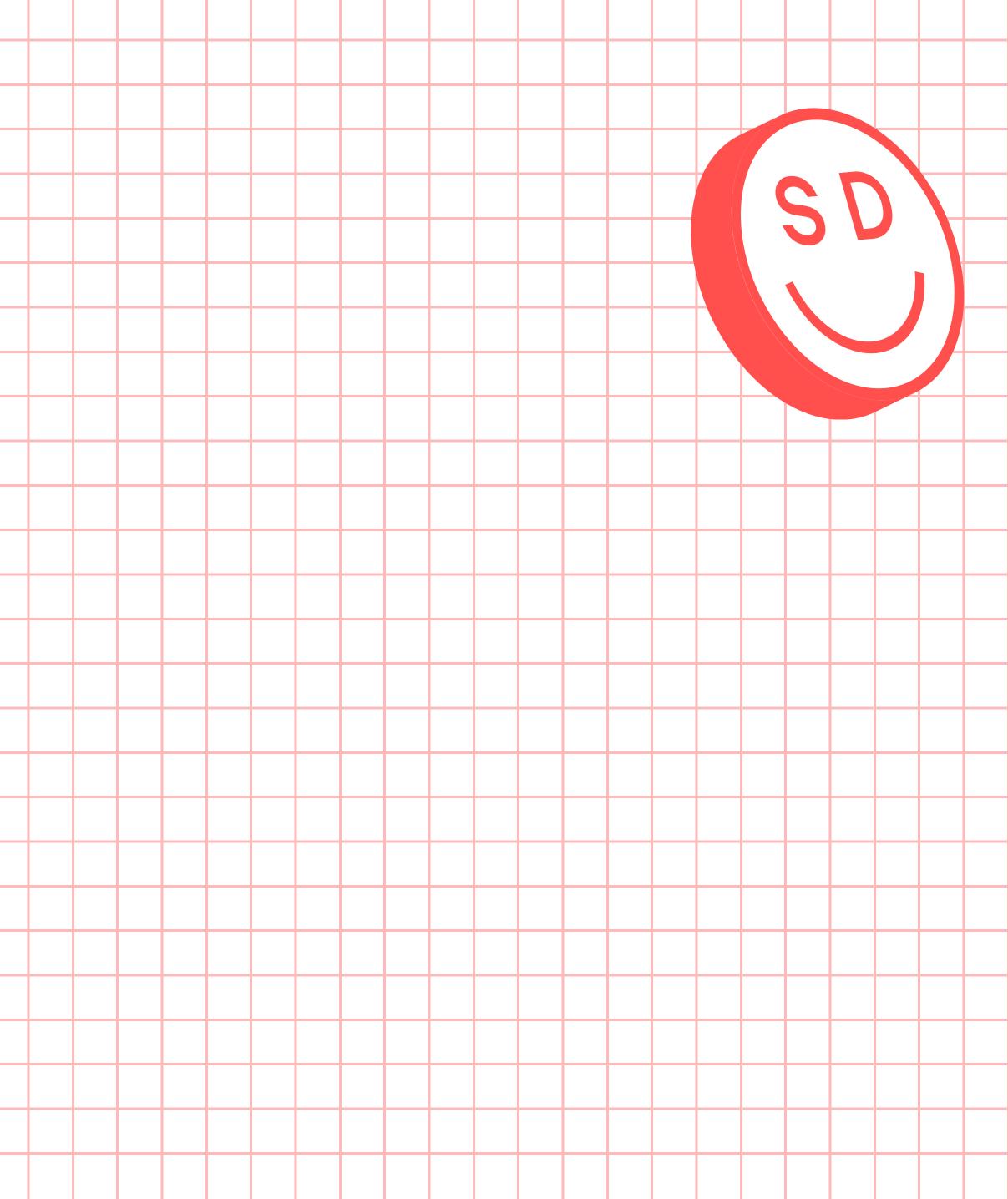
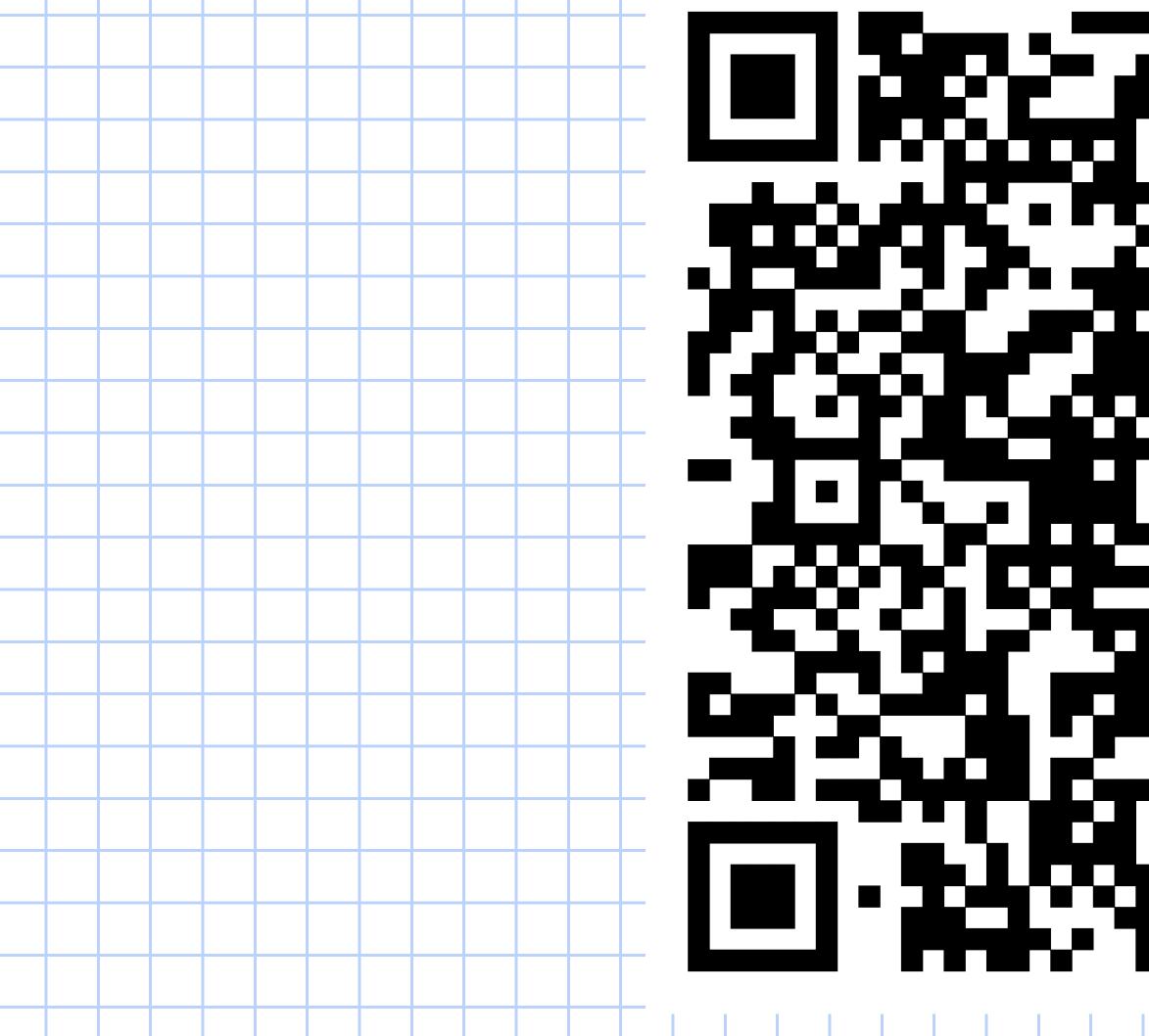
Science Communication Uni Basel 7.11.2024

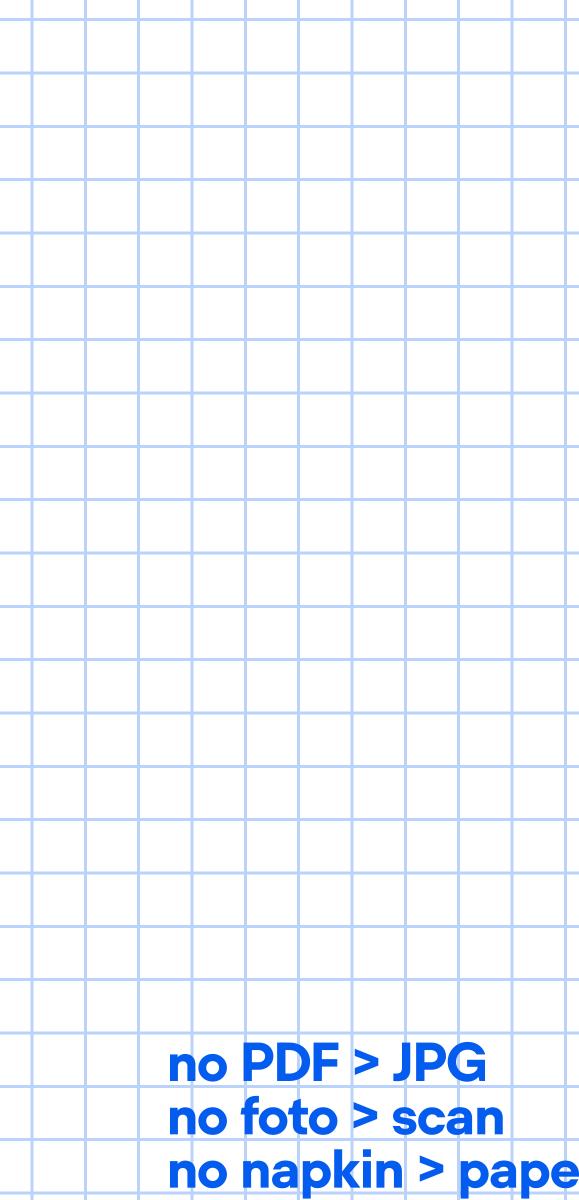
Superdot Studio Nicole Lachenmeier Darjan Hil



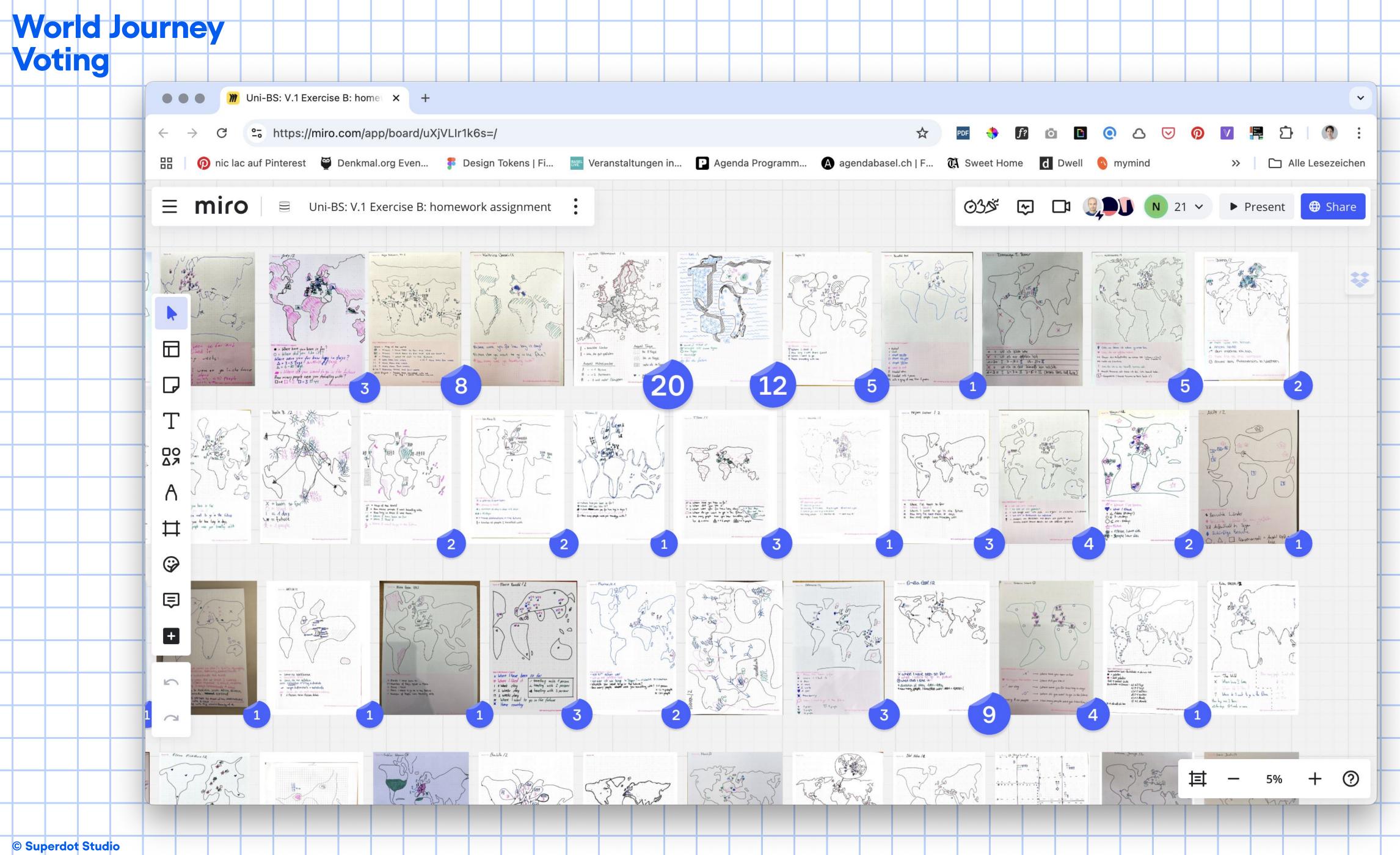
World Journey Reflection assigment B https://bit.ly/superdot_uniBS_sessionB



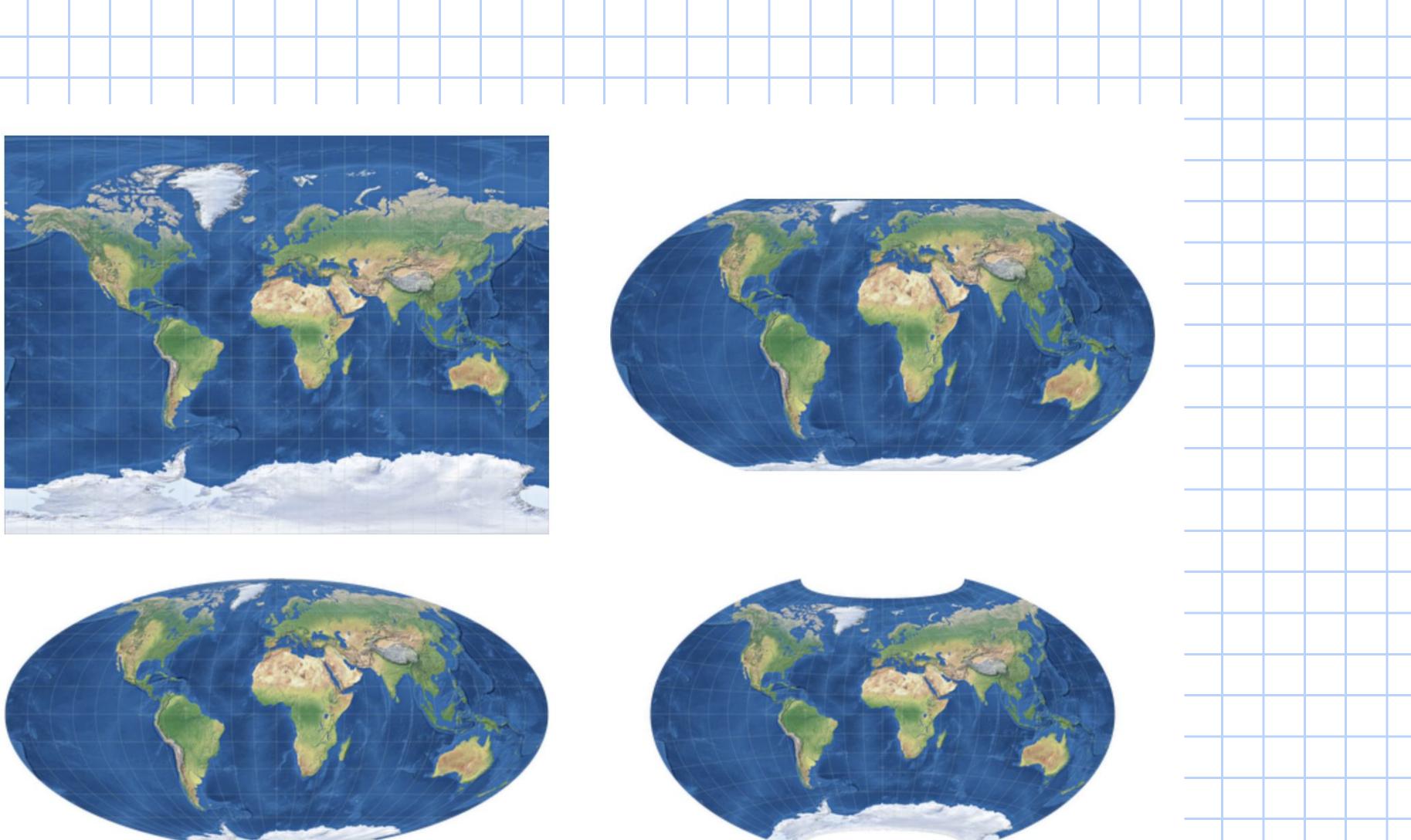
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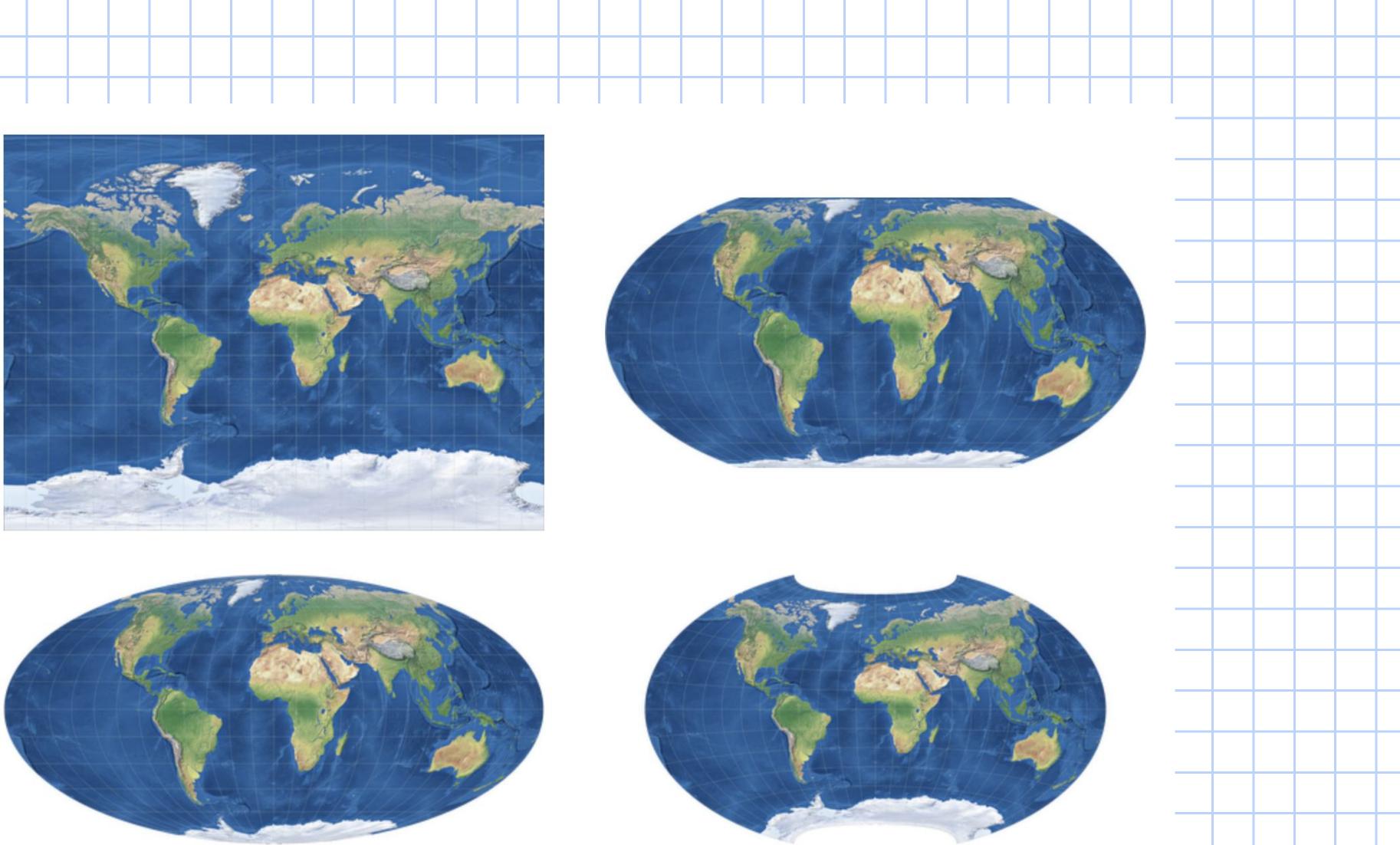


er	



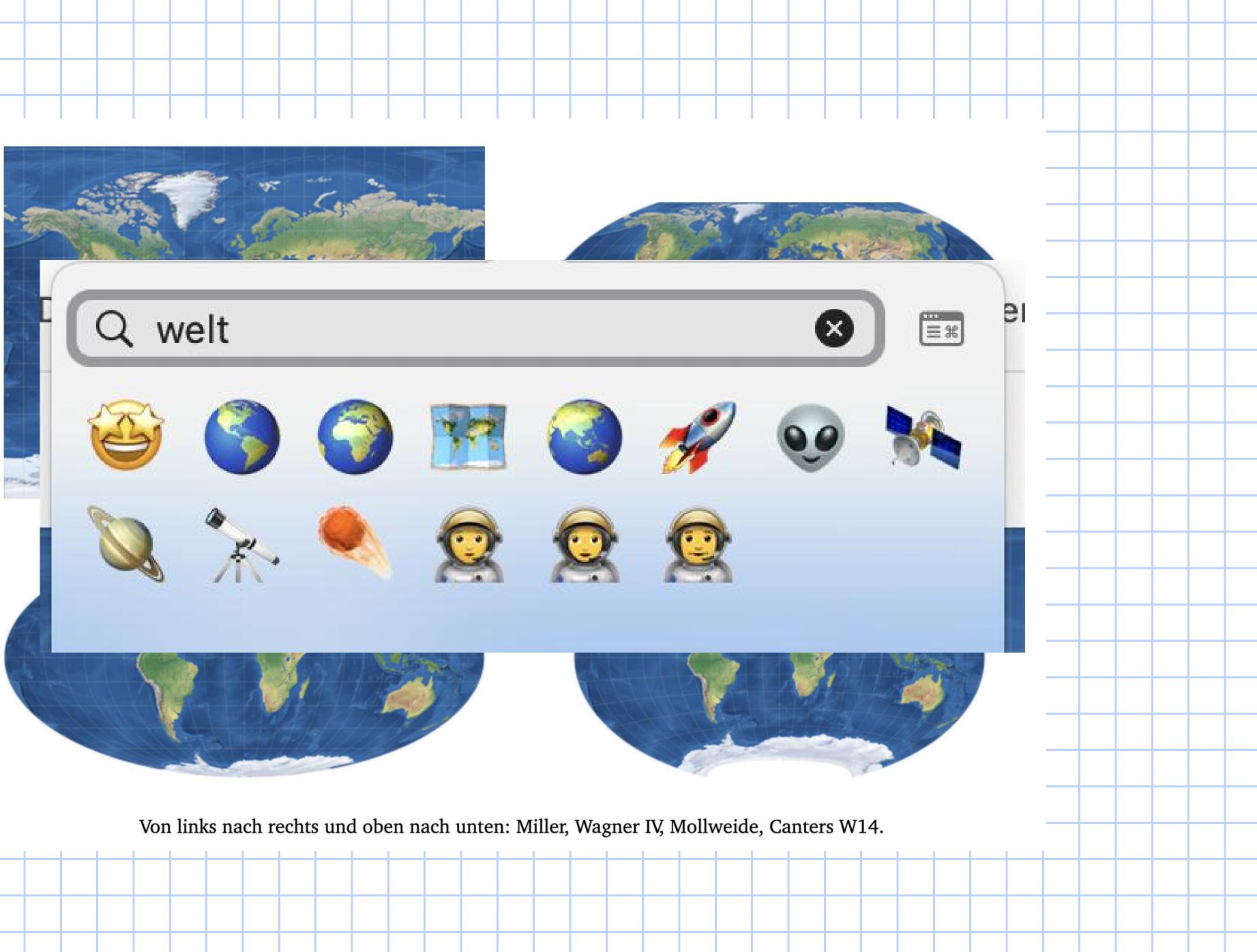
Map projections





Von links nach rechts und oben nach unten: Miller, Wagner IV, Mollweide, Canters W14.

Map projections



Visualizing Complexity Handbuch Modulares Informationsdesign

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Darjan Hil Nicole Lachenmeier

JSER

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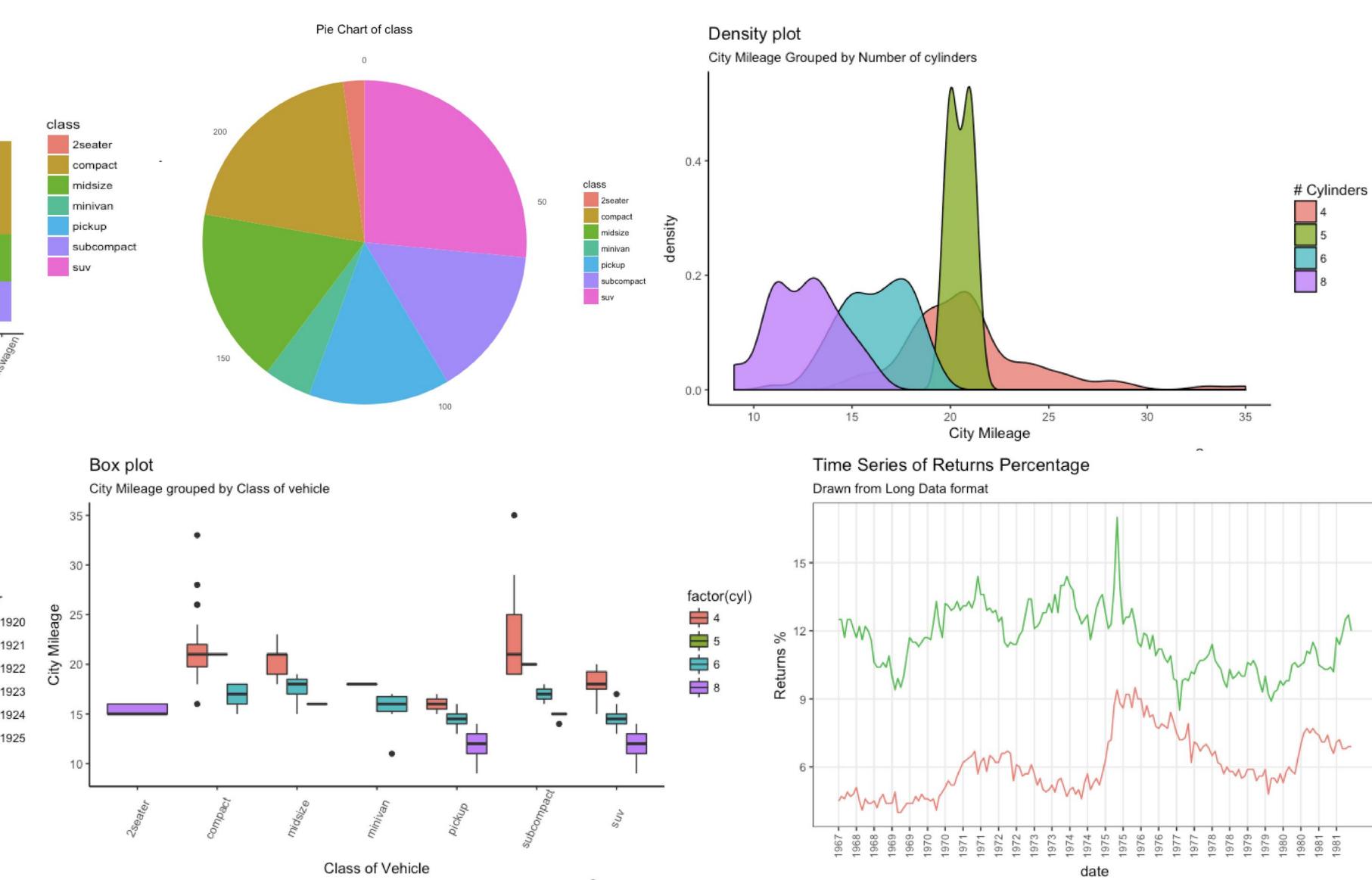
Histogram on Categorical Variable

Manufacturer across Vehicle Classes 30 class 200 2seater compact midsize **E** 20 minivan pickup subcompact 10 suv audi chevralet doage ford honda honda honda leep leep leep leep land rover nercury nissan pontiac subaru toyota toyota 150 manufacturer

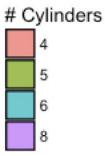
ot: Air temperatures at Nottingham Castle

35. 30 year ag 25 --- 1920 Mile - 1921 20 21 20 ---- 1922 - 1923 - 1924 15 ---- 1925 10 May Aug Sep Mar Apr Jun Jul Oct Nov Dec Month





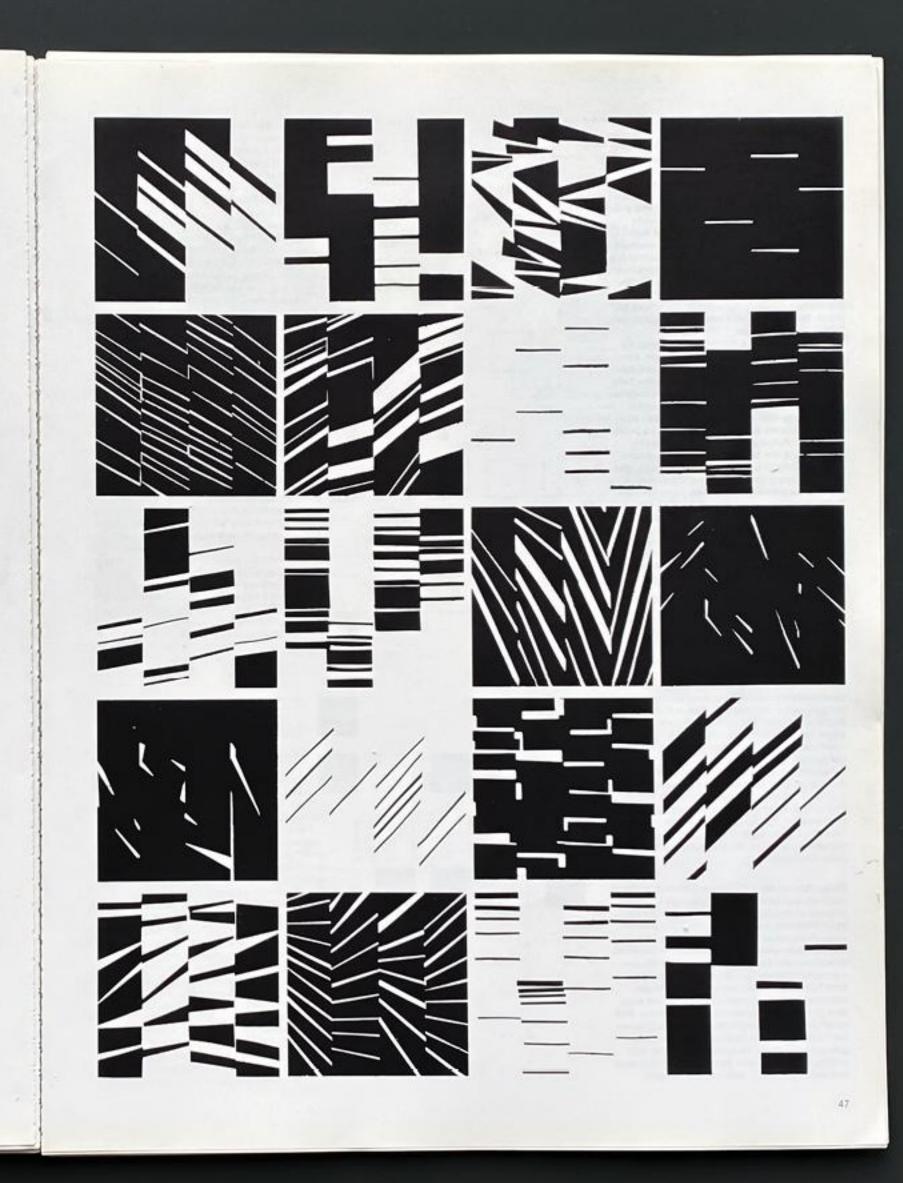
Source: mpg



In der zweiten Übungsphase soll die Variations-breite der zuvor als Formmodell bestimmten Lösungsmöglichkeit entdeckend erarbeitet werden. Dabei soll der einmal bestimmte Formcharakter, der gestalterische Prozess klar ersichtlich bleiben. Der Student versucht möglichst viele, mindestens 30 verschiedene Variationen abzuleiten. Durch das manuelle und visuell-vergleichende Arbeiten sowie die verschiedenen Intensitäten der jeweiligen gestalterischen Aktion soll der Variationsspielraum immer wieder erweitert werden, d. h. jedes einzelne Resultat beinhaltet die Möglichkeit einer neuen Dimension. Der blosse visuelle Nachvolizug, das schema-tische Ausfüllen einearein gedanklichen Systems ist zu diesem Zeitpunkt verfehlt. Dadurch würden nur in sich abgeschlossene Teilbereiche mögli-cher Differenzierungsprozesse erfasst.

Die nebenstehenden Beispiele zeigen die Varia-tionen aus den vom Studenten I gewählten Themen. Innerhalb dem Variieren ergeben sich Extremlösungen, welche nur im Zusammenhang klar lesbar sind. Diese werden in der ersten Phase als unklare Lösungen definiert. So das fünfte Beispiel der zweiten Reihe, welches auch nur als Linienintervalle gelesen werden kann. Beim zweiten Beispiel der dritten Reihe wirken die Progressionen vordergründig als gestalterische Absicht.

-46











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в		A	В	
UNTERSDEOBARIZET ABSTRAKT	FÜLLUNG ELÄCHK N			
UNTERSONEOBARIZETT ABSTRAKT ENER SCHWACH DIGITAL	FÜLLUNG FLÄCHIG M		UNTER SCHEIDBAR KEIT	ABSTRAKT
UNTERSINEOBARKET ABSTRAKT HIN ENER SCHWIRCH DIGITAL ENER SCHWIRCH DIGITAL ENER SCHWIRCH ZHHL & TEXT	A REAL PROPERTY AND A REAL		UNTER SCHEIDBARKEIT SEHR DOMINANT	Abstrakt Digitai
UNTERSINEOBARIZET ABSTRAKT EHER SCHWACH DIGITAL	FULLUNG FLÄCHIG M	A FRILLE (3)	and the second se	DIGITAL

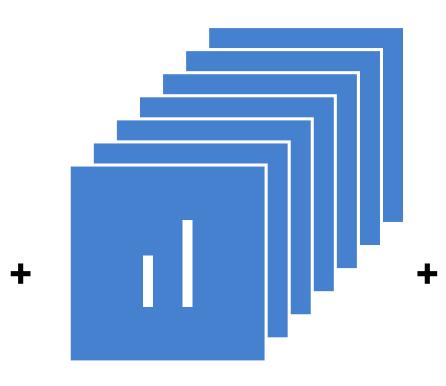
FALLANCE





Modular Information Design System







Data Dimensions Diagrammatical Dimensions (1/25)

Visual (40)

Dimensions

Structuring **Dimensions** (15)

Multidimensional Visualizations

Unstructured running text as a starting point

Running text is intended to give the reader time to bring to mind the respective content in one's imagination. Written stories feature descriptive details and inspire the readers' power of imagination, encouraging them to mentally dive into their own world. The information in a section is unstructured, without however having a negative effect on how easy it is to understand.

Narrators tell their stories in the way their thoughts flow. However, for the purpose of searching or obtaining a quick overview, narrations are less suitable. For example, when searching for Otto Wagner's date of birth in the text about the entrepreneurial family, one has to scan the text line by line until this is found. Clearly in this case we cannot talk about a quick overview or rapid navigation.

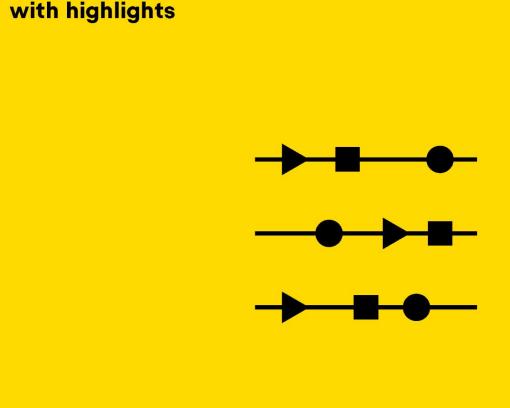
The story of the entrepreneurial families

The success of the Browag AG company goes back to Hermann Wagner and James Brown. Hermann Wagner was born in Vienna in 1871 (died 1961). During his student years he got to know Vienna-born Emma Moser (1875), who was four years younger (died 1960). In 1900, Hermann and Emma married in Vienna, where the children Otto (1901, died 1924) and Paul (1914, died 2011) were also born. With the help of the Moser family's financial resources, Hermann was able to set up Wagner Farben GmbH and establish it successfully in Vienna. After finishing school, Otto decided to go to Munich to study and Paul decided to follow in his father Hermann's footsteps. Otto Wagner died tragically of tuberculosis in Munich at the age of 23.

In the course of his business, Paul traveled to other countries and, in 1934, whilst in Paris, he met his future wife, Elisabeth Brown of Brown Chemicals Inc. The company Brown Chemicals Inc. had been founded in London by James Brown (born 1882, died 1947). He benefited greatly from his marriage to Marie Durand (born 1879, died 1951), who came from a prosperous Parisian family. James built up his business in London as well as in Paris, where the couple spent most of their time. Marie and James had two daughters, Anna (born 1913, died 1996) and Elisabeth (born 1915, died 2014). Anna was born while the family spent some time in London; she grew up there, went to a London boarding school, and spent the rest of her life in London. Her sister Elisabeth grew up in Paris where she lived with her parents; from an early age, she joined papa James's company, where she later met Paul Wagner.

The wedding between Paul and Elisabeth not only sealed the matrimonial bond, but also the business relationship, which led to the formation of the newly merged Browag AG. In 1935, Hermann was born in Paris (died 1987) and seven years later, along came his sister Marie (born 1942, died 2020). Owing to his commitment to the time-consuming management of the branch in Vienna, Paul did not move away from Vienna.

Thus it came about that—some years later—Elisabeth and Paul separated. Paul decided to sell his company shares to Elisabeth, and to quit Browag AG. Their son Hermann decided to go to Vienna to study and to live with his grandparents, Hermann and Emma. Marie, on the other hand, wanted to study art in London and decided not to take up her mother's offer of joining the company in Paris. Elisabeth Brown is considered one of the most successful female entrepreneurs of the 21st century and is leaving her entire fortune to charitable organizations with a focus on design.



In this version, the running text has already been enriched with a few supporting symbols. Each symbol represents a certain type of information and is marked in yellow. Although at this stage we cannot yet talk about a visualization, a search, e.g. for Otto Wagner's date of birth is made easier. The text is still unstructured.

Unstructured running text

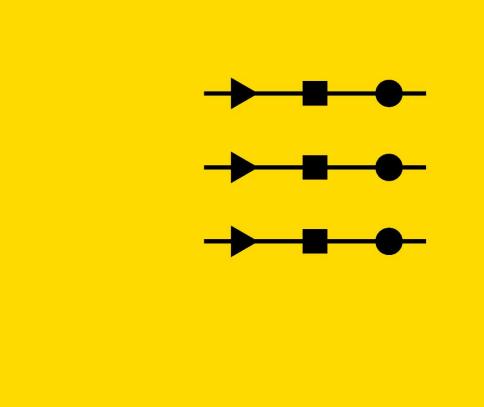
- First name
 Family name
 Year of birth
 Year of death
- Place of birthHome town

The story of the entrepreneurial families

The success of the Browag AG company goes back to > Hermann < Wagner and > James < Brown. > Hermann < Wagner was born in <a>Vienna in <a>1871 (died <a>1961). During his student years he got to know <a>Vienna-born > Emma Moser (1875), who was four years younger (died <a>1960). In 1900, > Hermann and > Emma married in <a>Vienna, where the children > Otto (<a>1901, died <a>1924) and > Paul (<a>1914, died <a>2011) were also born. With the help of the <a>Moser family's financial resources, > Hermann was able to set up Wagner Farben GmbH and establish it successfully in <a>Vienna. After finishing school, > Otto decided to go to <a>Munich to study and > Paul decided to follow in his father > Hermann's footsteps. > Otto <a>Wagner died tragically of tuberculosis in <a>Munich at the age of 23.

The wedding between ▶ Paul and ▶ Elisabeth not only sealed the matrimonial bond, but also the business relationship, which led to the formation of the newly merged Browag AG. In ● 1935, ▶ Hermann was born in Paris (died ■ 1987) and seven years later, along came his sister ▶ Marie (born ● 1942, died ■ 2020). Owing to his commitment to the time-consuming management of the branch in Vienna, ▶ Paul did not move away from ♦ Vienna.

Thus it came about that—some years later— ► Elisabeth and ► Paul separated. ► Paul decided to sell his company shares to ► Elisabeth, and to quit Browag AG. Their son ► Hermann decided to go to ◆ Vienna to study and to live with his grandparents, ► Hermann and ► Emma. ► Marie, on the other hand, wanted to study art in ◆ London and decided not to take up her mother's offer of joining the company in ◆ Paris. ► Elisabeth < Brown is considered one of the most successful female entrepreneurs of the 21st century and is leaving her entire fortune to charitable organizations with a focus on design.



A mere compilation of data in the form of a list is not enough to structure the underlying text. A list guides the eye through the listed items. The added value is not achieved until the sentence structure becomes comparable through identical arrangement. The symbols are used to make things even clearer. It is possible—albeit not yet very easy to detect a pattern in the lines.

Running text as a list,

structured with highlights

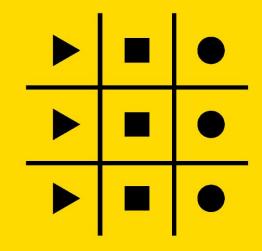
First name
Family name
Year of birth
Year of death

- Place of birth
- ♦ Home town

- ▶ Hermann ◄ Wagner, born 1871 in ◆ Vienna, lived in ◆ Vienna, died
 1961, married to ▶ Emma ◄ Moser, children ▶ Otto and ▶ Paul
- ▶ Emma ◀ Moser later ◀ Wagner, 1875 born in Vienna, lived in
 ♦ Vienna, died ◀ 1960, married to ▶ Hermann ◀ Wagner, children ▶ Otto and ▶ Paul

- ▶ James ◄ Brown, born 1882 in London, lived in ◆ Paris, died 1947, married to ▶ Marie ◀ Durand, children ▶ Elisabeth and ▶ Anna
- Marie
 ▲ Durand later
 ▲ Brown, born 1879 in Paris, lived in Paris, died 1951, children ▶ Elisabeth and ▶ Anna
- ► Anna < Brown, born
 1913 in
 London, lived in
 London, died
 1996
- ▶ Hermann ◄ Wagner, born 1935 in Paris, lived in ◆ Vienna, died 1987

Structure in table form



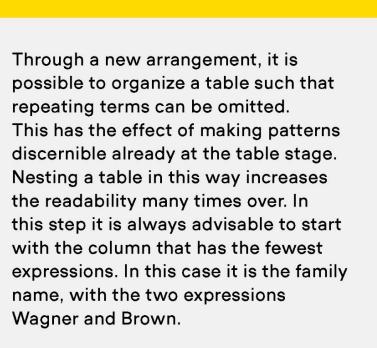
When, in a list consisting of sentences with an identical structure, regular spaces are inserted between the different parts of the sentence, a table is created. The placement of structured text elements in a grid generates good readability and comparability of the contents. The highlighting symbols used previously are no longer required here—the gap between the parts of the sentence orders the elements in accordance with their affiliation and columns are created.

First name
Family name
Year of birth
Year of death
Place of birth

♦Home town

 Family name 	► First name	Place of birth	 Year of birth 	♦ Home town	Year of death	► Children
◀ Wagner	► Hermann	∎ Vienna	• 1871	♦ Vienna	■ 1961	► Otto ► Paul
 ✓ Wagner (◀ Moser) 	► Emma	∎ Vienna	• 1875	♦ Vienna	1960	► Otto ► Paul
 In Brown (In Durand) 	► Marie	■ Paris	• 1879	♦ Paris	• 1951	► Anna ► Elisabeth
	► James	■ London	• 1882	♦ Paris	■ 1947	► Anna ► Elisabeth
◀ Wagner	► Otto	∎ Vienna	• 1901	 Munich 	■ 1924	
	► Anna	■ London	• 1913	◆ London	■ 1996	
◀ Wagner	▶ Paul	∎ Vienna	• 1914	♦ Vienna	■ 2011	► Hermann► Marie
 ✓ Wagner (< Brown) 	► Elisabeth	■ Paris	• 1915	♦ Paris	■ 2014	► Hermann► Marie
 ✓ Wagner 	▶ Hermann	■ Paris	• 1935	♦ Vienna	■ 1987	
 ✓ Wagner 	► Marie	■ Paris	• 1942	◆ London	● 2020	

Structure in table form, nested



First name
Family name
Year of birth
Year of death
Place of birth

♦Home town

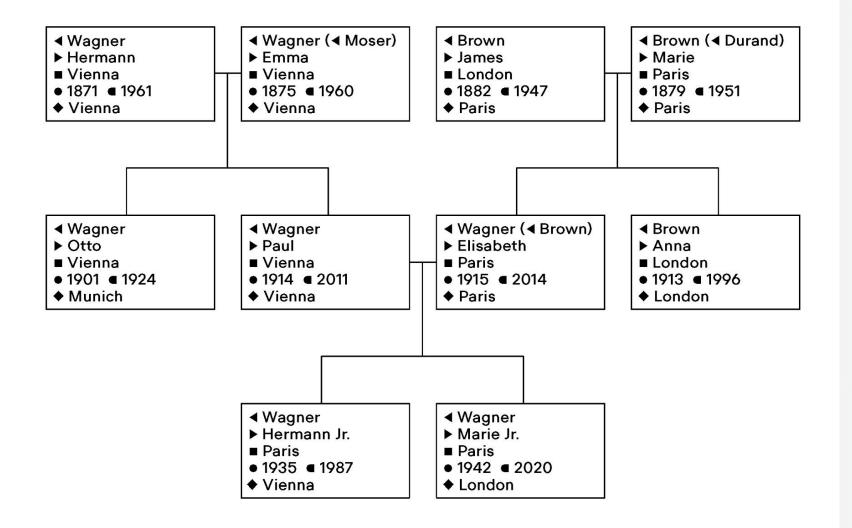
 Family name 	Place of birth	♦ Home town	► First name	 Year of birth 	 Year of death 	► Children
∢ Wagner	∎ Vienna	♦ Vienna	► Hermann	• 1871	■ 1961	► Otto ► Paul
			► Emma	• 1875	■ 1960	► Otto ► Paul
			► Paul	• 1914	■ 2011	▶ Hermann ▶ Marie
		◆ Munich	► Otto	• 1901	■ 1924	
	■ Paris	♦ Vienna	► Hermann	• 1935	1987	
	■ Paris	◆ London	► Marie	• 1942	■ 2020	
A Brown	∎ Paris	♦ Paris	► Marie	• 1879	● 1951	► Anna ► Elisabeth
			► Elisabeth	• 1915	■ 2014	▶ Hermann ▶ Marie
	■ London	♦ Paris	► James	• 1882	■ 1947	► Anna ► Elisabeth
		◆ London	► Anna	• 1913	1996	

Hierarchical structure

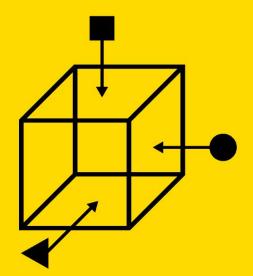
The construction of a family tree is founded on two basic elements: firstly, on a clear structure, as in a table, and secondly, on the further information about the connections between the various people mentioned in the text. The newly created order makes it possible to discern patterns even faster. Family trees are often used in visualization to represent hierarchies in groups. In this concrete example, the family tree shows the sequence of relationships between the generations of the two families. Usually, a box represents a person, and the nodes and linear connections represent the relationships between the members.

First name
Family name
Year of birth

- Year of death
- Place of birth
- ♦ Home town

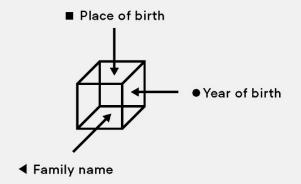


Data dimensions as perspectives on a data cube



Family name	First name	Place of birth	Year of birth	Home town	Year of death	Gender	Generation	Relocation	Age at death	Age group
Wagner	Hermann	Vienna	1871	Vienna	1961	М	1	Ν	90	>85
Wagner (Moser)	Emma	Vienna	1875	Vienna	1960	F	1	Ν	85	70-85
Brown (Durand)	Marie	Paris	1879	Paris	1951	F	1	Ν	72	70-85
Brown	James	London	1882	Paris	1947	Μ	1	Υ	65	< 70
Wagner	Otto	Vienna	1901	Munich	1924	М	2	Υ	23	< 70
Brown	Anna	London	1913	London	1996	F	2	Ν	83	70-85
Wagner	Paul	Vienna	1914	Vienna	2011	М	2	Ν	97	>85
Wagner (Brown)	Elisabeth	Paris	1915	Paris	2014	F	2	Ν	99	>85
Wagner	Hermann Jr.	Paris	1935	Vienna	1987	М	3	Y	52	< 70
Wagner	Marie Jr.	Paris	1942	London	2020	F	3	Y	78	70-85

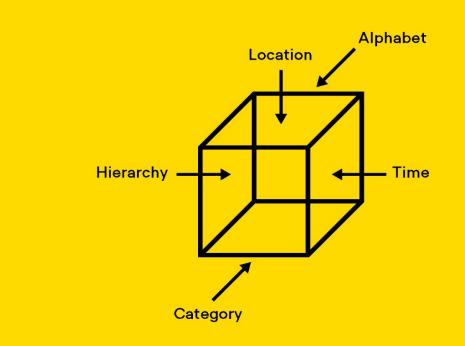
Three of the eleven data dimensions as perspectives on three sides of the data cube of the entrepreneurial families.



The metaphor of a data cube helps us view a data set from a number of different angles. We refer to these perspectives as data dimensions (here, as columns of the table). The entrepreneurial family can be considered from the aspect of its family name, its home towns, or from any other perspective. It is important that the core always contains the same data set. Each viewing angle results in a different approach, analysis, statement, and story.

The data from the first part of this chapter is listed here in the form of a table on the left-hand side. However, it is also possible to use the existing data to derive new data, groups, or categorizations: the first names can be used to infer the gender, the date of birth to infer the generation, the home town and the place of birth to infer relocations, the years of birth and death to infer the age at death, and from this, the age group too.This new data can be found in the table on the right-hand side.

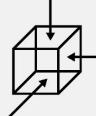
Data dimensions with the data types and expressions



Family name	First name	Place of birth	Year of birth	Home town	Year of death	Gender	Generation	Relocation	Age at death	Age group
Wagner	Hermann	Vienna	1871	Vienna	1961	М	1	Ν	90	>85
Wagner (Moser)	Emma	Vienna	1875	Vienna	1960	F	1	Ν	85	70-85
Brown (Durand)	Marie	Paris	1879	Paris	1951	F	1	Ν	72	70-85
Brown	James	London	1882	Paris	1947	М	1	Υ	65	<70
Wagner	Otto	Vienna	1901	Munich	1924	М	2	Υ	23	<70
Brown	Anna	London	1913	London	1996	F	2	Ν	83	70-85
Wagner	Paul	Vienna	1914	Vienna	2011	М	2	Ν	97	>85
Wagner (Brown)	Elisabeth	Paris	1915	Paris	2014	F	2	Ν	99	>85
Wagner	Hermann Jr.	Paris	1935	Vienna	1987	М	3	Υ	52	<70
Wagner	Marie Jr.	Paris	1942	London	2020	F	3	Υ	78	70-85
Alphabet	Alphabet	Location	Time	Location	Time	Category	Category	Category	Hierarchy	Category
2 Expressions	8	3	10	4	10	2	3	2	10	3

The data cube of the entrepreneurial families with three data dimensions, differentiated by data type and the number of expressions.

> "Place of birth" data dimension of the Location type as category with three expressions—Vienna, Paris, and London



"Year of birth" data dimension of the Time type, always with different expressions

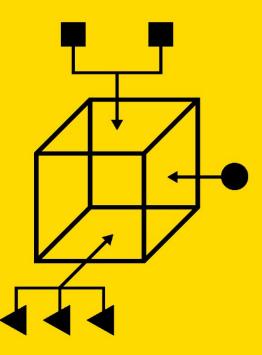
"Family name" data dimension of the Alphabet type as category with two expressions—Wagner

and Brown

Each data dimension, or each perspective on the data cube, can be assigned to a certain type of data. In general, information can be organized in accordance with five types of data, which are geolocation, text, time, category, or figures. This ordering principle was defined by Richard Saul Wurman2 under the name L.A.T.C.H.: Location, Alphabet (to be understood as text), Time, Category, Hierarchy (to be understood as numbers).

Each data type can have a finite or infinite number of expressions—values or text. Although in our example on the left the data type "family name" is text, the number of expressions can be limited to two: Wagner and Brown. When the expressions are finite, each L.A.T.C.H. data type can be used to form a category. "Family name" is a category with two expressions.

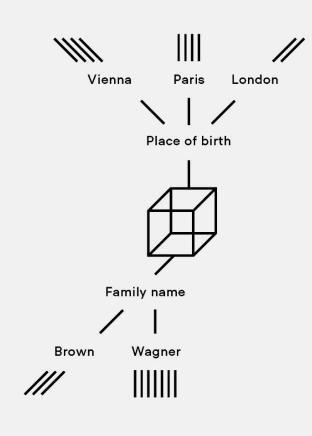




36

Family name	First name	Place of birth	Year of birth	Home town	Year of death	Gender	Generation	Relocation	Age at death	Age group
Wagner	Hermann	Vienna	1871	Vienna	1961	М	1	N	90	>85
Wagner (Moser)	Emma	Vienna	1875	Vienna	1960	F	1	Ν	85	70-85
Brown (Durand)	Marie	Paris	1879	Paris	1951	F	1	Ν	72	70-85
Brown	James	London	1882	Paris	1947	М	1	Y	65	<70
Wagner	Otto	Vienna	1901	Munich	1924	М	2	Y	23	<70
Brown	Anna	London	1913	London	1996	F	2	Ν	83	70-85
Wagner	Paul	Vienna	1914	Vienna	2011	М	2	Ν	97	>85
Wagner (Brown)	Elisabeth	Paris	1915	Paris	2014	F	2	Ν	99	>85
Wagner	Hermann Jr.	Paris	1935	Vienna	1987	М	3	Y	52	<70
Wagner	Marie Jr.	Paris	1942	London	2020	F	3	Y	78	70-85
Alphabet	Alphabet	Location	Time	Location	Time	Category	Category	Category	Hierarchy	Category
Wagner: 7 Brown: 3	Hermann: 2 Marie: 2 Other: 6	Vienna: 4 Paris: 4 London: 2	First: 1871 Last: 1942 Years: 71 Middle: 1906	Vienna: 4 Paris: 3 London: 2 Munich: 1	First: 1924 Last: 2020 Years: 96 Middle: 1972	M: 5 F: 5	Generation 1: 4 Generation 2: 4 Generation 3: 2	N: 6 Y: 4	Min: 23 Max: 99 Avg: 74 Median: 80.5	<70: 3 70–85: 4 > 85: 3

The data cube of the entrepreneurial families with two data dimensions, evaluated by data type and expression.

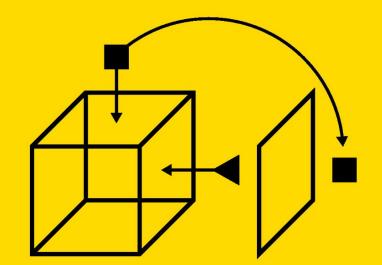


Once the data type of a data dimension has been identified, it is possible to establish the number of expressions. For example: the "family name" data dimension is of the Alphabet data type. Since we only have two different names, we can define "family name" as a category with two expressions: Wagner and Brown. Seven people are from the Wagner family and three from the Brown family. In the "Category" data type, the evaluation consists of a simple addition of the different expressions.

With the "Time" and "Figures" (in L.A.T.C.H.: Hierarchy) data types it is possible to carry out elementary statistical evaluations, such as sum, average, maximum.

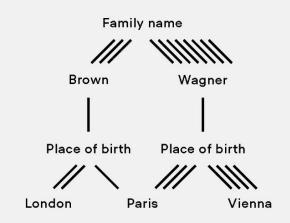
"Location" and "Text" (in L.A.T.C.H.: Alphabet) are the two data types in which sorting or adding the expressions, as evaluation, is most effective.

Nesting of data dimensions



Family name	First name	Place of birth	Year of birth	Home town	Year of death	Gender	Generation	Relocation	Age at death	Age group
Wagner	Wagner	Wagner	Wagner	Wagner	Wagner	Wagner	Wagner	Wagner	Wagner	Wagner
Wagner: 5	Emma: 1	Paris: 3	1871	London: 1	1924	Female: 3	Generation 1: 2	Yes: 3	23	< 70: 2
Wagner (Moser): 1	Elisabeth: 1	Vienna: 4	1875	Munich: 1	1961	Male: 4	Generation 2: 3	No: 4	52	70-85: 2
Wagner (Brown): 1	Hermann: 2	Brown	1901	Paris: 1	1960	Brown	Generation 3: 2	Brown	78	>85:3
Brown	Marie: 1	Paris: 1	1914	Vienna: 4	1987	Female: 2	Brown	Yes: 1	85	Brown
Brown: 2	Otto: 1	London: 2	1915	Brown	2011	Male: 1	Generation 1: 2	No: 2	90	< 70: 1
Brown (Durand): 1	Paul: 1		1935	Paris: 2	2014		Generation 2: 1		97	70-85: 2
	Brown		1942	London: 1	2020				99	
	Anna: 1		Brown		Brown				Brown	
	James: 1		1879		1947				65	
	Marie: 1		1882		1951				72	
			1913		1996				83	

Two-dimensional evaluation of the data cube of the entrepreneurial family using nesting of data dimensions.



By determining the sequence of the data dimensions, a nesting of its characteristic expressions is created. In our table, the sequence is the family name followed by the place of birth.

Following a two-dimensional evaluation with nesting of the data dimensions it is possible to draw the first conclusions and discern new patterns in the data set. With each new data nesting, a new perspective is created from which a data story can be told. With each change of perspective, understanding of the selected data set grows. This type of approach is known in statistics as exploratory data analysis or exploratory statistics.

Having now evaluated all dimensions of our data set and carried out all possible nesting, it is now the perfect point in time to work with the 80 elements of the information design.

Exercise C in-class assignment

World Journey Data
Grid A5 paper / 4x color pens
Take your World Journey sket map and create a table
Scan (with scanning app) you Upload your sketch/table to A

nformation Design

s / ruler / scanner app

etch from the Homework assigment (B), derive the data from the

our sketch as .jpg Adam till Thursday 7.11 / 10pm

Exercise C homework assignment

Class	Superdot Studio / Modular In 7.11.2024
Task	Familiy text as table
Material	Grid A5 paper / 4x color pens
Step 1	Read the text about Solaranis table from it.
Step 2	Scan (with scanning app) you Upload your sketch/table to A

nformation Design

s / ruler / scanner app

is AG (next slide), highlight all the data in the text and derive a

ur sketch as .jpg Adam till Wednesday 13.11 / 10am

Exercise C homework assignment

Class	Superdot Studio / Modular In 7.11.2024
<section-header></section-header>	The roots of Solenaris AG go photographer and chemist, h Workshop," laying the founda into solar technology. In Paris in Lyon. They married and wo photographic techniques.
	Their daughter, Anna Meier, environment. After her educa legacy. In Rome, she met the married him. This union brou leading to the formation of So
	Anna and Carlo developed in technology. Later, under the the company became a pione 1948 in Zurich, moved to Flor own path independently of th

nformation Design

b back to Johann Meier, born in 1880 in Zurich. As a ne founded the "Meier-Laurent Photography ation for a family business that would later expand s, he met Emilie Laurent, a photographer born in 1882 orked together in Zurich and Paris, pioneering new

born in 1915 in Zurich, grew up in this creative ation, she moved to Rome and continued the family engineer Carlo Rossi, born in 1913 in Milan, and ght technical expertise into the business, eventually olenaris AG.

novative solutions combining photography and solar leadership of their son Marco, born in 1952 in Zurich, eer in solar architecture. Julia, their daughter born in rence to study art history and design, pursuing her he family business.