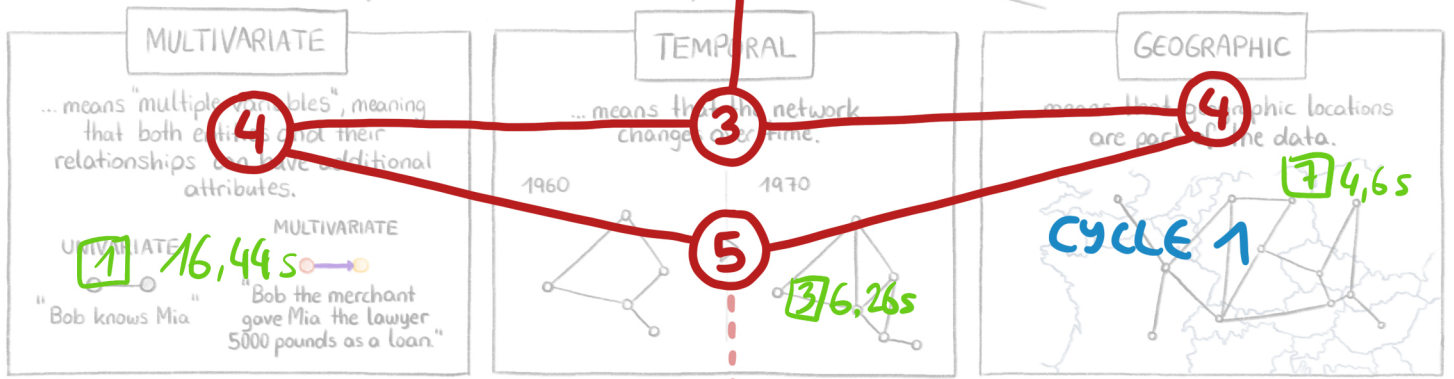
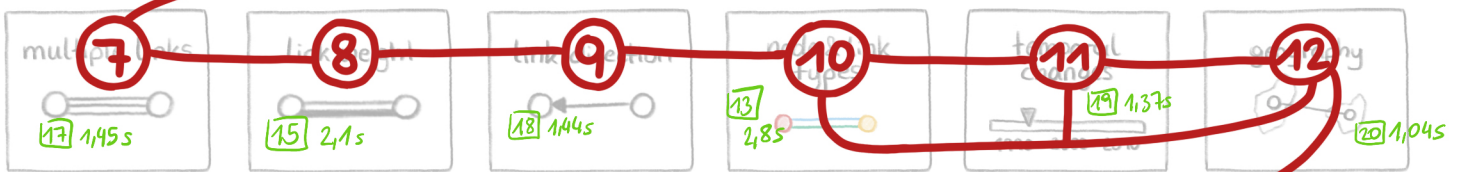


WHAT CAN THE HISTORIAN DO: A FEATURE OVERVIEW

The Historian is a tool for interactive exploration of MULTIVARIATE, TEMPORAL & GEOGRAPHIC networks.

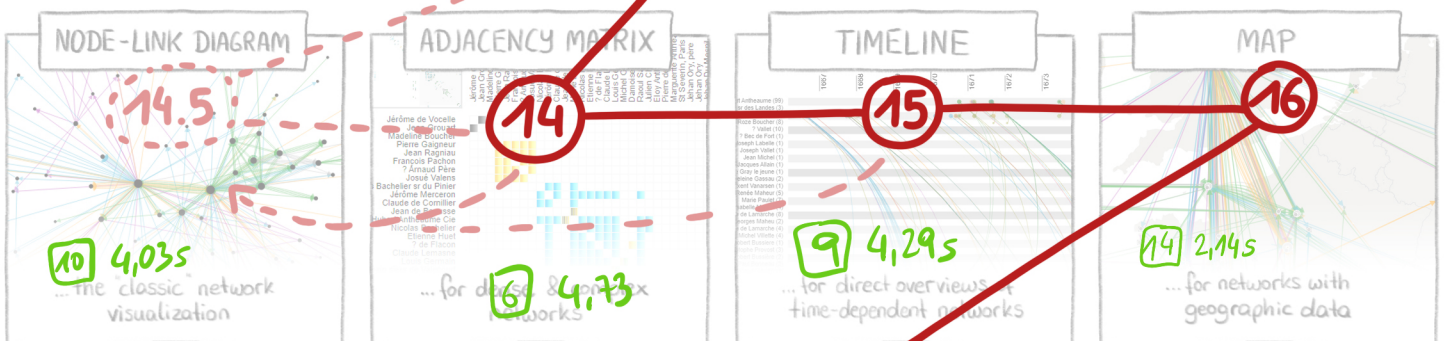


The Historian offers 4 different interactive visualizations of properties of networks, such as:

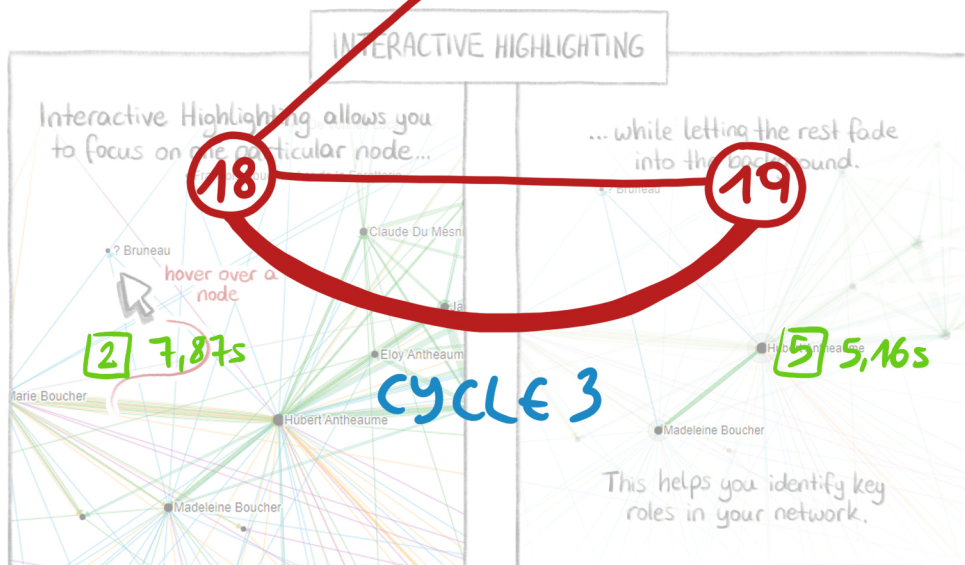


(for more info on network properties, see ?)

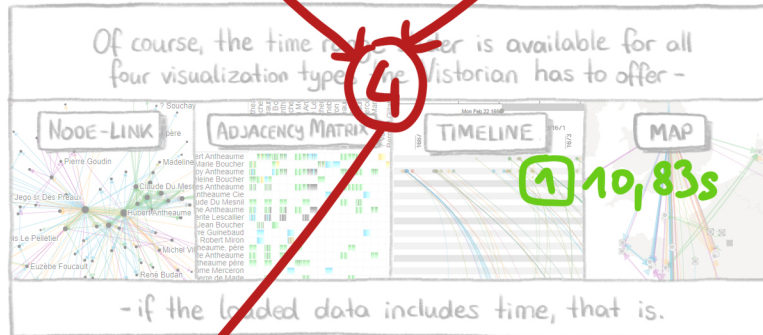
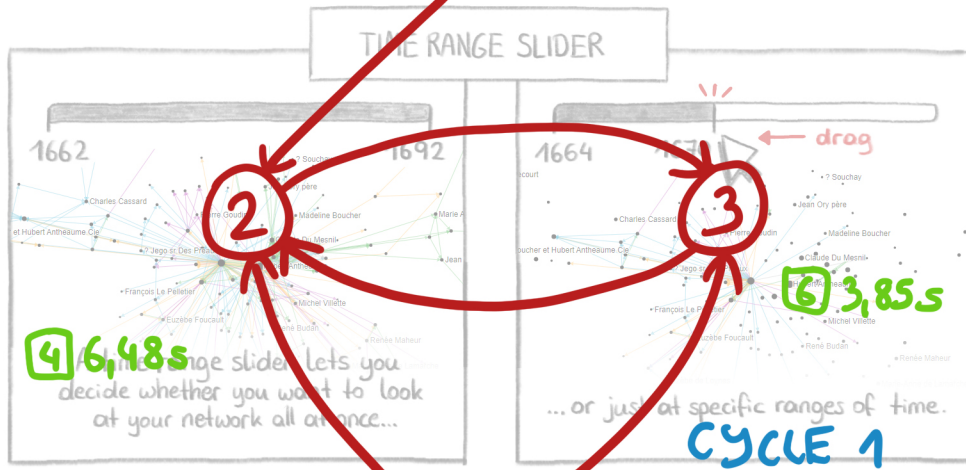
The Historian offers 4 different interactive visualizations:



The Historian offers a range of interactive features to support the exploration of networks:

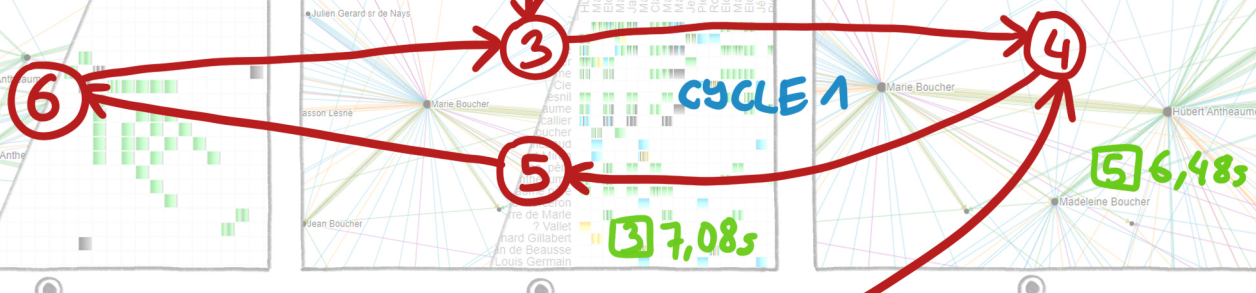


WHAT CAN THE HISTORIAN DO A FEATURE OVERVIEW

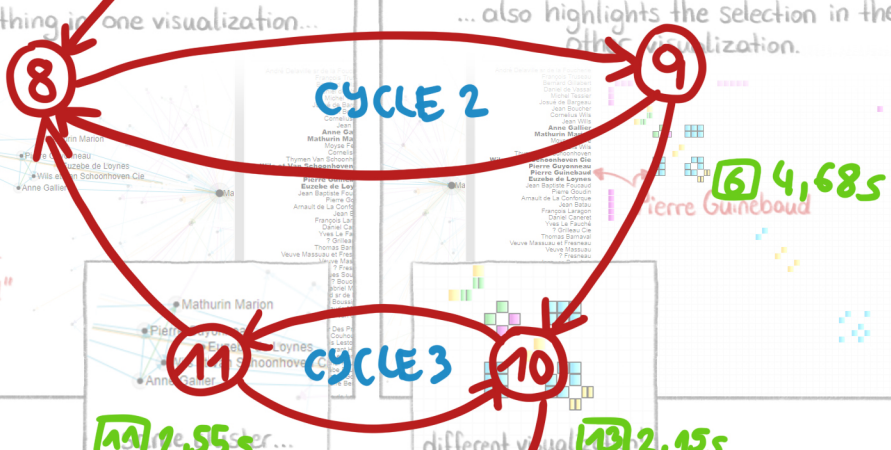


① 12 2,435

73,795



19,595



2 7,875

2 7,875

data is trans

9 3.52



Cycle 4

10 2,675



12 1,5 s

11 3,07

NODE TABLES

Name	Prof	Age	Set	City
Bob	Merchant	he/him	16	Jedburgh Rd Lewes
Anton	Lawyer	he/him	98	4,52
Charles	Accountant	he/him	30	Rhosuddu Rd Fidden
Fred	Attorney	he/him	51	Cloch Rd St Harmon
Lily	Accountant	she/her	81	Peachfield F Challacombe
Ellie	Flight Attendant	he/him	78	Seaford Rd Cumwhinton
Julian	Police Officer	he/him	46	4y Porourg Southampton
Alex	Teacher	they/them	39	Foregate St Codmore Hill
Oliver	Pilot	he/him	12	St Pauls Rd East Preston

In code tables, each row contains information about one single entity (i.e., node). For example, the marked row in this table shows that Charles is an accountant, goes by he/him, and lives at 20 Rhosddu Road in Fiddlen.

8 5,195

Name	Profession	Pronouns	Street	City
Bob	Merchant	he/him	16 Jedburgh Rd	Lewes
Anton	Lawyer	he/him	98 Chiswick Rd	Chiswick
Charles	Accountant	he/him	30 Rhoosau Rd	Hidden
Fred	Attorney	he/him	51 Cloch Rd	St Harmon
Lily	Accountant	he/he	81 Peachfield F	Challacombe
Felix	Flight Attendant	he/him	72 Seaford Dae	Gurnescombe

If we look at the node table, however, we see no direct network structure.

ACCOUNTANT
CHARLES ELLY

ATTORNEY
FRED

LAWYER
LITTON

2 15,875

~~But that is not really purposeful,
especially in this case.~~

NODE TABLE

③ 12,07

This way, they complement each other, because link tables cannot contain information about the entities themselves * (like node types)

* well, technically...

NODE TABLES AND LINK TABLES

Don't do this!

... technically, they could just record data this way is tedious, redundant, and error-prone. Imagine you had to record the profession of each individual over and over in each row:

Sender	Sender Profession	Receiver	Receiver Profession	Amount (k)	Year	Type
Bob	Merchant	Charles	Accountant	10	1801	Loan
Bob	Merchant	Charles	Accountant	14	1803	Gift
Bob	Merchant	Charles	Accountant	3	1811	Purchase
Bob	Merchant	Anton	Lawyer	2	1801	Purchase
Anton	Lawyer	Bob	Merchant	5	1810	Loan

one type can mess up your data since here you now have 3 Charles - one Merchant and one Accountant!

So this is why we need a better solution, we go for...

THE BETTER SOLUTION

...where we outsource information about the nodes to an extra table.

LINK TABLE

Sender	Receiver	Amount (k)	Year	Type
Bob	Charles	10	1801	Loan
Bob	Charles	14	1803	Gift
Bob	Charles	3	1811	Purchase
Bob	Anton	2	1801	Purchase
Anton	Bob	5	1810	Loan
Anton	Lily	4	1804	Loan
Charles	Anton	2	1804	Purchase
Charles	Lily	6	1811	Purchase

Information about the entities' relationships

NODE TABLE

Name	Profession	Pronouns	Street	City
Bob	Merchant	he/him	16 Jedburgh Rd	Lewes
Anton	Lawyer	he/him	98 City Walls R	Clunie
Charles	Accountant	he/him	30 Rheaddu Rd	Fidden
Fred	Attorney	he/him	51 Oakley Rd	Harlow
Lily	Accountant	she/her	81 Peachfield F	Challacombe
Julian	Flight Attendant	he/him	78 Seaford Rd	Cumwhinton
Julian	Police Officer	he/him	46 Marlborough	Southampton
Alex	Teacher	they/them	39 Foregate St	Codmore Hill
Oliver	Pilot	he/him	10 Ockham Rd	East Preston

Information about the entities themselves

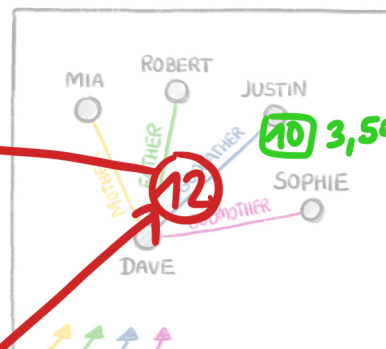
Just make sure that the node names match in both tables, so visualization tools can interpret them correctly.

Bob	Bob
Charles	Charles

There are special cases of tables that are neither really link nor node tables, but can still be used alone to form a network.

An example would be this genealogy table:

CHILD	MOTHER	FATHER	GOD-FATHER	GOD-MOTHER
Bob	Celine	Charles	Dave	Eve
Ana	Fannie	Gerd	Mike	Dianne
Celine	Maria	João	Pedro	Ana
Dave	Mia	Robert	Justin	Sophie
Mike	Celine	John	George	Ana
Pedro	Raquel	Mateo	Julian	Dianne
Eve	Nora	Felix	Julian	Dianne
Laura	Tamara	Julian	Dianne	Dianne
Troy	Natalia	Alex	Walter	Dianne
Victoria	Celine	Oliver	Alfred	Crystal



For more information on importing tables to the Vistorian, see this comic

The Vistorian would interpret this table as a node table and infer a different link type for each column.

HOW TO PREPARE DATA FOR EXPLORATION

As soon as we have a raw data, there are two routes of exploration we can take, depending on whether we have a

RESEARCH QUESTION

yes

no

HYPOTHESIS-DRIVEN RESEARCH

...where you have an idea of what you want to know, for example...

“Which members of which political parties interrupted which members of other parties during their parliament sittings?”

CYCLE 1

OPEN-ENDED EXPLORATION

...where you are the experimental path and find interesting insights along the way.

“I collected all these data about my topic - now I wonder if I can find any patterns in these networks.”

in either case, starting from all the raw dataset, likely formatted in a large

TABLE

Name_eng	Name_zh	Nationality	University	State	Uni_city	Level	Field_main	Field_2	Field_3	Year_start	Year_end	How	
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA

Tools that we should first create a

CONCEPT MAP

Name_eng	Name_zh	Nationality	University	State	Field_main	Field_2	Field_3	Year_start	Year_end	How			
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA
Arnold_Harrison	安爾遜	Western	California	California	Berkeley	A.B.	Bachelor	Humanities	Arts	Humanities	1931	1931	NA

A concept map shows which entities exist in our database and how they are related. Let's see what columns we have and which concepts we can find.

A concept map shows which entities exist in our dataset, and how they are related. Let's see what columns we have and which concepts we can find.

"Student" would be an obvious entity.



Note that there is no actual column named "Student" though. Instead, the concept "student" is described by multiple columns in our table.

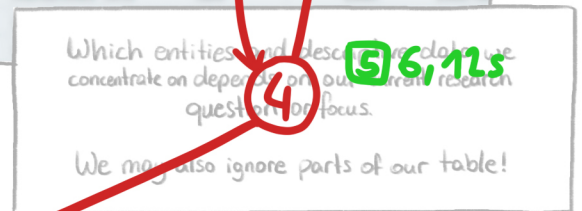
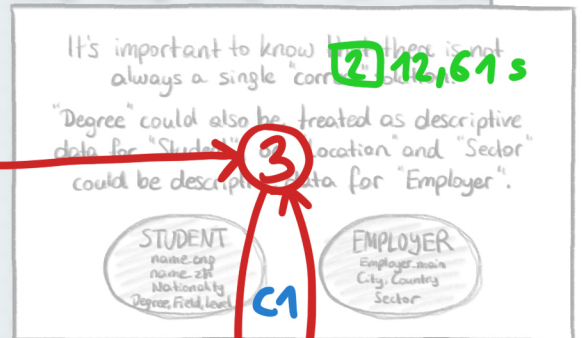
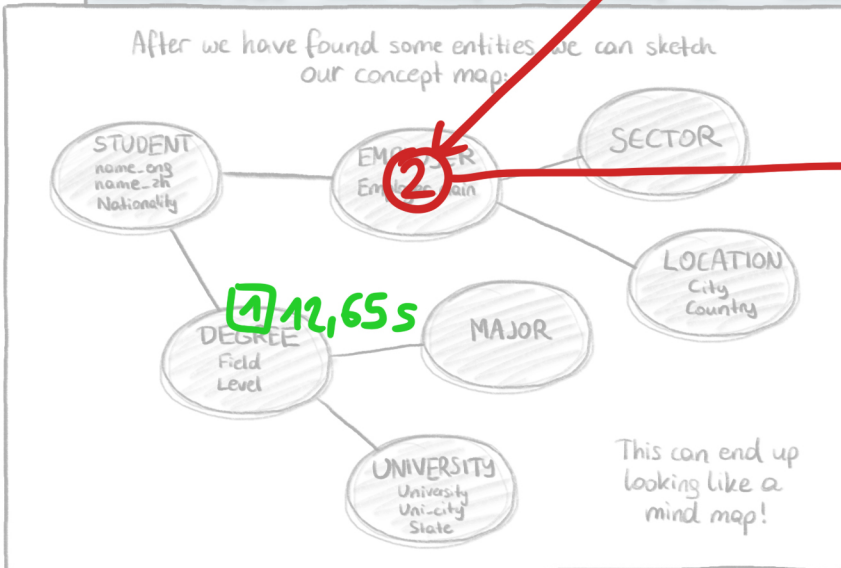
This is why such data are called **DESCRIPTIVE DATA**

C3

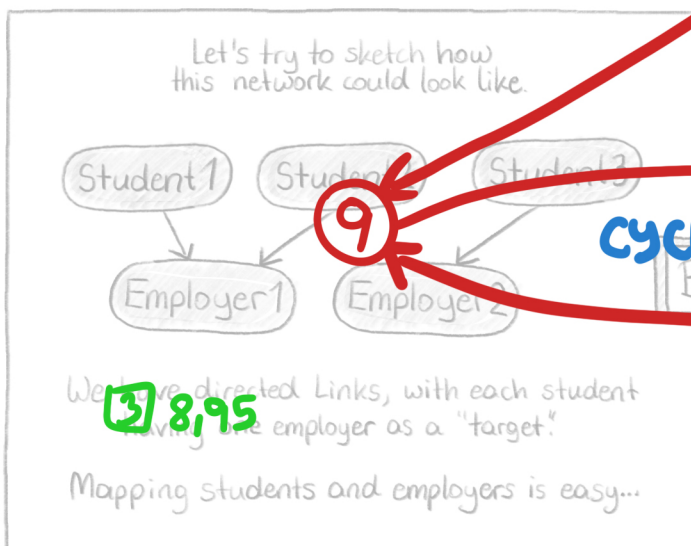
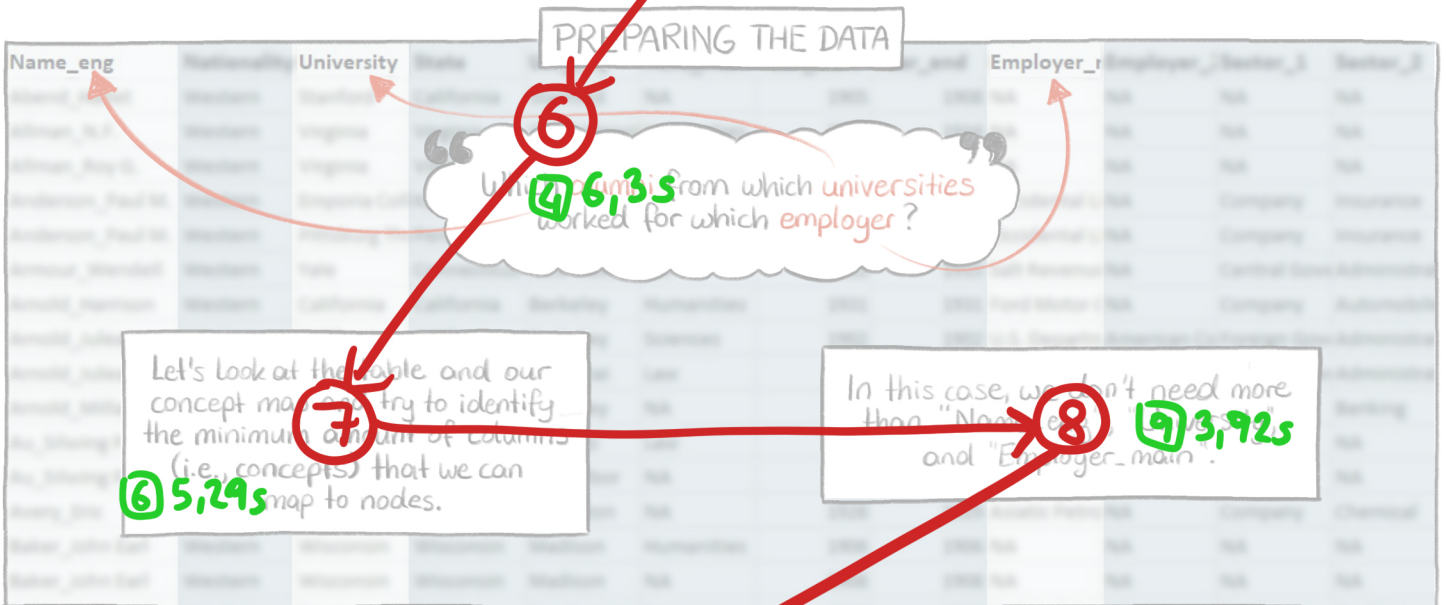
Like "Name" and "Nationality" describe "Student", "University", "City", and "State" could describe "University" or "Field" and "Level" could describe "Degree".



HOW TO PREPARE DATA EXPLORATION



So, let's take on a simple research question and plan how our network could look like to answer it.

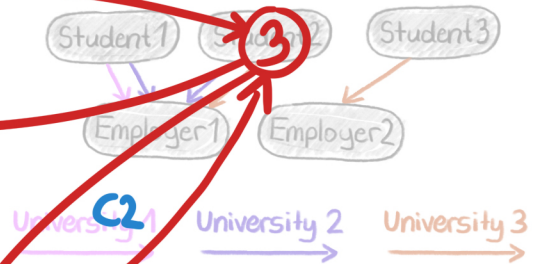


HOW TO PREPARE DATA FOR EXPLORATION

If we add them as nodes, the network will become cluttered and hard to read...



So instead, we can map them through the LINK TYPE.



Both of these graphs should show the SAME INFORMATION!

Technically, you should have your data visualized now. There's just one optional step left to do:

OPTIONAL
If you want, you could add node types for better visual distinction:



To do this, you need to provide an extra table that specifies each entity's type.
(also see here ☺)

OPTIONAL
Such a table should look like this:

Name or ID of node	Node type
Arnold_Julean	Student
Arnold_Millard	Student
Au_Silwing P.C.	Student
Avery_Eric	Student
Baker_John Earl	Student
Baldwin_Berry O.	Student
Barnett_E...	Student

And if you have your tables handy, you are now ready to import your data into a visualization tool!

Read more on importing data into "The Vistorian" here: ☺

UPLOADING DATA & CREATING A NETWORK SCHEMA WITH THE VISTORIAN

This comic uses the following datasets:

viscomidata2 → (example genealogy node table)
fingurl.com/viscomidataset → (dataset of alumni & employers)
studentnodetypes → (node types for the alumni dataset)

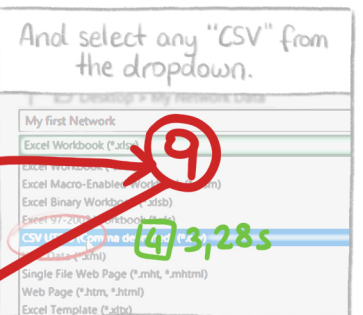
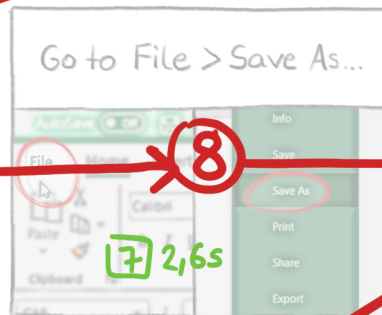
But you can also follow along with your own data!

See how to prepare your data here: [LINK](#)

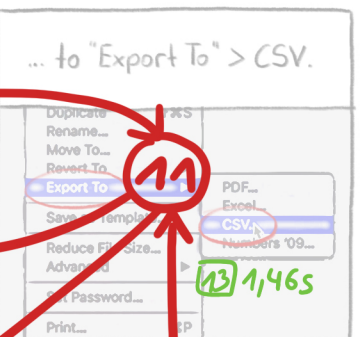
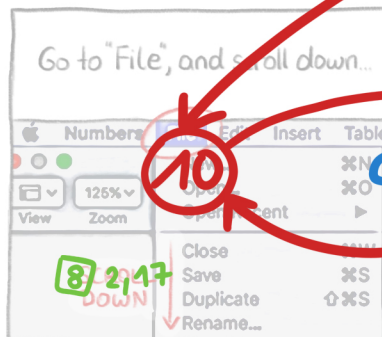
When starting the Vistorian, you will see the following:



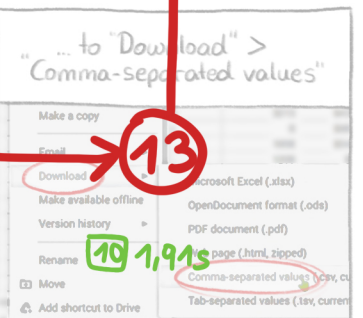
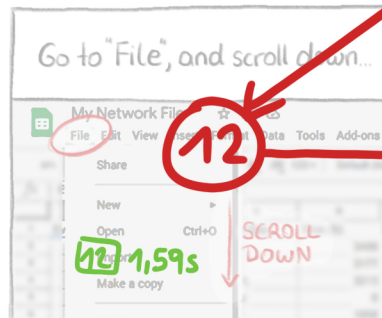
Microsoft Excel



Apple Numbers



Google Sheets



UPLOADING DATA & CREATING A NETWORK WITH THE VISTORIAN

④ Then, the Vistorian needs to know how links are represented in your data table, whether you have a NODE TABLE or a LINK TABLE (see here [?](#))

So... which kind of table do you have?

LINK

⑬ 0,95s

Name_eng	Name_zh	Nationality	University	State	Un_city	Degree_sou
Abend_Hallet NA		Western	Stanford	California	Stanford	NA
Allman_N.F. NA		Western	Virginia	Virginia	Charlottesville B.A.	
Allman_Roy NA		Western	Virginia	Virginia	Charlottesville LL.B.	
Anderson_Pat 安建生		Western	Colle Kansas	Emporia	A.B.	
Anderson_Pat 安建生		Western	The Pennsylvania	Pittsburg	B.D.	
Armour_Went N					NA	
Arnold_Harris 安					A.B.	
Arnold_Julear 安					B.S.	
Arnold_Julear 安					LL.D.	

use your own data or the alumni - employers example dataset

You will be asked whether your links are directed.

1. Are links directed?
Does it matter who is the source and who is the target?
Yes
No

⑤ Then, drag & drop your .csv file to upload it.

⑤ 6,13s

⑤ 3,57s

2. Upload your file

Select a previously uploaded file:

Upload a new file:

⑥

You will see a preview of your table. Check whether it has a header row or not - you don't want the names of the columns to be added as nodes!

0	1	2
NAME	UNI	EMPLOYER
Bob	Stanf	Ministry of f
Darcy	Calife	Shanghai T
Mira	Yale	Liberty Dair
Darcy	Marce	Frederick R

⑪ 12,81s

☐ Has header row?

⑩

NAME	UNI	EMPLOYER
Bob	Stanf	Ministry of f
Darcy	Calife	Shanghai T
Mira	Yale	Liberty Dair
Martin	Corne	National Sou
Darcy	Marce	Frederick R

☒ Has header row?

Next, you need to tell the Vistorian which columns in your table describe your source and target nodes.

(Or, simply, which are the two nodes that have a relationship)

SOURCE TARGET

In our example, we want to see relations between alumni and employers:

⑦

Source node label: Name_eng (first value is "Bob")

Target node label: Employer_main (first value is "Ministry of f")

⑦ 4,87s

Next, you need to specify which column of your table contains your main nodes, i.e., those you want to see the relationships of.

In the example genealogy that would be the column "CHILD".

Node

CHILD (first value is "Bob")

⑦

CHILD

MOTHER

FATHER

ETC...

entry points vary
↳ likely that people jumped between paths a lot

NODE

⑫ 1,02s

CHILD	MOTHER	FATHER	GOD-FATHER	GOD-MOTHER
Bob	Celine	Charles	Dave	Eve
Ana	Fannie	George	Mike	Dianne
Celine				Ana
Dave				Sophie
Mike				Amanda

⑤ Drag & drop your .csv file to upload it.

⑤ 3,07s

⑤ 3,07s

⑤ 3,07s

UPLOADING DATA & CREATING A NETWORK SCHEMA WITH THE VISTORIAN

Next, there are a few optional fields you can specify if your search query or network structure requires them:

OPTIONAL

Optional fields:

Link ID: ID ☐ LINK ID - in case you have unique IDs assigned to your links, which is only really used in special cases.

Location of source node: LOCATION - if your data contains geographical information and you want it visualized on a map

Location of target node:

Link weight: LINK WEIGHT - if you have numerical values indicating the "strength" of a connection. (see more here: [?](#))

Link type: LINK TYPE - if you have different kinds of relationships. (see more here: [?](#))

Whether a link is directed: ☐ C1 WHETHER A LINK IS DIRECTED - only relevant if you have both directed and undirected links in your network, and a column that specifies something like directed - "yes" or "no"

Then, all that's left to do is specify which other columns your main nodes have a relationship to - and how you want to name them.

Click on the "Add Relation" Button:

Choose a related column - for example, "MOTHER" and name the relation:

Column: MOTHER (first value is "Celine")

Link name (type): Mother

The name you choose will automatically become the name of this relation's Link type, so you can later find it in the legend easily.

Column: MOTHER (first value is "Celine")

Link name (type): Mother

CHILD MOTHER

Mother

You need to specify at least one type of relation to be able to form a network, but you can add as many as you want!

GODFATHER GODMOTHER

CHILD MOTHER FATHER

relation

Column: FATHER (first value is "Charles")

Link name (type): Father

Delete this relation

Column: GOD-FATHER (first value is "Dave")

Link name (type): Godfather

Delete this relation

Column: GOD-MOTHER (first value is "Eve")

Link name (type): Godmother

Delete this relation

clear entry point to secondary path (unlike previous page)

As soon as you've specified all relations that are of interest to you...

8 Then, you have to check whether your links have associated times - if you want to explore your network over time.

2 9,19s



3. Are links associated with time?

- ☒ No, my links do not have associated times or this
- ☐ Yes, each link is associated with a single time (for

yes

no

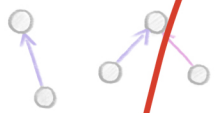
Then, specify which column contains the times, and also which format you have.

24.03.98 → %d %m %y

March 24, 1998 → %B %d %Y

UPLOADING DATA & CREATING A NETWORK SCHEMA WITH THE VISTORIAN

9 Lastly, you have the option to upload an extra table (as a .csv file) that specifies node types, if you have one. For the example data, you can use this file: tinyurl.com/3sudentnodetypes

Without node type table:  With node type table: 

— Uni 1
— Uni 2

— Employer
— Student

Do you have an extra table with node types?

yes

no

C2

10 Then, drag and drop your file like before and check again if it has a header row. The Vistorian also needs to know which column of the table contains the Node ID (or rather, the entities whose type is specified), and which column contains the types.

Node ID: 0 (first value is "Abend_Hall")
Node type: 1 (first value is "Student")

As soon as you have completed these steps...

You can choose one of the 5 visualizations offered, and start exploring your network!

Matrix

Timeline

For tips on how to start exploring, see this comic: 