

Creating a network from a table of cooccurring items

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Presentation of the plugin

This plugin is created by [Clement Levallois](#).

It converts a spreadsheet or a csv file into a network.

This plugin enables you to:

- Start from a data table in Excel or csv format
- In the data table, each row describes an "occurrence" (of an event, a purchase, a relation, etc.)
- In columns A, B, C, D, we have the entities involved: column A for persons, column B for what they bought, etc.
- Connections will be created between entities, when they appear in the same occurrence (so, when they are on the same row)
- Occurrences can have dates, multiple instances of an entity can be listed in a given column.

1. The input

	A	B
1	Client	Purchases
2	A	sofa bed,chairs,table,dressing,toys,diapers
3	B	toys,diapers,powder milk,babyshoes
4	C	beer,snacks,vodka,pizza,sofa bed,chairs,table
5	D	cereals,toys,table,chairs
6	E	cleaning product,diapers,toys
7	F	powder milk,diapers
8	G	beer,snacks
9	H	pizza,beer
10	I	table,chair
11		

Figure 1. An Excel file

2. The output

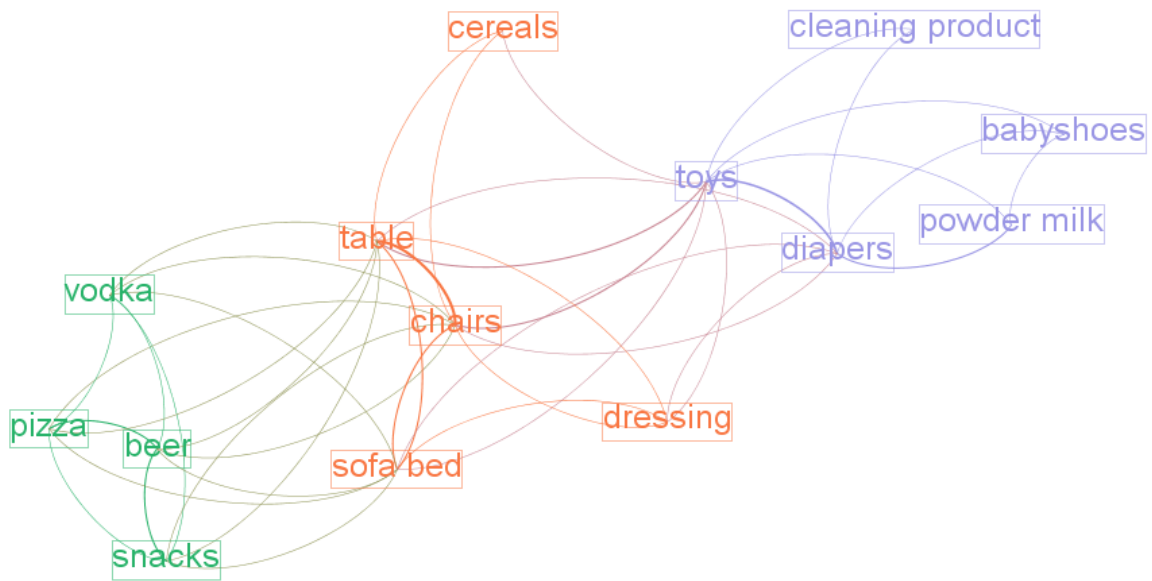


Figure 2. Resulting network

Installing the plugin

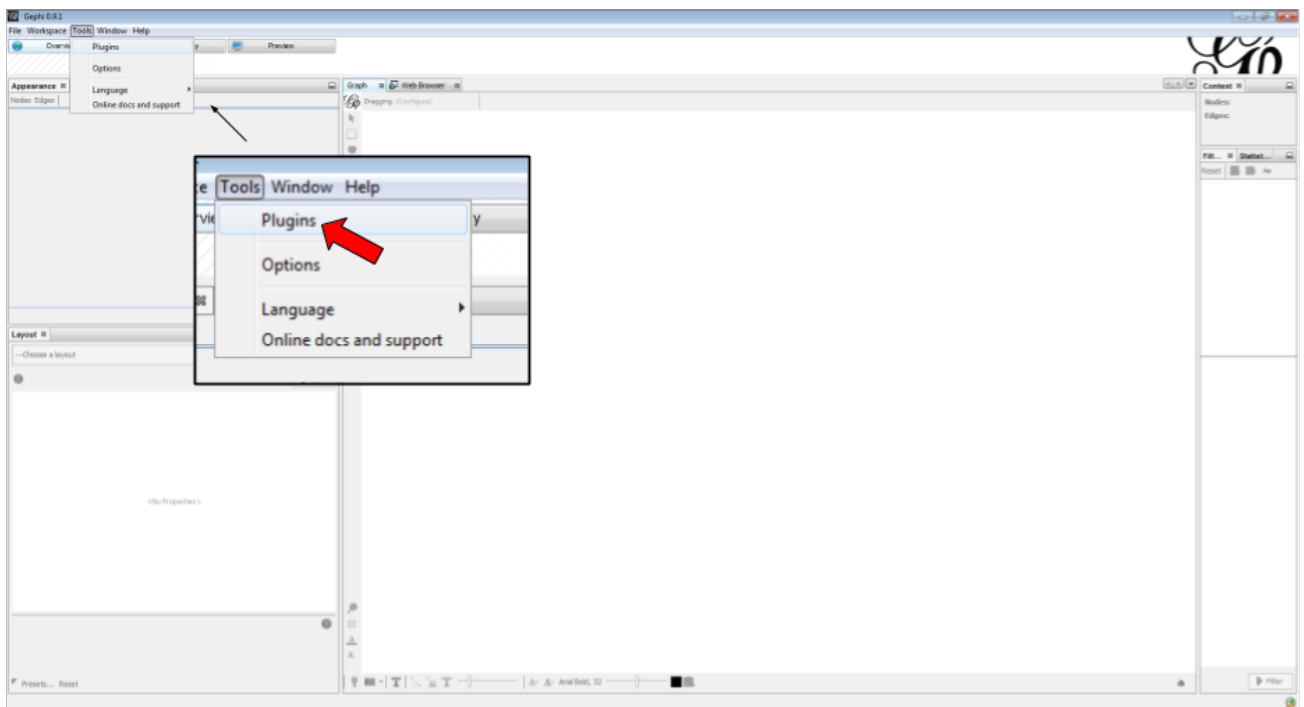


Figure 3. Choose the menu Tools then Plugins

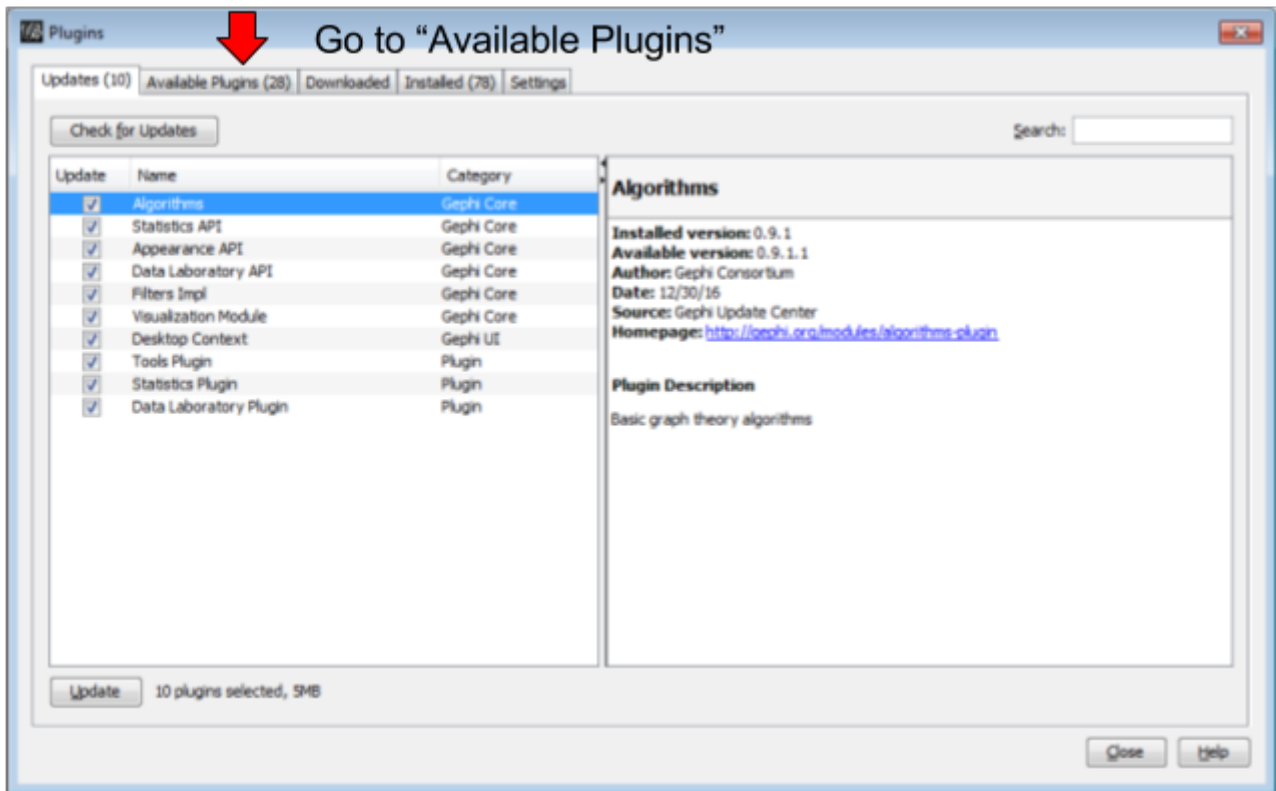


Figure 4. Click on the tab Available Plugins

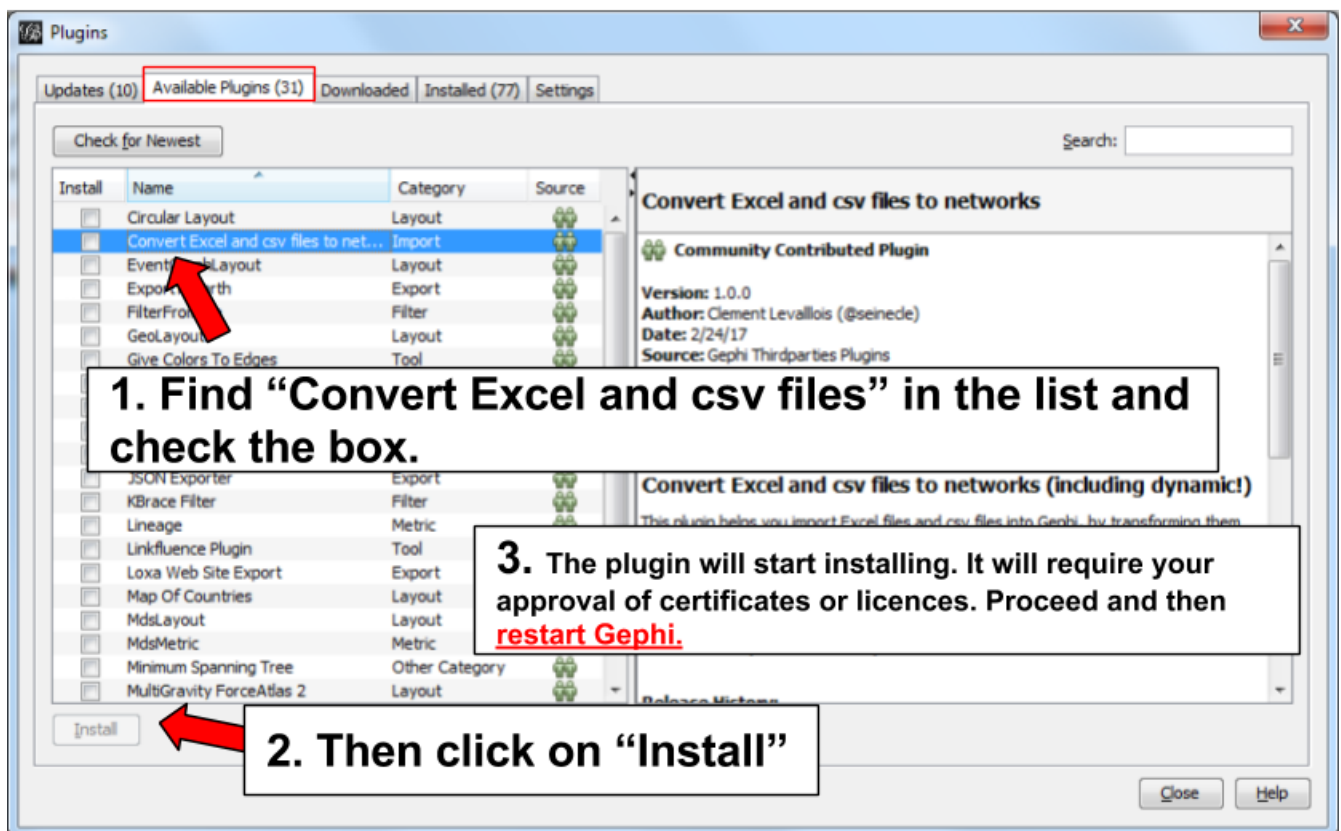


Figure 5. Install the plugin and restart Gephi

Opening the plugin

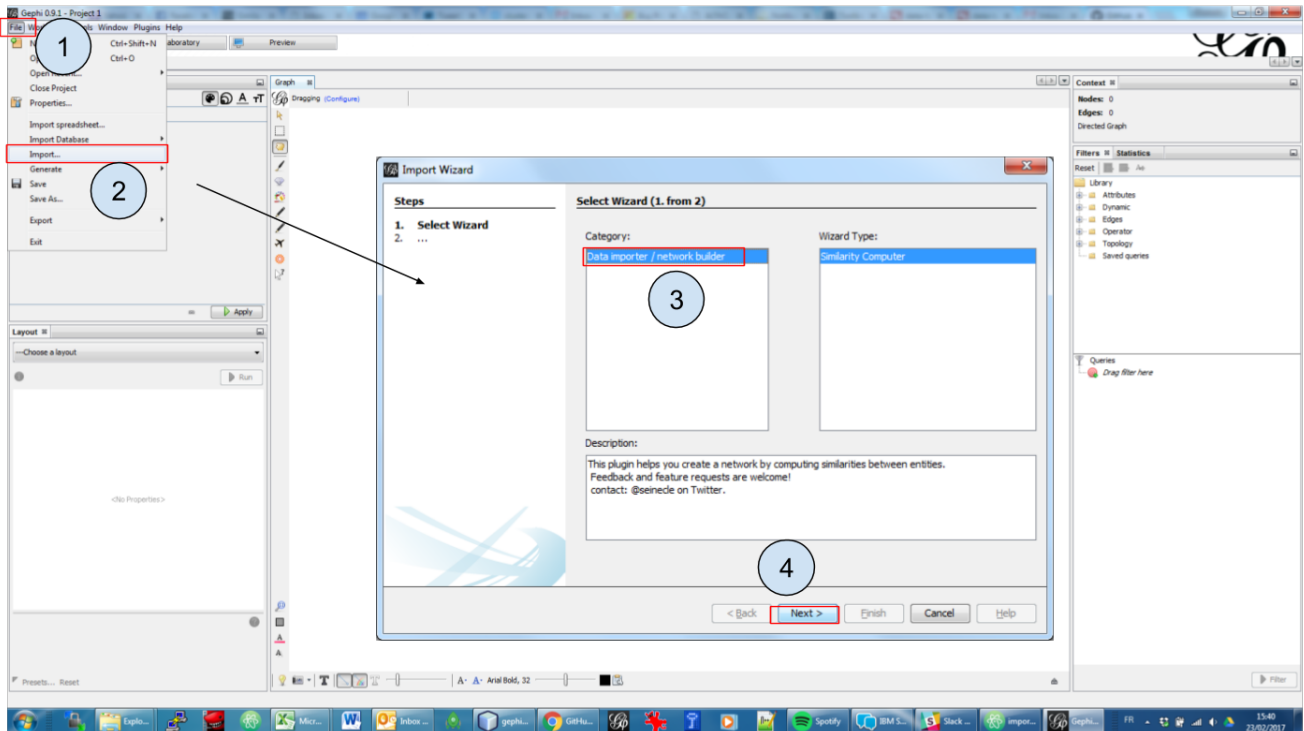


Figure 6. Open the plugin via the menu File - Import

Using the plugin

2nd panel

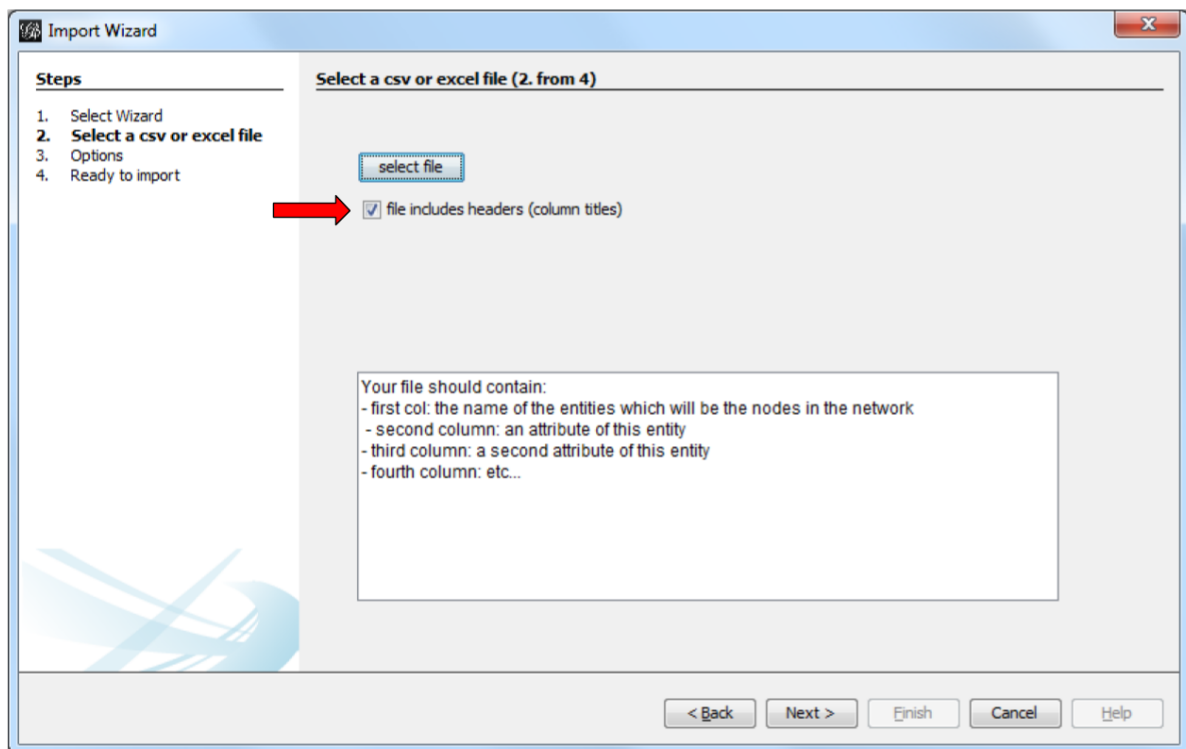


Figure 7. Select a file

	A	B
1	A	sofa bed,chairs,table,dressing,toys,diapers
2	B	toys,diapers,powder milk,babyshoes
3	C	beer,snacks,vodka,pizza,sofa bed,chairs,table
4	D	cereals,toys,table,chairs
5	E	cleaning product,diapers,toys
6	F	powder milk,diapers
7	G	beer,snacks
8	H	pizza,beer
9	I	table,chairs
10		

Figure 8. A file without headers

	A	B
1	Client	Purchases
2	A	sofa bed,chairs,table,dressing,toys,diapers
3	B	toys,diapers,powder milk,babys shoes
4	C	beer,snacks,vodka,pizza,sofa bed,chairs,table
5	D	cereals,toys,table,chairs
6	E	cleaning product,diapers,toys
7	F	powder milk,diapers
8	G	beer,snacks
9	H	pizza,beer
10	I	table,chair
11		

Figure 9. A file with headers

To describe the next screens of the plugin, we will take the example of **the Excel file just shown**, with headers.

3rd panel

Import Wizard

Steps

1. Select Wizard
2. Select Excel or csv file
- 3. Select agents**
4. Subfields in agents
5. Dynamic network?
6. Options
7. Ready to import

Select agents (3. from 7)

What are the connections made of?

1. This type of agent:

Client
Purchases

is connected to

2. This type of agent:

Client
Purchases

Example: for a network of co-authors, pick the field of co-authors twice!

< Back Next > Finish Cancel Help

Figure 10. Which entities should be the nodes?

What does this panel mean?

If you look back at the Excel file, you see that we have "Clients" and their "Purchases".

→ This means we can build 2 different types of networks, depending on our needs:

1. A network showing clients and products, with relations representing purchases from a client to a product.

```
Failed to generate image: can't modify frozen
graph g {
    rankdir="LR";
    client -- product [ label="purchased" ]
}
```

To create this kind of networks, choose "Client" in the upper window, and "Purchases" in the lower window of the plugin screen.

2. Or a network where 2 products are connected, if one client purchased them together.

```
Failed to generate image: can't modify frozen
graph g {
    rankdir="LR";
    a -- b [label=" purchased together"]
    a [label="product 1"];
    b [label="product 2"];
}
```

To create this kind of networks, choose "Purchases" in the upper and lower windows of the plugin screen.

4th panel

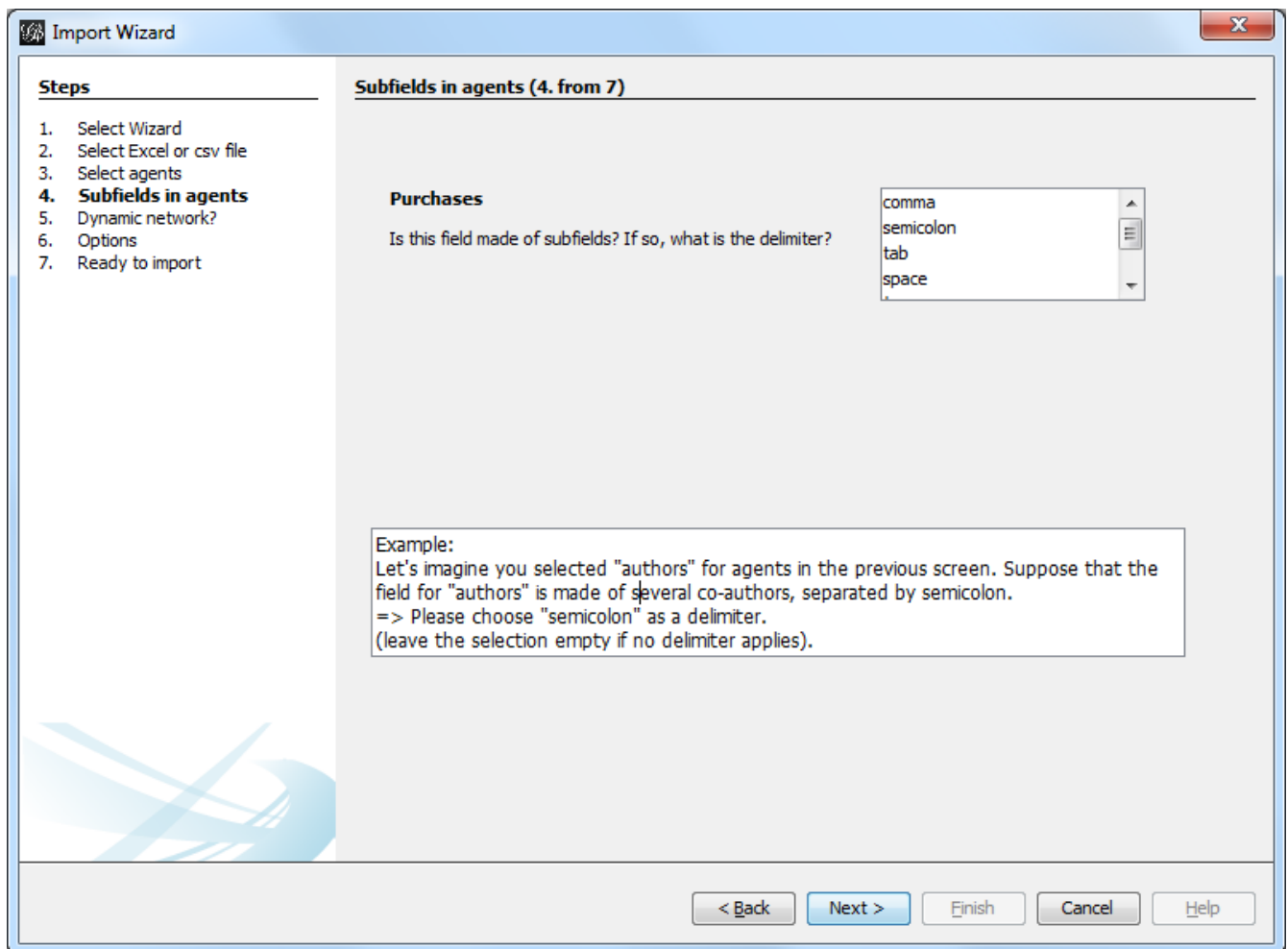


Figure 11. Choosing which delimiter is used

This 3rd panel asks: in our Excel file, how are different items separated in a given cell? In our example, we have used commas: the lists of products purchased are comma-separated:

	A	B	
1	A	sofa bed, chairs, table, dressing, toys, diapers	
2	B	toys, diapers, powder milk, baby shoes	
3	C	beer, snacks, vodka, pizza, sofa bed, chairs, table	
4	D	cereals, toys, table, chairs	
5	E	cleaning product, diapers, toys	
6	F	powder milk, diapers	
7	G	beer, snacks	
8	H	pizza, beer	
9	I	table, chairs	
10			

Figure 12. commas shown in red

5th panel

This panel allows you to specify whether the relations are dynamic in time, or not.

In this case, you need an extra column (column C), where a date is shown. We don't cover this case here.

(read the tutorials on dynamic networks for a starter)

6th panel

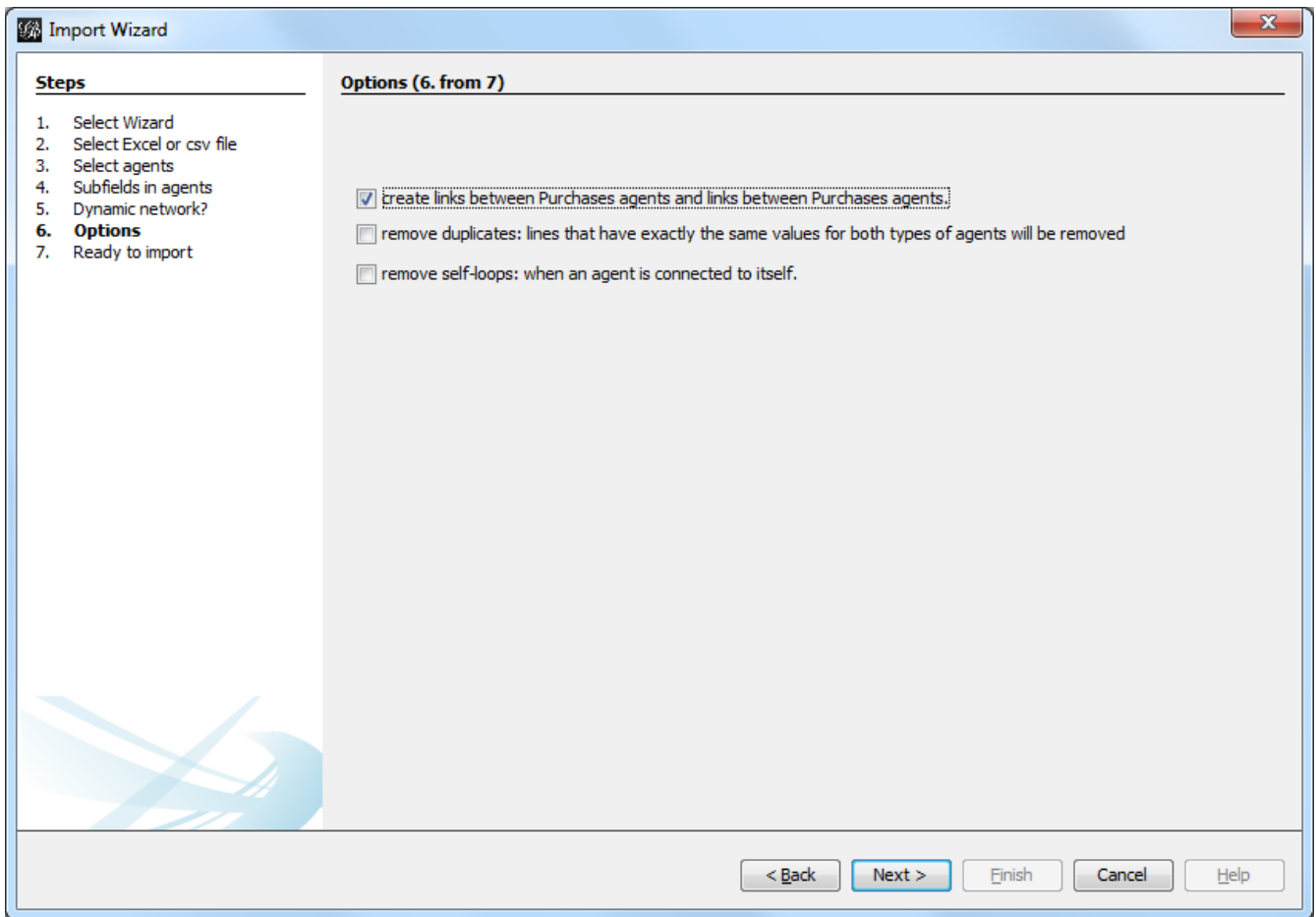


Figure 13. Options panel

"Create links between Purchases agents and links between Purchase agents"

→ If you chose a Product \leftrightarrow Product kind of network in panel 3, then of course you are interested in links between products. **Check the box.**

→ But if you chose a Client \leftrightarrow Product kind of network in panel 3, what you need is less obvious.

Let's take the example of client I, who purchased a table and some chairs:

1. Checking the box will create a network where:

```
Failed to generate image: can't modify frozen
graph g {
    rankdir="LR";
    a -- b [label=" purchased"]
    a -- c [label=" purchased"]
    b -- c [label=" co-purchased"]

    a [label="client I"];
    b [label="table"];
    c [label="chairs"];
}
```

1. **Not** checking the box will create a network where:

```
Failed to generate image: can't modify frozen
graph g {
    rankdir="LR";
    a -- b [label=" purchased"]
    a -- c [label=" purchased"]

    a [label="client I"];
    b [label="table"];
    c [label="chairs"];
}
```

"Remove duplicates"

→ Check this option if your Excel or csv file has duplicate rows that you'd like to be removed

"Remove self-loops"

If a Client has purchased tables twice, so that we have "table, table" in a cell: this would create a link from table to table (a **self loop**).

→ Check this option if you'd like self loops to be removed.

7th panel

This panel recaps all the settings. Click on finish to create the network.

The end

Visit [the Gephi group on Facebook](#) to get help,

or visit [the website](#) for more tutorials