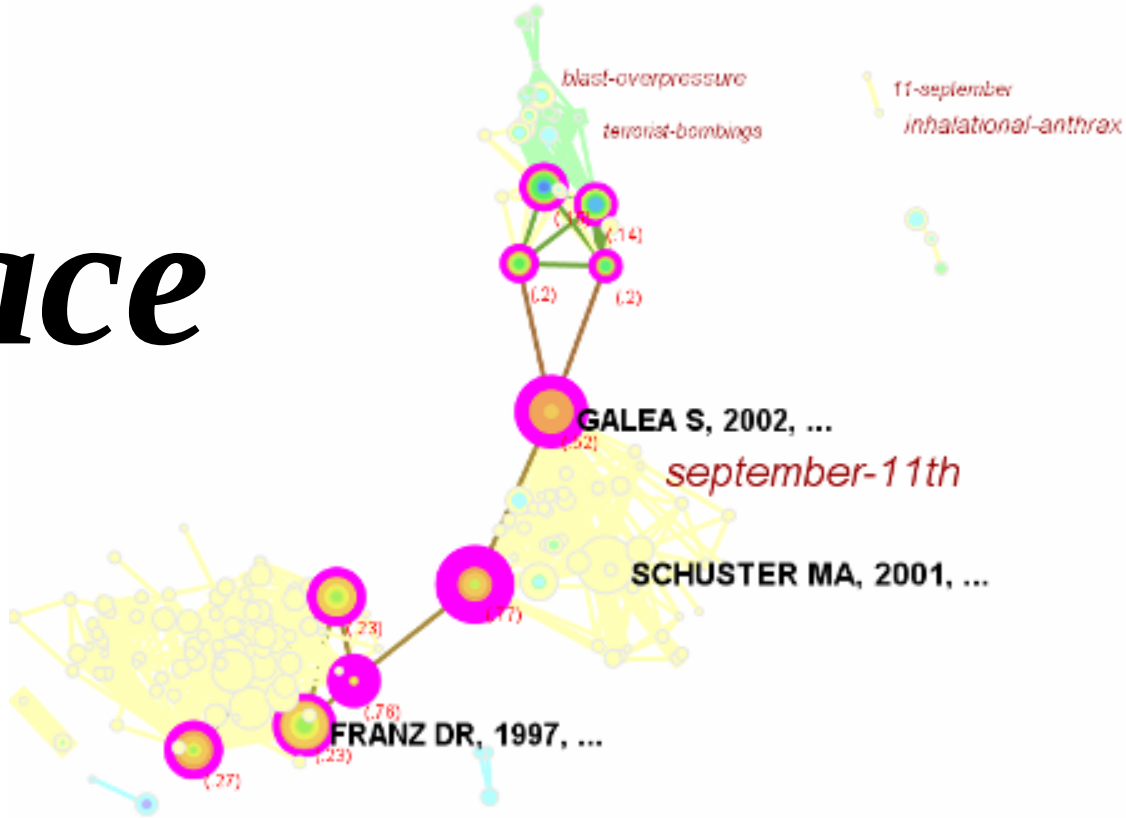
# *CiteSpace*

## Quick Guide 1.2




*Chaomei Chen*
*Drexel University*
Email: chaomei.chen@cis.drexel.edu
http://cluster.cis.drexel.edu/~cchen/citespace

Created: 1.0. January 13, 2005

Updated: 1.1. April 2, 2005; 1.2. July 2, 2005

# Outline

0. Glossary
1. Where to get a copy of CiteSpace?
2. How to prepare data files?
3. What information in bibliographic data is used by CiteSpace?
4. Getting started with CiteSpace
5. What types of networks can CiteSpace produce?
6. Fine tune configurations
7. Interact with visualized networks
8. Control visual attributes
9. The use of Pathfinder
10. EM clustering
11. Further reading
12. Resource Links

# 0. Glossary

***Betweenness centrality*** – a metric of a node in a network that measures how likely an arbitrary shortest path in the network will go through the node.

***Burst terms*** – single or multi-word phrases extracted from the title, abstract, or other fields of a bibliographic record and the frequency of the term bursts, i.e. sharply increases, over a period of time.

***Citation*** – an instance that a publication references to another publication.

***Citation half-life*** – the number of years that a publication receives half of its citations since its publication.

***Citation tree-rings*** – outwards growing rings of a node to depict its time series of citations. The thickness of a ring is proportional to the citations in the corresponding year.

***Cluster view*** – a network is visualized in a modified spring-embedder node placement algorithm.

***Co-authors*** – authors who appear in the author field of the same bibliographic record.

***Co-citation*** – an instance in which two items, such as authors, documents, or journals, that are cited by a publication.

***Color map*** – a spectrum of colors used by CiteSpace to depict temporal order of observations.

***EM clustering*** – Expectation Maximization (EM) clustering nodes based on various attributes such as citations, citation half-life, and betweenness centrality. The use of temporal attributes can help the visualization of emerging trends.

***MeSH terms*** – Medical Subject Heading terms are a set of controlled vocabulary compiled by the National Library of Medicine. CiteSpace shows MeSH terms assigned to nodes if there are matches in PubMed.

***Pathfinder network scaling*** – a network scaling algorithm that removes links that violate triangle inequality conditions so as to simplify a network by retaining salient links and paths only.

***Pivotal points*** – see *Turning points*.

***Publication types*** – study design types extracted from PubMed for clinical trial studies, including meta-analysis and randomized clinical trials.

***Spotlight*** – visualized networks rendered by fading out links that are not connecting pivotal points.

***Thresholds*** – selection criteria used by CiteSpace – items must have measures above threshold values to be included in modeling and visualization processes.

***Time slicing*** – a divide-and-conquer strategy that divides a period of time into a series of smaller windows.

***Time-zone view*** – a restricted view in which the movement of nodes is limited to vertical time zones corresponding to the time of their publication.

***Turning points*** – nodes of high betweenness centralities (> 1.00). Such nodes tend to be critical in network transitions from one time slice to another.

# 1. Access/Obtain *CiteSpace*

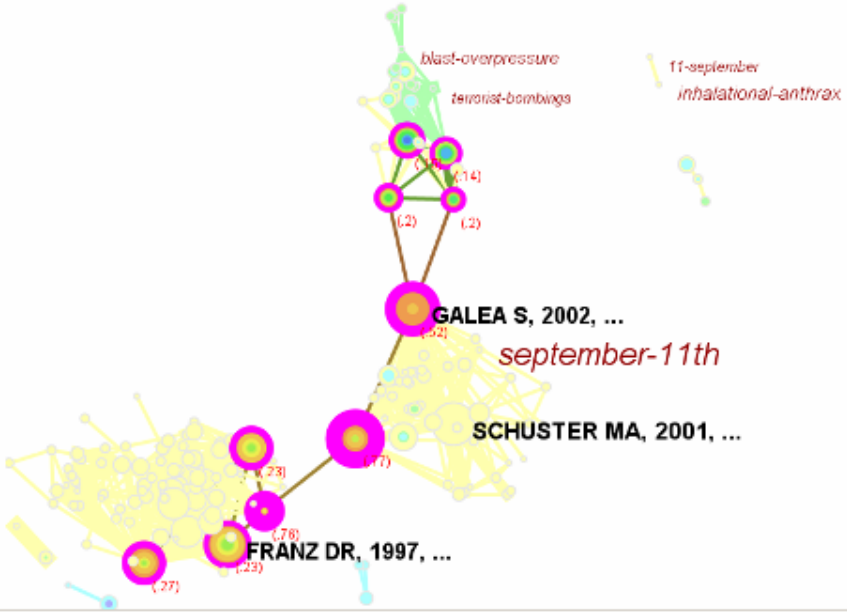
# The CiteSpace Homepage

http://cluster.cis.drexel.edu/~cchen/citespace

## CiteSpace: Visualizing Patterns and Trends in Scientific Literature

Chen, C. (Forthcoming). CiteSpace II: Detecting and visualizing emerging trends and transient patterns in scientific literature. *Journal of the American Society for Information Science and Technology*. (Preprint)
Chen, C. (2004) Searching for intellectual turning points: Progressive Knowledge Domain Visualization. *Proceedings of the National Academy of Sciences of the United States of America* (PNAS), **101** (Suppl. 1), 5303-5310.

**Java WebStart:** CiteSpace - Interactive Examples - **Download:** CiteSpace 1.0.41 (Note: save as citespace.jar) - User Guide 1.1
**Sample Data:** Terrorism (1995-2000) , Social Networks (1996-2002)



# Two Ways to Run *CiteSpace*

1. Use Java WebStart directly
2. Download citespace.jar

**1** Java WebStart

Using Java WebStart ensures you are always using the latest version because the link always points to the most recent version.

**2** Download the citespace.jar, which is identical to what you launch with WebStart.

**Make sure the file is saved as *citespace.jar***

All versions are currently set to expire in 3-6 months to ensure only the latest versions are in use. If you need a non-expired version, feel free to let me know and I will send you one.

# 2. Prepare Bibliographic Data Files

# ISI Export Format

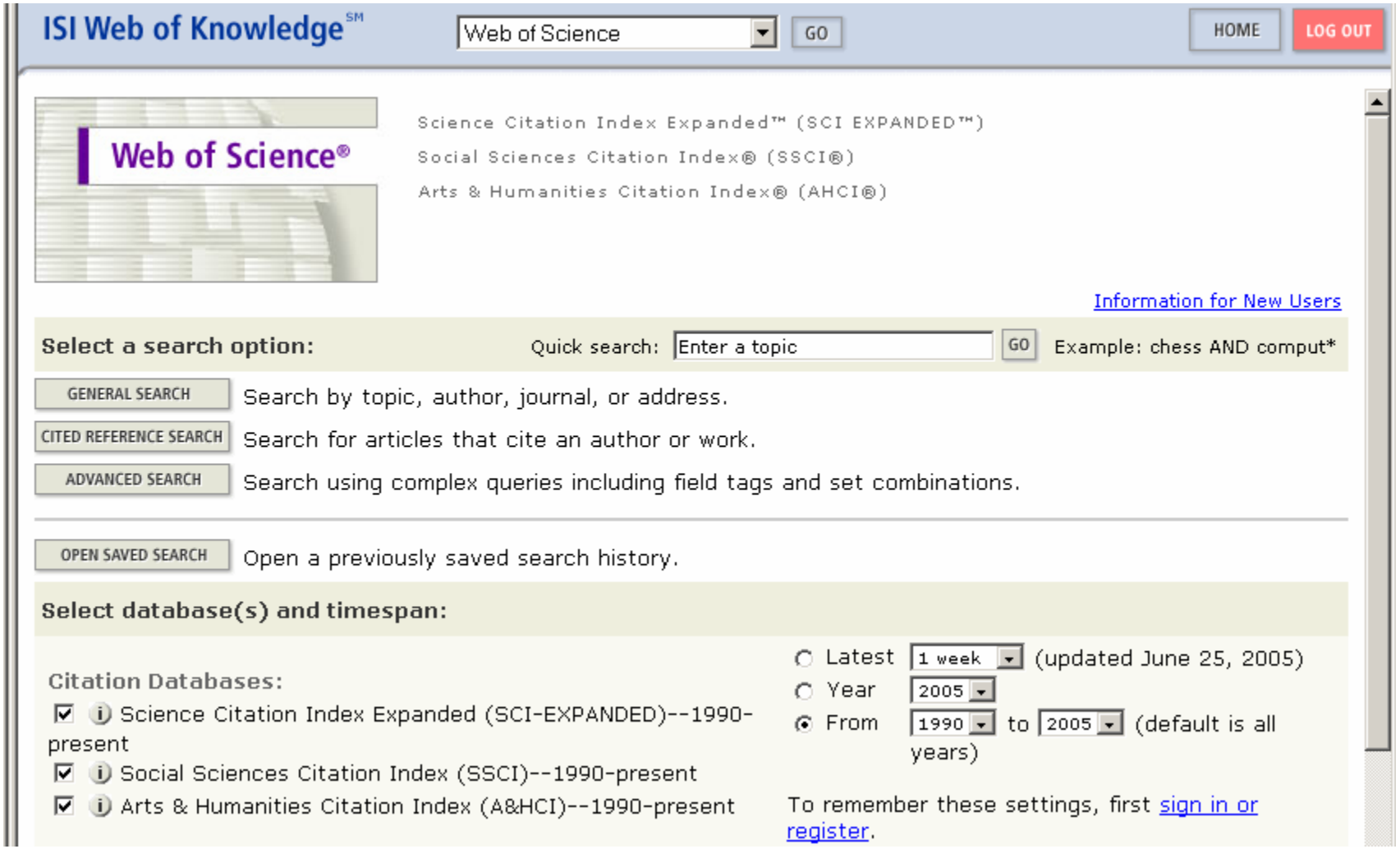
Sample data files are available from the CiteSpace homepage.

**Java WebStart**: CiteSpace - Interactive Examples - **Download**: CiteSpace 1.0.41 (Note: save as citespace.jar) - User Guide 1.1
**Sample Data**: Terrorism (1995-2000) , Social Networks (1996-2002)

# Retrieving Data from the Web of Science

1. Make a general search in Web of Science
2. Mark all search results
3. Save the records, including Cited References, in field tagged format.
4. Name your files as **`download*.txt`**
    1. E.g. downloadScience1999a.txt, download2004.txt
5. Save all data files in a folder on your computer.

# Search in Web of Science - 1



# Search in Web of Science - 2

# Search in Web of Science - 3

**4 results found (Set #1)** Go to Page: 1 of 1 GO

Records 1 -- 4 [ 1 ]

*Use the checkboxes to select individual records for marking, then click Submit to add them to the Marked List.*

1. Skupin A
   The world of geography: Visualizing a knowledge domain with cartographic means
   PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA 101: 5274-5278 Suppl. 1 APR 6 2004
   **Times Cited:** 1
   S·F·X VIEW FULL TEXT

2. Chen CM
   Searching for intellectual turning points: Progressive **knowledge domain visualization**
   PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA 101: 5303-5310 Suppl. 1 APR 6 2004
   **Times Cited:** 2
   S·F·X VIEW FULL TEXT

3. Chen CM, Kuljis J
   The rising landscape: A visual exploration of superstring revolutions in physics
   JOURNAL OF THE AMERICAN SOCIETY FOR INFORMATION SCIENCE AND TECHNOLOGY 54 (5): 435-446 MAR 2003
   **Times Cited:** 5
   S·F·X

4. Chen CM, Kuljis J, Paul RJ
   Visualizing latent domain knowledge
   IEEE TRANSACTIONS ON SYSTEMS MAN AND CYBERNETICS PART C-APPLICATIONS AND REVIEWS 31 (4): 518-529 NOV 2001
   **Times Cited:** 8
   S·F·X

**Sort by:**
Latest date SORT

**Mark:** [0 articles marked]
- Selected records
- All records on this page
- Records to

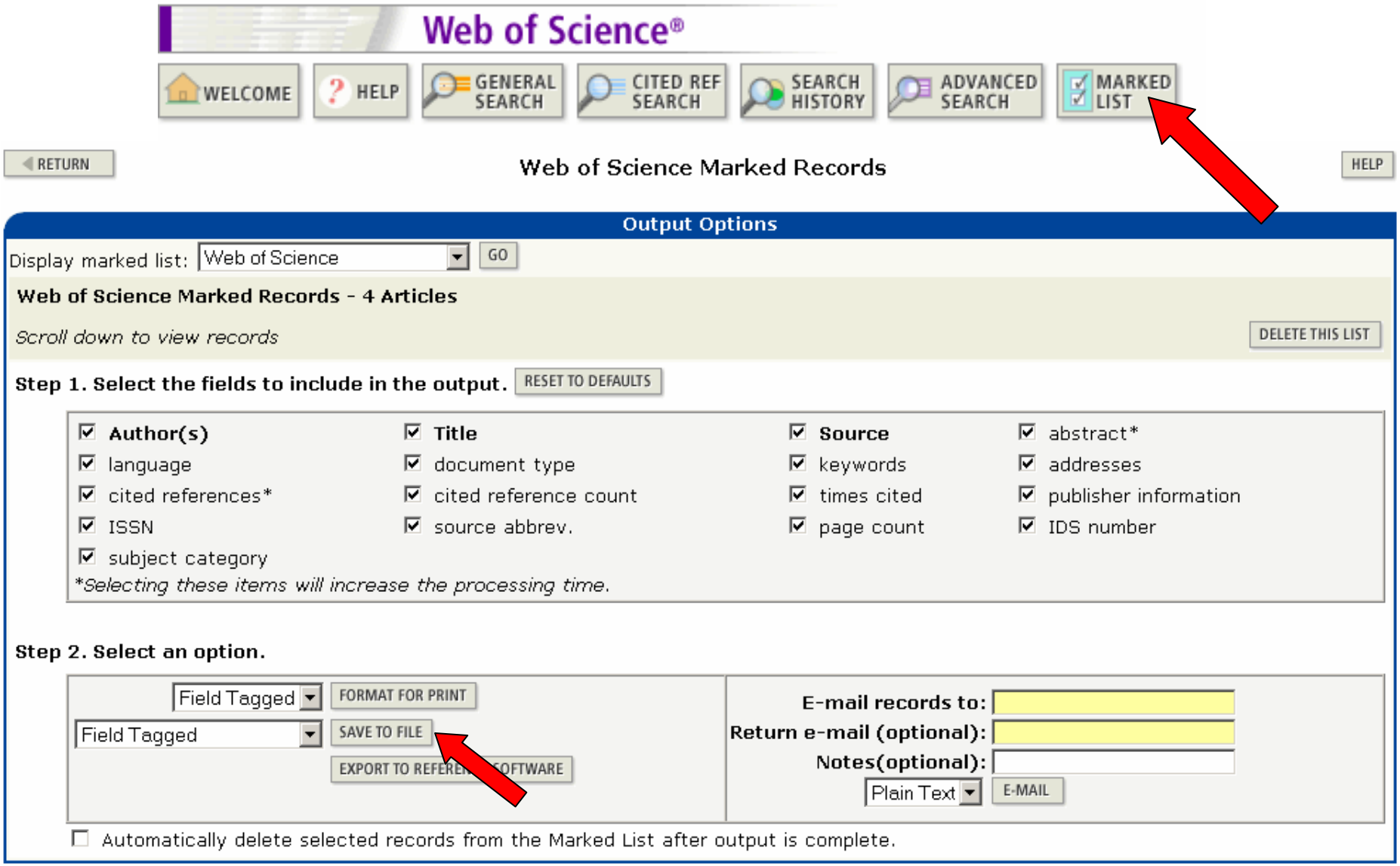
SUBMIT

You can print, save, export, e-mail, and order records after adding them to the Marked List. (The list can hold 500 records.)

**Analyze Results:**
ANALYZE

View rankings and histograms of the authors, journals, etc. for this set of records. (Up to 2,000 records at a time.)

# Search in Web of Science - 4



# Search in Web of Science - 5

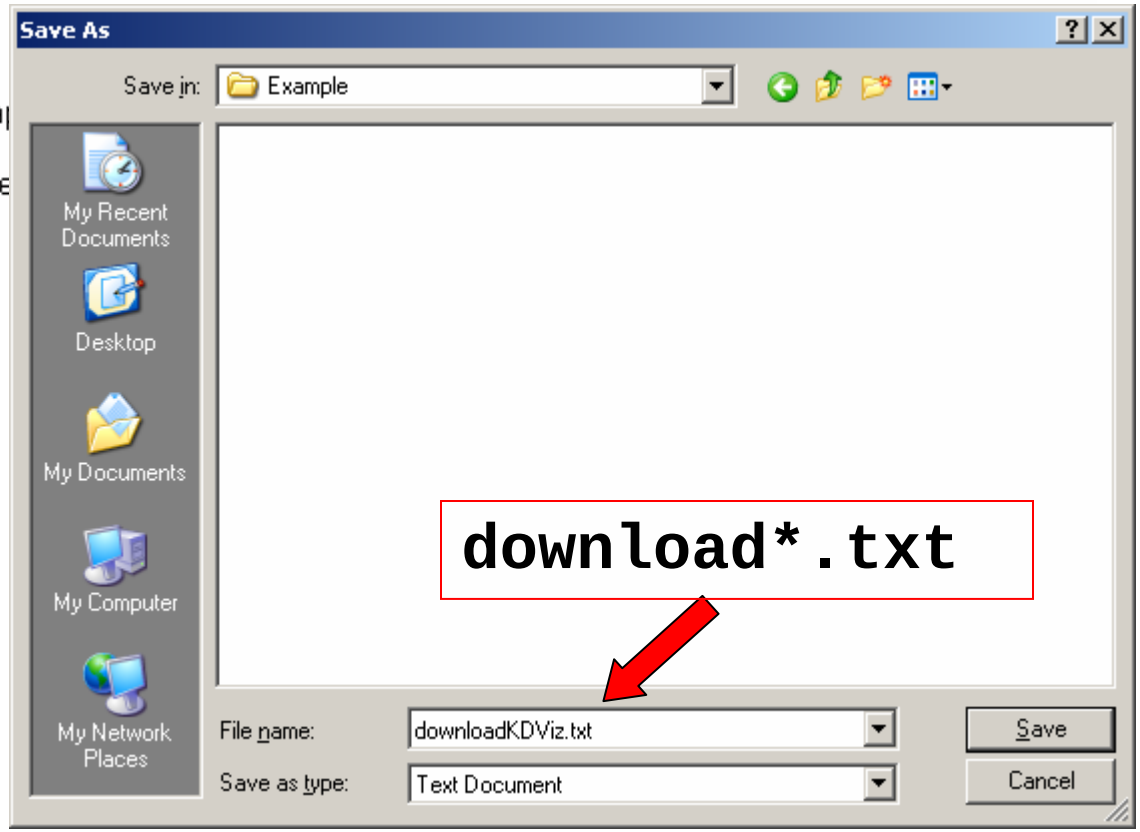
**Processing Records**

**Please wait while your request is processed.**
*(Note: Depending on the number of records and fields selected, this may take several minutes.)*

**Product:** Web of Science
**Selected action:** Save to File
**Processing 4 records:**
4...Done.

SAVE If the "Save As" dialog does not ap

BACK Click "Back" to return to the Marke



# 3. What information in bibliographic data is used by CiteSpace?

# CiteSpace uses the following info of a bibliographic record

A: Authors

B: Title, Descriptors, Identifiers, Abstract

C: Cited References

D: Times Cited

E: Year of Publication

AU Galea, S
Ahern, J
Resnick, H
Kilpatrick, D
Bucuvalas, M
Gold, J
Vlahov, D

TI Psychological sequelae of the September 11 terrorist attacks in New York City.

SO NEW ENGLAND JOURNAL OF MEDICINE
LA English
DT Article

ID POSTTRAUMATIC-STRESS-DISORDER; NATIONAL COMORBIDITY SURVEY; MAJOR DEPRESSION; NATURAL DISASTER; SOCIAL SUPPORT; OKLAHOMA-CITY; PREVALENCE; PSYCHOPATHOLOGY; SURVIVORS; SYMPTOMS

AB Background: The scope of the terrorist attacks of September 11, 2001, was unprecedented in the United States. We assessed the prevalence and correlates of acute post-traumatic stress disorder (PTSD) and depression among residents of Manhattan five to eight weeks after the attacks. Methods: We used random-digit dialing to contact a representative sample of adults living south of 110th Street in Manhattan. Participants were asked about demographic characteristics, exposure to the events of September 11, and psychological symptoms after the attacks. Results: Among 1008 adults interviewed, 7.5 percent reported symptoms consistent with a diagnosis of current PTSD related to the attacks, and 9.7 percent reported symptoms consistent with current depression (with ``current`` defined as occurring within the previous 30 days). Among respondents who lived south of Canal Street (i.e., near the World Trade Center), the prevalence of PTSD was 20.0 percent. ……

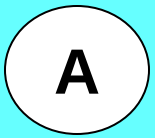
C1 New York Acad Med, Ctr Urban Epidemiol Studies, New York, NY 10029 USA. Columbia Univ, Mailman Sch Publ Hlth, Dept Epidemiol, New York, NY USA. Med Univ S Carolina, Natl Crime Victims Res & Treatment Ctr, Charleston, SC 29425 USA. Schulman Ronca & Bucuvalas, New York, NY USA. Bellevue Hosp Ctr, New York, NY 10016 USA.

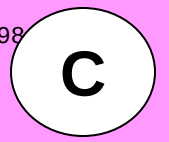
RP Galea, S, New York Acad Med, Ctr Urban EpidemiolStudies, Rm 556,1216
5th Ave, New York, NY 10029 USA.

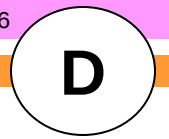
CR 2001, NY TIMES 1226, B2
*AM PSYCH ASS, 1994, DIAGN STAT MAN MENT
*DEP HLTH HUMAN SE, 1999, MENT HLTH REP SURG G
*US BUR CENS, 2000, STF3A DEP COMM BUR C
BLAZER DG, 1994, AM J PSYCHIAT, V151, P979
EATON L, 2001, NY TIMES 1116, A1
FOTHERGILL A, 1999, DISASTERS, V23, P156
FULLERTON CS, 1999, AVIAT SPACE ENVIR MD, V70, P902
GINEXI EM, 2000, AM J COMMUN PSYCHOL, V28, P495
GOENJIAN AK, 2001, AM J PSYCHIAT, V158, P788
GREEN BL, 1990, J APPL SOC PSYCHOL, V20, P1033
HANSON RF, 1995, J CONSULT CLIN PSYCH, V63, P987
HARVEY AG, 1999, J CONSULT CLIN PSYCH, V67, P985
KAWACHI I, 2001, J URBAN HEALTH, V78, P458
KESSLER RC, 1995, ARCH GEN PSYCHIAT, V52, P1048
KILPATRICK DG, 1987, CRIME DELINQUENCY, V33, P479
MADAKASIRA S, 1987, J NERV MENT DIS, V175, P286
MAZURE CM, 2000, AM J PSYCHIAT, V157, P896
NORTH CS, 1999, JAMA-J AM MED ASSOC, V282, P755
ORTEGA AN, 2000, AM J PSYCHIAT, V157, P615
POLE N, 2001, J NERV MENT DIS, V189, P442
RESNICK H, 1999, J ANXIETY DISORD, V13, P359
RESNICK HS, 1993, J CONSULT CLIN PSYCH, V61, P98
ROTHBAUM BO, 1992, J TRAUMA STRESS, V5, P455
RUBONIS AV, 1991, PSYCHOL BULL, V109, P384
RUEF AM, 2000, CULTURAL DIVERSITY E, V6, P235
SHAH B, 1997, SUDAAN USERS MANUAL
SHALEV AY, 1998, AM J PSYCHIAT, V155, P630
SHALEV AY, 2000, J CLIN PSYCHIAT S5, V61, P33
SHERBOURNE CD, 1991, SOC SCI MED, V32, P705
SHORE JH, 1989, J NERV MENT DIS, V177, P681
TUCKER P, 2000, J BEHAV HEALTH SER R, V27, P406

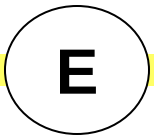
NR 32
TC 179

PU MASSACHUSETTS MEDICAL SOC/NEJM
PI WALTHAM
PA WALTHAM WOODS CENTER, 860 WINTER ST,, WALTHAM, MA 02451-1413 USA
SN 0028-4793
J9 N ENGL J MED
JI N. Engl. J. Med.
PD MAR 28
PY 2002
VL 346
IS 13
BP 982
EP 987
PG 6
SC Medicine, General & Internal
GA 534UY
UT ISI:000174608600006
ER









co-occurring burst terms

**AU** Galea, S
Ahern, J
Resnick, H
Kilpatrick, D
Bucuvalas, M
Gold, J
Vlahov, D

co-authorship

A

**TI** Psychological sequelae of the September 11 terrorist attacks in New York City.

B

**SO** NEW ENGLAND JOURNAL OF MEDICINE
LA English
DT Article

**ID** POSTTRAUMATIC-STRESS-DISORDER; NATIONAL COMORBIDITY SURVEY; MAJOR DEPRESSION; NATURAL DISASTER; SOCIAL SUPPORT; OKLAHOMA-CITY; PREVALENCE; PSYCHOPATHOLOGY; SURVIVORS; SYMPTOMS

B

**AB** Background: The scope of the terrorist attacks of September 11, 2001, was unprecedented in the United States. We assessed the prevalence and correlates of acute post-traumatic stress disorder (PTSD) and depression among residents of Manhattan five to eight weeks after the attacks. Methods: We used random-digit dialing to contact a representative sample of adults living south of 110th Street in Manhattan. Participants were asked about demographic characteristics, exposure to the events of September 11, and psychological symptoms after the attacks. Results: Among 1008 adults interviewed, 7.5 percent reported symptoms consistent with a diagnosis of current PTSD related to the attacks, and 9.7 percent reported symptoms consistent with current depression (with ``current`` defined as occurring within the previous 30 days). Among respondents who lived south of Canal Street (i.e., near the World Trade Center), the prevalence of PTSD was 20.0 percent. .....

B

CR 2001, NY TIMES 1226, B2
*AM PSYCH ASS, 1994, DIAGN STAT MAN MENT
*DEP HLTH HUMAN SE, 1999, MENT HLTH REP SURG G
*US BUR CENS, 2000, STF3A DEP COMM BUR C
BLAZER DG, 1994, AM J PSYCHIAT, V151, P979
EATON L, 2001, NY TIMES 1116, A1
FOTHERGILL A, 1999, DISASTERS, V23, P156
FULLERTON CS, 1999, AVIAT SPACE ENVIR MD, V70, P902
GINEXI EM, 2000, AM J COMMUN PSYCHOL, V28, P495
GOENJIAN AK, 2001, AM J PSYCHIAT, V158, P788
**GREEN BL**, 1990, J APPL SOC PSYCHOL, V20, P1033
HANSON RF, 1995, J CONSULT CLIN PSYCH, V63, P987
**HARVEY AG**, 1999, J CONSULT CLIN PSYCH, V67, P985
KAWACHI I, 2001, J URBAN HEALTH, V78, P458
**KESSLER RC, 1995, ARCH GEN PSYCHIAT, V52, P1048**
KILPATRICK DG, 1987, CRIME DELINQUENCY, V33, P479
MADAKASIRA S, 1987, J NERV MENT DIS, V175, P286
MAZURE CM, 2000, AM J PSYCHIAT, V157, P896
**NORTH CS, 1999, JAMA-J AM MED ASSOC, V282, P755**
ORTEGA AN, 2000, AM J PSYCHIAT, V157, P615
POLE N, 2001, J NERV MENT DIS, V189, P442
RESNICK H, 1999, **J ANXIETY DISORD**, V13, P359
RESNICK HS, 1993, J CONSULT CLIN PSYCH, V61, P984
ROTHBAUM BO, 1992, **J TRAUMA STRESS**, V5, P455
RUBONIS AV, 1991, PSYCHOL BULL, V109, P384
RUEF AM, 2000, CULTURAL DIVERSITY E, V6, P235
SHAH B, 1997, SUDAAN USERS MANUAL
SHALEV AY, 1998, AM J PSYCHIAT, V155, P630
SHALEV AY, 2000, J CLIN PSYCHIAT S5, V61, P33
SHERBOURNE CD, 1991, SOC SCI MED, V32, P705
SHORE JH, 1989, J NERV MENT DIS, V177, P681
TUCKER P, 2000, J BEHAV HEALTH SER R, V27, P406

C

author co-citation

document co-citation

journal co-citation

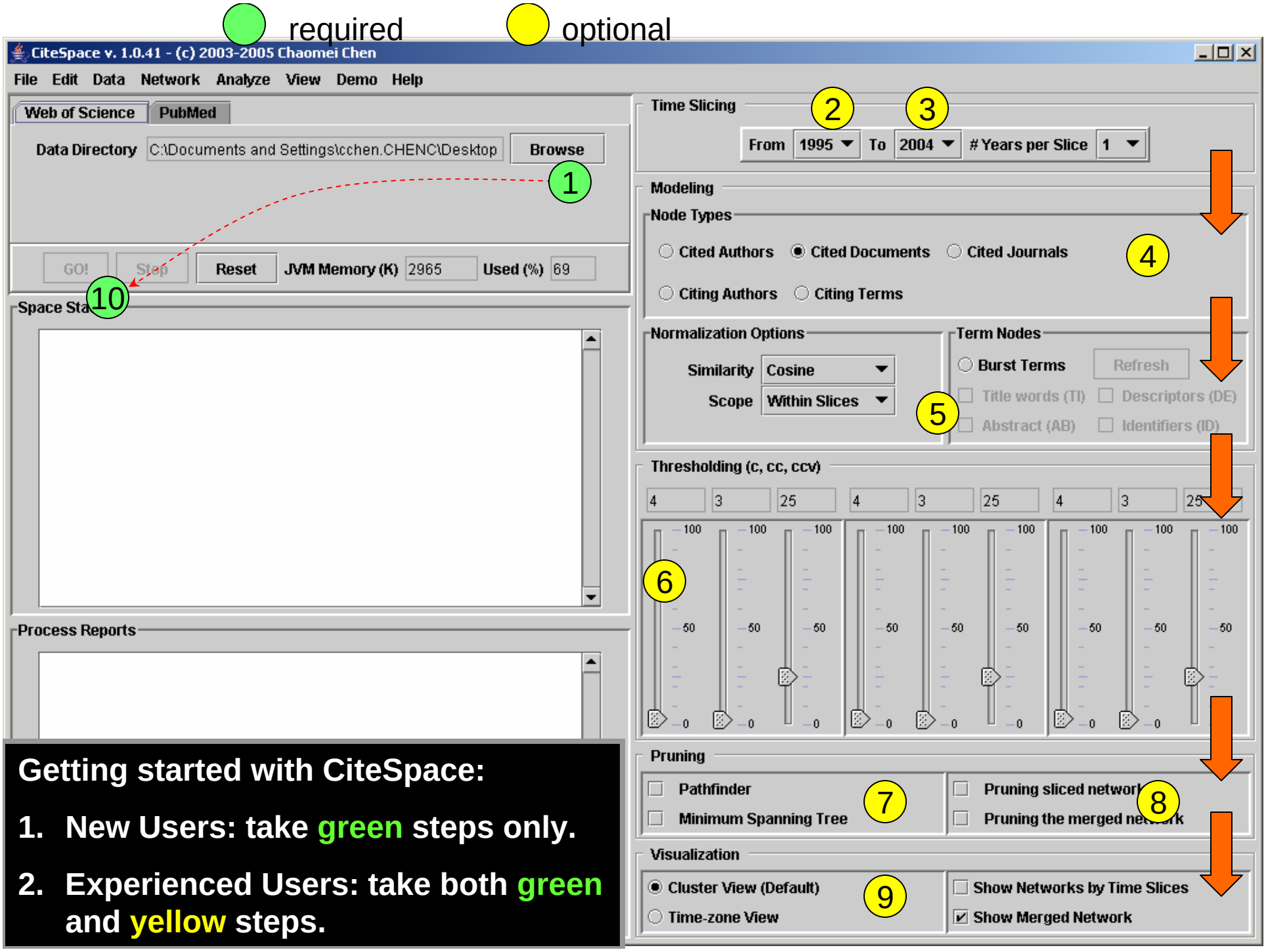
ACA/DCA/JCA

NR 32
TC 179
PU MASSACHUSETTS MEDICAL SOC/NEJM
PI WALTHAM
PA WALTHAM WOODS CENTER, 860 WINTER ST,, WALTHAM, MA 02451-1413 USA
SN 0028-4793
J9 N ENGL J MED
JI N. Engl. J. Med.
PD MAR 28
PY 2002
VL 346
IS 13
BP 982
EP 987
PG 6
SC Medicine, General & Internal
GA 534UY
UT ISI:000174608600006
ER

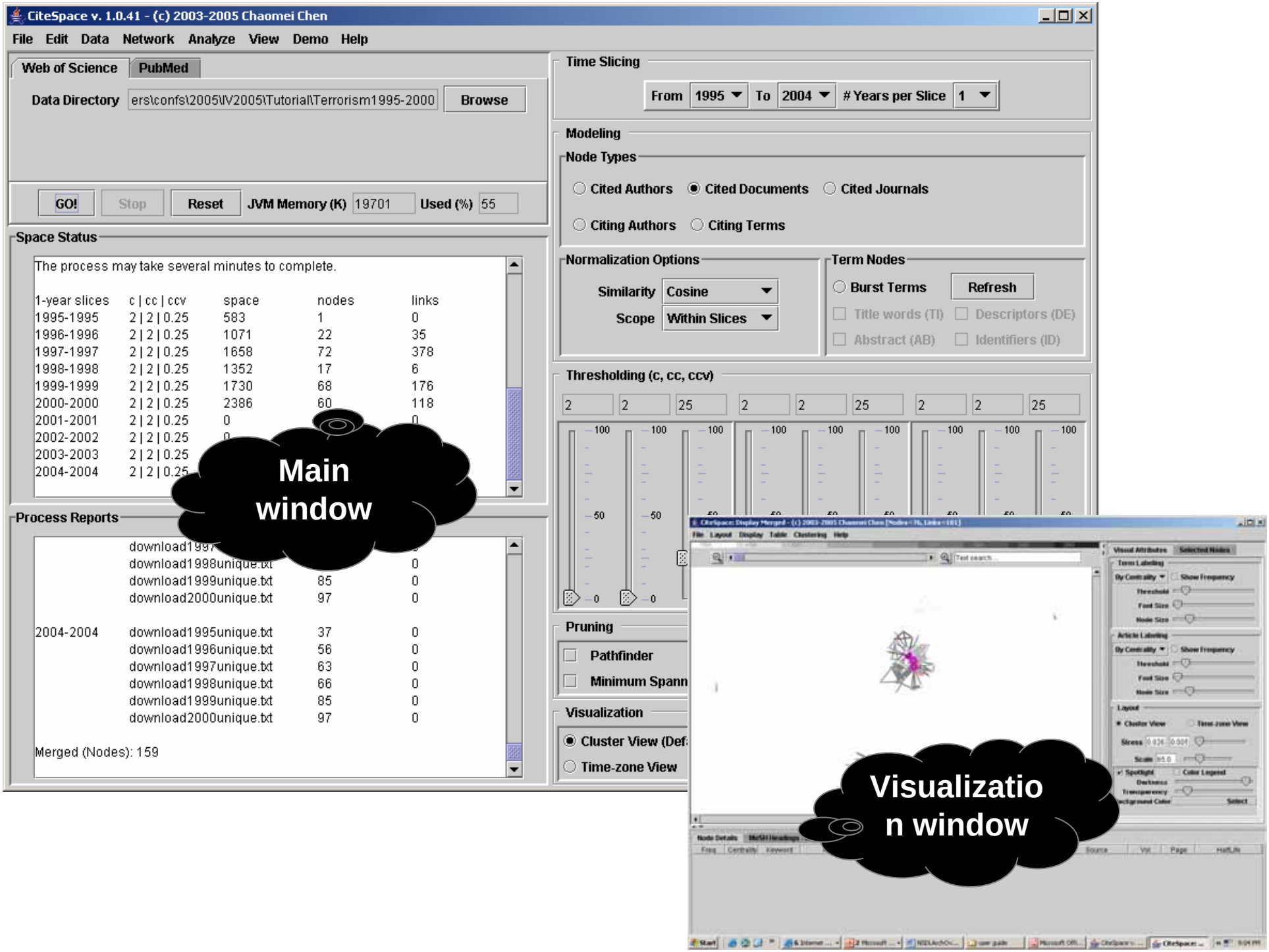
D

E

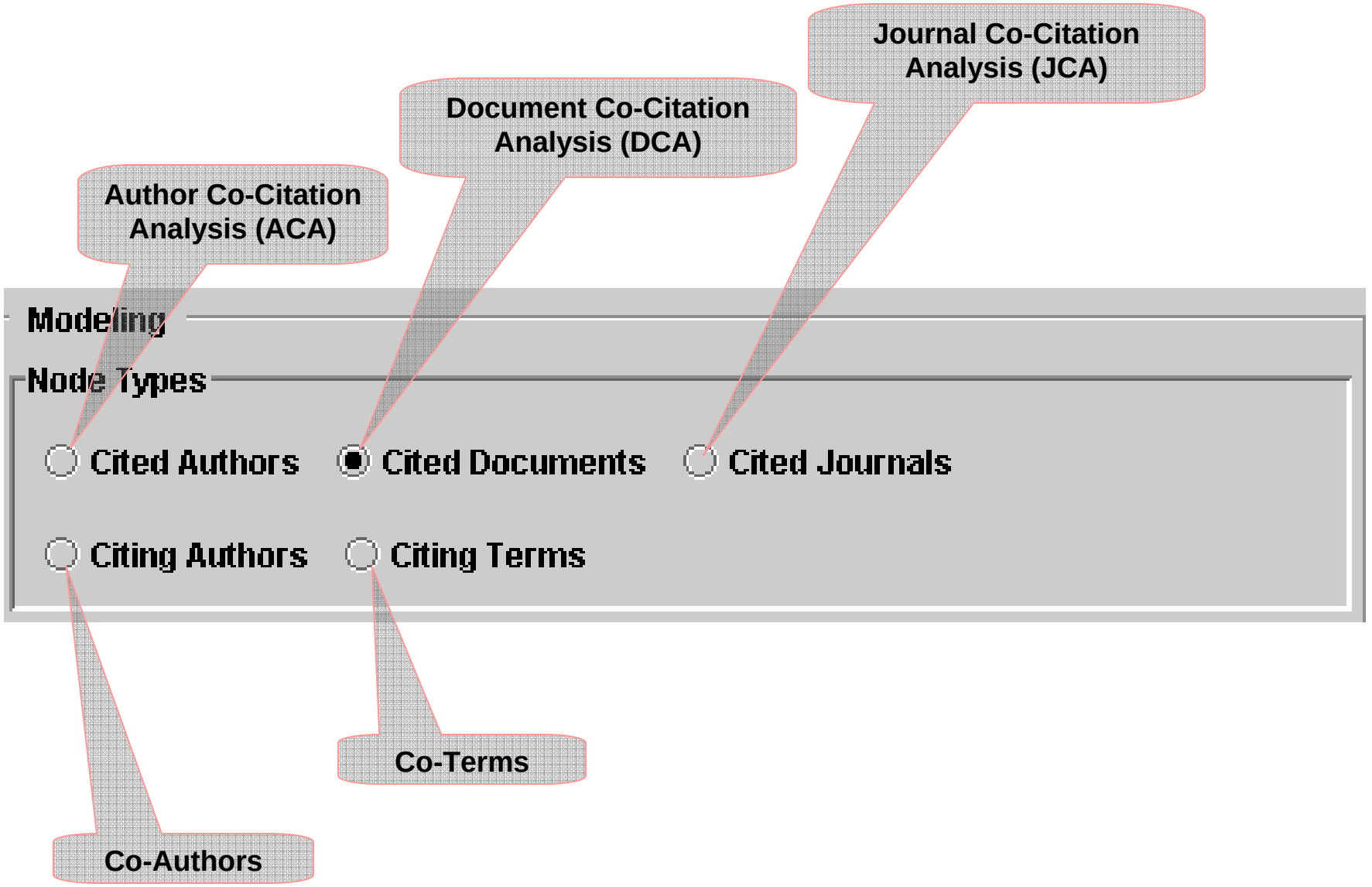
# 4. Get started with CiteSpace


required
optional
CiteSpace v. 1.0.41 - (c) 2003-2005 Chaomei Chen
File Edit Data Network Analyze View Demo Help
Web of Science
PubMed
Data Directory
C:\Documents and Settings\cchen.CHENC\Desktop
Browse
1
GO!
Stop
Reset
JVM Memory (K)
2965
Used (%)
69
10
Space Sta
Process Reports
Time Slicing
2
3
From
1995
To
2004
# Years per Slice
1
Modeling
Node Types
Cited Authors
Cited Documents
Cited Journals
4
Citing Authors
Citing Terms
Normalization Options
Similarity
Cosine
Scope
Within Slices
Term Nodes
Burst Terms
Refresh
5
Title words (TI)
Descriptors (DE)
Abstract (AB)
Identifiers (ID)
Thresholding (c, cc, ccv)
6
Pruning
Pathfinder
Minimum Spanning Tree
7
Pruning sliced network
Pruning the merged network
8
Visualization
Cluster View (Default)
Time-zone View
9
Show Networks by Time Slices
Show Merged Network
Getting started with CiteSpace:
1. New Users: take green steps only.
2. Experienced Users: take both green and yellow steps.

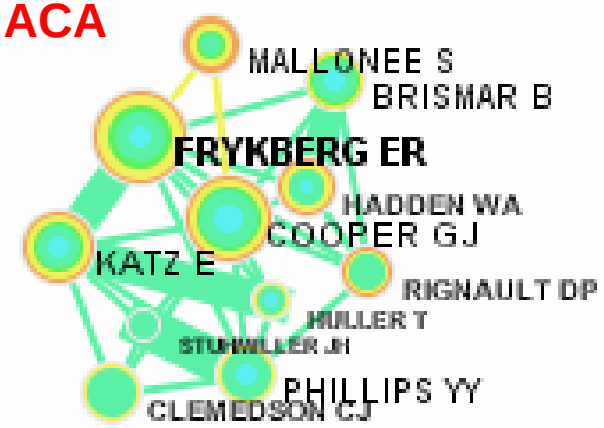
required
optional
CiteSpace v. 1.0.41 - (c) 2003-2005 Chaomei Chen
File Edit Data Network Analyze View Demo Help
Web of Science
PubMed
Data Directory
ers\confs\2005\IV2005\Tutorial\Terrorism1995-2000
Browse
1
GO!
Stop
Reset
JVM Memory (K)
3493
Used
Space Status
Select the folder where your data is located, but do NOT get into the folder. Press the GO! Button.
Process Reports
Time Slicing
From
1995
To
2004
# Years per Slice
1
Modeling
Node Types
Cited Authors
Cited Documents
Cited Journals
Citing Authors
Citing Terms
Normalization Options
Similarity
Cosine
Scope
Within Slices
Term Nodes
Burst Terms
Refresh
Title words (TI)
Descriptors (DE)
Abstract (AB)
Identifiers (ID)
Thresholding (c, cc, ccv)
4
3
25
100
50
0
Pruning
Pathfinder
Minimum Spanning Tree
Pruning sliced networks
Pruning the merged network
Visualization
Cluster View (Default)
Time-zone View
Show Networks by Time Slices
Show Merged Network


CiteSpace v. 1.0.41 - (c) 2003-2005 Chaomei Chen
File Edit Data Network Analyze View Demo Help
Web of Science
PubMed
Data Directory
ers\confs\2005\IV2005\Tutorial\Terrorism1995-2000
Browse
GO!
Stop
Reset
JVM Memory (K)
19701
Used (%)
55
Space Status
The process may take several minutes to complete.
1-year slices c | cc | ccv space nodes links
1995-1995 2 | 2 | 0.25 583 1 0
1996-1996 2 | 2 | 0.25 1071 22 35
1997-1997 2 | 2 | 0.25 1658 72 378
1998-1998 2 | 2 | 0.25 1352 17 6
1999-1999 2 | 2 | 0.25 1730 68 176
2000-2000 2 | 2 | 0.25 2386 60 118
2001-2001 2 | 2 | 0.25 0 0
2002-2002 2 | 2 | 0.25
2003-2003 2 | 2 | 0.25
2004-2004 2 | 2 | 0.25
Main window
Process Reports
download1998unique.txt 0
download1999unique.txt 85 0
download2000unique.txt 97 0
2004-2004 download1995unique.txt 37 0
download1996unique.txt 56 0
download1997unique.txt 63 0
download1998unique.txt 66 0
download1999unique.txt 85 0
download2000unique.txt 97 0
Merged (Nodes): 159
Time Slicing
From 1995 To 2004 # Years per Slice 1
Modeling
Node Types
Cited Authors
Cited Documents
Cited Journals
Citing Authors
Citing Terms
Normalization Options
Similarity Cosine
Scope Within Slices
Term Nodes
Burst Terms
Refresh
Title words (TI)
Descriptors (DE)
Abstract (AB)
Identifiers (ID)
Thresholding (c, cc, ccv)
2 2 25 2 2 25 2 2 25
Pruning
Pathfinder
Minimum Spann
Visualization
Cluster View (Def
Time-zone View
Visualizatio n window

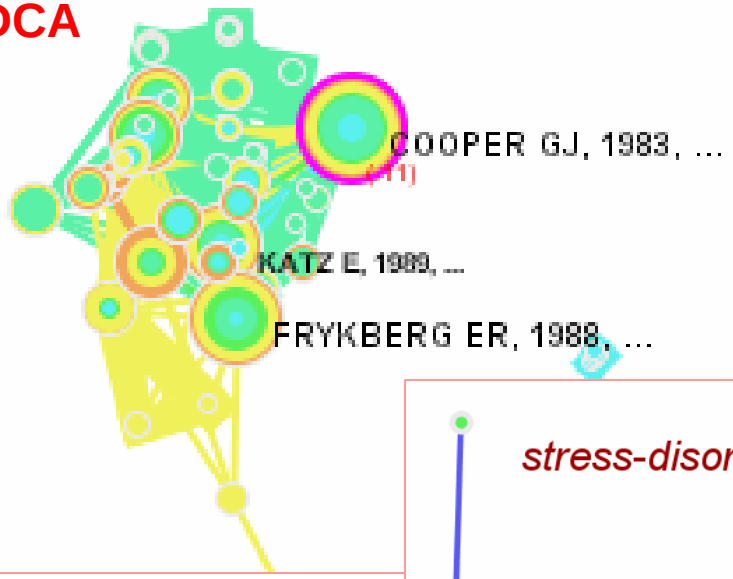
# 5. Choose Network Analysis


Journal Co-Citation Analysis (JCA)
Document Co-Citation Analysis (DCA)
Author Co-Citation Analysis (ACA)
Modeling
Node Types
Cited Authors
Cited Documents
Cited Journals
Citing Authors
Citing Terms
Co-Terms
Co-Authors

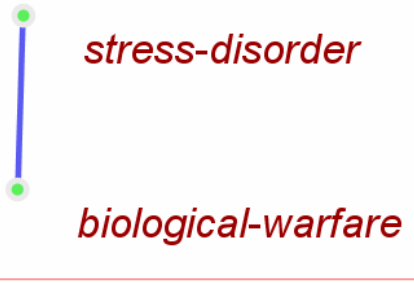
## ACA



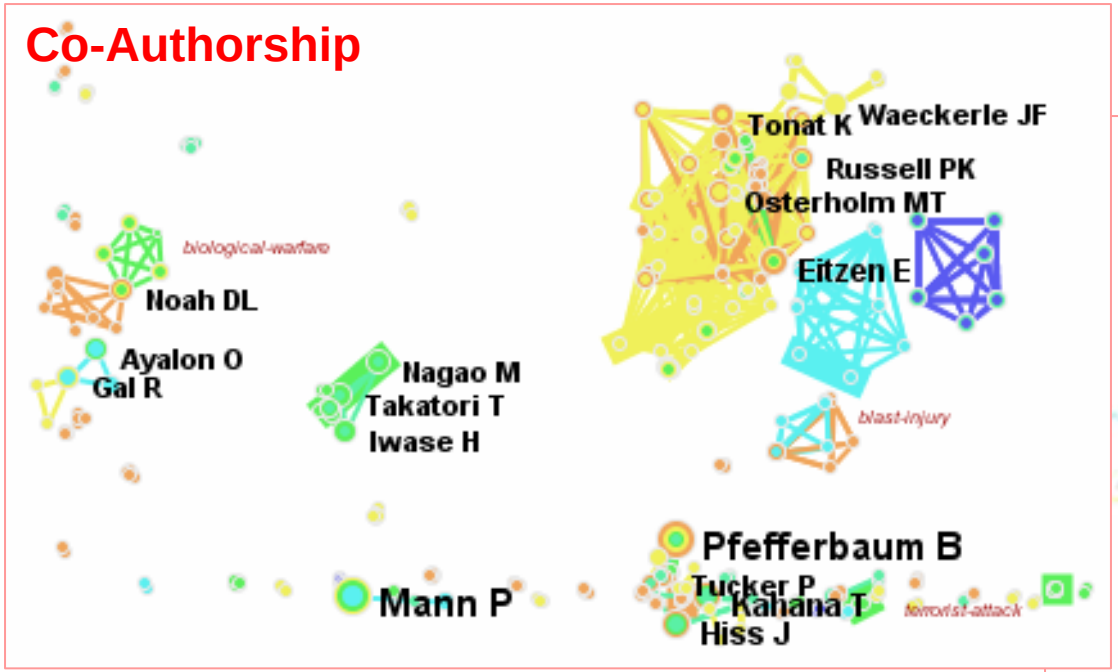

## DCA



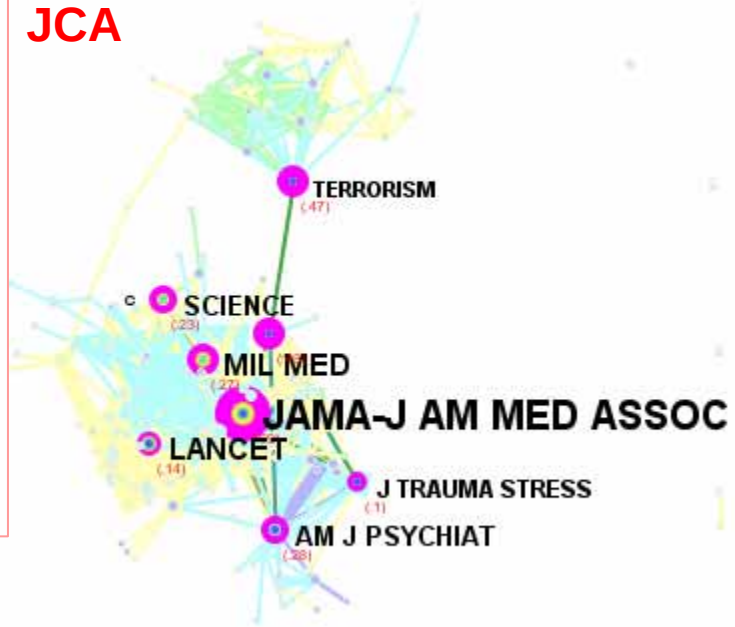

## Co-Term (Burst)



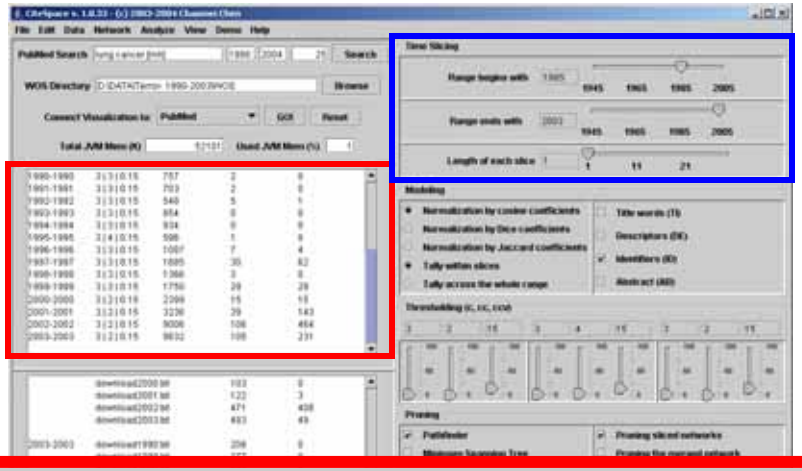

## Co-Authorship




## JCA



# 6. Fine Tune Configurations

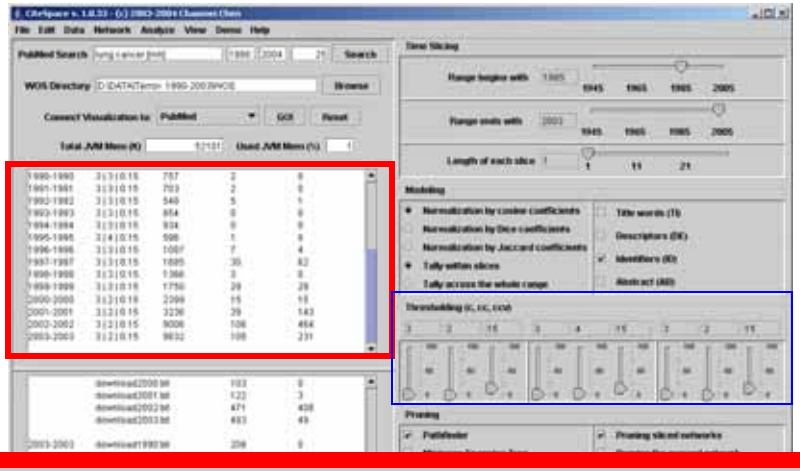


Since no data in 1985-1987, adjust the scope of the overall time frame in the ***time slicing*** panel.

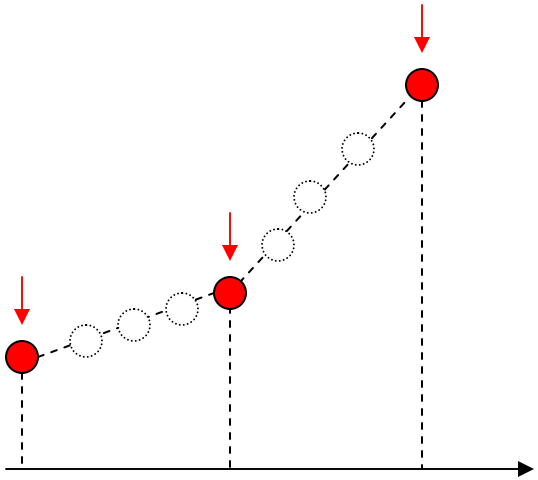
Minimum burst weight: 0.01

Please wait while CiteSpace imports files and builds networks.
The process may take several minutes to complete.

| 1-year slices | c \| cc \| ccv | space | nodes | links |
|---|---|---|---|---|
| 1985-1985 | 3 \| 2 \| 0.15 | 0 | 0 | 0 |
| 1986-1986 | 3 \| 2 \| 0.15 | 0 | 0 | 0 |
| 1987-1987 | 3 \| 2 \| 0.15 | 0 | 0 | 0 |
| 1988-1988 | 3 \| 2 \| 0.15 | 88 | 2 | 1 |
| 1989-1989 | 3 \| 2 \| 0.15 | 430 | 0 | 0 |
| 1990-1990 | 3 \| 3 \| 0.15 | 757 | 2 | 0 |
| 1991-1991 | 3 \| 3 \| 0.15 | 703 | 2 | 0 |
| 1992-1992 | 3 \| 3 \| 0.15 | | | |
| 1993-1993 | 3 \| 3 \| 0.15 | | | |



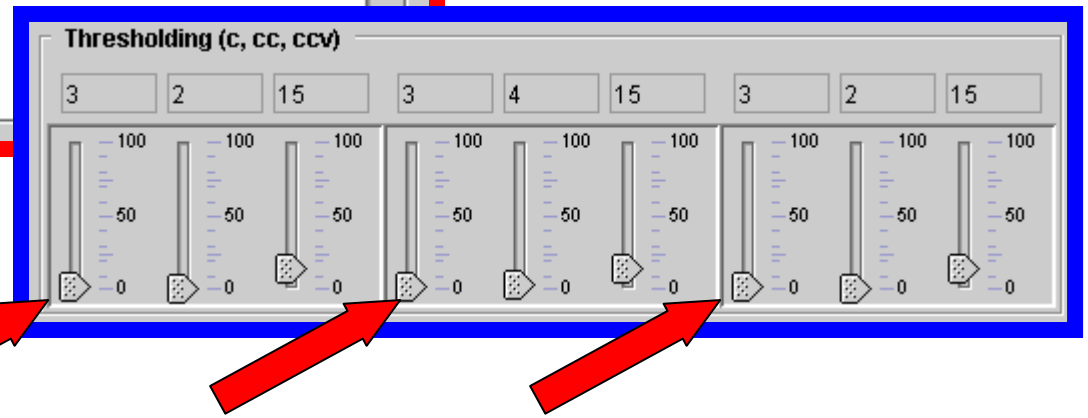
Control # nodes by adjusting 3-point citation thresholds in the ***thresholding*** panel. The rest thresholds are interpolated.

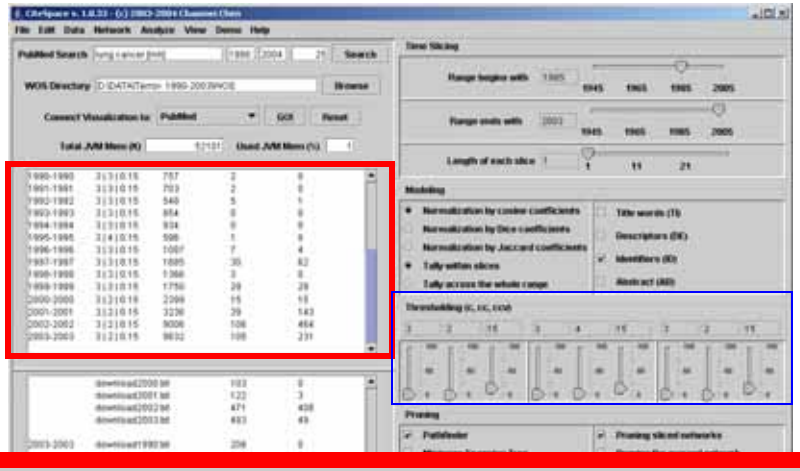


Minimum burst weight: 0.01

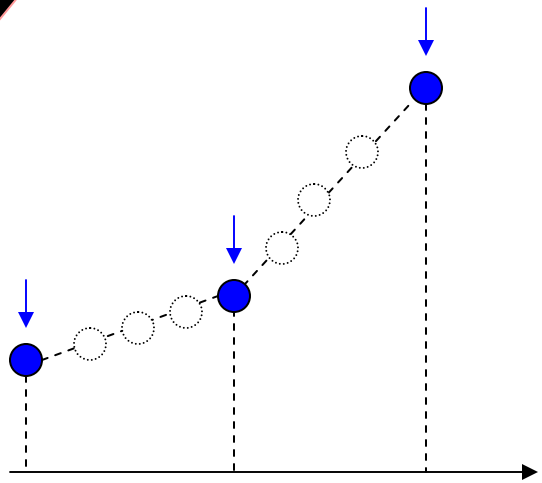
Please wait while CiteSpace imports files and builds net ks.
The process may take several minutes to complete.

| 1-year slices | c \| cc \| ccv | space | nodes | links |
|---|---|---|---|---|
| 1985-1985 | 3 \| 2 \| 0.15 | 0 | 0 | 0 |
| 1986-1986 | 3 \| 2 \| 0.15 | 0 | 0 | 0 |
| 1987-1987 | 3 \| 2 \| 0.15 | 0 | 0 | 0 |
| 1988-1988 | 3 \| 2 \| 0.15 | 88 | 2 | 1 |
| 1989-1989 | 3 \| 2 \| 0.15 | 430 | 0 | 0 |
| 1990-1990 | 3 \| 3 \| 0.15 | 757 | 2 | 0 |
| 1991-1991 | 3 \| 3 \| 0.15 | 703 | 2 | |
| 1992-1992 | 3 \| 3 \| 0.15 | 548 | 5 | |
| 1993-1993 | 3 \| 3 \| 0.15 | 854 | 0 | |





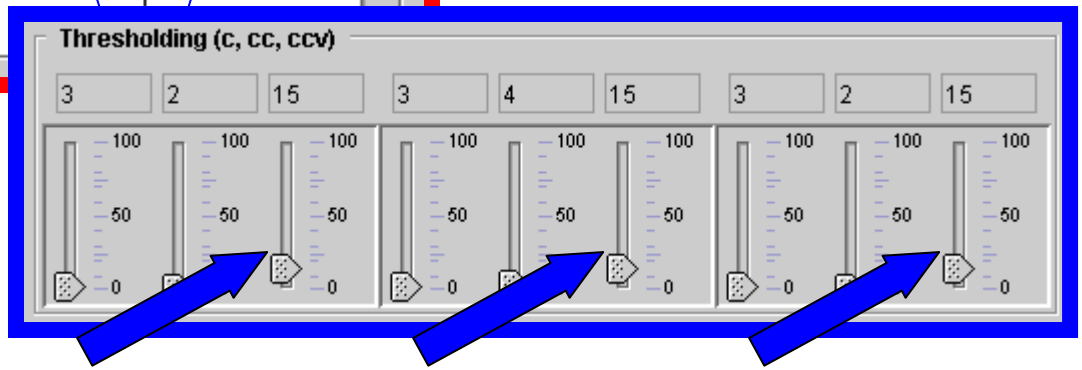
Control # links by adjusting 3-point citation thresholds in the ***thresholding*** panel. The rest thresholds are interpolated.



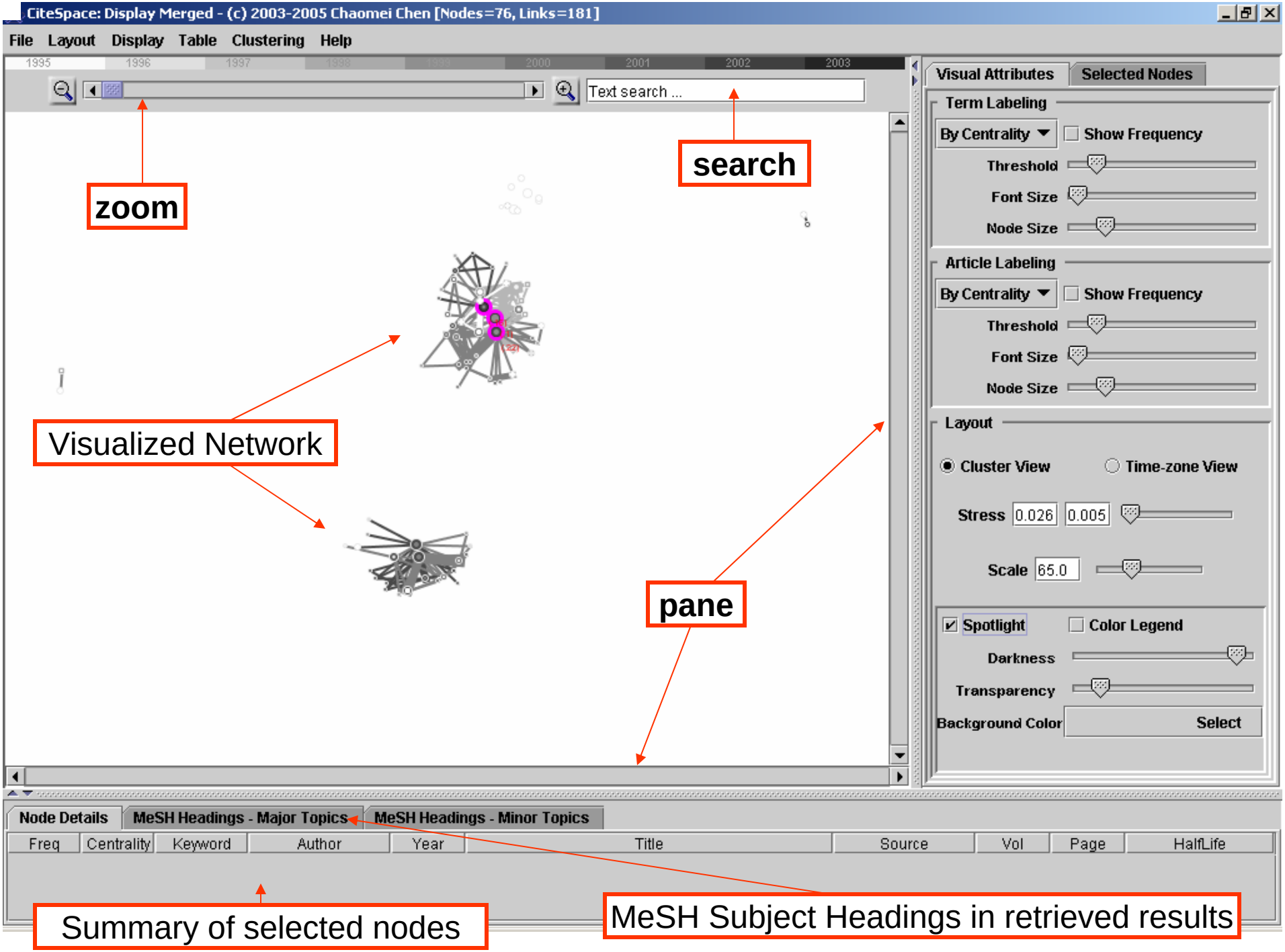
Minimum burst weight: 0.01

Please wait while CiteSpace imports files and builds networks.
The process may take several minutes to complete.

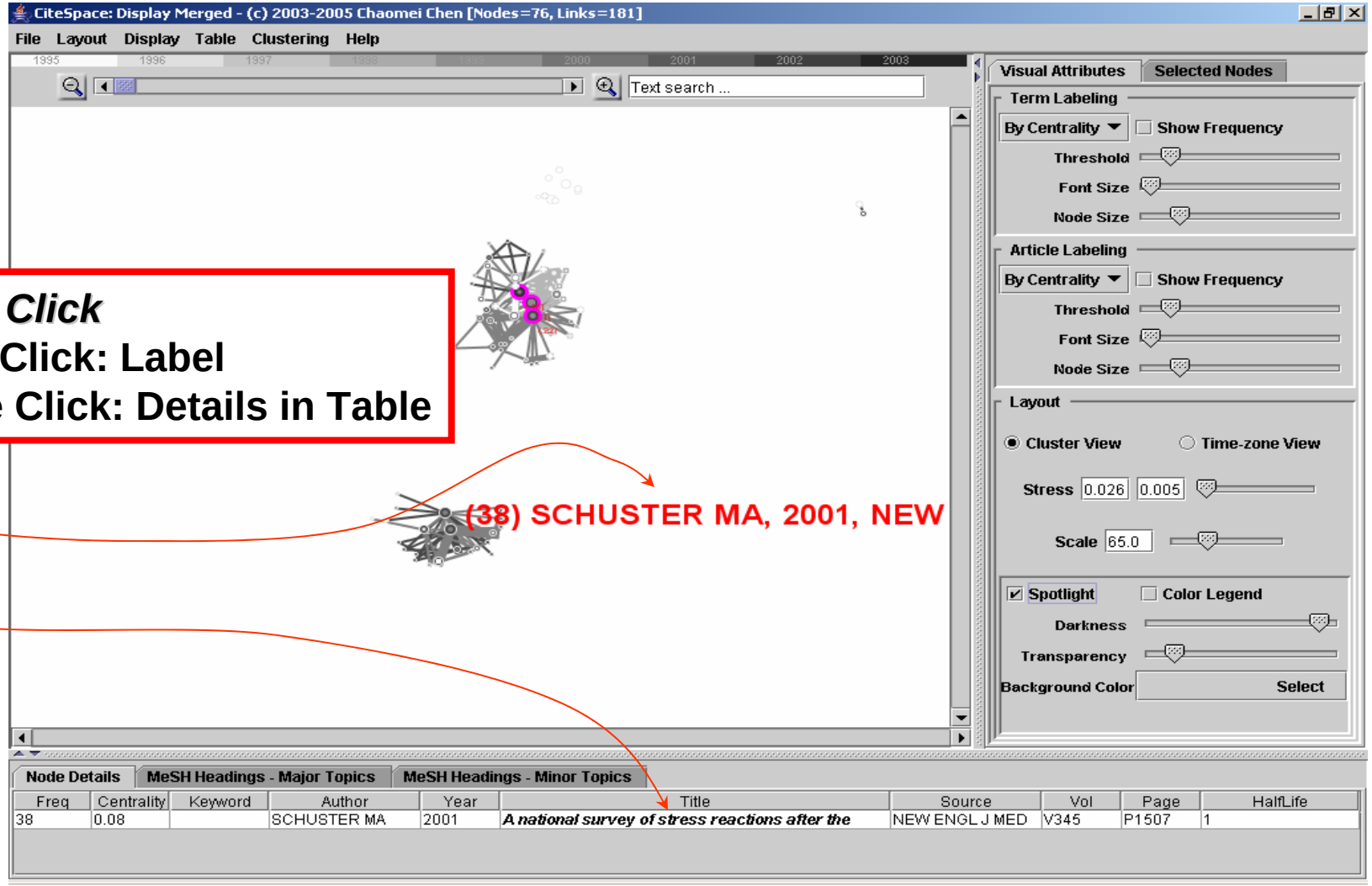
| 1-year slices | c \| cc \| ccv | space | nodes | links |
|---|---|---|---|---|
| 1985-1985 | 3 \| 2 \| 0.15 | 0 | 0 | 0 |
| 1986-1986 | 3 \| 2 \| 0.15 | 0 | 0 | 0 |
| 1987-1987 | 3 \| 2 \| 0.15 | 0 | 0 | 0 |
| 1988-1988 | 3 \| 2 \| 0.15 | 88 | 2 | 1 |
| 1989-1989 | 3 \| 2 \| 0.15 | 430 | 0 | 0 |
| 1990-1990 | 3 \| 3 \| 0.15 | 757 | 2 | 0 |
| 1991-1991 | 3 \| 3 \| 0.15 | 703 | 2 | 0 |
| 1992-1992 | 3 \| 3 \| 0.15 | 548 | 5 | 1 |
| 1993-1993 | 3 \| 3 \| 0.15 | 854 | 0 | |



# 7. Interact with Visualized Networks


CiteSpace: Display Merged - (c) 2003-2005 Chaomei Chen [Nodes=76, Links=181]
File Layout Display Table Clustering Help
1995 1996 1997 1998 1999 2000 2001 2002 2003
Text search ...
zoom
search
Visualized Network
pane
Visual Attributes
Selected Nodes
Term Labeling
By Centrality
Show Frequency
Threshold
Font Size
Node Size
Article Labeling
By Centrality
Show Frequency
Threshold
Font Size
Node Size
Layout
Cluster View
Time-zone View
Stress 0.026 0.005
Scale 65.0
Spotlight
Color Legend
Darkness
Transparency
Background Color
Select
Node Details
MeSH Headings - Major Topics
MeSH Headings - Minor Topics
Freq
Centrality
Keyword
Author
Year
Title
Source
Vol
Page
HalfLife
Summary of selected nodes
MeSH Subject Headings in retrieved results

# Select A Single Node

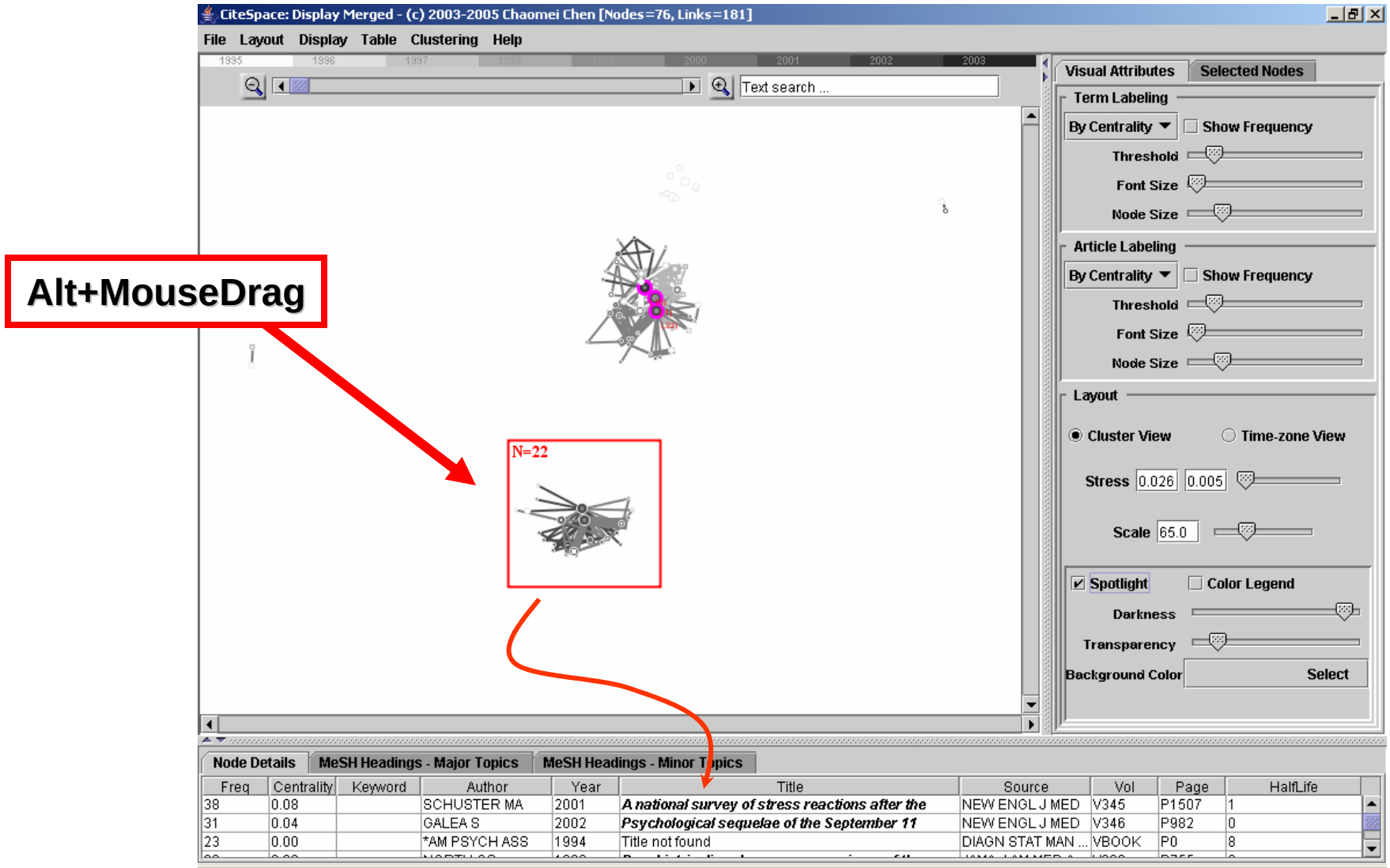



***Mouse Click***

**Single Click: Label**

**Double Click: Details in Table**

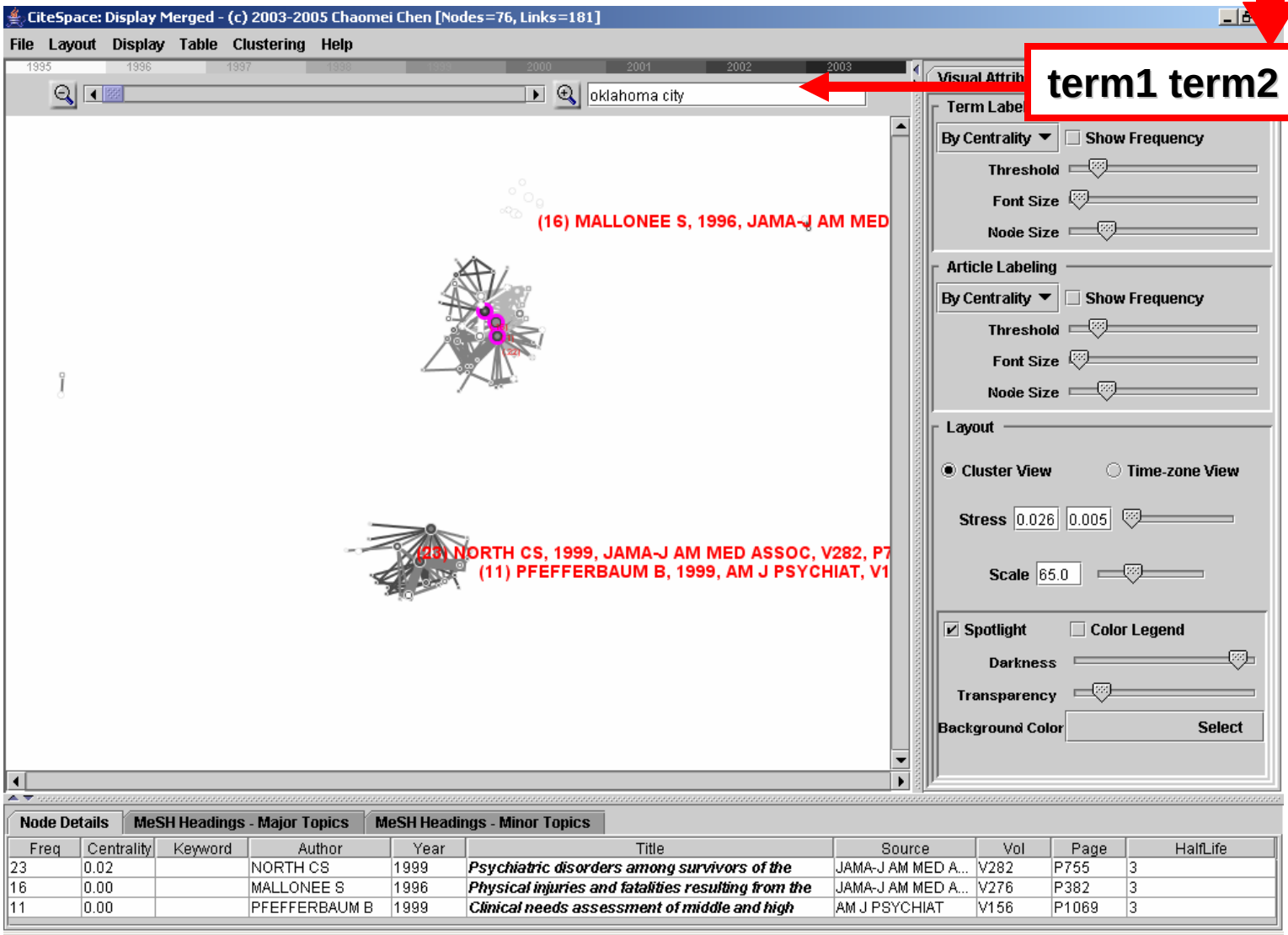
# Select A Group of Nodes



# Search within Visual

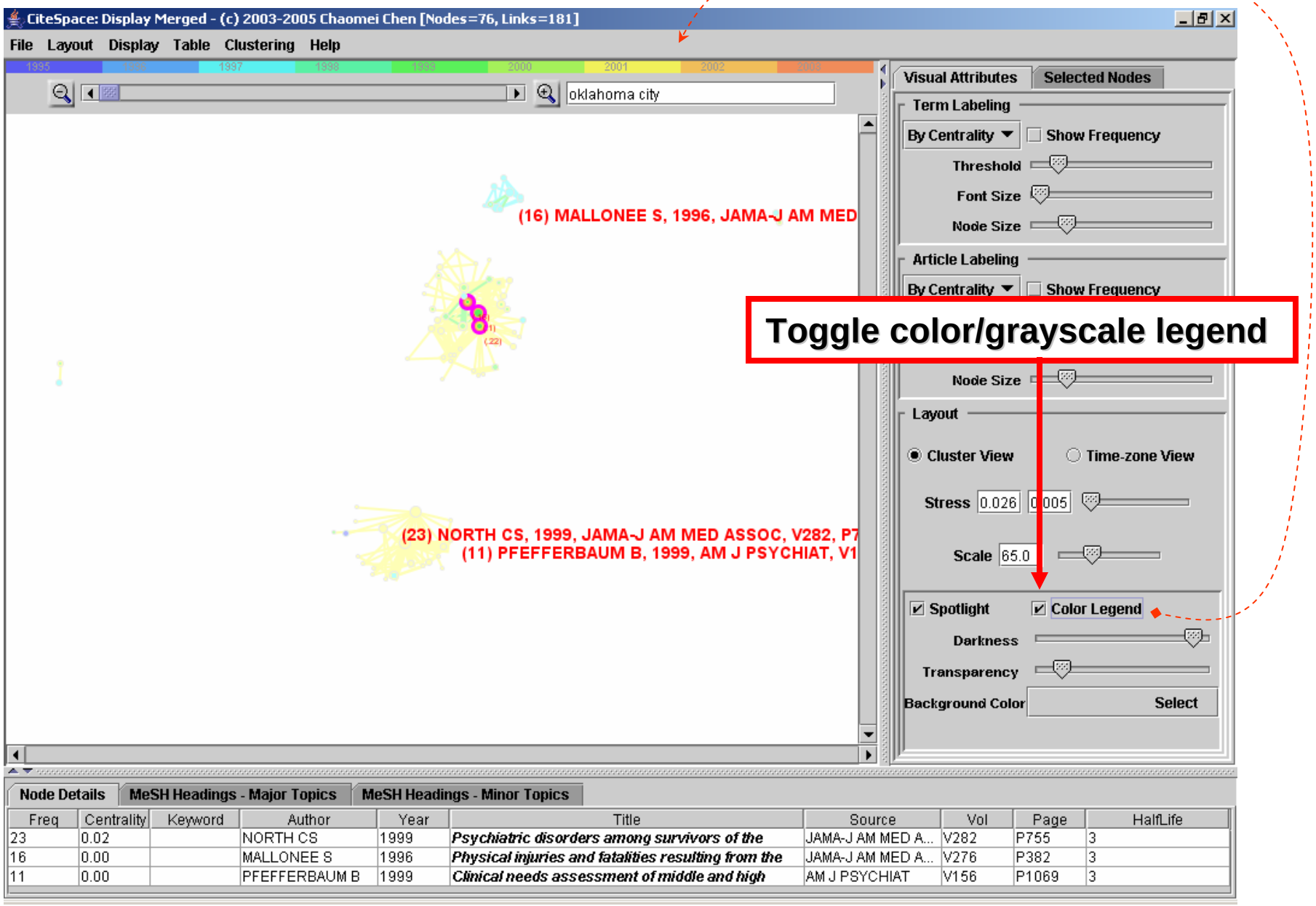
**term1 AND term2 AND term3 …**

**term1 term2 term3 …**

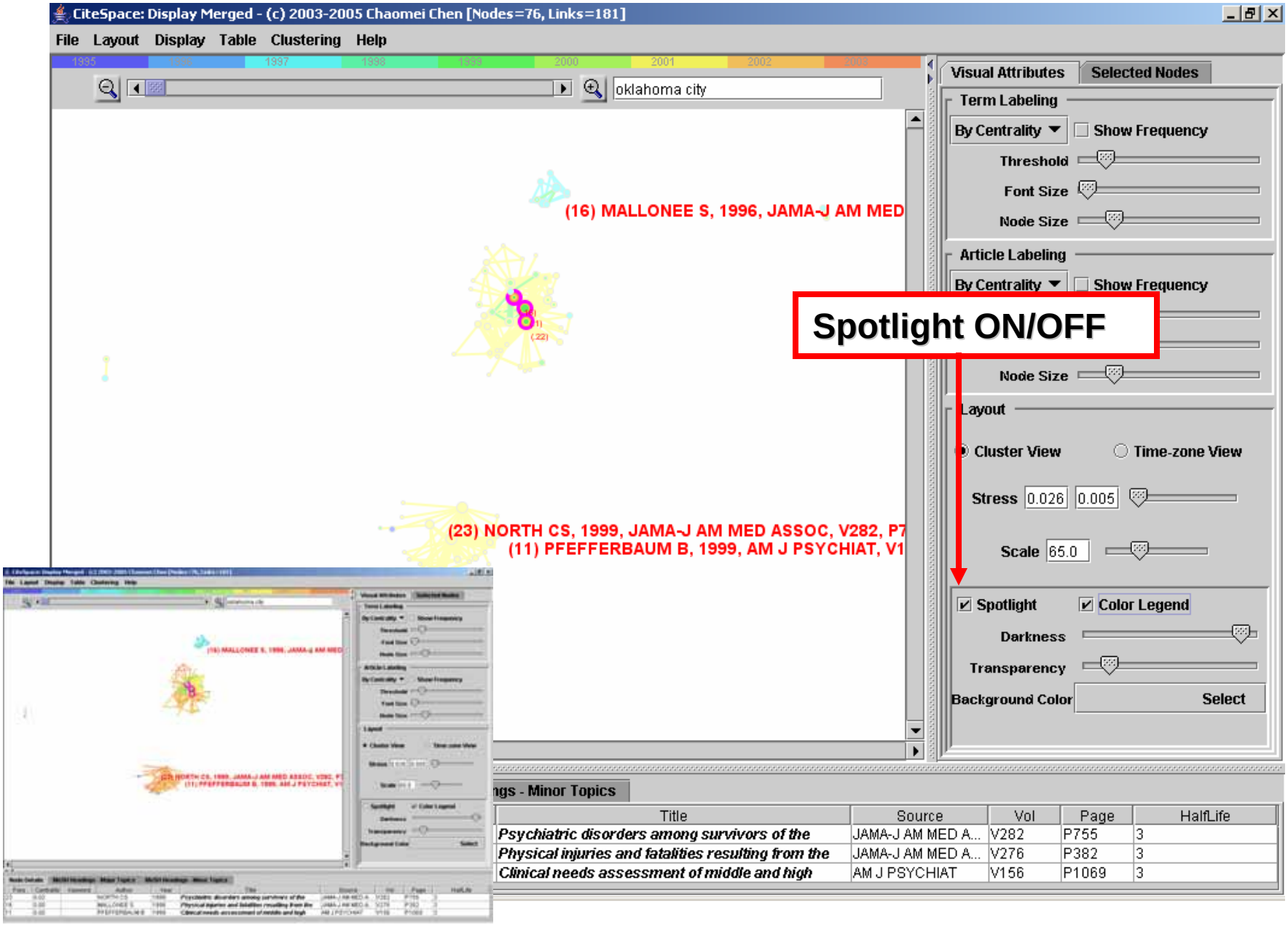


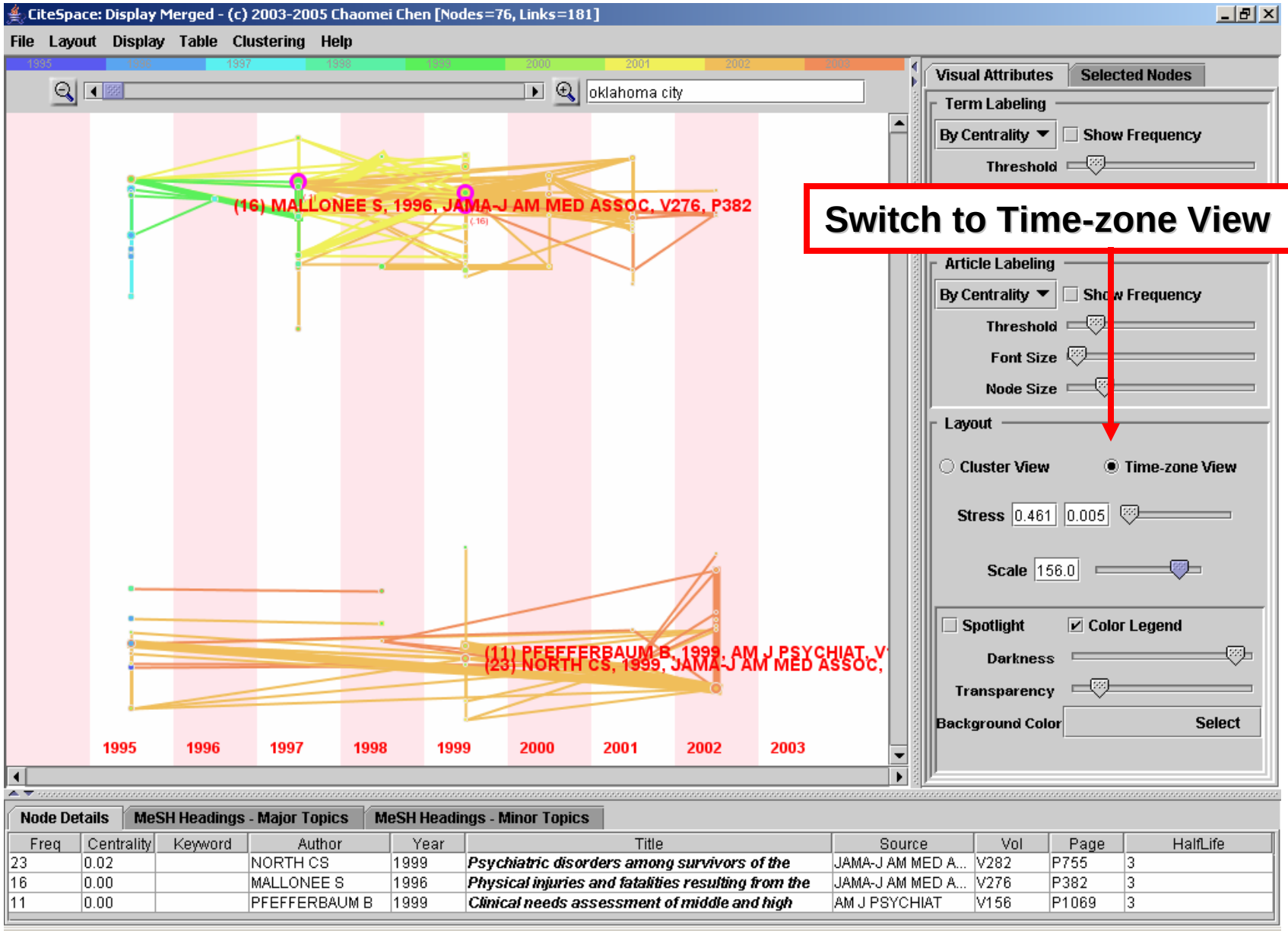

| Freq | Centrality | Keyword | Author | Year | Title | Source | Vol | Page | HalfLife |
|---|---|---|---|---|---|---|---|---|---|
| 23 | 0.02 | | NORTH CS | 1999 | *Psychiatric disorders among survivors of the* | JAMA-J AM MED A... | V282 | P755 | 3 |
| 16 | 0.00 | | MALLONEE S | 1996 | *Physical injuries and fatalities resulting from the* | JAMA-J AM MED A... | V276 | P382 | 3 |
| 11 | 0.00 | | PFEFFERBAUM B | 1999 | *Clinical needs assessment of middle and high* | AM J PSYCHIAT | V156 | P1069 | 3 |

# 8. Control visual attributes

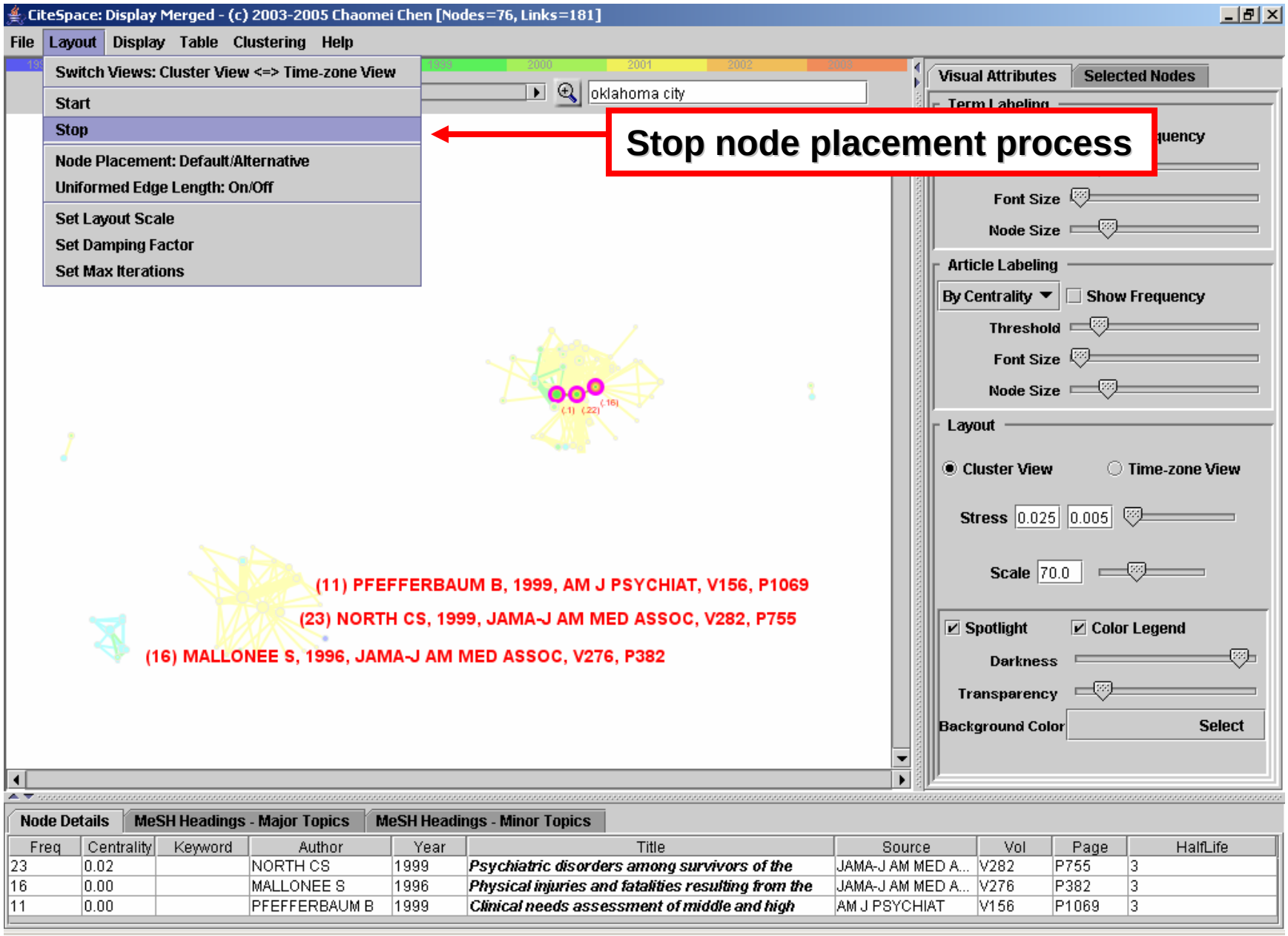



| Freq | Centrality | Keyword | Author | Year | Title | Source | Vol | Page | HalfLife |
|---|---|---|---|---|---|---|---|---|---|
| 23 | 0.02 | | NORTH CS | 1999 | ***Psychiatric disorders among survivors of the*** | JAMA-J AM MED A... | V282 | P755 | 3 |
| 16 | 0.00 | | MALLONEE S | 1996 | ***Physical injuries and fatalities resulting from the*** | JAMA-J AM MED A... | V276 | P382 | 3 |
| 11 | 0.00 | | PFEFFERBAUM B | 1999 | ***Clinical needs assessment of middle and high*** | AM J PSYCHIAT | V156 | P1069 | 3 |

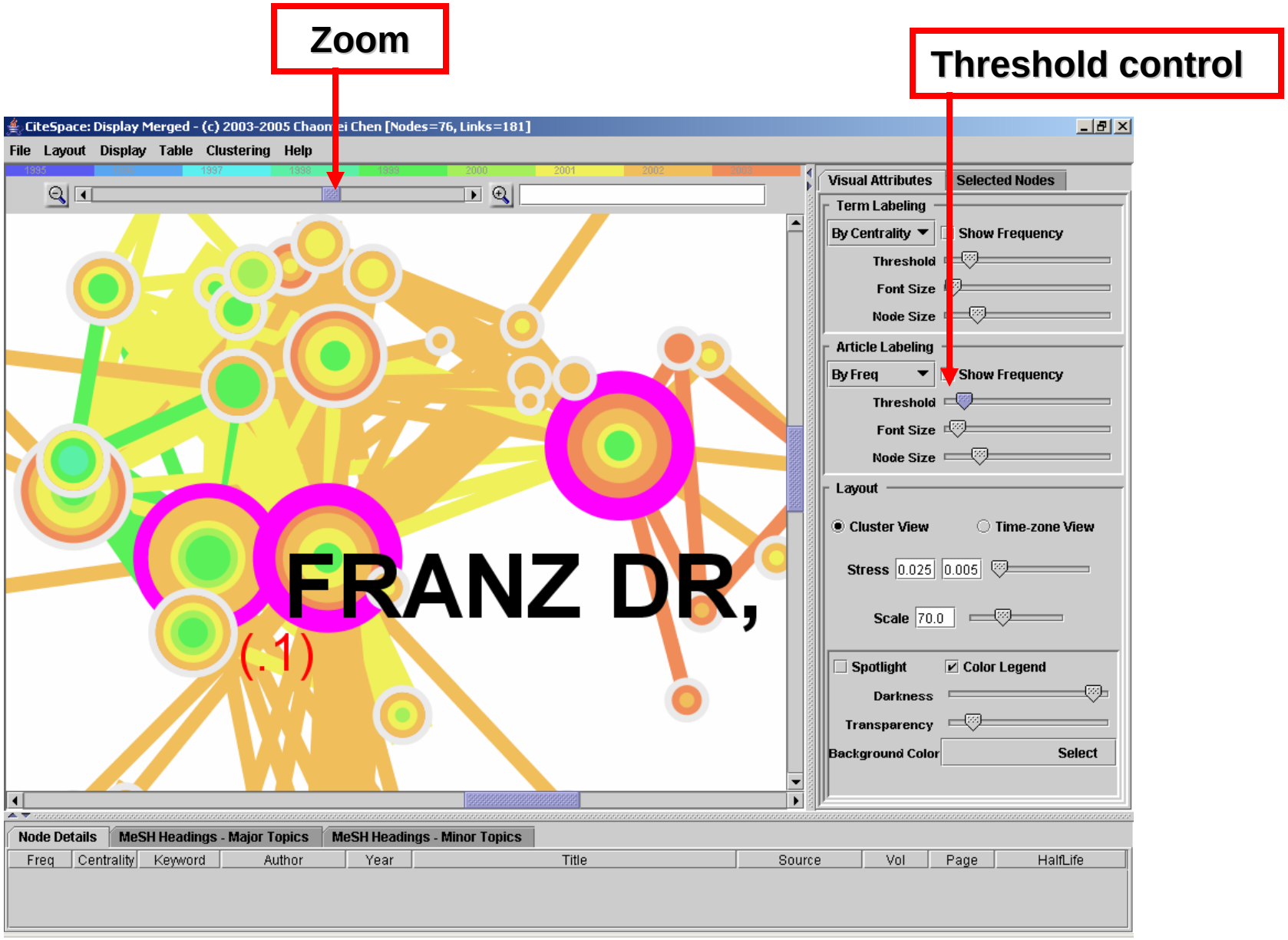

CiteSpace: Display Merged - (c) 2003-2005 Chaomei Chen [Nodes=76, Links=181]
File Layout Display Table Clustering Help
1995 1996 1997 1998 1999 2000 2001 2002 2003
oklahoma city
(16) MALLONEE S, 1996, JAMA-J AM MED
(23) NORTH CS, 1999, JAMA-J AM MED ASSOC, V282, P7
(11) PFEFFERBAUM B, 1999, AM J PSYCHIAT, V1
Visual Attributes
Selected Nodes
Term Labeling
By Centrality
Show Frequency
Threshold
Font Size
Node Size
Article Labeling
By Centrality
Show Frequency
Node Size
Layout
Cluster View
Time-zone View
Stress 0.026 0.005
Scale 65.0
Spotlight
Color Legend
Darkness
Transparency
Background Color
Select
Spotlight ON/OFF
ngs - Minor Topics
Title
Source
Vol
Page
HalfLife
Psychiatric disorders among survivors of the
JAMA-J AM MED A...
V282
P755
3
Physical injuries and fatalities resulting from the
JAMA-J AM MED A...
V276
P382
3
Clinical needs assessment of middle and high
AM J PSYCHIAT
V156
P1069
3

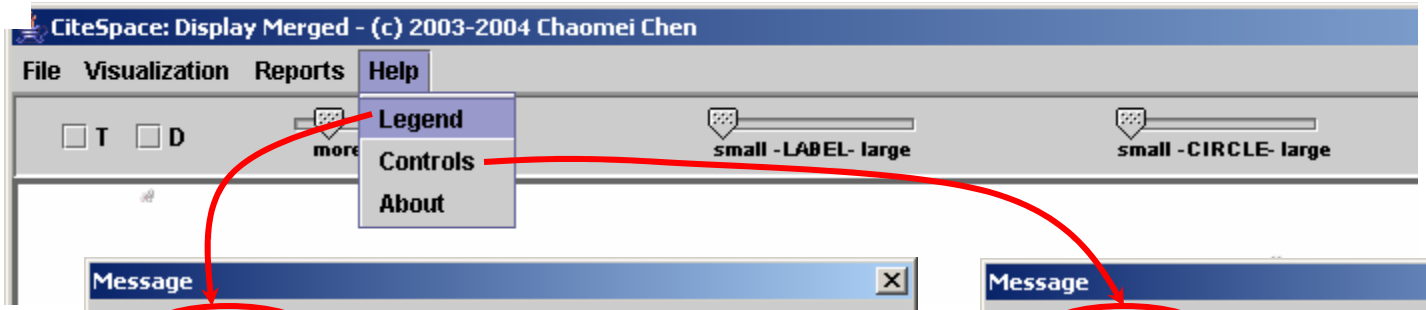


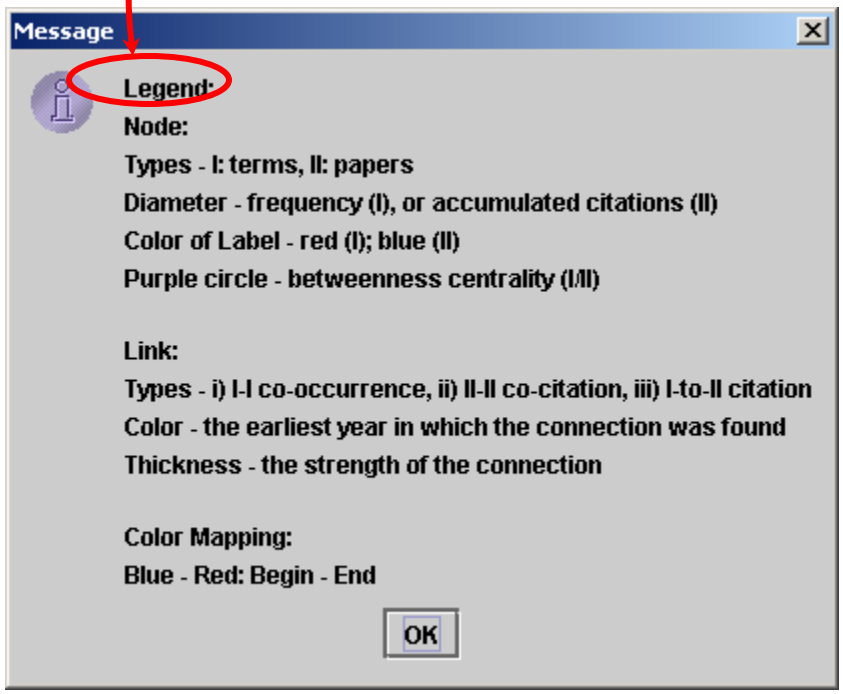

| Freq | Centrality | Keyword | Author | Year | Title | Source | Vol | Page | HalfLife |
|---|---|---|---|---|---|---|---|---|---|
| 23 | 0.02 | | NORTH CS | 1999 | ***Psychiatric disorders among survivors of the*** | JAMA-J AM MED A... | V282 | P755 | 3 |
| 16 | 0.00 | | MALLONEE S | 1996 | ***Physical injuries and fatalities resulting from the*** | JAMA-J AM MED A... | V276 | P382 | 3 |
| 11 | 0.00 | | PFEFFERBAUM B | 1999 | ***Clinical needs assessment of middle and high*** | AM J PSYCHIAT | V156 | P1069 | 3 |

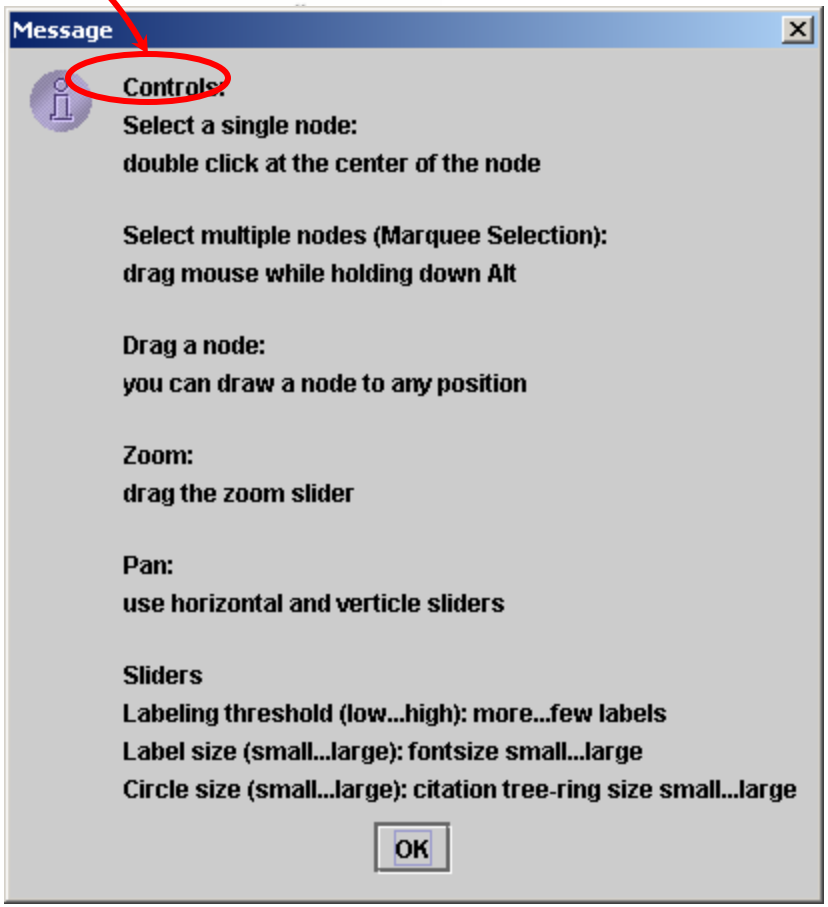



| Freq | Centrality | Keyword | Author | Year | Title | Source | Vol | Page | HalfLife |
|---|---|---|---|---|---|---|---|---|---|
| 23 | 0.02 | | NORTH CS | 1999 | *Psychiatric disorders among survivors of the* | JAMA-J AM MED A... | V282 | P755 | 3 |
| 16 | 0.00 | | MALLONEE S | 1996 | *Physical injuries and fatalities resulting from the* | JAMA-J AM MED A... | V276 | P382 | 3 |
| 11 | 0.00 | | PFEFFERBAUM B | 1999 | *Clinical needs assessment of middle and high* | AM J PSYCHIAT | V156 | P1069 | 3 |

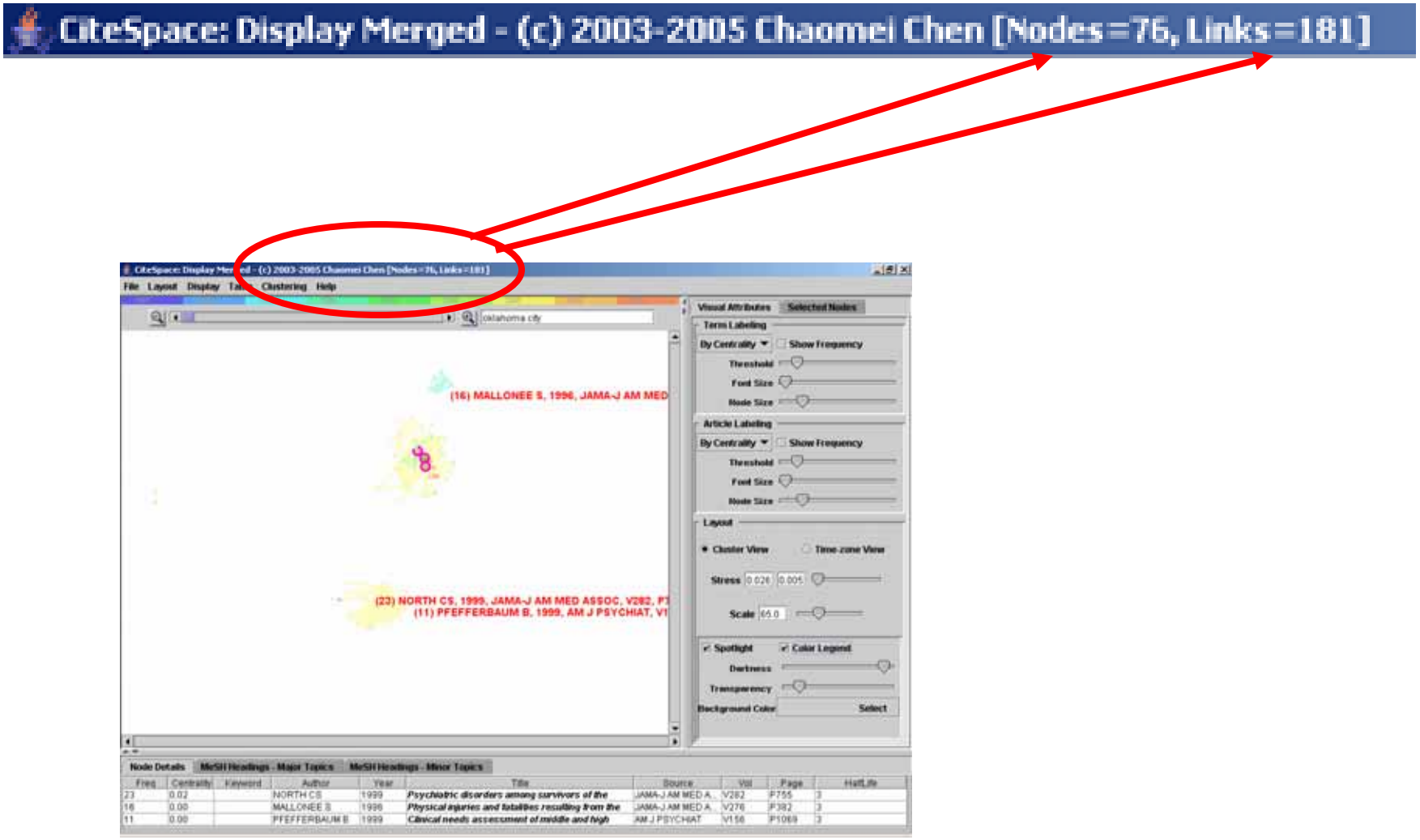

Zoom
Threshold control
CiteSpace: Display Merged - (c) 2003-2005 Chaomei Chen [Nodes=76, Links=181]
File Layout Display Table Clustering Help
1995 1996 1997 1998 1999 2000 2001 2002 2003
FRANZ DR,
(.1)
Visual Attributes
Selected Nodes
Term Labeling
By Centrality
Show Frequency
Threshold
Font Size
Node Size
Article Labeling
By Freq
Show Frequency
Threshold
Font Size
Node Size
Layout
Cluster View
Time-zone View
Stress 0.025 0.005
Scale 70.0
Spotlight
Color Legend
Darkness
Transparency
Background Color
Select
Node Details
MeSH Headings - Major Topics
MeSH Headings - Minor Topics
Freq Centrality Keyword Author Year Title Source Vol Page HalfLife


CiteSpace: Display Merged - (c) 2003-2004 Chaomei Chen
File
Visualization
Reports
Help
Legend
Controls
About
T
D
more
small -LABEL- large
small -CIRCLE- large

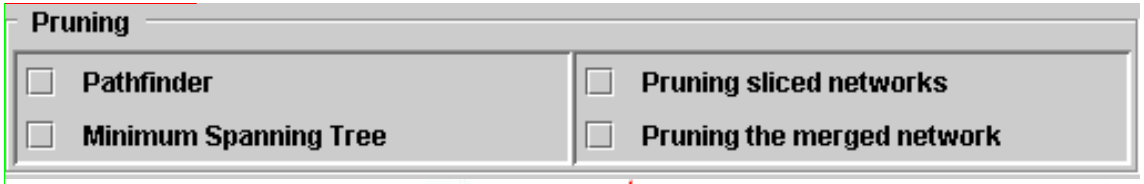

Message
Legend:
Node:
Types - I: terms, II: papers
Diameter - frequency (I), or accumulated citations (II)
Color of Label - red (I); blue (II)
Purple circle - betweenness centrality (I/II)
Link:
Types - i) I-I co-occurrence, ii) II-II co-citation, iii) I-to-II citation
Color - the earliest year in which the connection was found
Thickness - the strength of the connection
Color Mapping:
Blue - Red: Begin - End
OK

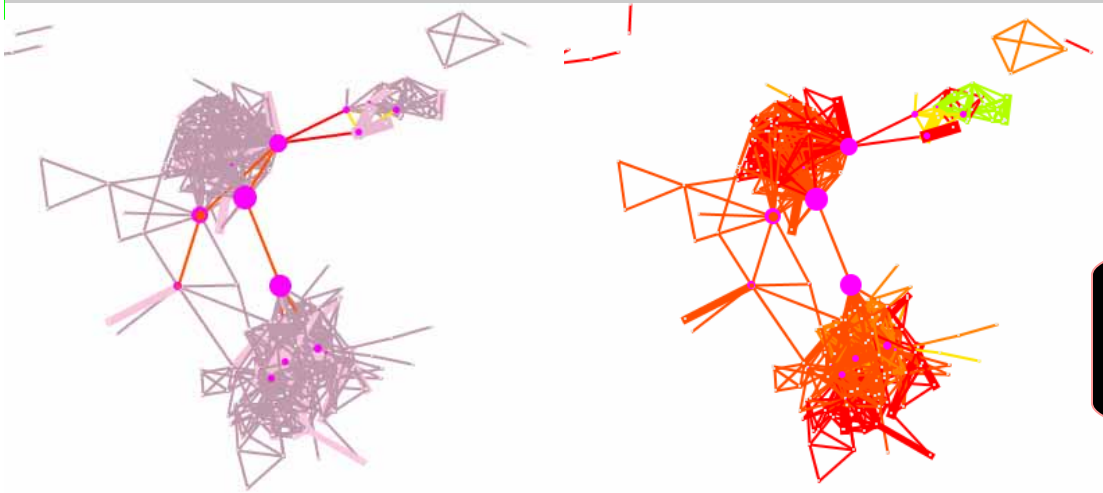

Message
Controls:
Select a single node:
double click at the center of the node
Select multiple nodes (Marquee Selection):
drag mouse while holding down Alt
Drag a node:
you can draw a node to any position
Zoom:
drag the zoom slider
Pan:
use horizontal and verticle sliders
Sliders
Labeling threshold (low...high): more...few labels
Label size (small...large): fontsize small...large
Circle size (small...large): citation tree-ring size small...large
OK

# How many nodes and links in the network?



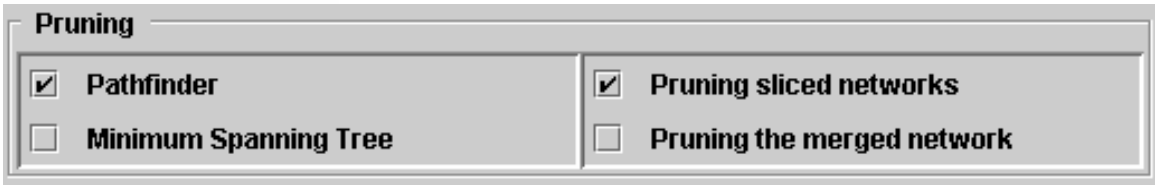
# 9. The Use of Pathfinder

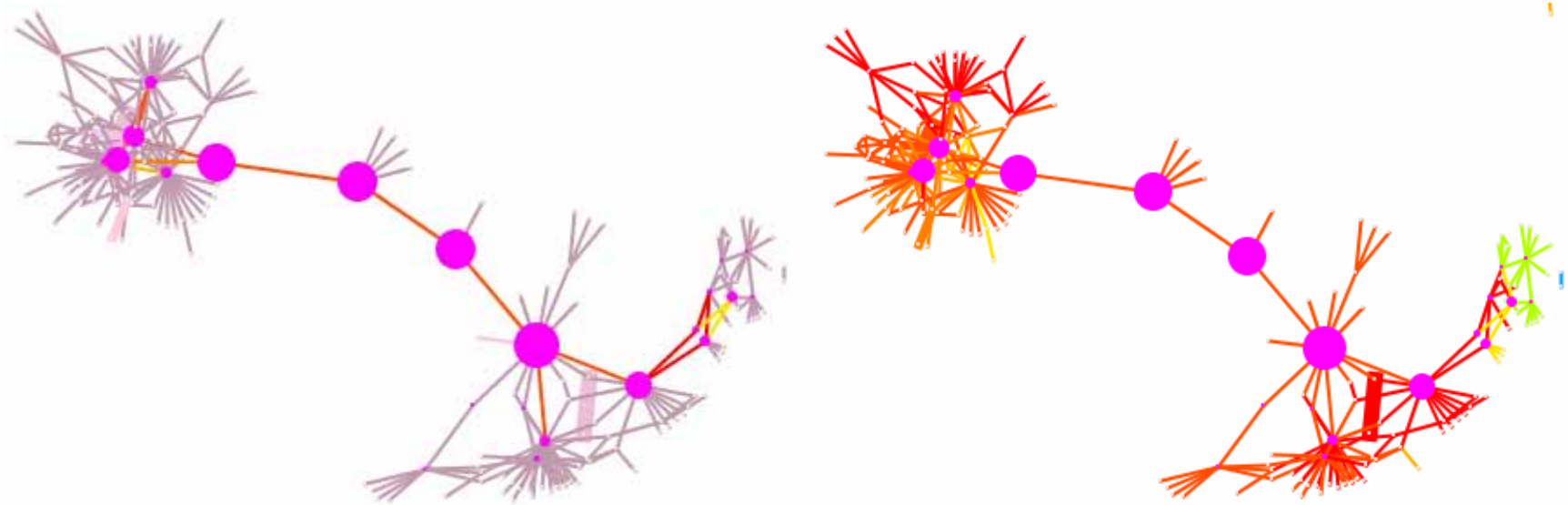


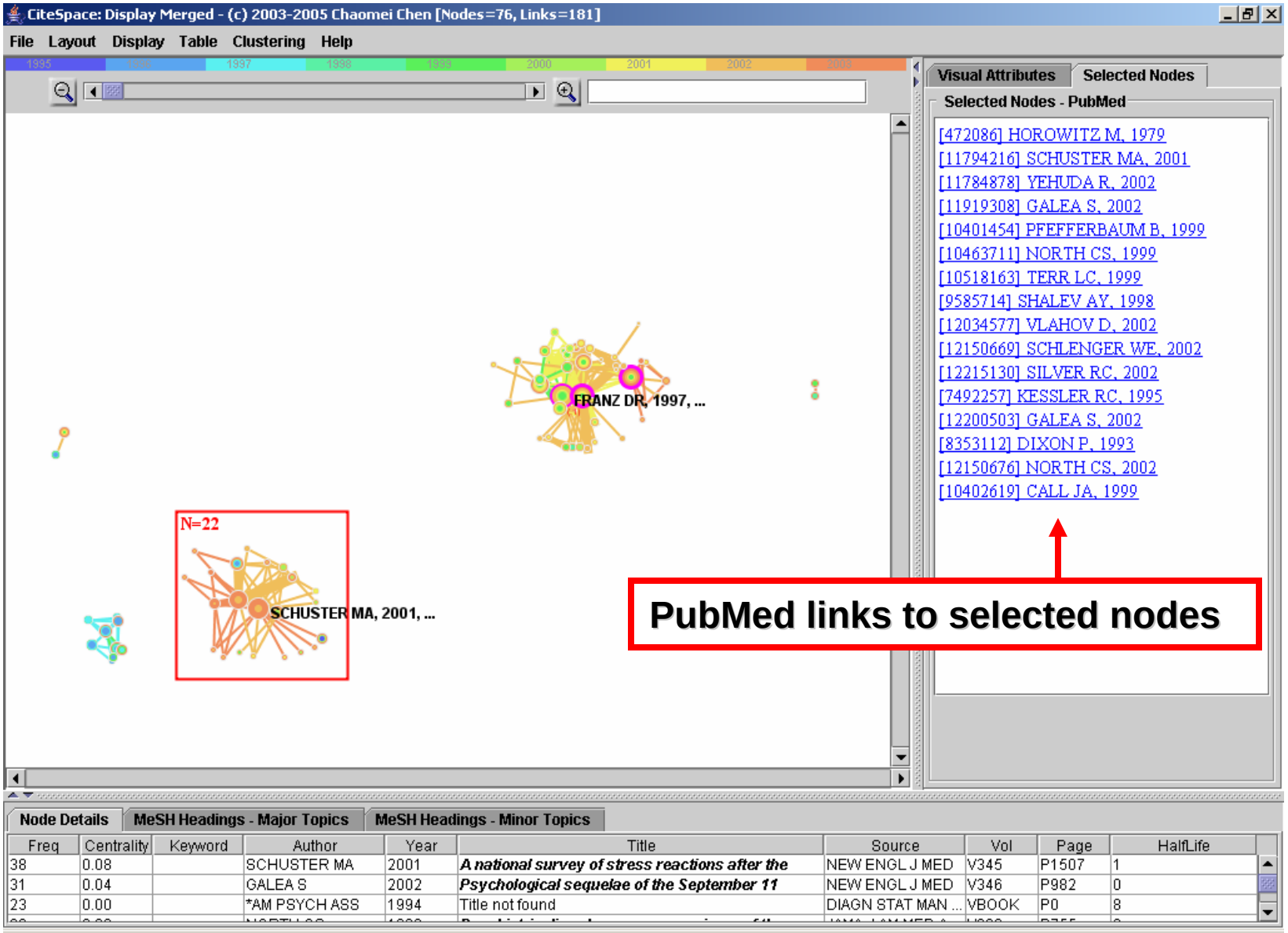



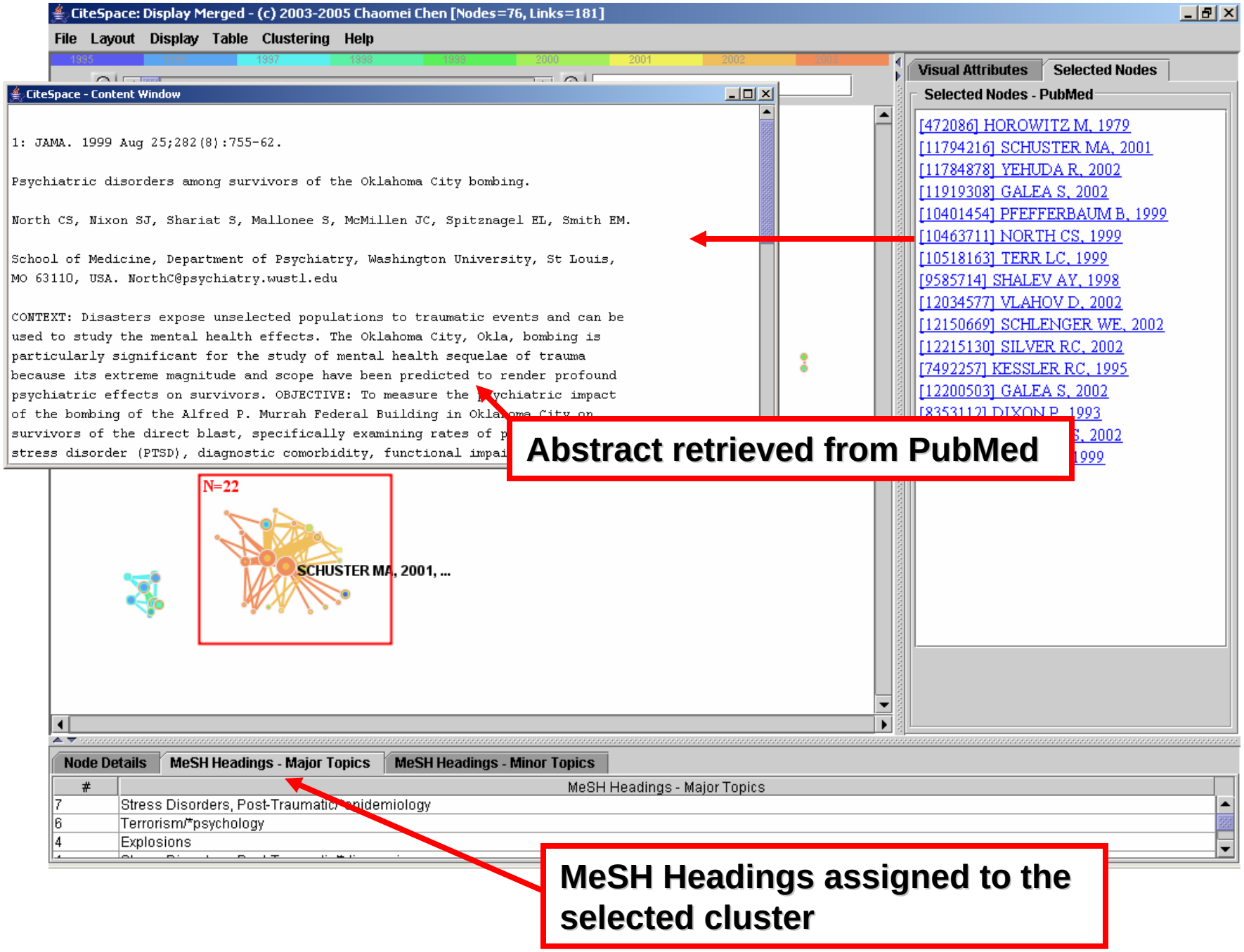
Pathfinder network scaling reduces the number of links. Only the most ***salient*** links can survive the pruning.

Salient links are determined by triangle inequality tests against all q-link paths.

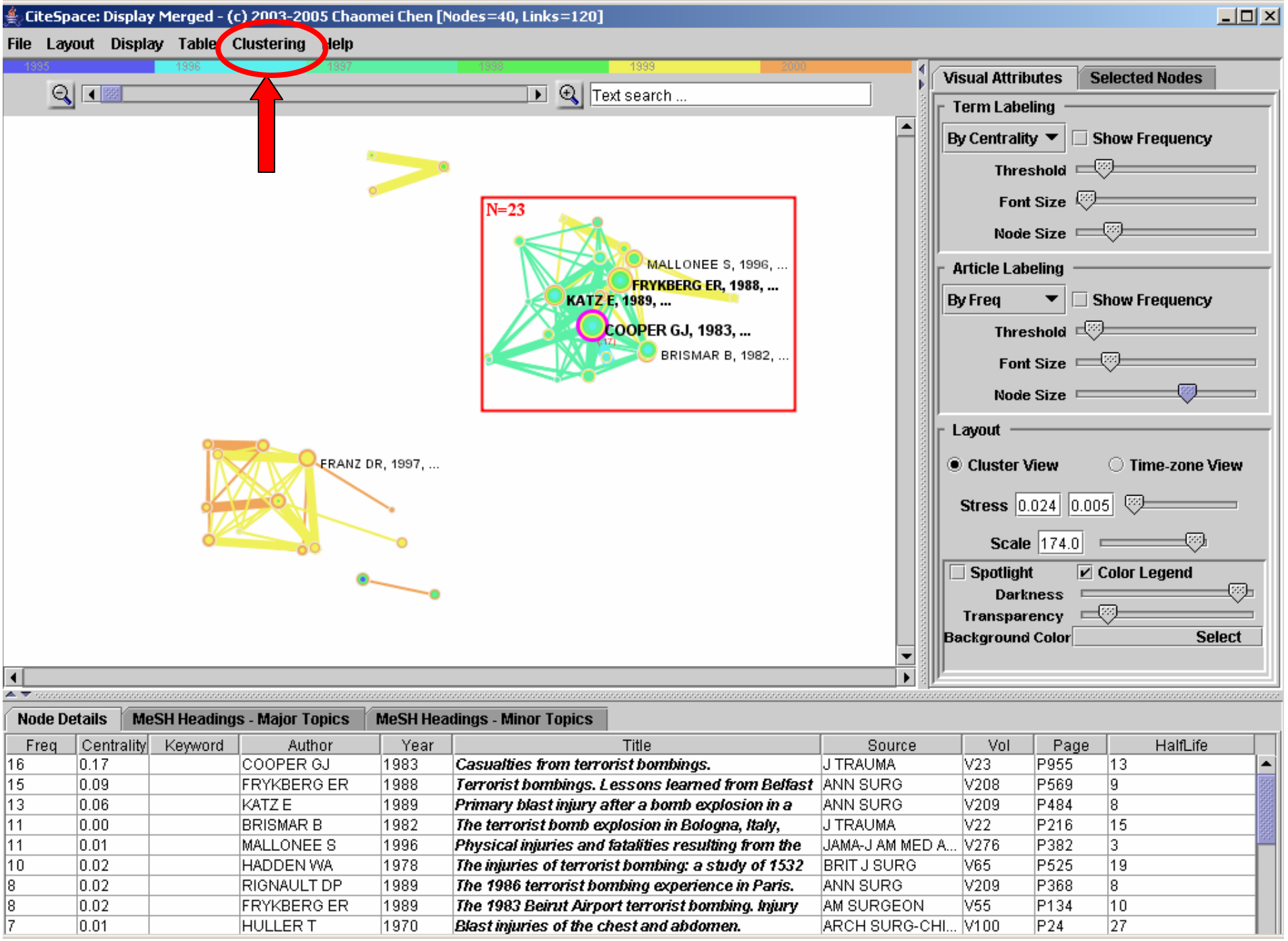



CiteSpace: Display Merged - (c) 2003-2005 Chaomei Chen [Nodes=76, Links=181]
File Layout Display Table Clustering Help
1995 1996 1997 1998 1999 2000 2001 2002 2003
FRANZ DR, 1997, ...
N=22
SCHUSTER MA, 2001, ...
Visual Attributes
Selected Nodes
Selected Nodes - PubMed
[472086] HOROWITZ M, 1979
[11794216] SCHUSTER MA, 2001
[11784878] YEHUDA R, 2002
[11919308] GALEA S, 2002
[10401454] PFEFFERBAUM B, 1999
[10463711] NORTH CS, 1999
[10518163] TERR LC, 1999
[9585714] SHALEV AY, 1998
[12034577] VLAHOV D, 2002
[12150669] SCHLENGER WE, 2002
[12215130] SILVER RC, 2002
[7492257] KESSLER RC, 1995
[12200503] GALEA S, 2002
[8353112] DIXON P, 1993
[12150676] NORTH CS, 2002
[10402619] CALL JA, 1999
PubMed links to selected nodes
Node Details
MeSH Headings - Major Topics
MeSH Headings - Minor Topics
Freq Centrality Keyword Author Year Title Source Vol Page HalfLife
38 0.08 SCHUSTER MA 2001 A national survey of stress reactions after the NEW ENGL J MED V345 P1507 1
31 0.04 GALEA S 2002 Psychological sequelae of the September 11 NEW ENGL J MED V346 P982 0
23 0.00 *AM PSYCH ASS 1994 Title not found DIAGN STAT MAN ... VBOOK P0 8

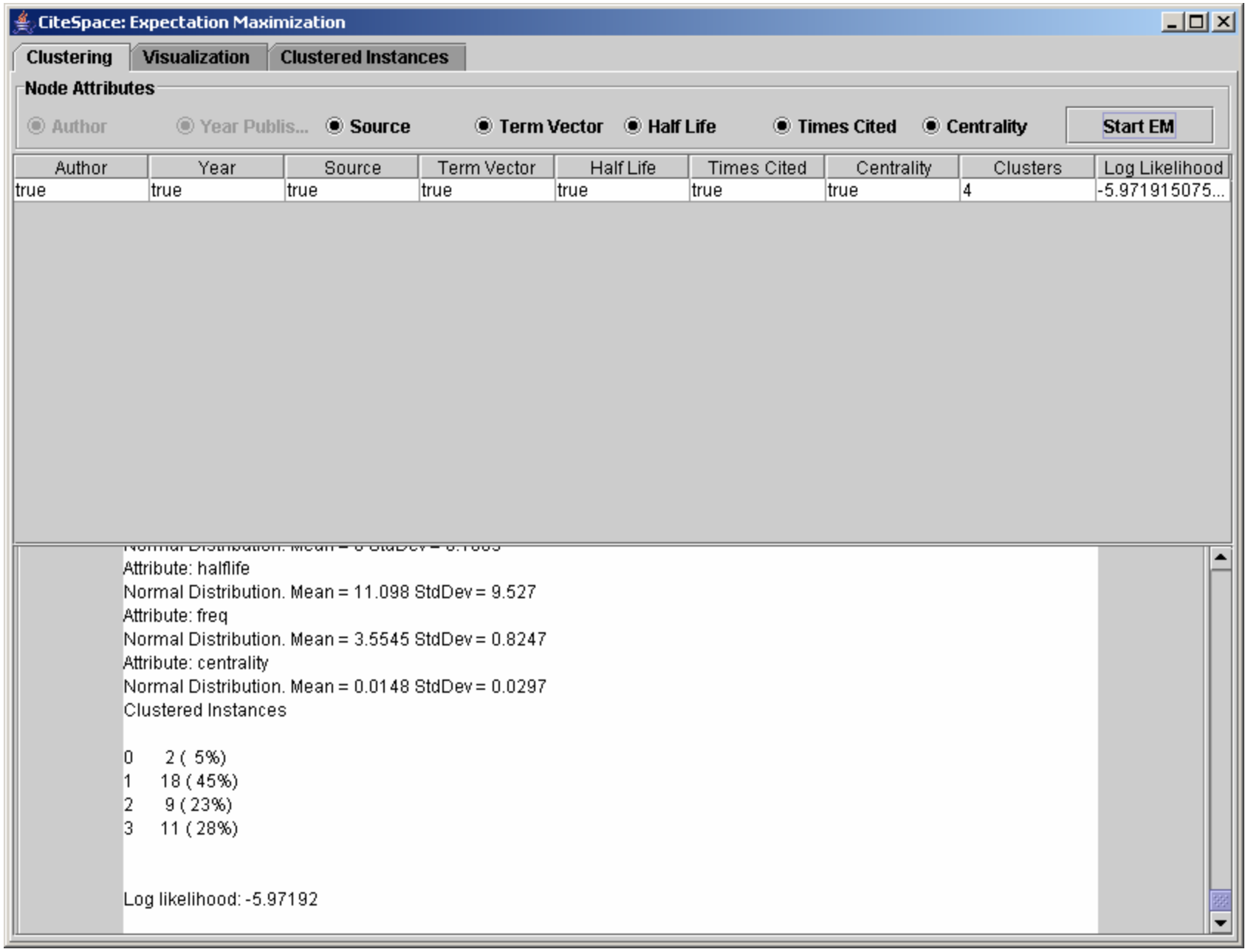

CiteSpace: Display Merged - (c) 2003-2005 Chaomei Chen [Nodes=76, Links=181]
File Layout Display Table Clustering Help
CiteSpace - Content Window
1: JAMA. 1999 Aug 25;282(8):755-62.
Psychiatric disorders among survivors of the Oklahoma City bombing.
North CS, Nixon SJ, Shariat S, Mallonee S, McMillen JC, Spitznagel EL, Smith EM.
School of Medicine, Department of Psychiatry, Washington University, St Louis, MO 63110, USA. NorthC@psychiatry.wustl.edu
CONTEXT: Disasters expose unselected populations to traumatic events and can be used to study the mental health effects. The Oklahoma City, Okla, bombing is particularly significant for the study of mental health sequelae of trauma because its extreme magnitude and scope have been predicted to render profound psychiatric effects on survivors. OBJECTIVE: To measure the
Abstract retrieved from PubMed
Visual Attributes
Selected Nodes
Selected Nodes - PubMed
[472086] HOROWITZ M, 1979
[11794216] SCHUSTER MA, 2001
[11784878] YEHUDA R, 2002
[11919308] GALEA S, 2002
[10401454] PFEFFERBAUM B, 1999
[10463711] NORTH CS, 1999
[10518163] TERR LC, 1999
[9585714] SHALEV AY, 1998
[12034577] VLAHOV D, 2002
[12150669] SCHLENGER WE, 2002
[12215130] SILVER RC, 2002
[7492257] KESSLER RC, 1995
[12200503] GALEA S, 2002
N=22
SCHUSTER MA, 2001, ...
Node Details
MeSH Headings - Major Topics
MeSH Headings - Minor Topics
# MeSH Headings - Major Topics
7 Stress Disorders, Post-Traumatic/epidemiology
6 Terrorism/*psychology
4 Explosions
MeSH Headings assigned to the selected cluster

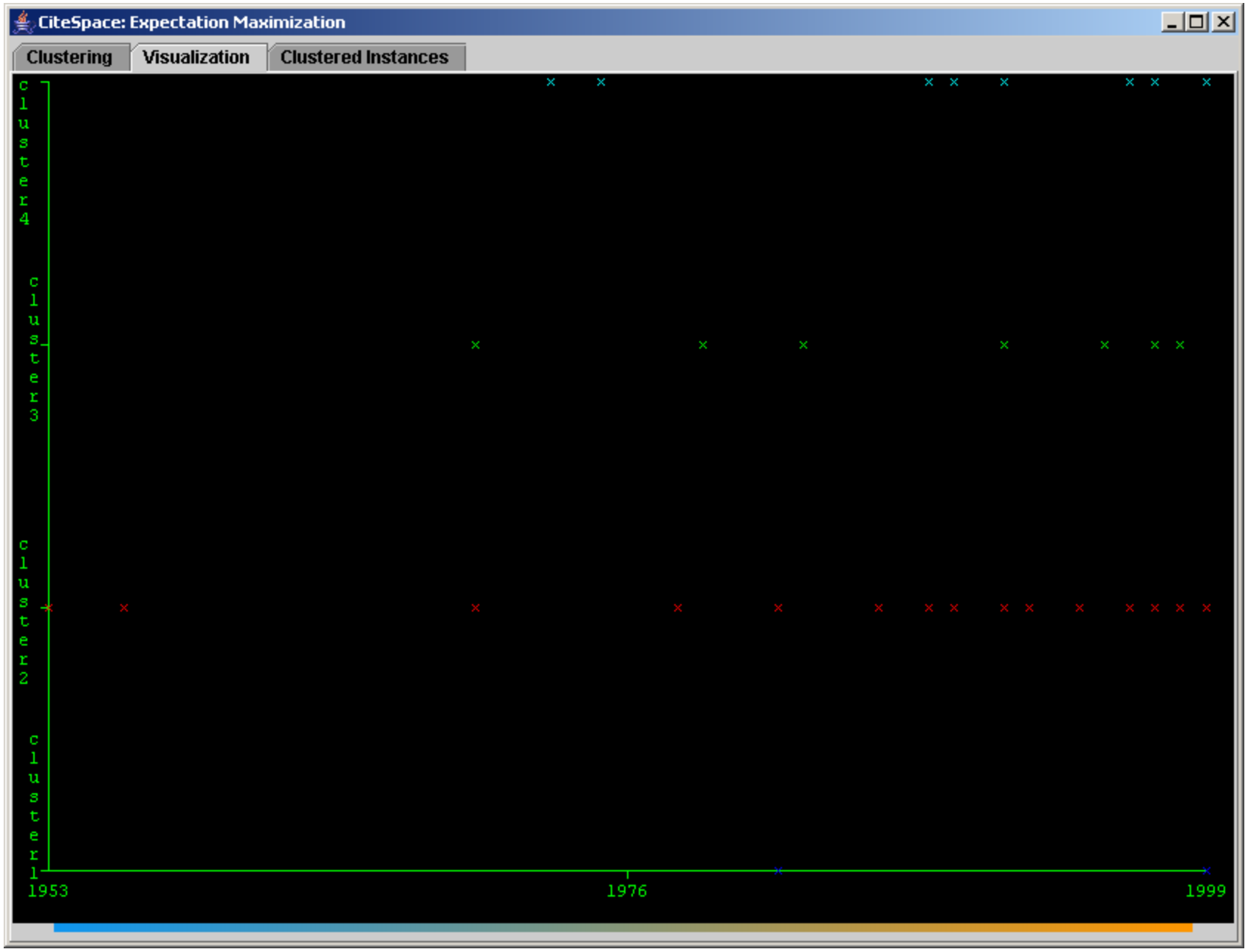
# 10. EM Clustering

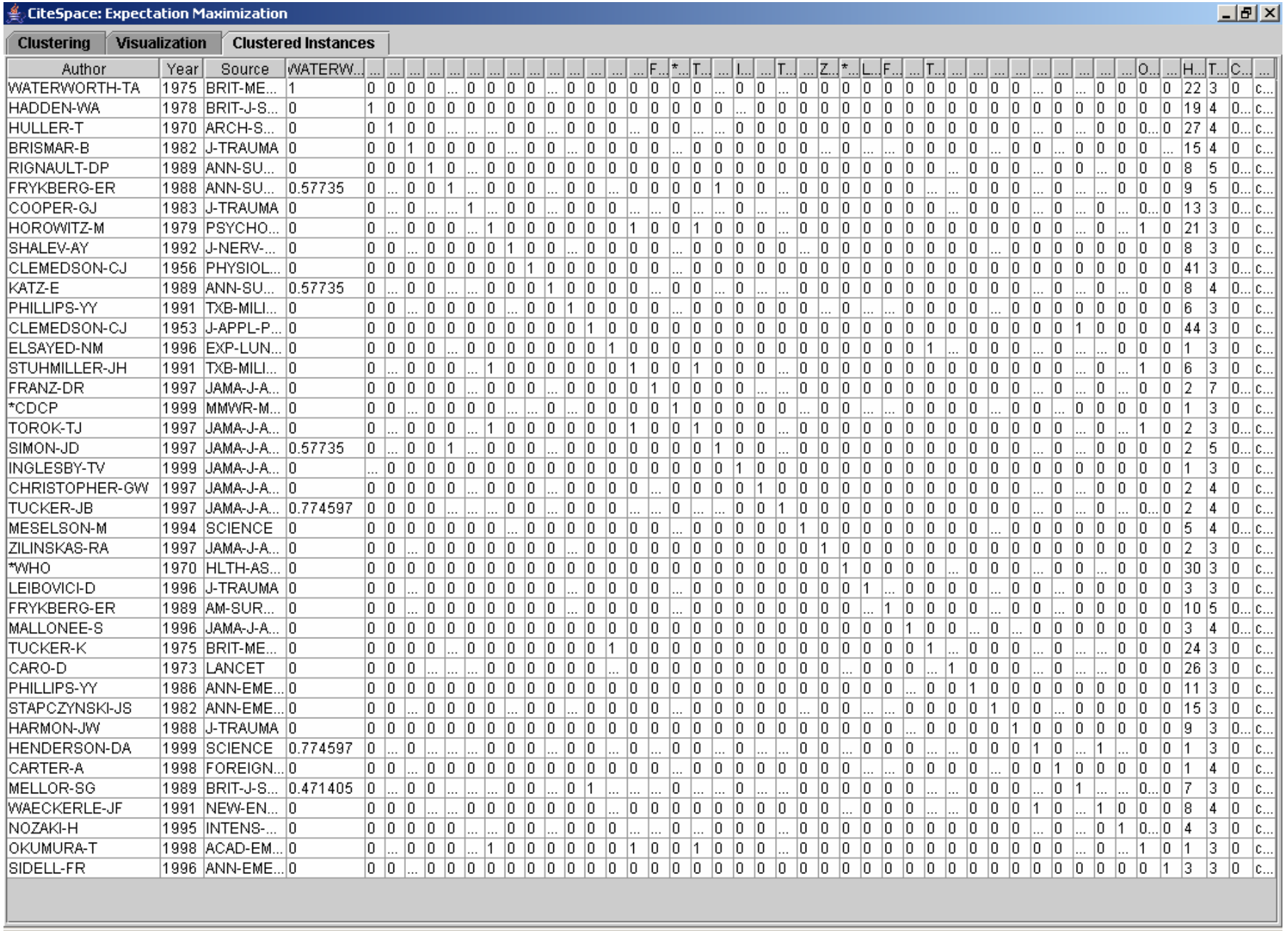



Node Details | MeSH Headings - Major Topics | MeSH Headings - Minor Topics

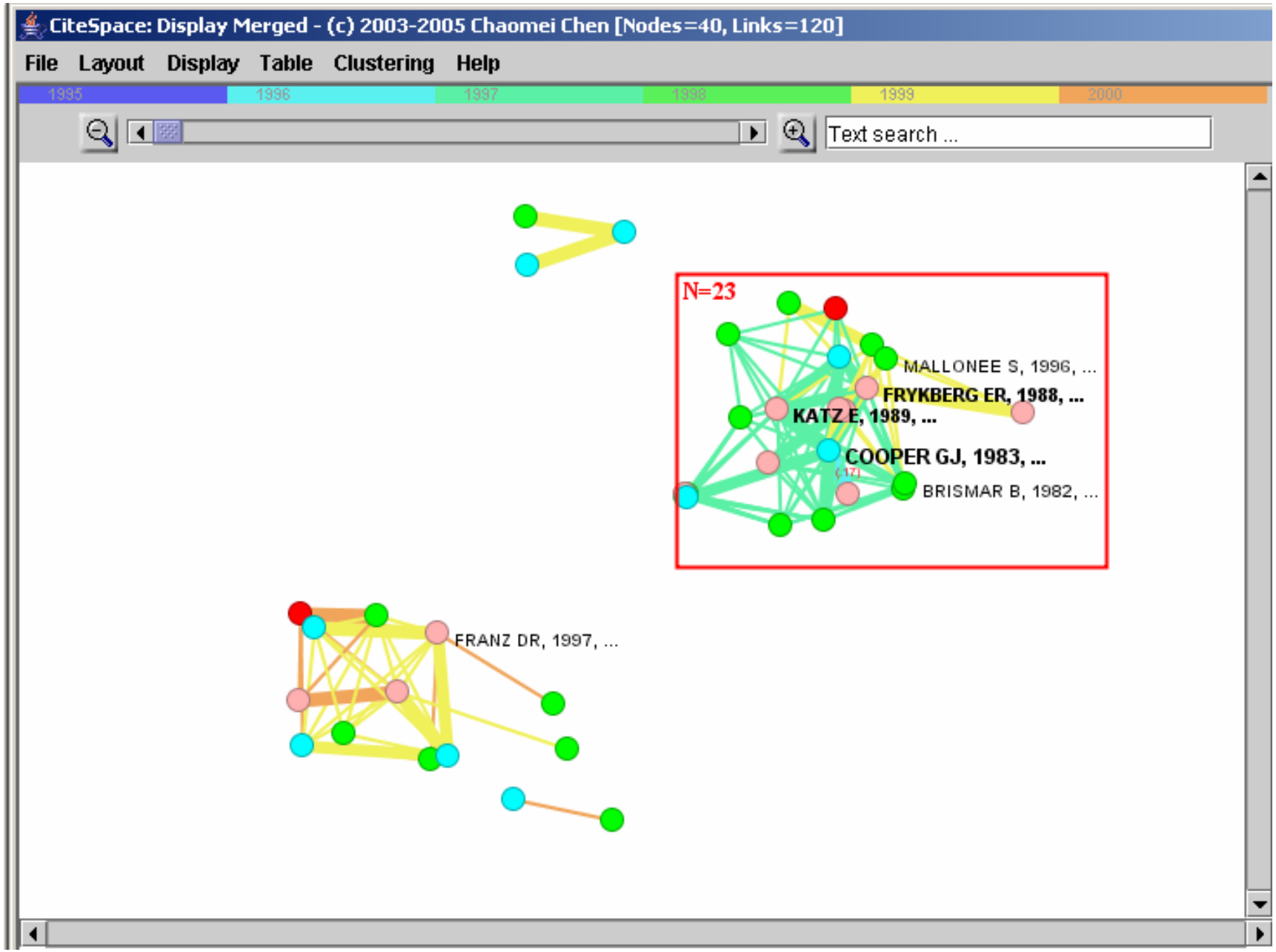
| Freq | Centrality | Keyword | Author | Year | Title | Source | Vol | Page | HalfLife |
|---|---|---|---|---|---|---|---|---|---|
| 16 | 0.17 | | COOPER GJ | 1983 | *Casualties from terrorist bombings.* | J TRAUMA | V23 | P955 | 13 |
| 15 | 0.09 | | FRYKBERG ER | 1988 | *Terrorist bombings. Lessons learned from Belfast* | ANN SURG | V208 | P569 | 9 |
| 13 | 0.06 | | KATZ E | 1989 | *Primary blast injury after a bomb explosion in a* | ANN SURG | V209 | P484 | 8 |
| 11 | 0.00 | | BRISMAR B | 1982 | *The terrorist bomb explosion in Bologna, Italy,* | J TRAUMA | V22 | P216 | 15 |
| 11 | 0.01 | | MALLONEE S | 1996 | *Physical injuries and fatalities resulting from the* | JAMA-J AM MED A... | V276 | P382 | 3 |
| 10 | 0.02 | | HADDEN WA | 1978 | *The injuries of terrorist bombing: a study of 1532* | BRIT J SURG | V65 | P525 | 19 |
| 8 | 0.02 | | RIGNAULT DP | 1989 | *The 1986 terrorist bombing experience in Paris.* | ANN SURG | V209 | P368 | 8 |
| 8 | 0.02 | | FRYKBERG ER | 1989 | *The 1983 Beirut Airport terrorist bombing. Injury* | AM SURGEON | V55 | P134 | 10 |
| 7 | 0.01 | | HULLER T | 1970 | *Blast injuries of the chest and abdomen.* | ARCH SURG-CHI... | V100 | P24 | 27 |


CiteSpace: Expectation Maximization
Clustering
Visualization
Clustered Instances
Node Attributes
Author
Year Publis...
Source
Term Vector
Half Life
Times Cited
Centrality
Start EM
Author
Year
Source
Term Vector
Half Life
Times Cited
Centrality
Clusters
Log Likelihood
true
true
true
true
true
true
true
4
-5.971915075...
Attribute: halflife
Normal Distribution. Mean = 11.098 StdDev = 9.527
Attribute: freq
Normal Distribution. Mean = 3.5545 StdDev = 0.8247
Attribute: centrality
Normal Distribution. Mean = 0.0148 StdDev = 0.0297
Clustered Instances
0 2 ( 5%)
1 18 ( 45%)
2 9 ( 23%)
3 11 ( 28%)
Log likelihood: -5.97192


CiteSpace: Expectation Maximization
Clustering
Visualization
Clustered Instances
cluster4
cluster3
cluster2
cluster1
1953
1976
1999




| Author | Year | Source | WATERW... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | F... | *... | T... | ... | I... | ... | T... | ... | Z... | *... | L... | F... | ... | T... | ... | ... | ... | ... | ... | ... | ... | ... | O... | ... | H... | T... | C... | ... |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WATERWORTH-TA | 1975 | BRIT-ME... | 1 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | 0 | 0 | 0 | 0 | 22 | 3 | 0 | c... |
| HADDEN-WA | 1978 | BRIT-J-S... | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 4 | 0... | c... |
| HULLER-T | 1970 | ARCH-S... | 0 | 0 | 1 | 0 | 0 | ... | ... | ... | 0 | 0 | ... | 0 | 0 | 0 | ... | 0 | 0 | ... | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | 0 | 0 | 0... | 0 | 27 | 4 | 0... | c... |
| BRISMAR-B | 1982 | J-TRAUMA | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | ... | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | ... | 0 | 0 | 0 | 0 | ... | 0 | 0 | ... | 0 | 0 | 0 | 0 | ... | 15 | 4 | 0 | c... |
| RIGNAULT-DP | 1989 | ANN-SU... | 0 | 0 | 0 | 0 | 1 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | ... | 0 | 0 | ... | 0 | 0 | 0 | 8 | 5 | 0... | c... |
| FRYKBERG-ER | 1988 | ANN-SU... | 0.57735 | 0 | ... | 0 | 0 | 1 | ... | 0 | 0 | 0 | ... | 0 | 0 | ... | 0 | 0 | 0 | 0 | 1 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | ... | ... | 0 | 0 | 0 | ... | 0 | ... | ... | 0 | 0 | 0 | 9 | 5 | 0... | c... |
| COOPER-GJ | 1983 | J-TRAUMA | 0 | 0 | ... | 0 | ... | ... | 1 | ... | 0 | 0 | ... | 0 | 0 | 0 | ... | ... | 0 | ... | ... | 0 | ... | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | ... | 0 | ... | 0 | ... | 0... | 0 | 13 | 3 | 0... | c... |
| HOROWITZ-M | 1979 | PSYCHO... | 0 | 0 | ... | 0 | 0 | 0 | ... | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | 1 | 0 | 21 | 3 | 0 | c... |
| SHALEV-AY | 1992 | J-NERV-... | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 1 | 0 | 0 | ... | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 3 | 0 | c... |
| CLEMEDSON-CJ | 1956 | PHYSIOL... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 3 | 0... | c... |
| KATZ-E | 1989 | ANN-SU... | 0.57735 | 0 | ... | 0 | 0 | ... | ... | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | ... | 0 | 0 | ... | 0 | ... | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | 0 | ... | 0 | 0 | 8 | 4 | 0... | c... |
| PHILLIPS-YY | 1991 | TXB-MILI... | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | ... | 0 | 0 | 1 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | ... | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 3 | 0 | c... |
| CLEMEDSON-CJ | 1953 | J-APPL-P... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 44 | 3 | 0 | c... |
| ELSAYED-NM | 1996 | EXP-LUN... | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | ... | 0 | 0 | 0 | ... | 0 | ... | ... | 0 | 0 | 0 | 1 | 3 | 0 | c... |
| STUHMILLER-JH | 1991 | TXB-MILI... | 0 | 0 | ... | 0 | 0 | 0 | ... | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | 1 | 0 | 6 | 3 | 0 | c... |
| FRANZ-DR | 1997 | JAMA-J-A... | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | ... | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | 0 | ... | 0 | 0 | 2 | 7 | 0... | c... |
| *CDCP | 1999 | MMWR-M... | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | ... | ... | 0 | ... | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | ... | ... | 0 | 0 | 0 | 0 | ... | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | c... |
| TOROK-TJ | 1997 | JAMA-J-A... | 0 | 0 | ... | 0 | 0 | 0 | ... | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | 1 | 0 | 2 | 3 | 0... | c... |
| SIMON-JD | 1997 | JAMA-J-A... | 0.57735 | 0 | ... | 0 | 0 | 1 | ... | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | 0 | 0 | 0 | 0 | 2 | 5 | 0... | c... |
| INGLESBY-TV | 1999 | JAMA-J-A... | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | c... |
| CHRISTOPHER-GW | 1997 | JAMA-J-A... | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | 0 | 0 | 0 | 0 | 2 | 4 | 0 | c... |
| TUCKER-JB | 1997 | JAMA-J-A... | 0.774597 | 0 | 0 | 0 | 0 | ... | ... | ... | 0 | 0 | ... | 0 | 0 | 0 | ... | ... | 0 | ... | ... | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | 0 | ... | 0... | 0 | 2 | 4 | 0 | c... |
| MESELSON-M | 1994 | SCIENCE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 4 | 0... | c... |
| ZILINSKAS-RA | 1997 | JAMA-J-A... | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | c... |
| *WHO | 1970 | HLTH-AS... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | ... | 0 | 0 | ... | 0 | 0 | 0 | 30 | 3 | 0 | c... |
| LEIBOVICI-D | 1996 | J-TRAUMA | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | ... | 0 | 0 | 0 | 0 | ... | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | c... |
| FRYKBERG-ER | 1989 | AM-SUR... | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 1 | 0 | 0 | 0 | 0 | ... | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 10 | 5 | 0... | c... |
| MALLONEE-S | 1996 | JAMA-J-A... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | ... | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0... | c... |
| TUCKER-K | 1975 | BRIT-ME... | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | ... | 0 | 0 | 0 | ... | 0 | ... | ... | 0 | 0 | 0 | 24 | 3 | 0 | c... |
| CARO-D | 1973 | LANCET | 0 | 0 | 0 | 0 | ... | ... | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | ... | 1 | 0 | 0 | 0 | ... | 0 | ... | ... | 0 | 0 | 0 | 26 | 3 | 0 | c... |
| PHILLIPS-YY | 1986 | ANN-EME... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 3 | 0 | c... |
| STAPCZYNSKI-JS | 1982 | ANN-EME... | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | ... | 0 | 0 | ... | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | ... | ... | 0 | 0 | 0 | 0 | 1 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 15 | 3 | 0 | c... |
| HARMON-JW | 1988 | J-TRAUMA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 3 | 0... | c... |
| HENDERSON-DA | 1999 | SCIENCE | 0.774597 | 0 | ... | 0 | ... | ... | ... | 0 | 0 | 0 | ... | 0 | 0 | ... | 0 | ... | 0 | 0 | ... | 0 | ... | ... | 0 | 0 | ... | 0 | 0 | 0 | ... | ... | 0 | 0 | 0 | 1 | 0 | ... | 1 | ... | 0 | 0 | 1 | 3 | 0 | c... |
| CARTER-A | 1998 | FOREIGN... | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | ... | 0 | 0 | 0 | 0 | ... | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | c... |
| MELLOR-SG | 1989 | BRIT-J-S... | 0.471405 | 0 | ... | 0 | 0 | ... | ... | ... | 0 | 0 | ... | 0 | 1 | ... | ... | ... | 0 | ... | ... | 0 | ... | ... | 0 | 0 | 0 | 0 | 0 | 0 | ... | ... | 0 | 0 | 0 | ... | 0 | 1 | ... | ... | 0... | 0 | 7 | 3 | 0 | c... |
| WAECKERLE-JF | 1991 | NEW-EN... | 0 | 0 | 0 | 0 | ... | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 | 0 | ... | ... | 0 | 0 | 0 | 1 | 0 | ... | 1 | 0 | 0 | 0 | 8 | 4 | 0 | c... |
| NOZAKI-H | 1995 | INTENS-... | 0 | 0 | 0 | 0 | 0 | 0 | ... | ... | 0 | 0 | ... | 0 | 0 | 0 | ... | ... | 0 | ... | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | 0 | 1 | 0... | 0 | 4 | 3 | 0 | c... |
| OKUMURA-T | 1998 | ACAD-EM... | 0 | 0 | ... | 0 | 0 | 0 | ... | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | ... | 1 | 0 | 1 | 3 | 0 | c... |
| SIDELL-FR | 1996 | ANN-EME... | 0 | 0 | 0 | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 0 | c... |


CiteSpace: Display Merged - (c) 2003-2005 Chaomei Chen [Nodes=40, Links=120]
File
Layout
Display
Table
Clustering
Help
1995
1996
1997
1998
1999
2000
Text search ...
N=23
MALLONEE S, 1996, ...
FRYKBERG ER, 1988, ...
KATZ E, 1989, ...
COOPER GJ, 1983, ...
(17)
BRISMAR B, 1982, ...
FRANZ DR, 1997, ...

# 11. Further Reading

**Chen, C. (Forthcoming) CiteSpace II: Detecting and visualizing emerging trends and transient patterns in scientific literature. *Journal of the American Society for Information Science and Technology*.**

**Chen, C. (2004) Searching for intellectual turning points: Progressive Knowledge Domain Visualization. *Proceedings of the National Academy of Sciences of the United States of America* (PNAS), 101 (Suppl. 1), 5303-5310 [Fulltext | PDF]**

**Chen, C. (2004) *Information Visualization: Beyond the Horizon*. Springer. 2nd ed. ISBN: 1-85233-789-3.**

**Chen, C. (2003) *Mapping Scientific Frontiers: The Quest for Knowledge Visualization*. Springer. ISBN: 1-85233-494-0.**

1. Chen, C. (2005) Top 10 unsolved information visualization problems. *IEEE Computer Graphics and Applications*, 25(4), 12-16. http://www.computer.org/portal/cms_docs_cga/cga/content/Promo/promo2.pdf
2. Allendoerfer K, Aluker S, Panjwani G, Proctor J, Sturtz D, Vukovic M, and Chen C. (2005) Adapting the cognitive walkthrough method to assess the usability of a knowledge domain visualization. *InfoVis 2005*. Forthcoming.
3. Chen C and Chen Y. (2005) Searching for clinical evidence in visual context. *AMIA '05*. Forthcoming.
4. Synnestvedt MB, Chen C, and Holmes JH.(2005) CiteSpace II: Visualization and knowledge discovery in bibliographic databases. *AMIA '05*. Forthcoming.
5. Chen, C., Panjwani, G., Proctor, J., Allendoerfer, K., Kuljis, J., Aluker, S., Sturtz, D., Vukovic, M. (2005) Visualizing the evolution of HCI. *Proc. of HCI 2005*. Edinburgh, Scotland. September 2005. Springer. Forthcoming.
6. Synnestvedt, M. and Chen, C. (2005) Design and evaluation of the tightly coupled perceptual-cognitive tasks in knowledge domain visualization. *Proc. of the 11th International Conference on Human-Computer Interaction* (HCII 2005). Las Vegas, Nevada. July 22-27, 2005. Lawrence Erlbaum Associates.
7. Chen, C., Chen, Y., Maulitz, R. C. (2005) Understanding the evolution of NSAID: A knowledge domain visualization approach to Evidence-Based Medicine. *Proc. of the 9th International Conference on Information Visualization* (*IV '05*), July 2005. London.
8. Chen, C. (2005) Measuring the movement of a research paradigm *(Invited Paper)*. *Visualization and Data Analysis* (VDA 2005). San Jose, CA. Jan. 17-18, 2005. SPIE. pp. 63-76.
9. Chen, C. (2005) The centrality of pivotal points in the evolution of scientific networks *Int'l Conf. on Intelligent User Interfaces* (IUI 2005). San Diego, CA. January 9 - 12, 2005. ACM Press. pp. 98-105.

# 12. Resource Links

- This Guide
  - http://cluster.cis.drexel.edu/~cchen/citespace/doc/guide.pdf
  - http://cluster.cis.drexel.edu/~cchen/citespace/doc/guide.ppt
- CiteSpace Homepage
  - http://cluster.cis.drexel.edu/~cchen/citespace
- My Homepage
  - http://www.pages.drexel.edu/~cc345