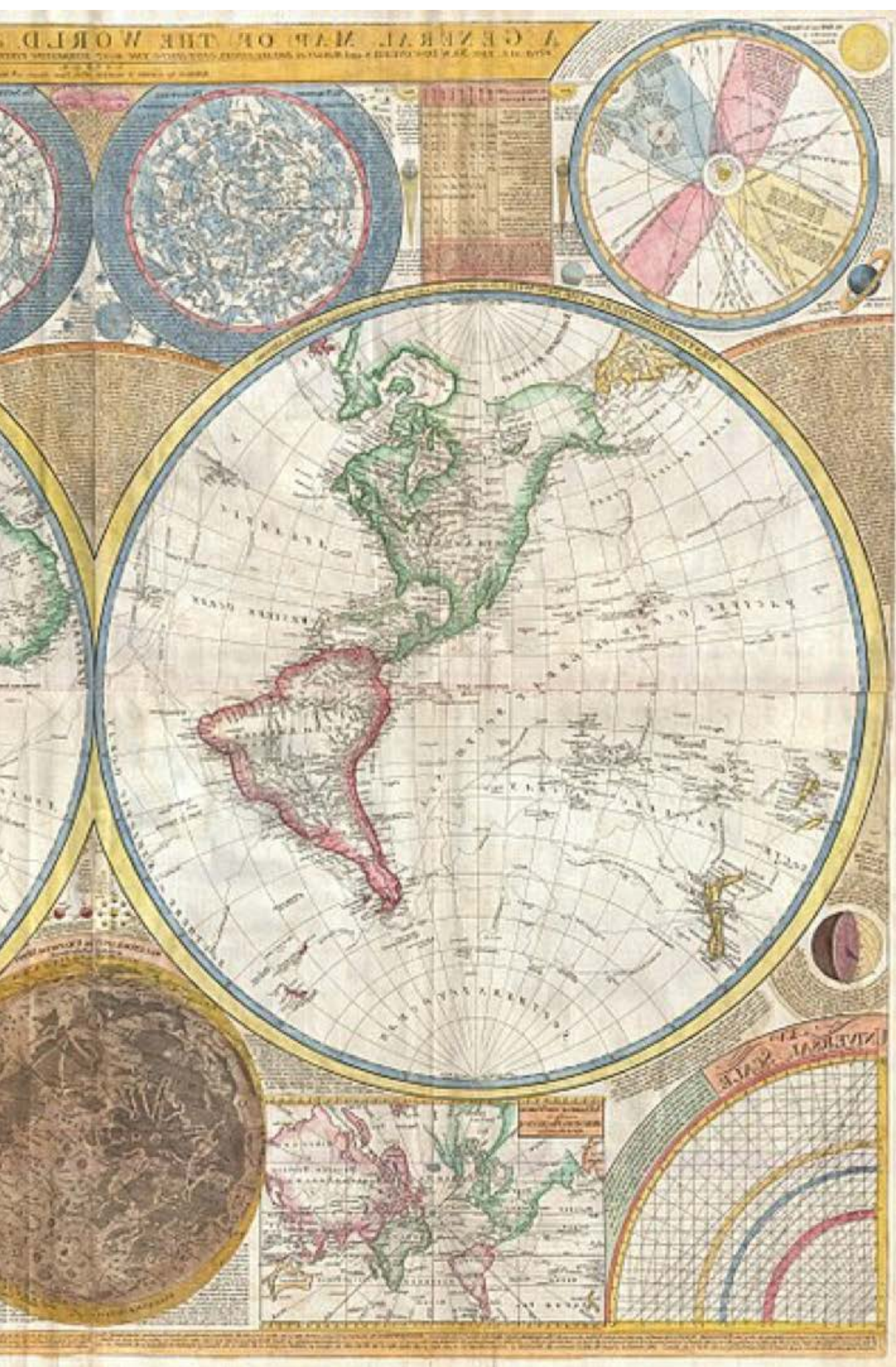


1658



1689





1794

1834



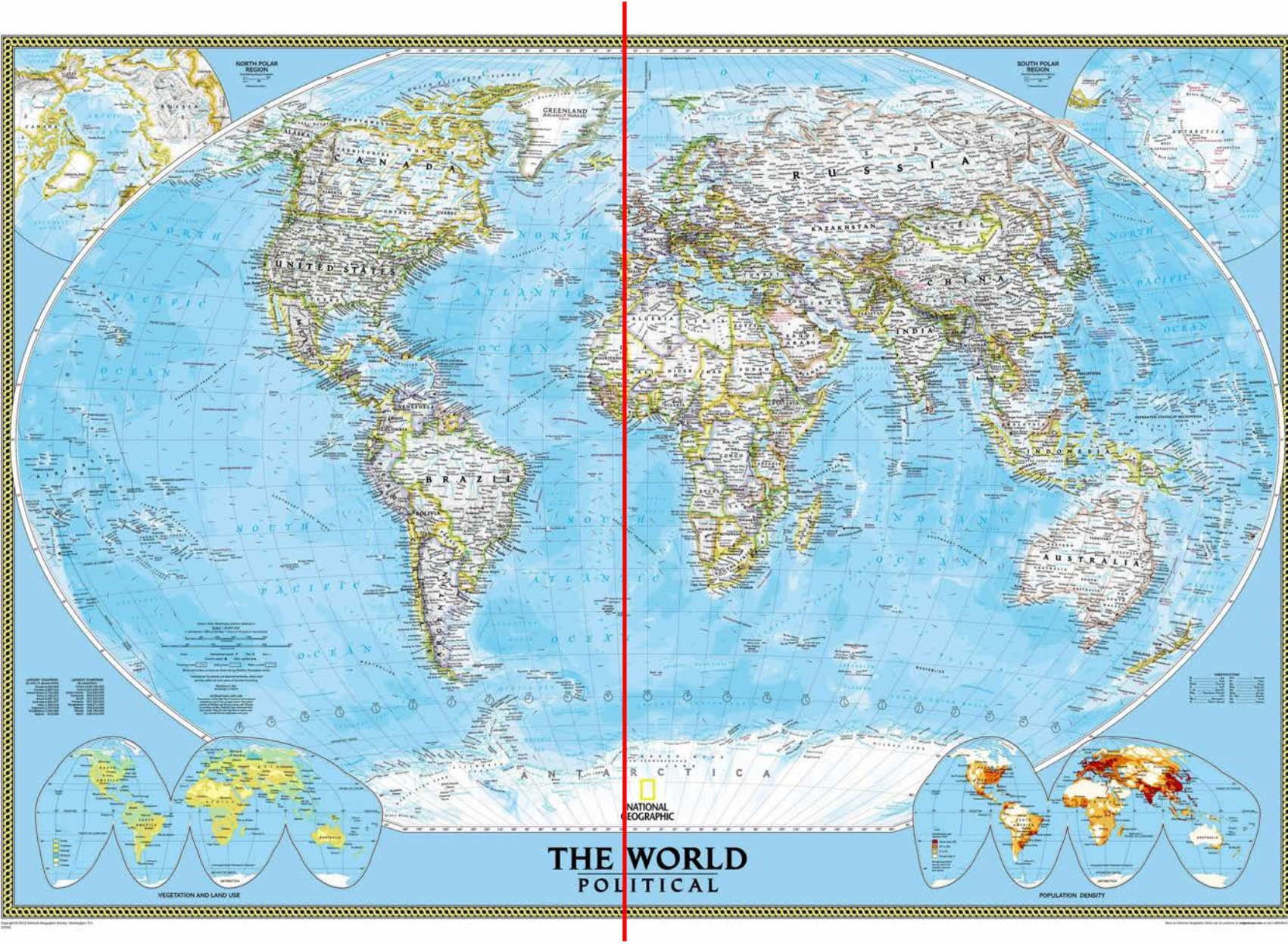
USA



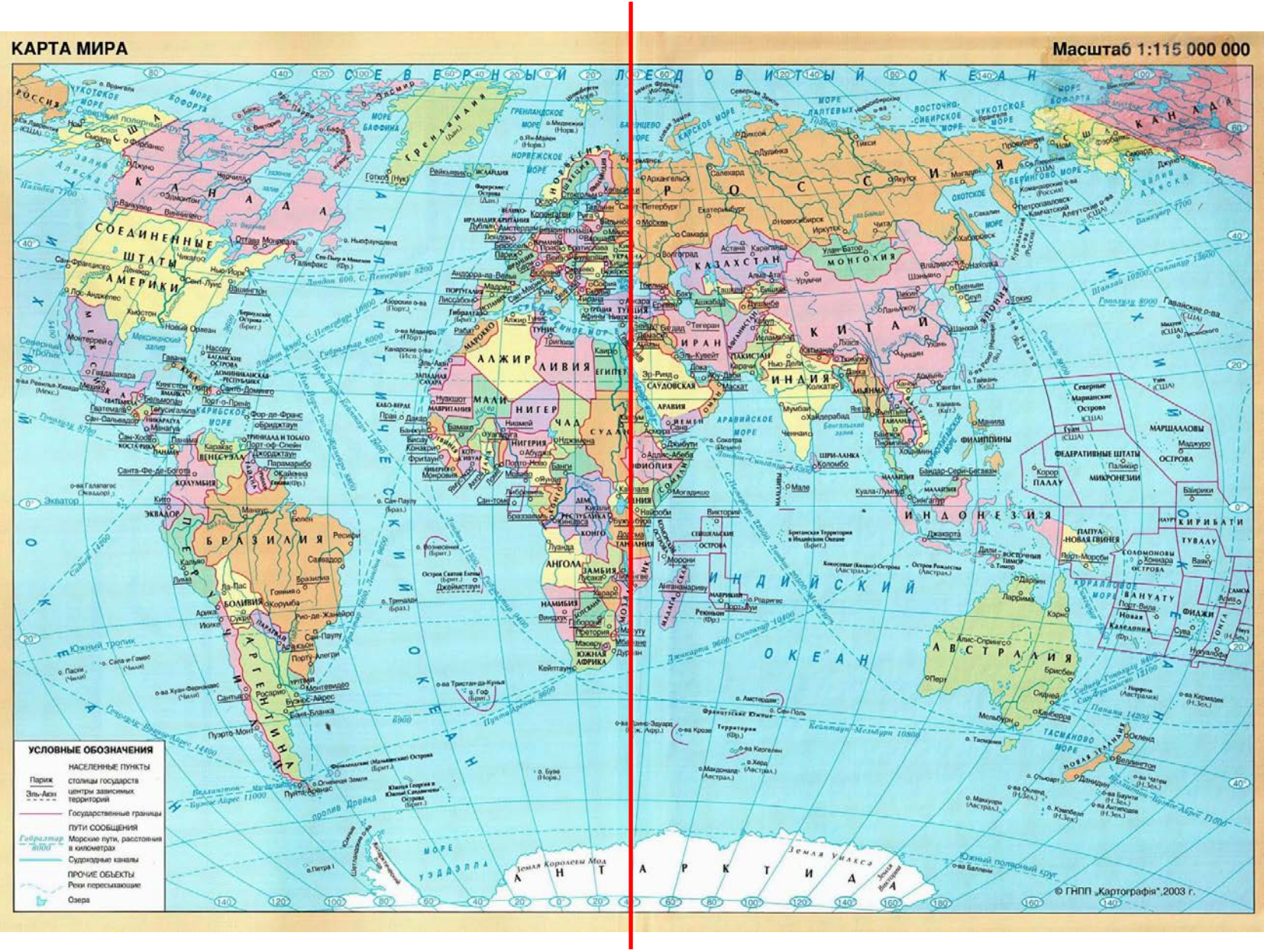
RUSSIA



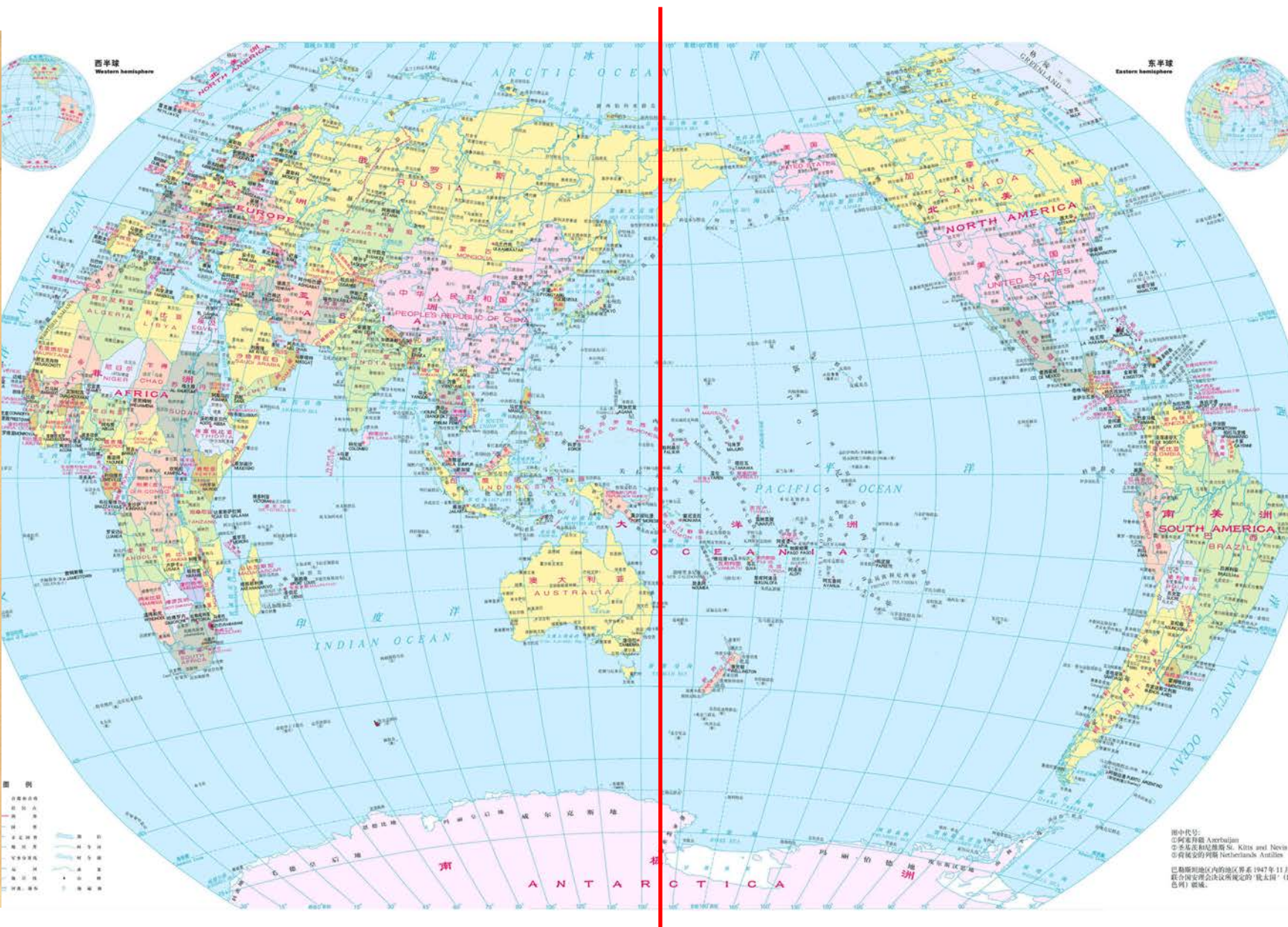
CHINA



USA



RUSSIA



CHINA

Surveyors and cartographers

Surveyors determine exact angles and distances between surfaces and elevated points above and underneath the planet. To settle boundary disputes, surveyors review legal documents, **collect evidence** detailing prior boundary lines, and review **survey data** to verify boundaries. Moreover, surveyors prepare reports of their surveys, **review data for accuracy, and mark off land for plots**. Surveyors specializing in determining boundaries are required to receive a license in the state where they make these determinations.

Cartographers utilize various methods to **create** accurate maps. Cartographers gather **and review spatial data**, longitude and latitude, for example, or nonspatial data, which can include population and geographic information. **Cartographic professionals develop maps** detailing human or physical characteristics. To create maps, cartographers utilize aerial photos, information acquired from satellites, or surveys.

An aerial photograph of a city, likely Barcelona, showing a dense, grid-like street pattern. The city is situated along a coastline with a dark blue sea. To the left, there are green, hilly areas. The text "a model of today" is overlaid in the center of the image.

a model of today



Maps and models *in architecture*

Leonardo da Vinci, Perspective study for the background of the Adoration of the Magi, 1481 (Dover)

“Architecture is the art of jointing things together”

***The knowledge of the architect is** furnished with many disciplines and various kinds of learning. Judiciously exercised, it demonstrates everything the other arts achieve. It is **brought into being by fabrica and ratiocinatio**. **Fabrica** is the continuous and routine practice of the activity the hands accomplish out of matter; its off spring **is a work whose form is in keeping with its intended purpose**. **Ratiocinatio is what can show how**, and explain to what degree, things have been made with skill and calculation.*

Vitruvius

c. 80–70 BC – after c. 15 BC

Instrument of communication

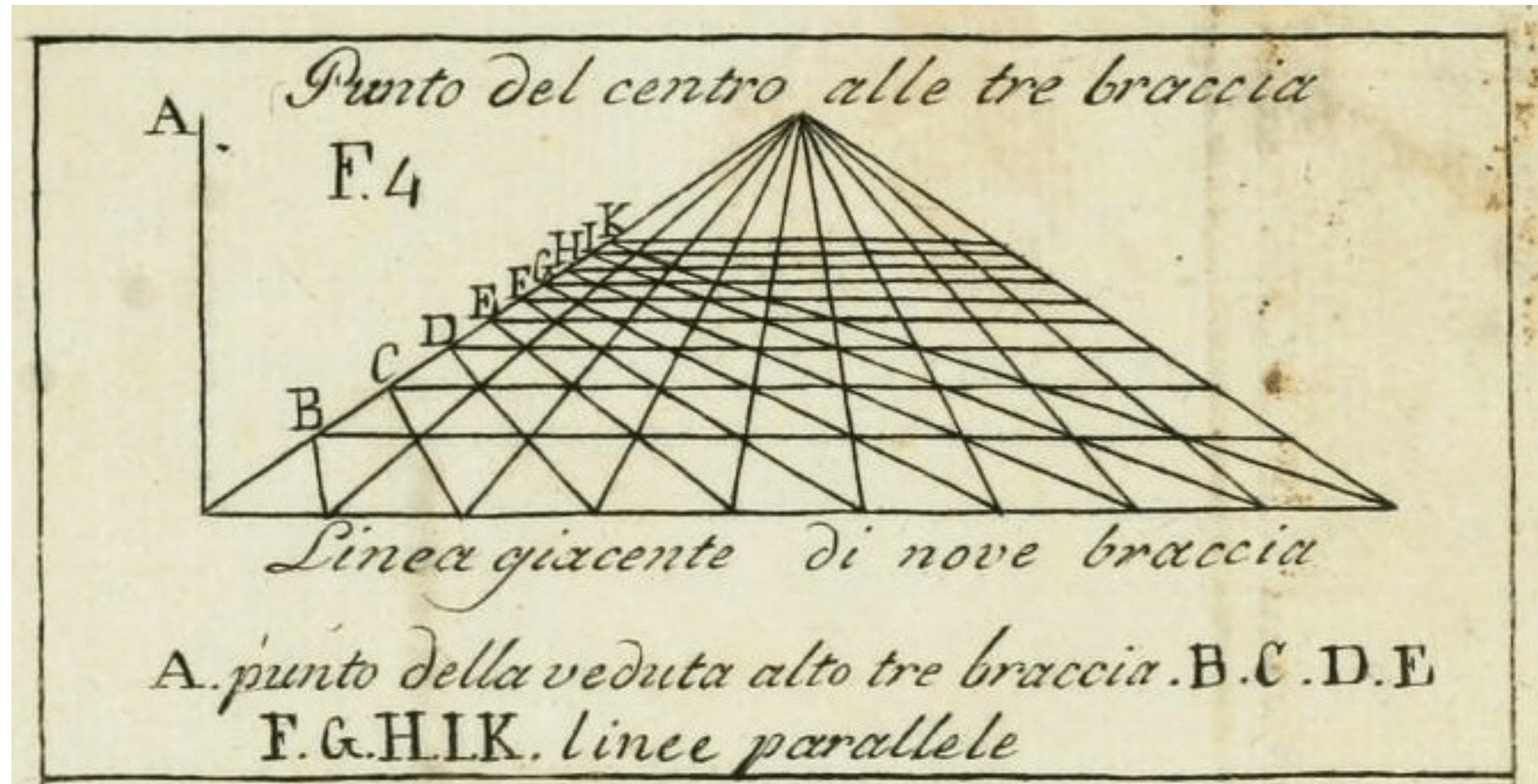
Ruler and compass, *Greek*



*“I will take first from the **mathematicians**
those things with which my subject is
concerned”*

Alberti, *Della pittura*

1404 – 1472 BC



This treatise (*Della pittura*) was also known in Latin as *De Pictura*, and it relied in its scientific content on classical optics in determining perspective as a geometric instrument of artistic and architectural representation.

Instrument of communication

Perspective, *Renaissance*

Albrecht Dürer, Mechanical creation of a perspective image



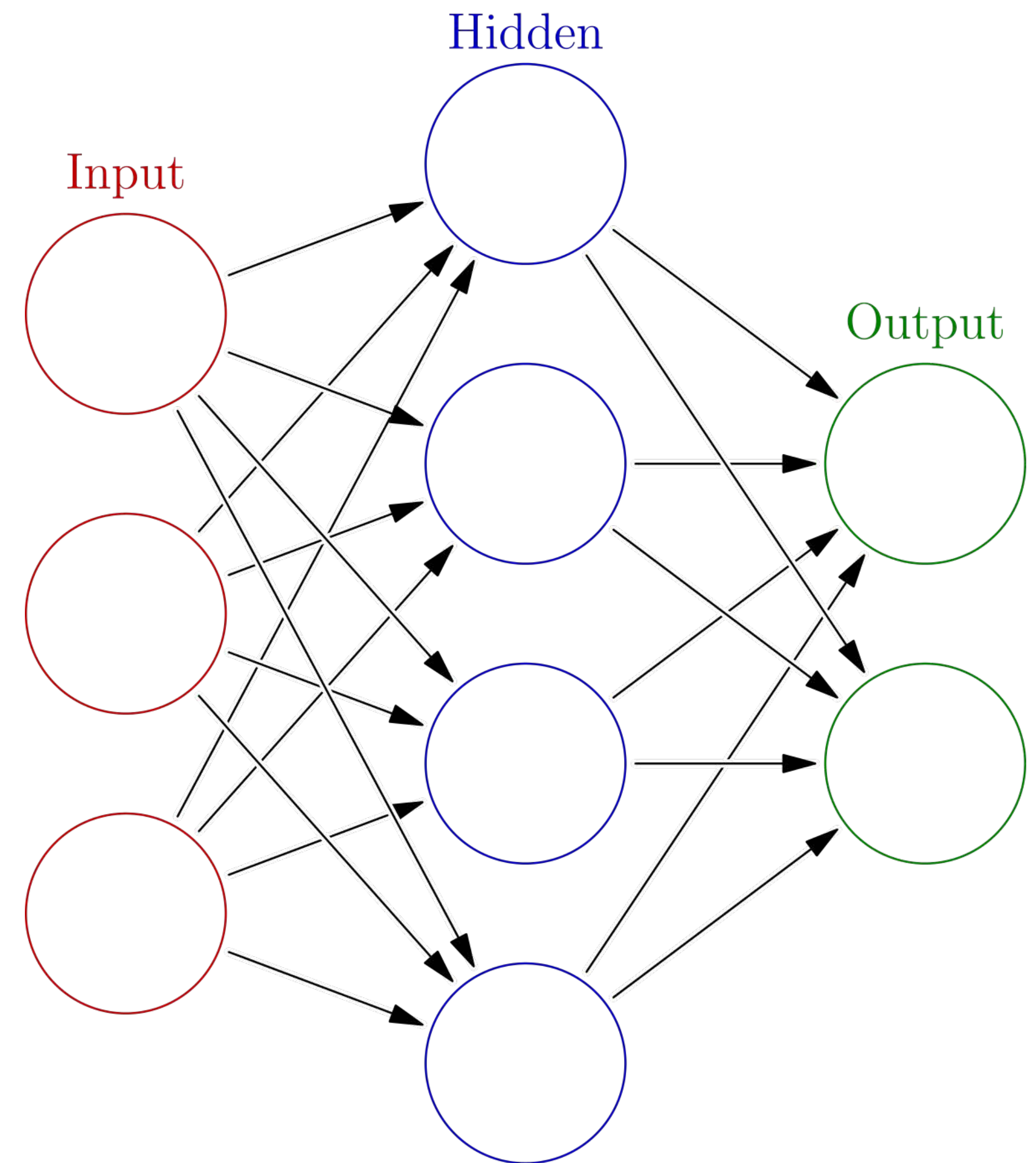
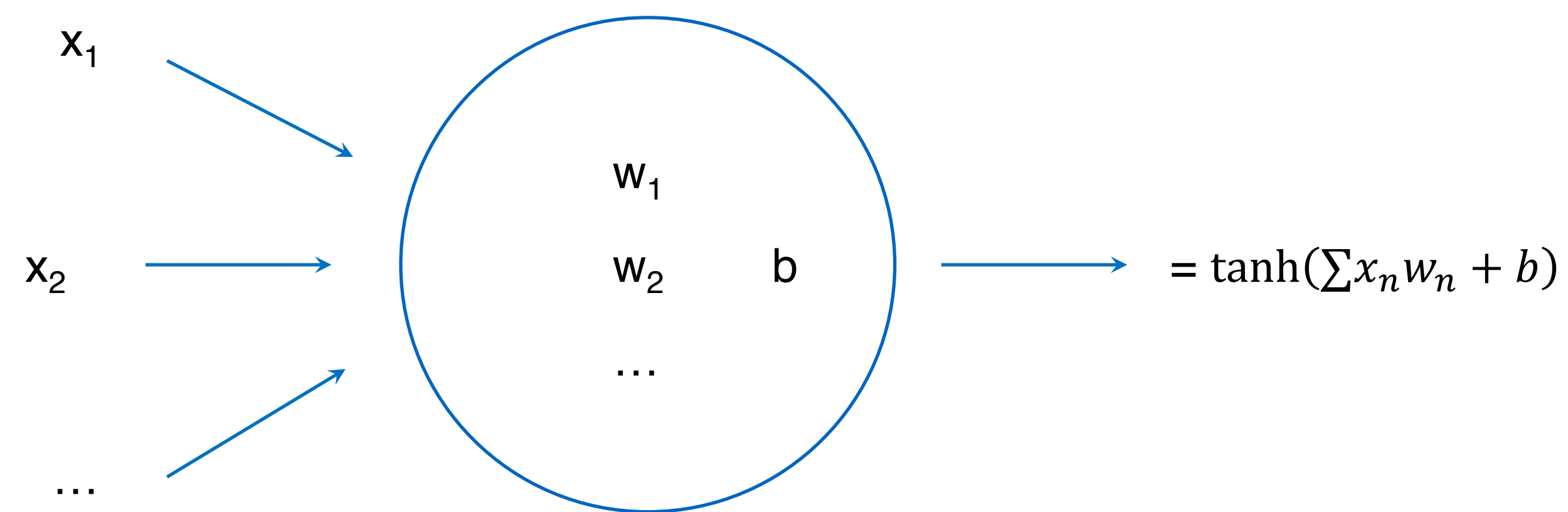
What are the
instruments of today?

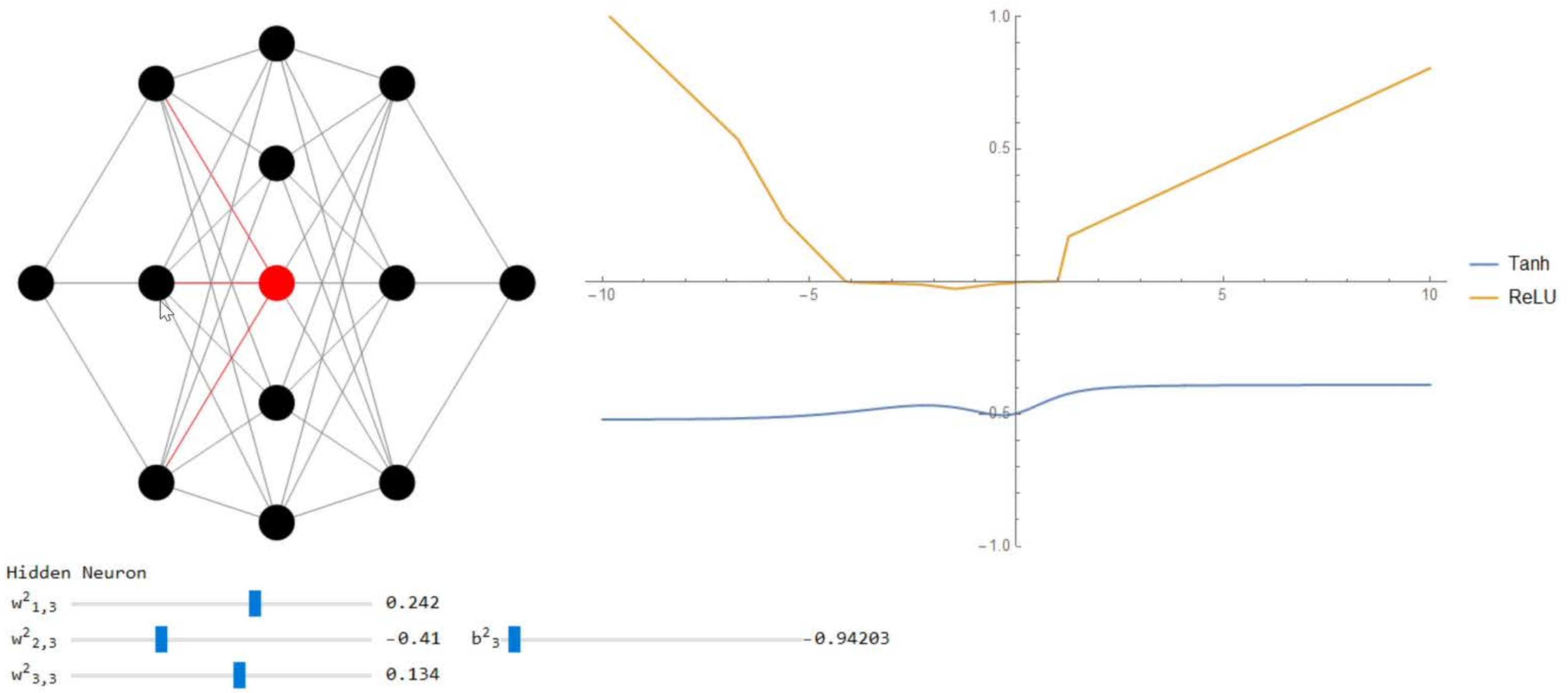
Machine Learning, *the ruler of digital age*

Machine Intelligence reads the “skeleton” for the numbers

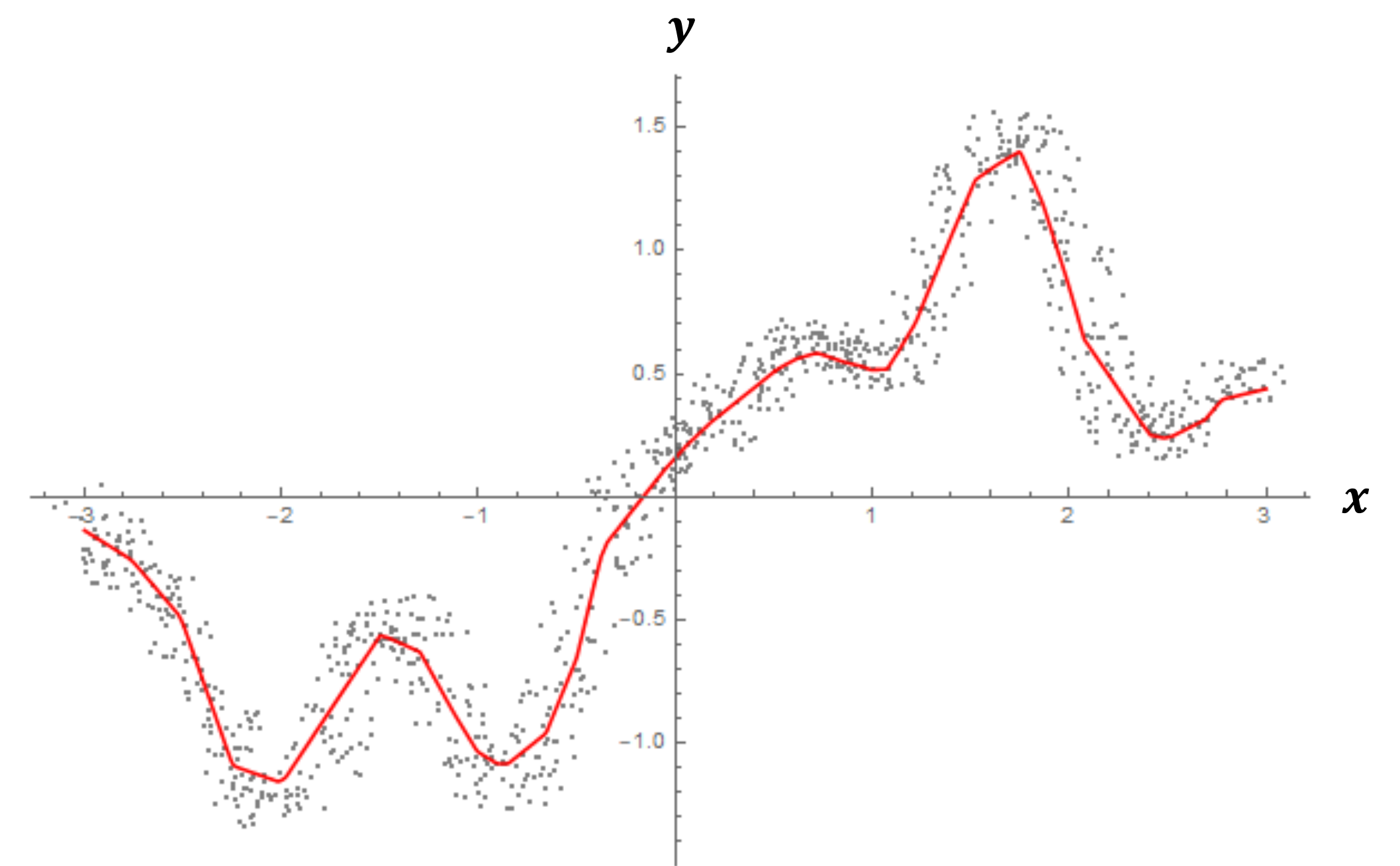
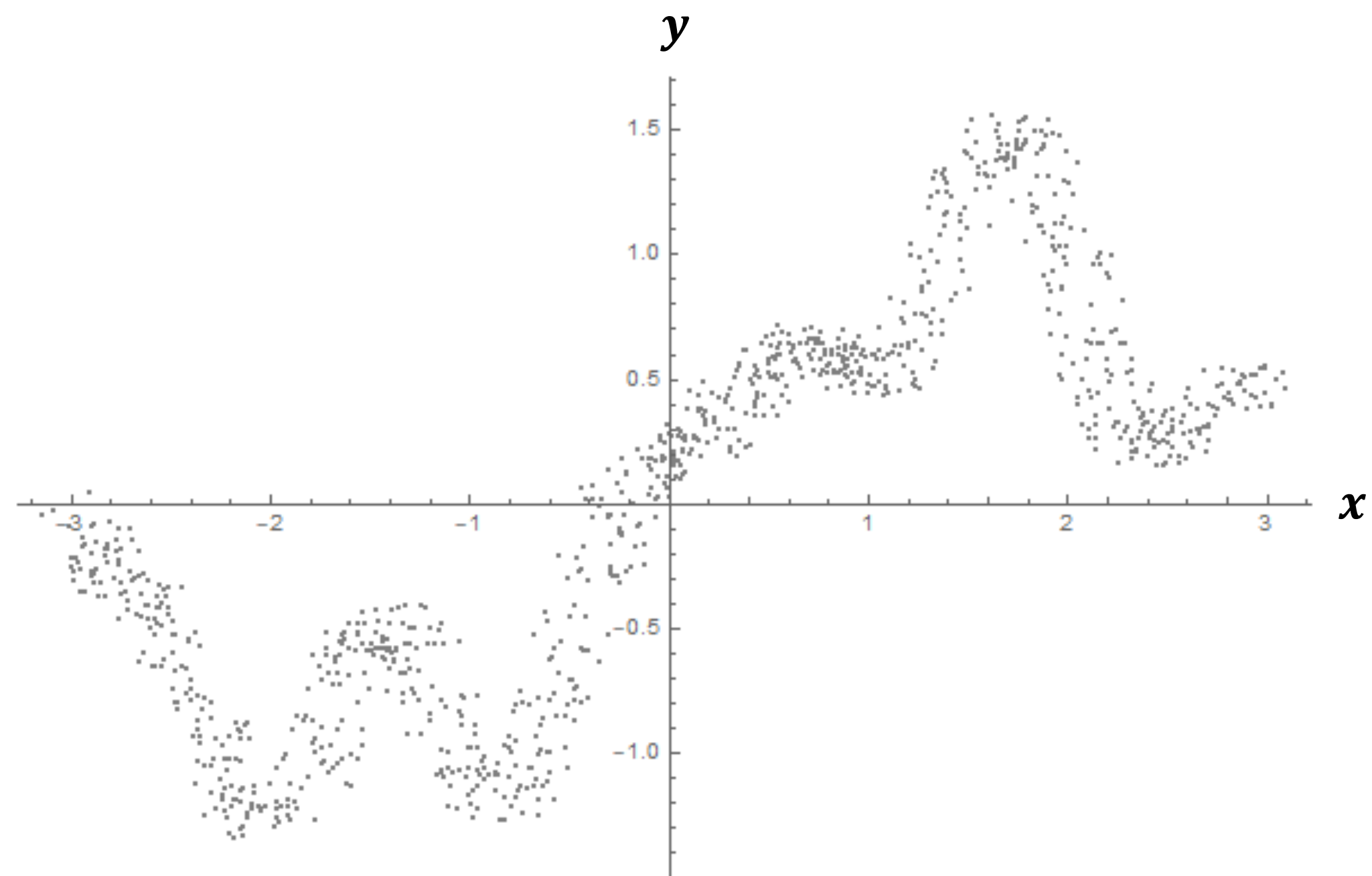
Neural Networks

Skeleton made by nested operations





A machine for any curve

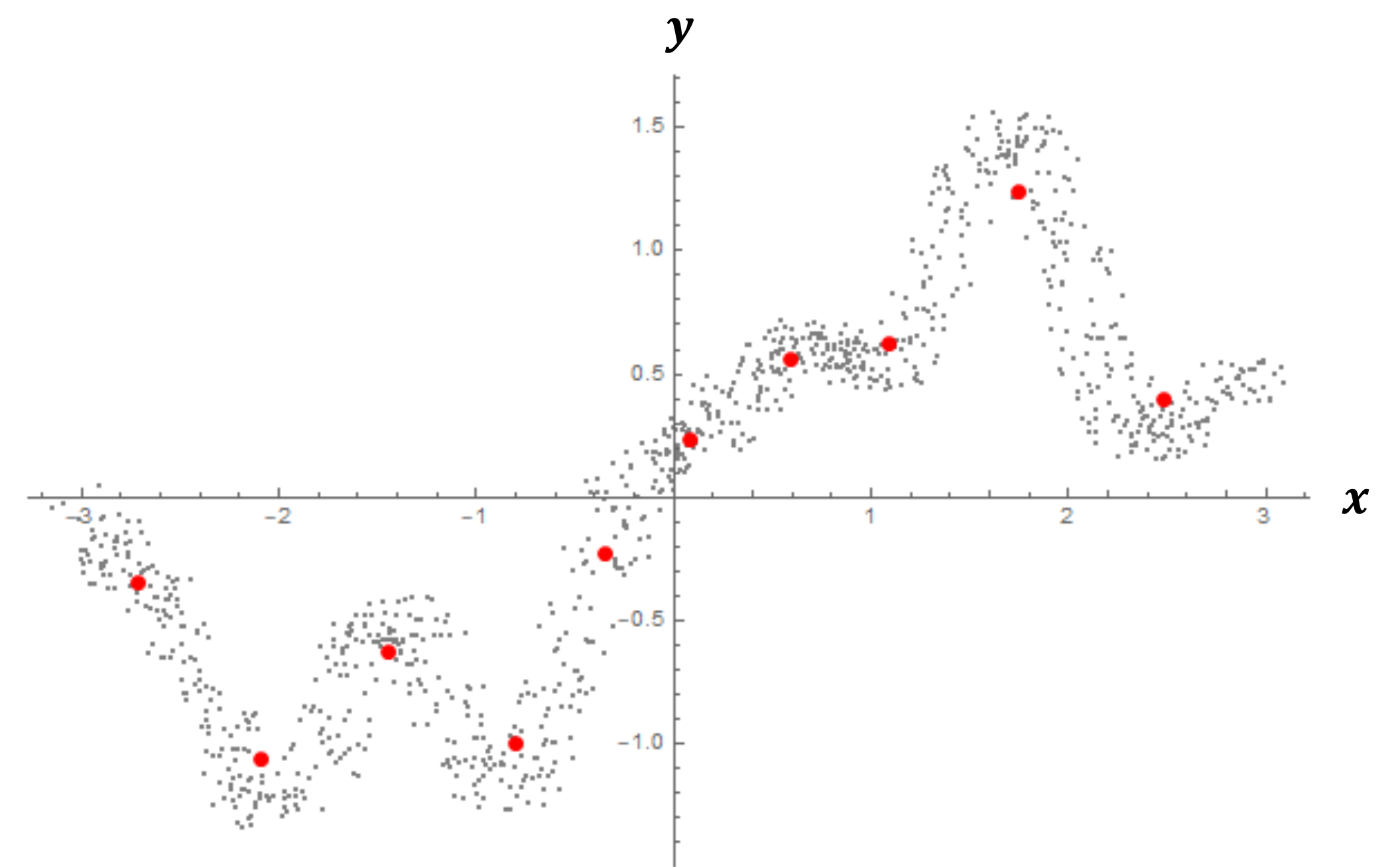
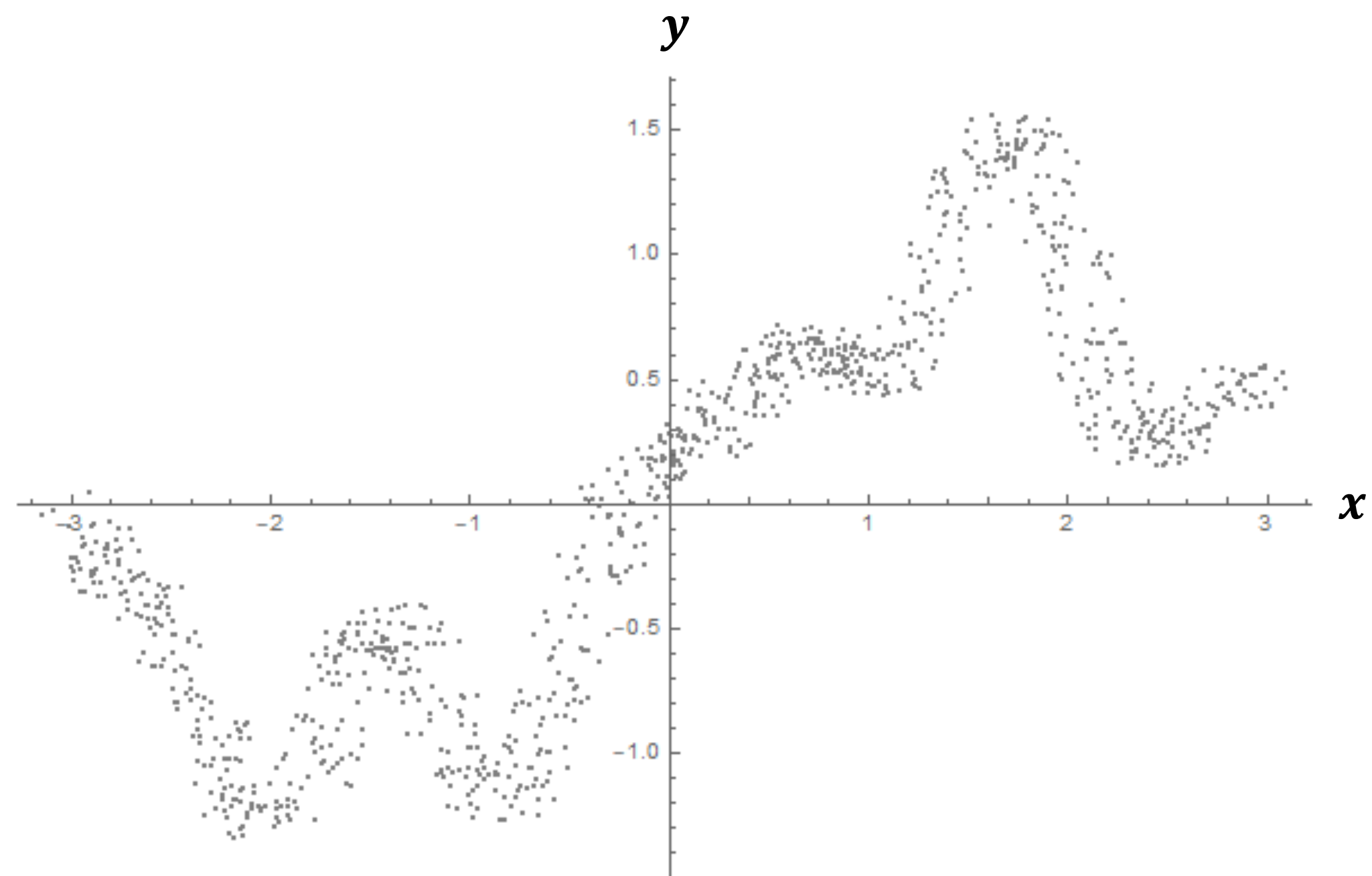


$$y = f(x)$$

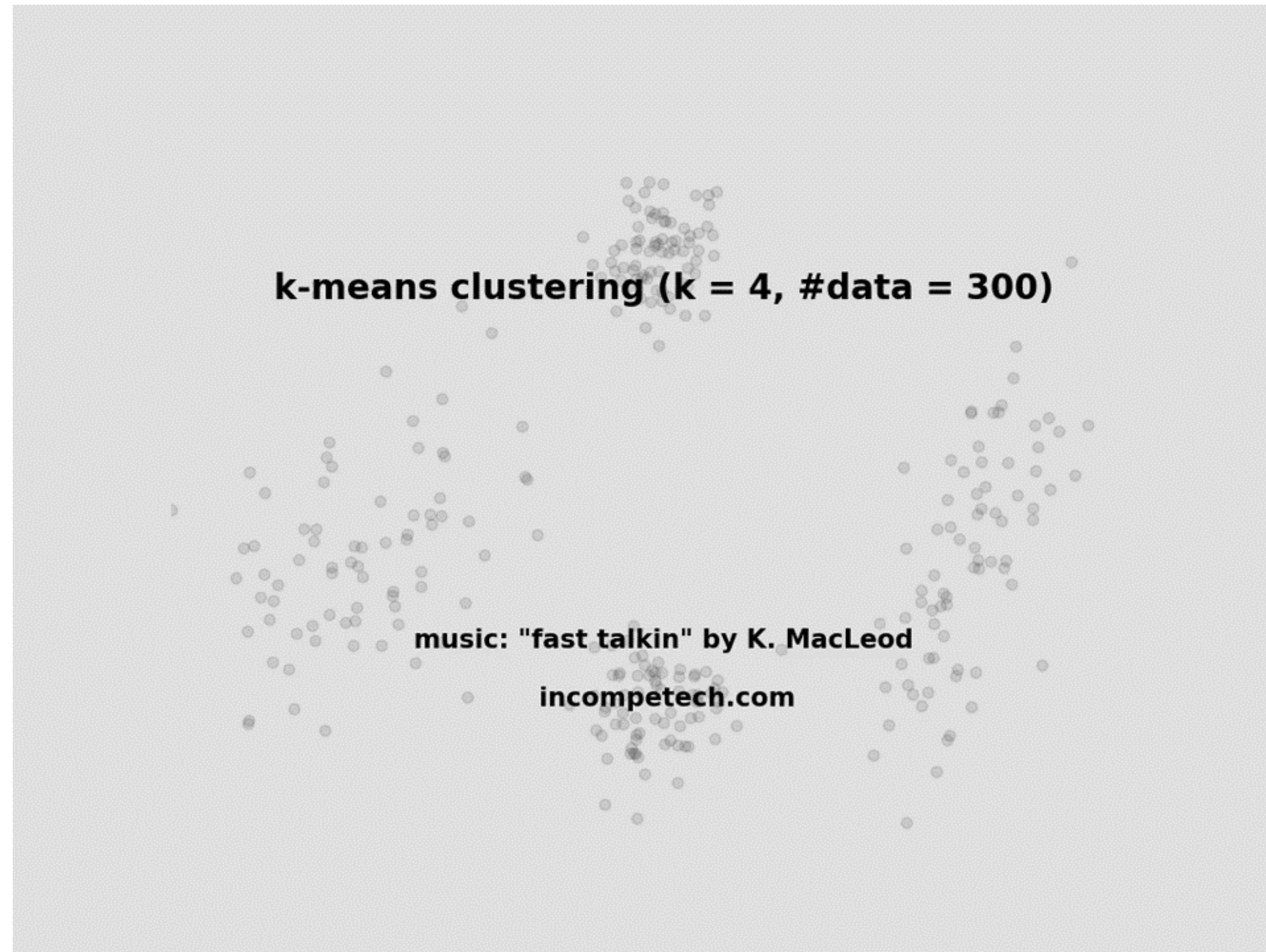
Curve that come from the numbers

K-Means & Self-Organizing Map (SOM)

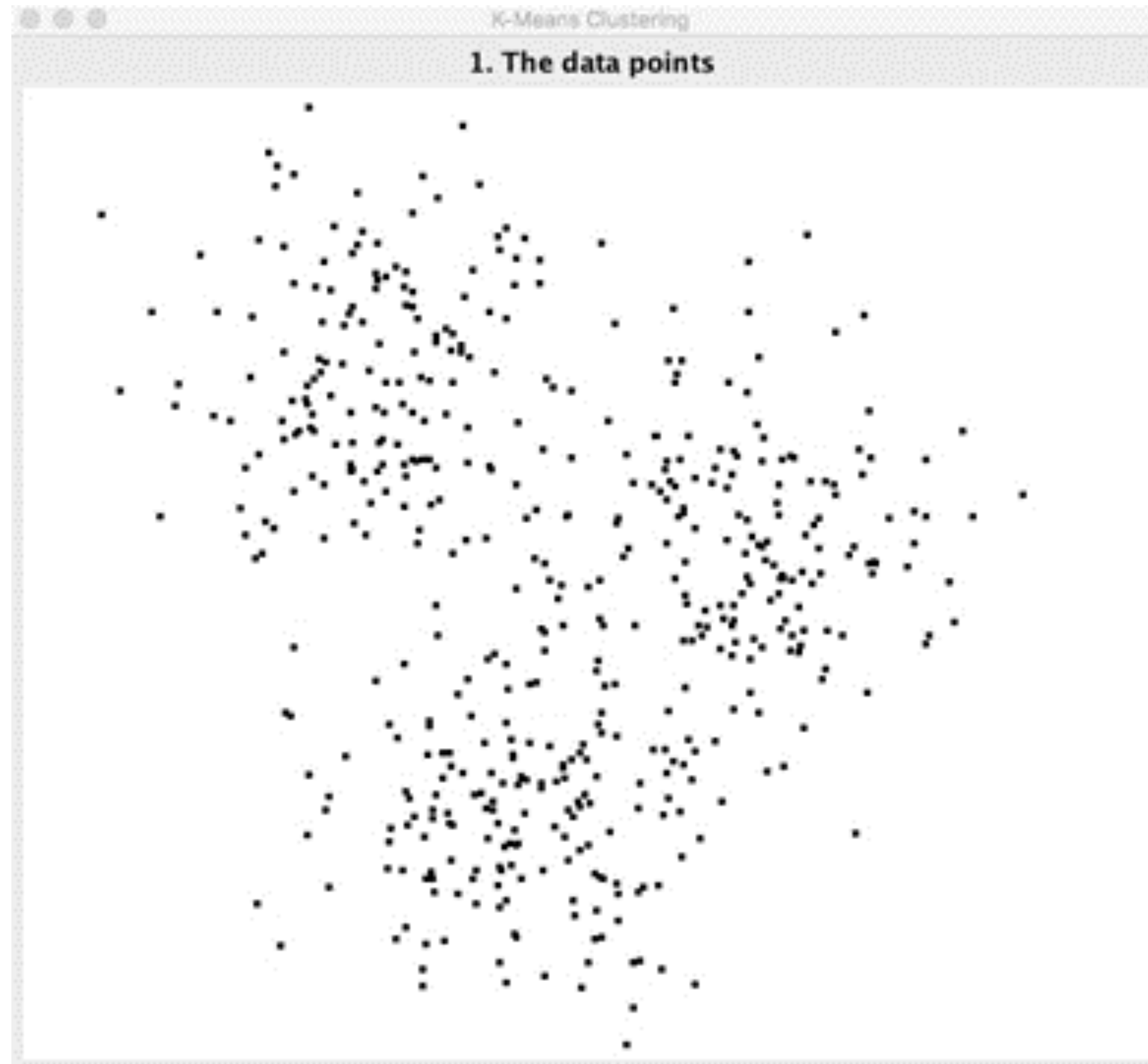
Skeleton made by representatives



Centroids that fit the numbers



<https://www.youtube.com/watch?v=5l3Ei69l40s>

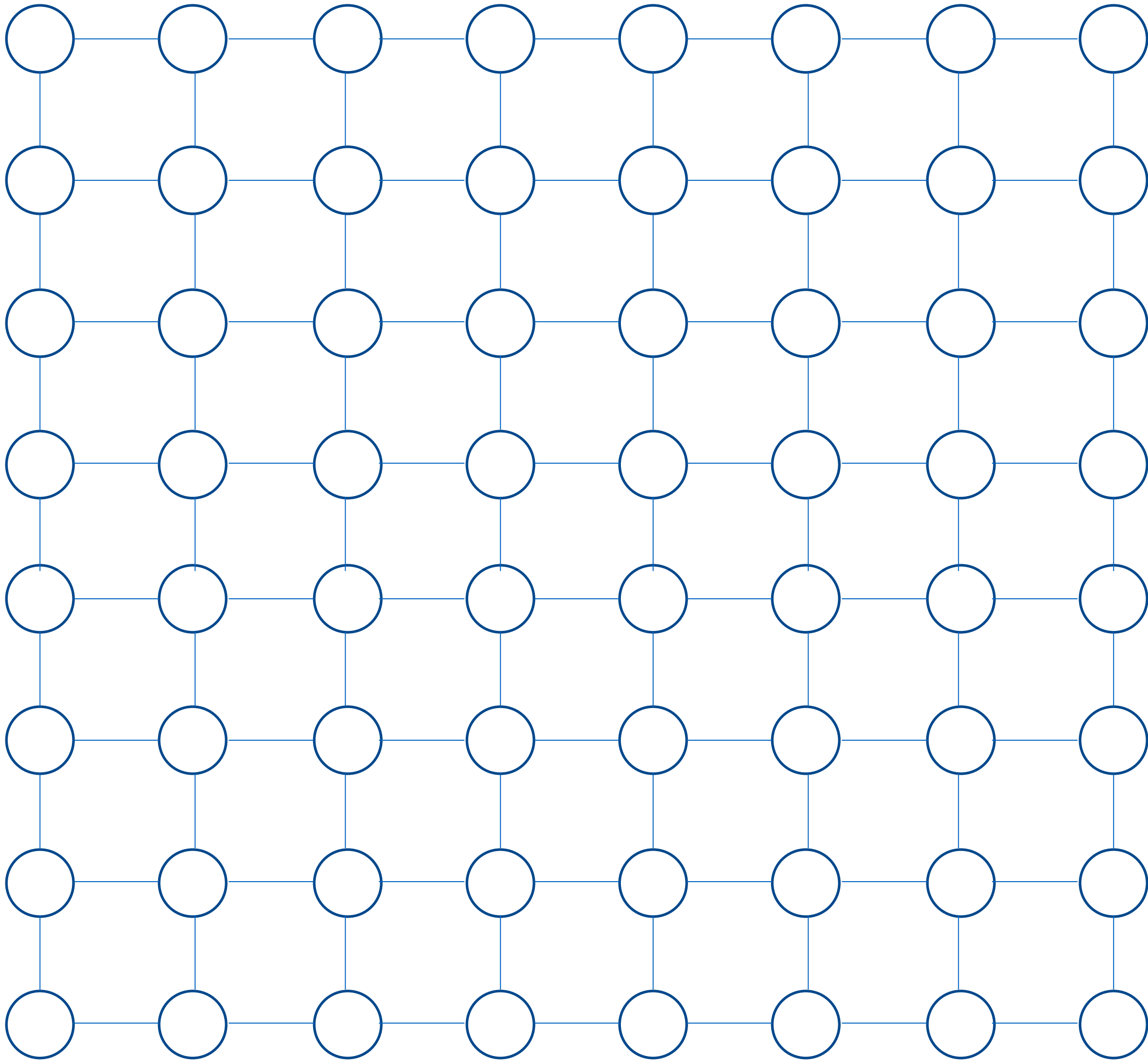


<https://www.youtube.com/watch?v=nXY6PxAaOk0>

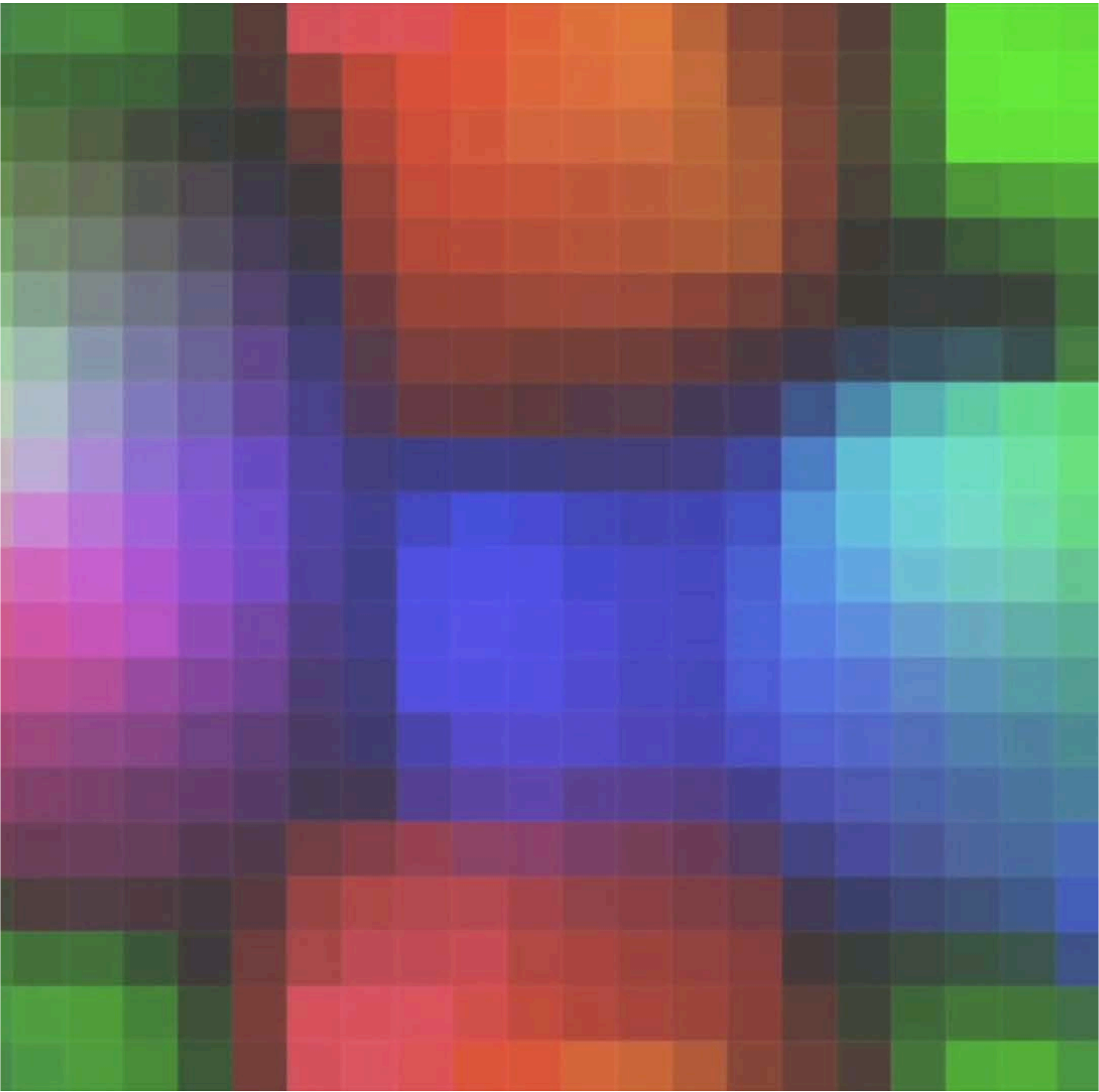
What if we fix the topology of the centroids

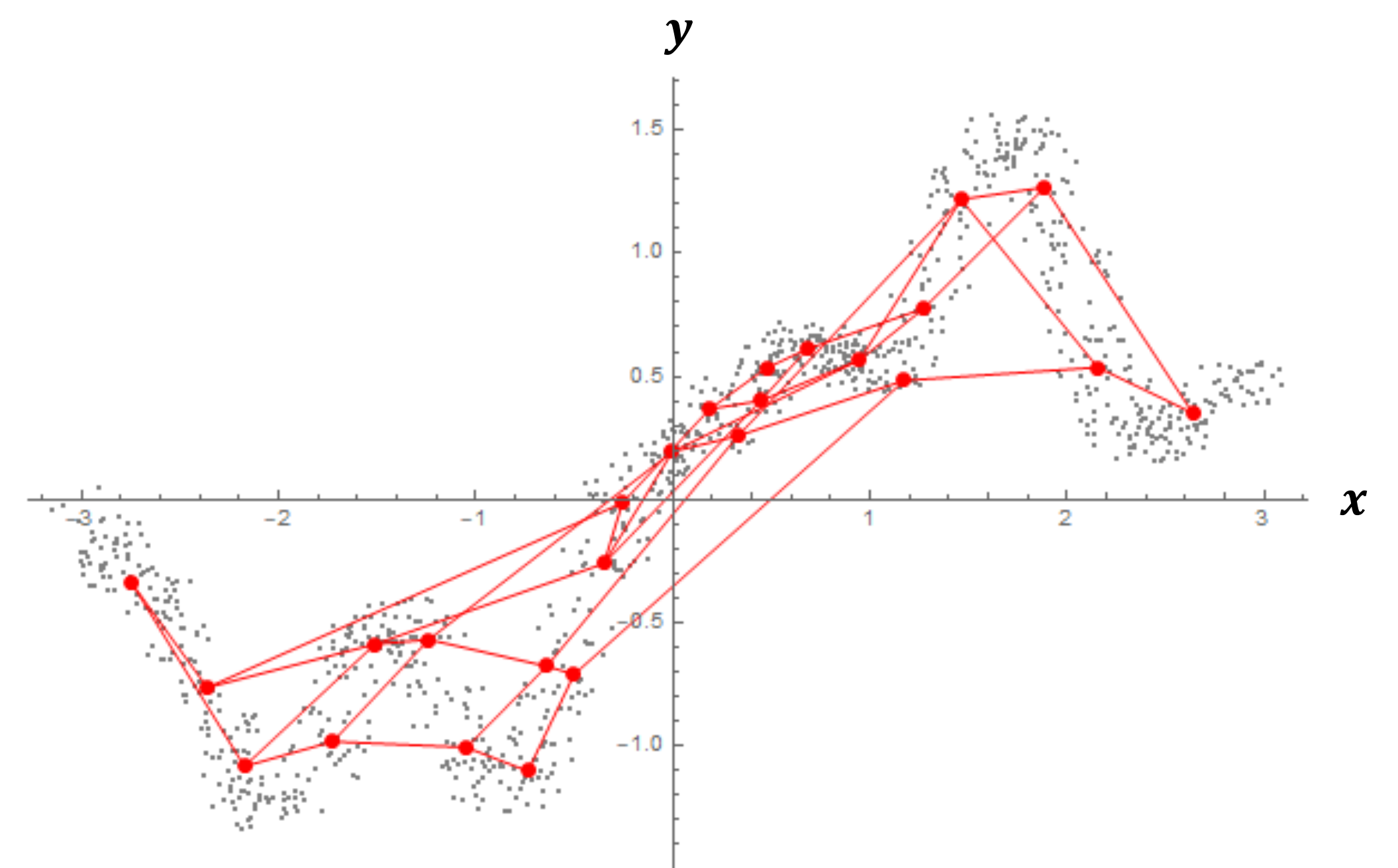
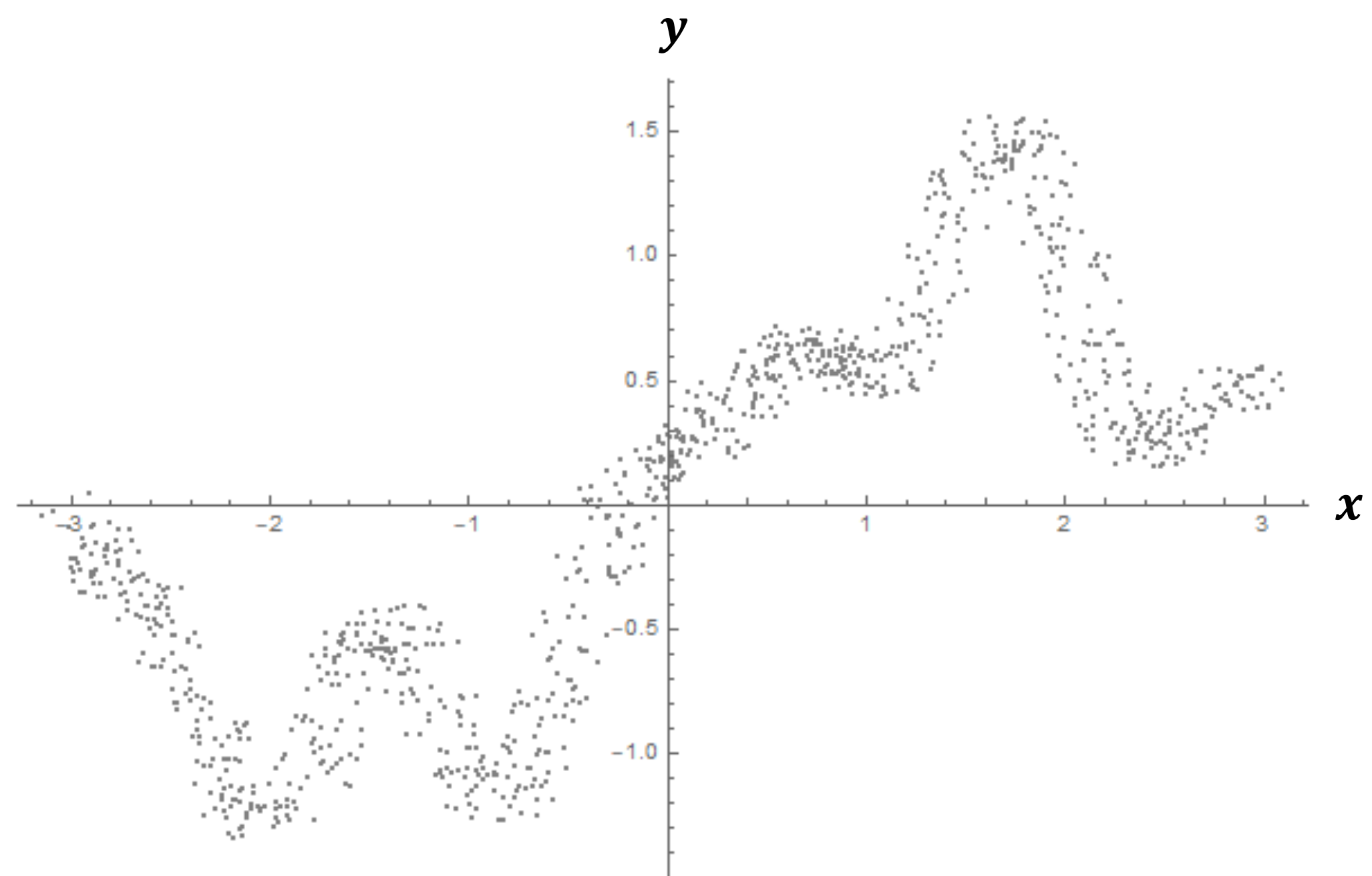
Self-organizing map

Invented by Kohonen in 1982



Self-organizing map



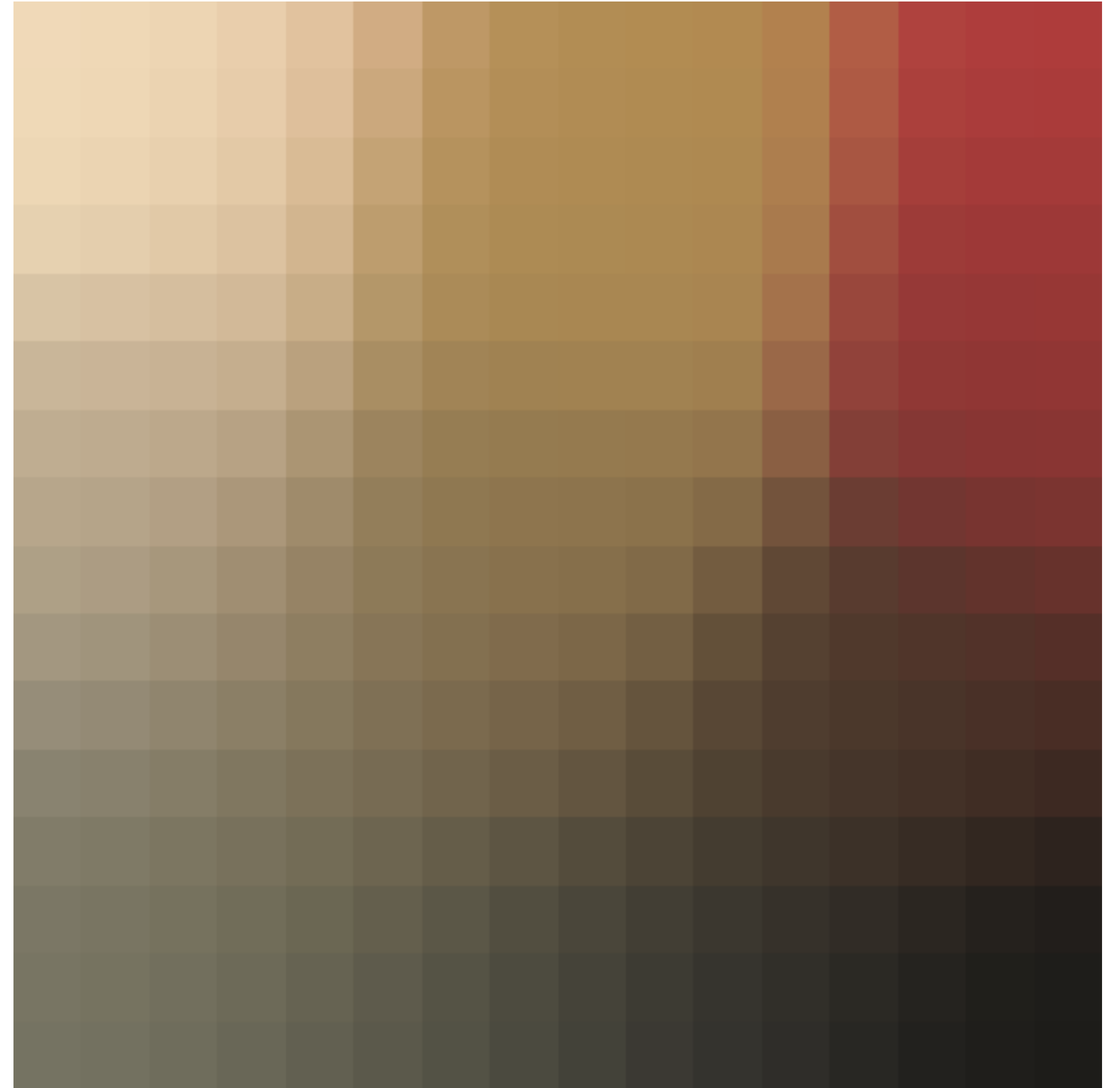


A grid that fits the numbers

More examples

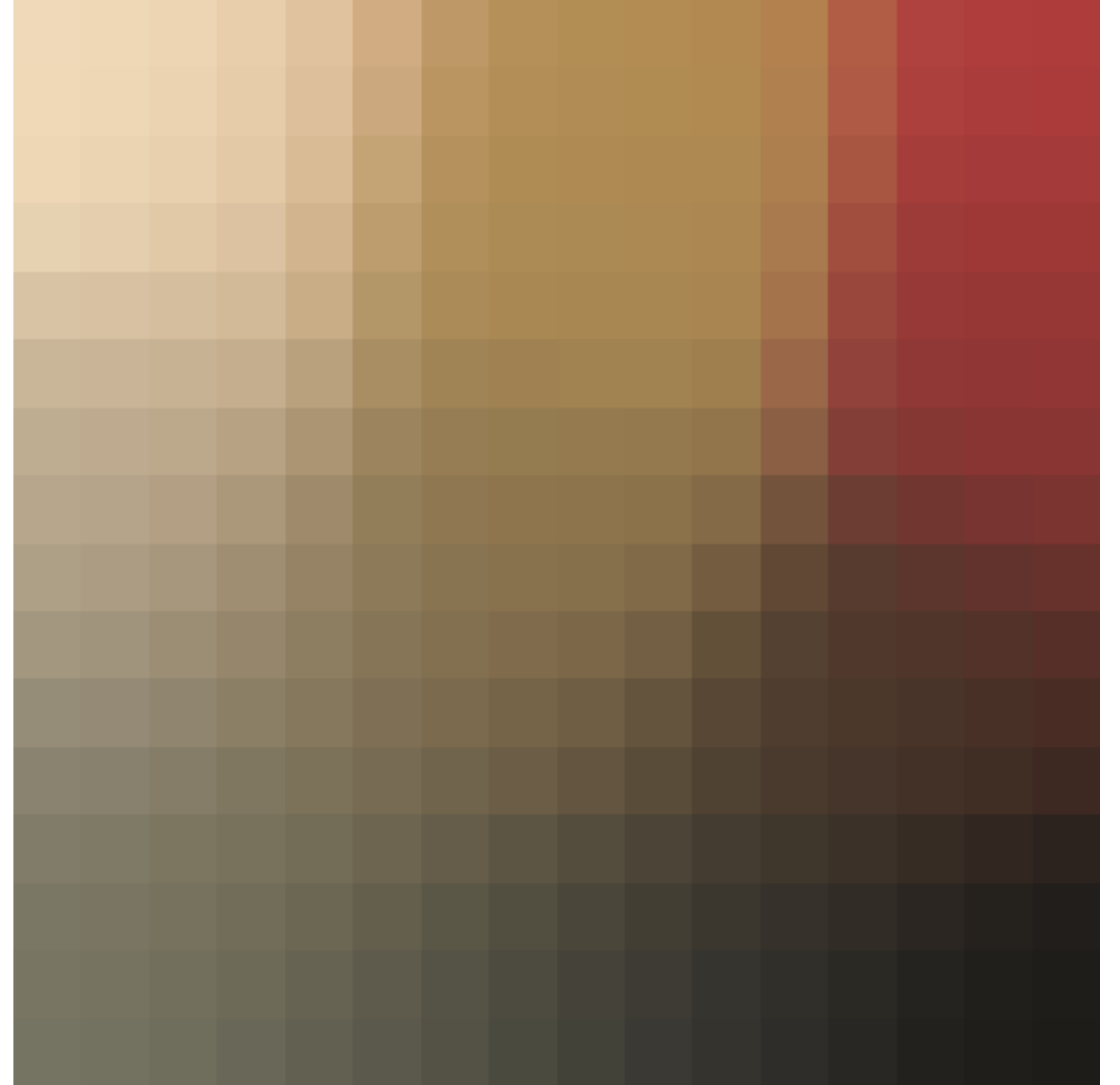


RGB color





Find BMU



Replace color

