Workshop
Open Citations: Opportunities and Ongoing Developments

Assignments VOSviewer tutorial

September 2, 2019, 16.30-18.30h

ISSI2019 conference, Sapienza University, Rome

T1 room

Assignment 1: Creating co-authorship maps

The objective of this assignment is to create two co-authorship maps, one based on Crossref data and one based on Microsoft Academic data.

1. Launch VOSviewer and click **Create** to open the **Create Map** wizard.
2. Choose **Create a map based on bibliographic data** and click **Next**.
3. Choose **Download data through API** and click **Next**.
4. In the **API** drop-down box, choose **Crossref**. In the **Journal** text box, type **Journal of Informetrics** (case sensitive). Click **Next**.
5. Do not remove any documents from the analysis. Click **Next**.
6. Choose **Co-authorship** for the **Type of analysis**, **Authors** for the **Unit of analysis**, and **Full counting** for the **Counting method**. Click **Next**.
7. Use a value of 3 for the minimum number of documents of an author and click **Next**.
8. Use the default value for the number of authors and click **Next**.
9. Do not remove any authors from the analysis. Click **Finish** to finish creating your map.
10. VOSviewer may indicate that some authors in your co-authorship network are unconnected from the rest of the network. In that case, you may choose either to remove the unconnected authors from the network or to keep them in the network. Click **Yes** to remove the unconnected authors.
11. Go to the **Analysis** tab. To increase (decrease) the number of clusters, increase (decrease) the value of the **Resolution** parameter and click **Update Clustering**. The **Resolution** parameter usually should have a value between 0.5 and 2.0.
12. Go to the **File** tab and save your map by clicking **Save**.

Repeat the above steps to create a co-authorship map based on Microsoft Academic data. In step 4, choose **Microsoft Academic** instead of **Crossref** in the **API** drop-down box. Also, make sure to enter an API key. If you do not yet have a key for the Microsoft Academic API, click **Request API key**. Compare the co-authorship maps obtained based on Crossref and Microsoft Academic data.

Assignment 2: Creating term maps

The objective of this assignment is to create two term co-occurrence maps, one based on Crossref data and one based on Microsoft Academic data.

1. Launch VOSviewer and click **Create** to open the **Create Map** wizard.
2. Choose **Create a map based on text data** and click **Next**.
3. Choose **Download data through API** and click **Next**.
4. In the **API** drop-down box, choose **Crossref**. In the **Journal** text box, type **Journal of Informetrics** (case sensitive). Click **Next**.
5. Do not remove any documents from the analysis. Click **Next**.
6. Choose to extract terms from the titles of documents. Because the publisher of *Journal of Informetrics* has not deposited abstracts in Crossref, it is not possible to extract terms from the abstracts of documents. Click **Next**.
7. Choose **Binary counting** and click **Next**.
8. Choose the minimum number of documents in which a term is required to occur in order to remain in the analysis. Since the total number of documents in *Journal of Informetrics* is relatively small, you may want to reduce the minimum number of occurrences from the default value of 10 to 5. Click **Next**.
9. Terms that do not occur in a sufficiently large number of documents have now been removed from the analysis. Among the remaining terms, choose the number of terms that should remain in the analysis. By default, VOSviewer proposes to keep 60% of the terms. This is usually a good choice, but you may want to experiment with a smaller or a larger number of terms. VOSviewer will remove from the analysis the terms that appear to be least relevant. Click **Next**.
10. You may want to manually remove some terms, but in general there is no need to do so. Click **Finish** to finish creating your map.
11. Go to the **Analysis** tab. To increase (decrease) the number of clusters, increase (decrease) the value of the **Resolution** parameter and click **Update Clustering**. The **Resolution** parameter usually should have a value between 0.5 and 2.0.
12. Go to the **Overlay Visualization** tab and try to find out which topics received a lot of attention in *Journal of Informetrics* in earlier years and which topics received a lot of attention in the journal in recent years.
13. Go to the **File** tab and save your map by clicking **Save**.

Repeat the above steps to create a co-authorship map based on Microsoft Academic data. In step 4, choose **Microsoft Academic** instead of **Crossref** in the **API** drop-down box. In step 6, choose to extract terms both from the titles and from the abstracts of documents. Unlike Crossref, Microsoft Academic does include abstracts of documents published in *Journal of Informetrics*. Compare the term co-occurrence maps obtained based on Crossref and Microsoft Academic data.

Assignment 3: Creating a citation map

The objective of this assignment is to create a citation map based on Microsoft Academic data.

1. Launch VOSviewer and click **Create** to open the **Create Map** wizard.
2. Choose **Create a map based on bibliographic data** and click **Next**.
3. Choose **Download data through API** and click **Next**.
4. In the **API** drop-down box, choose **Microsoft Academic**. In the **Journal** text box, type **Journal of Informetrics**. Click **Next**.
5. Do not remove any documents from the analysis. Click **Next**.
6. Choose **Citation** for the **Type of analysis** and **Documents** for the **Unit of analysis**. Click **Next**.
7. Go through the remaining steps of the **Create Map** wizard. The default parameter values probably work well, but feel free to try out alternative values.
8. VOSviewer may indicate that some documents in your citation network are unconnected from the rest of the network. In that case, you may choose either to remove the unconnected documents from the network or to keep them in the network. Click **Yes** to remove the unconnected documents.
9. In the options panel in the right area of the VOSviewer window, increase the number of lines that are displayed in order to make sure that all citation links between documents are visible.
10. Go to the **Analysis** tab. To increase (decrease) the number of clusters, increase (decrease) the value of the **Resolution** parameter and click **Update Clustering**. The **Resolution** parameter usually should have a value between 0.5 and 2.0.
11. Go to the **File** tab and save your map by clicking **Save**.

Note that it is not possible to create a citation map of documents in *Journal of Informetrics* based on Crossref data. Because Elsevier, the publisher of *Journal of Informetrics*, does not support the Initiative for Open Citations (I4OC) and does not make references openly available in Crossref, it is not possible to use Crossref data to create citation maps for Elsevier journals. For journals of other publishers that do support I4OC, it is possible to use Crossref data to create citation maps.

Assignment 4: Creating a co-citation map

The objective of this assignment is to create a co-citation map based on Crossref data.

1. Launch VOSviewer and click **Create** to open the **Create Map** wizard.
2. Choose **Create a map based on bibliographic data** and click **Next**.
3. Choose **Download data through API** and click **Next**.
4. In the **API** drop-down box, choose **Crossref**. In the **Text** text box, type **bibliometric** (case sensitive). Click **Next**. Data will be retrieved for all documents in Crossref that include *bibliometric* in their title.
5. Do not remove any documents from the analysis. Click **Next**.
6. Choose **Co-citation** for the **Type of analysis**, **Sources** (i.e., journals) for the **Unit of analysis**, and **Full counting** for the **Counting method**. Click **Next**.
7. Go through the remaining steps of the **Create Map** wizard. The default parameter values probably work well.
8. Go to the **Analysis** tab. To improve the layout of your map, change the value of the **Repulsion** parameter from 1 to 0 and click **Update Layout**.
9. To increase (decrease) the number of clusters, increase (decrease) the value of the **Resolution** parameter and click **Update Clustering**. The **Resolution** parameter usually should have a value between 0.5 and 2.0.
10. Go to the **File** tab and save your map by clicking **Save**.

Note that it is not possible to create co-citation maps based on Microsoft Academic data.

Assignment 5: Dimensions data

The objective of this assignment is to create different types of maps based on Dimensions data.

1. Open a web browser and go to https://www.dimensions.ai and click **Access for free**.
2. Make sure to log in. This is necessary in order to be able to export data from Dimensions. If you do not yet have a Dimensions user account, click **Register** to create one.
3. Perform a search in Dimensions. You could for instance search for publications in *Journal of Informetrics* or for publications that include *bibliometric* in their title or abstract, or even in their full text.
4. Click **Save / Export** followed by **Export for bibliometric mapping**.
5. Wait until your export is ready to download. You will be informed by e-mail. When your export is ready, go to the Dimensions export center and download your export.
6. Extract the downloaded ZIP file. The ZIP file contains a CSV file. The CSV file contains the data exported from Dimensions.
7. Launch VOSviewer and click **Create** to open the **Create Map** wizard.
8. To create a term co-occurrence map, choose **Create a map based on text data** and click **Next**. To create other types of maps, choose **Create a map based on bibliographic data** and click **Next**. Note that data exported from Dimensions does not include abstracts. This significantly limits the value of term co-occurrence maps created based on Dimensions data.
9. Choose **Read data from bibliographic database files** and click **Next**.
10. Go to the **Dimensions** tab and select the CSV file downloaded from Dimensions.
11. Go through the remaining steps in the **Create Map** wizard.

If you want to use Dimensions data in your scientometric research, you can apply to get access to the Analytics edition of Dimensions. This version has several advantages over the free edition of Dimensions. In particular, Dimensions Analytics offers additional features for searching and filtering and allows you to export larger amounts of data. Go to https://www.dimensions.ai/scientometric-research/ to apply for access to Dimensions Analytics.