

A decorative graphic on the left side of the slide consisting of a network of thin, dark blue lines. These lines branch out and connect to small, empty circles, resembling a circuit board or a neural network diagram. The lines and circles are arranged in a way that suggests connectivity and flow.

Citation Indexing

CS846 – Spring 2021

Presenter: Sina Hojjati



Citation Indexing

- What is citation?
- What is reference?
- What is citation index?



History of Citation Indexing

- Pre-printing era



History of Citation Indexing

- Pre-printing era
- Printing era
 - Manual Subject Index

History of Citation Indexing

- Pre-printing era
- Printing era
 - Manual subject index
- Citation indexing



Eugene Garfield (1925 – 2017)

The Science Citation Index (SCI)

- Covering all scientific disciplines
 - Bradford's law of scattering
 - The journal impact factor (JIF)
- Web of Science (WoS)

Predicting Nobel Prize Winners

Rank	Times Cited	Name	Rank	Times Cited	Name	Rank	Times Cited	Name
1	2921	Lowry OH	18	754	Bergmeyer HU	35	673	Deduve C
2	1374	Chance B	19	750	Weber G	36	668	von Euler US
3	1174	Landau LD	20	748	Reynolds ES	37	666	Fieser LF
4	1150	Brown HC	21	741	Mott NF	38	661	Huisgen R
5	1063	Pauling L	22	737	Eccles JC	39	655	Novikoff AB
6	942	Gell-Mann M *	23	729	Feigl F	40	643	Goodwin TW
7	940	Cotton FA	24	727	Freud S	41	632	Barton DHR †
8	933	Pople JA	25	726	Pearse AGE	42	631	Fisher RA
9	906	Bellamy LJ	26	721	Eliel EL	43	627	Bates DR
10	904	Snedecor GW	27	717	Streitwieser A	44	626	Flory PJ
11	893	Boyer PD	28	712	Mulliken RS	45	626	Stahl E
12	876	Baker BR	29	711	Jacob F	46	619	Dewar MJS
13	863	Kolthoff IM	30	710	Born M	47	618	Gilman H
14	842	Herzberg G	31	706	Brachet J	48	618	Folch J
15	826	Fischer F	32	702	Winstein S	49	614	Dische Z
16	822	Seitz F	33	687	Albert A	50	609	Glick D
17	801	Djerassi C	34	674	Luft JH			

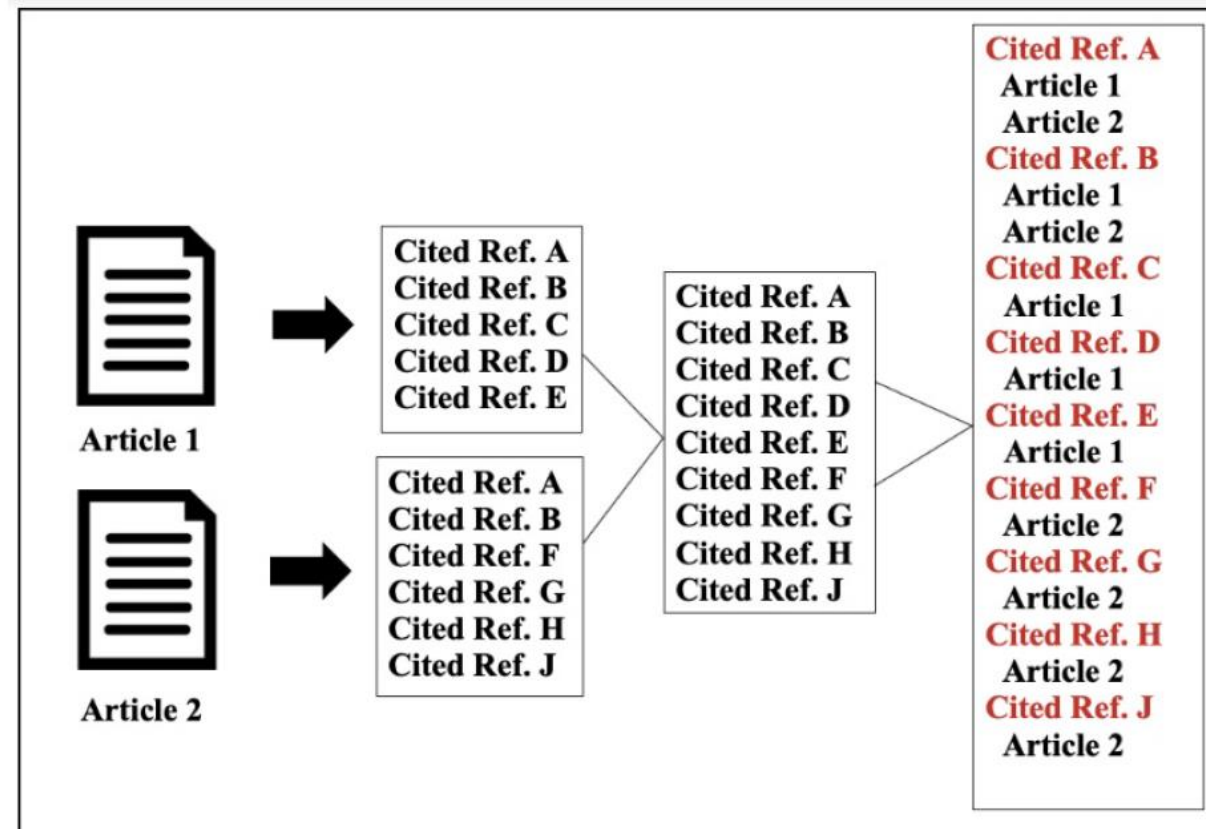
Fifty most cited authors for 1967, ranked according to total number of times cited. Nobel Prize in Physics, 1969. Nobel Prize in Chemistry, 1969. Authors in boldface type have won Nobel Prizes in later years. [2]



Citation Searching

- Backward searching
- Forward searching

Citation Indexes Design



Based on McVeigh. (2017). Citation Indexes and the Web of Science. Encyclopedia of Library and Information Sciences. 4 Edition, CRC Press, vol. 2: 940-50.



Citation Indexing Applications

- Information management and retrieval.

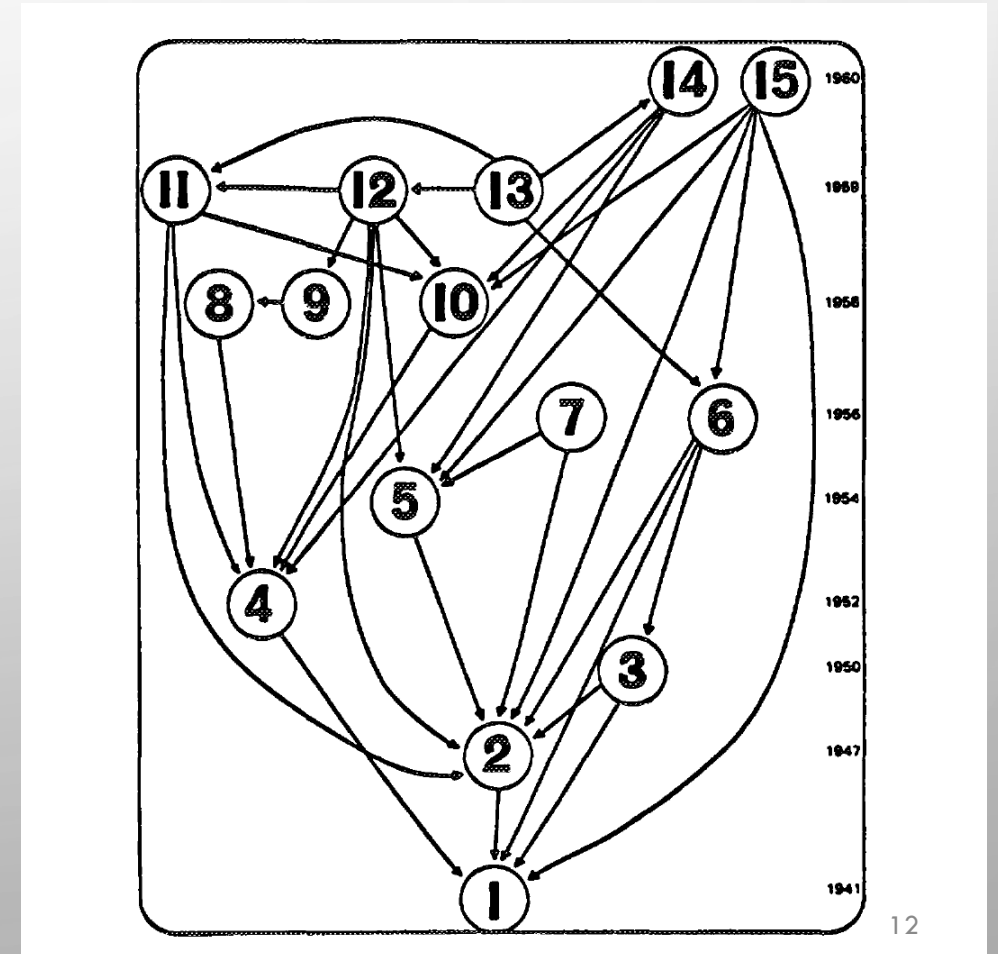


Citation Indexing Applications

- Information management and retrieval.
- Evaluate research and researchers.

Citation Indexing Applications

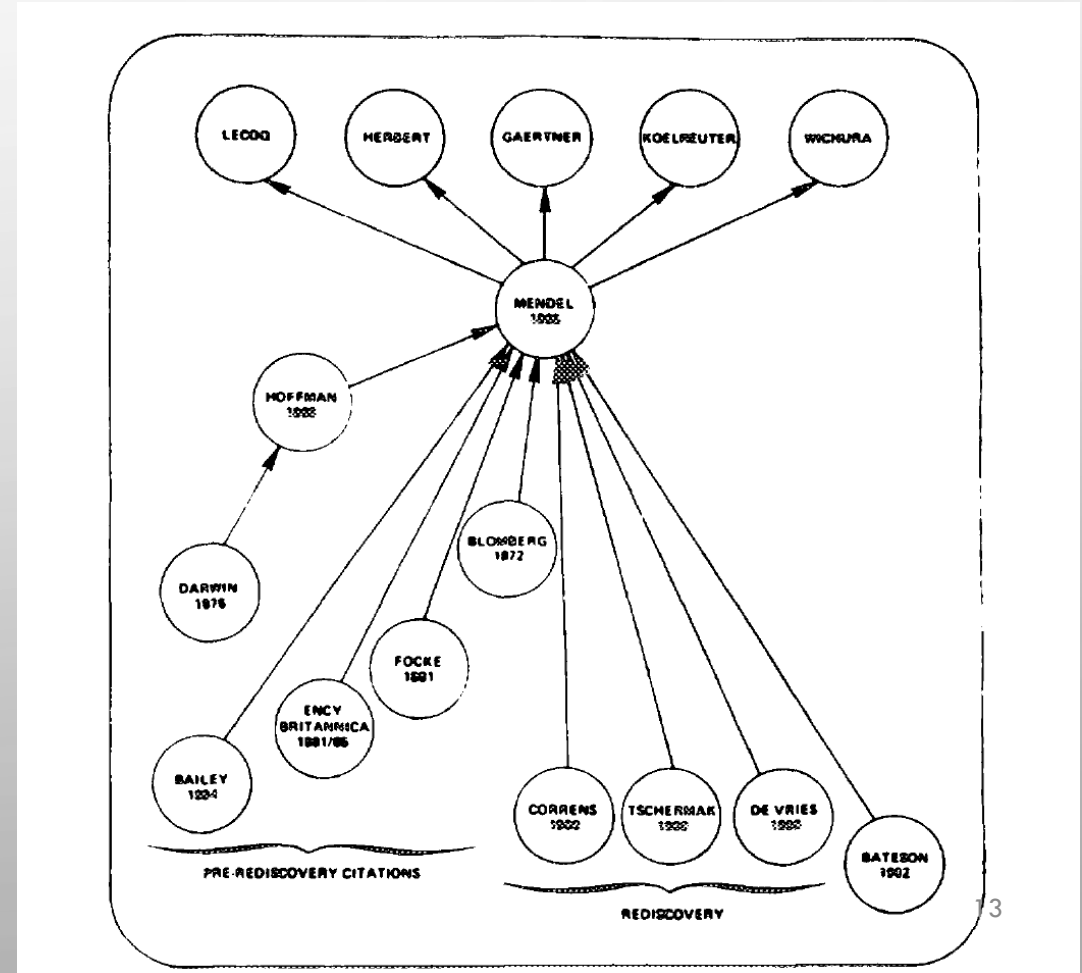
- Information management and retrieval.
- Evaluate research and researchers.
- Uses in Historical Research



Citation network of fifteen articles on nucleic acids. [2]

Citation Indexing Applications

- Information management and retrieval
- Evaluate research and researchers
- Uses in historical research
- Finding citation anomalies



Citation network showing citations to Mendel before alleged “rediscovery”. [2]



Citation Databases From Other Database Producers

- CiteSeerX
- Scopus
- Google Scholar

Citation Unification

* "Select All" adds the first 1000 matches to your cited reference search, not all matches.

Export Table
Finish Search

Select	Cited Author	Cited Work [Expand Titles]	Title [Expand Titles]	Early Access Year ***	Year	Volume	Issue	Page	Identifier	Citing Articles **
<input type="checkbox"/>	OROM A	BIBLIOTEKSARBEJDE			2003	65		61		2
<input type="checkbox"/>	OROM A	KNOWLEDGE ORG			2003	30				1
<input type="checkbox"/>	OROM A	KNOWLEDGE ORG			2003					1
<input type="checkbox"/>	Orom, A	KNOWL ORGAN	Knowledge organization in the domain of art studies...		2003	30	3-4	128		31
<input type="checkbox"/>	OROM A	TENDENCIAS INVESTIGA			2003			233		1



Export Table
Finish Search

* "Select All" adds the first 1000 matches to your cited reference search, not all matches.
 ** Citing Article counts are for all editions and all years, not just for your current editions and year limits.
 *** Early Access Year is when a work is fully peer-reviewed, citable, and published but has not been assigned a volume/issue/page number.

A. Ørom as cited author and printing year = 2003 in WoS, cited reference index. [1]



Criticisms of Citation Analysis

- Negative citations
 - Excessive self-citations
 - Primary references
- 
- 



Possible Future Works

- Improving citation unification
- Recommender systems

References

- [1] Araújo, Paula Carina de, Renata Cristina Gutierrez Castanha and Birger Hjørland. (2021). Citation Indexing and Indexes. *Knowledge Organization* 48, no. 1: 72-101.
- [2] Garfield. (1970). Citation Indexing for studying science. *Nature*, 227, 669-671.
- [3] Garfield. (2012). A Century of Citation Indexing, *COLLNET Journal of Scientometrics and Information Management*, 6:1, 1-6, DOI: 10.1080/09737766.2012.10700919
- [4] Ghosh. (2020). History of Indexing: An Overview, *International Journal for Research in Applied Science & Engineering Technology (IJRASET)*, DOI:10.22214/ijraset.2020.5268
- [5] Giles, Bollacker, and Lawrence. (1998). CiteSeer: an automatic citation indexing system. In *Proceedings of the third ACM conference on Digital libraries (DL '98)*. Association for Computing Machinery, New York, NY, USA, 89–98. DOI:10.1145/276675.276685
- [6] Garfield. (2006). Fifty years of citation indexing. *International Journal of Epidemiology*, Volume 35, Issue 5, October 2006, Pages 1127–1128, DOI:10.1093/ije/dyl190

The slide features a light gray background with a subtle gradient. In the four corners, there are decorative circuit-like patterns. The top-left and top-right corners have dark blue lines, while the bottom-left and bottom-right corners have light blue lines. These lines form various geometric shapes, including circles and straight segments, resembling a stylized circuit board or network diagram.

Any Questions?