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sense and simplicity

Building the leading company in health and well-being

An introduction to Philips

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A strong diversified industrial group leading in health and well-being

Who we are

Founded in 1891
Headquartered in Amsterdam, The Netherlands

Sales of €22.6 billion in 2011[1]

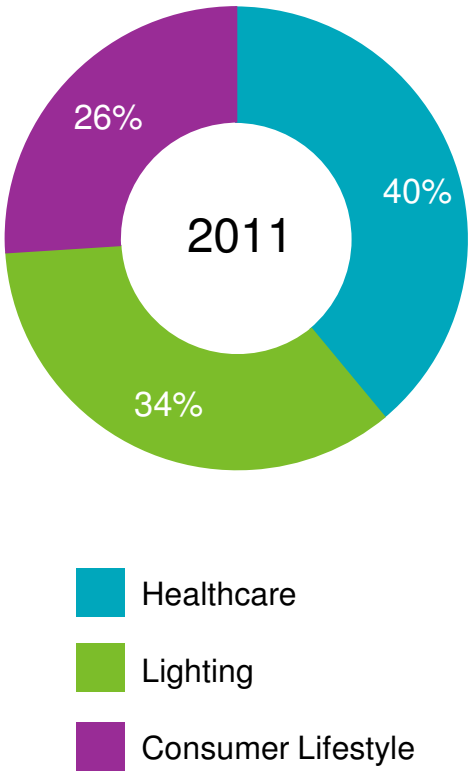
Growth Markets
33% of sales generated in growth geographies

Globally recognized brand (world top 50)
Our brand value doubled to $8.7bn since 2004[2]

122,000 employees
Sales and service outlets in over 100 countries

€1.6 billion investment in R&D, 7% of sales

Our businesses



Our mission

Improving people's lives through meaningful innovation.

[1]Note - All figures exclude discontinued operations

[2]Source: Interbrand

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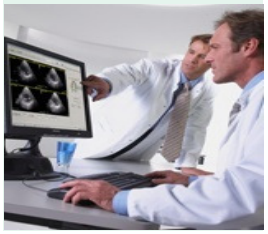
Healthcare

Philips Healthcare

Businesses[1]

Imaging Systems	Home Healthcare Solutions	Patient Care and Clinical Informatics	Customer Services
			
38%	14%	22%	26%

Sales & services geographies[1]

North America	International	Growth Geographies
		
45%	34%	21%

€8.9
Billion sales in 2011

37,000+
People employed worldwide in 100 countries

8%
of sales invested in R&D in 2011

450+
Products & services offered in over 100 countries

[1] Full year 2011

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Consumer Lifestyle

Philips Consumer Lifestyle

Businesses[1 2]

Personal Care	Health & Wellness	Domestic Appliances	Lifestyle Entertainment
			
22%	13%	28%	31%

Geographies[1]

Mature Geographies	Growth Geographies
	
58%	42%

€5.8
Billion sales in 2011

18,000+
People employed worldwide

5%
of sales invested in R&D in 2011

27%
of green product sales in 2011

[1] Full year 2011
[2] Other category (6%) is mainly license income and is omitted from this overview
Note - All figures exclude discontinued operations

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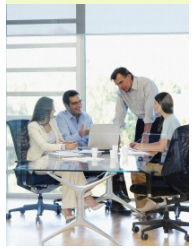
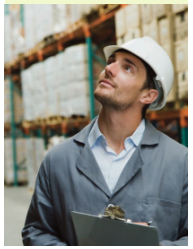
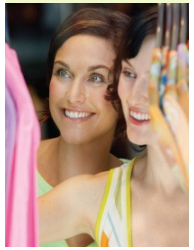
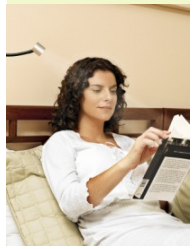
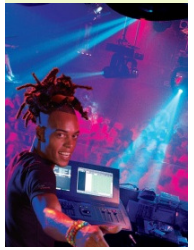
Lighting

Philips Lighting

Customer Segments[1]

Homes	Offices	Outdoor	Industry	Retail	Hospitality	Entertainment	Healthcare	Automotive
								
23%	17%	15%	9%	15%	5%	3%	4%	9%

€7.6
Billion sales in 2011

53,000+
People employed worldwide in 60 countries

5%
of sales invested in R&D in 2011

80,000+
Products & services offered in 2011

[1] Indicative split

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Sustainability as a driver for growth

Accelerating sustainable business

- Green Products represented 39% of total sales in 2011, up from 30% in 2009
- By 2015 Philips aims to invest EUR 2 billion in Green Innovation

EcoVision targets for 2010 – 2015

- Bringing care to more than 500 million people
- Improving the energy efficiency of Philips overall portfolio by 50%
- Doubling the global collection and recycling amounts of our products, as well as double the amount of recycled materials in our products

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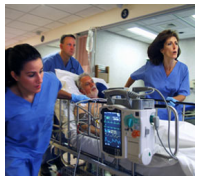
Unique leadership positions in many markets

Healthcare

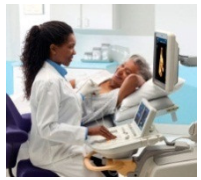
Global
Cardiovascular X-ray

Global
Patient Monitoring



Global
Cardiac resuscitation

Global
Sleep Therapy Systems



Regional
Ultrasound

Consumer Lifestyle

Global
Male electric shaving

Global
Garment Care

Global
Rechargeable Toothbrushes

Regional
Kitchen Appliances

Regional
Electric Hair Care

Lighting

Global
Lamps

Global
LED Lamps

Global
Automotive Lighting

Global
Professional Luminaires

Global
High Power LEDs

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Automatic Query Result Re-Ranking in a Patent Database by Local Frequency and Adjacency Distribution

Kalpana Ravi IP Analyst

Ravi Kiran PhD candidate ESIEE

Mannan Bakthavathsalu Manager IP analyst team

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Outline

- Introduction
  - Structured and unstructured data
  - Search and result set
  - Influencing Parameters
  - Motivation to re-ranking
  - Proposed method
- Algorithm framework for re-ranking
- Conclusion
- References

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Introduction

- IP Analysts group at Philips
- various types of searches
- various patent search tools
  - (Questel and Thomson innovation)
  - free data bases
- Tools have very good features
- relevancy ranking of patent on the top of the list
- frame work for how searcher can re-rank search results

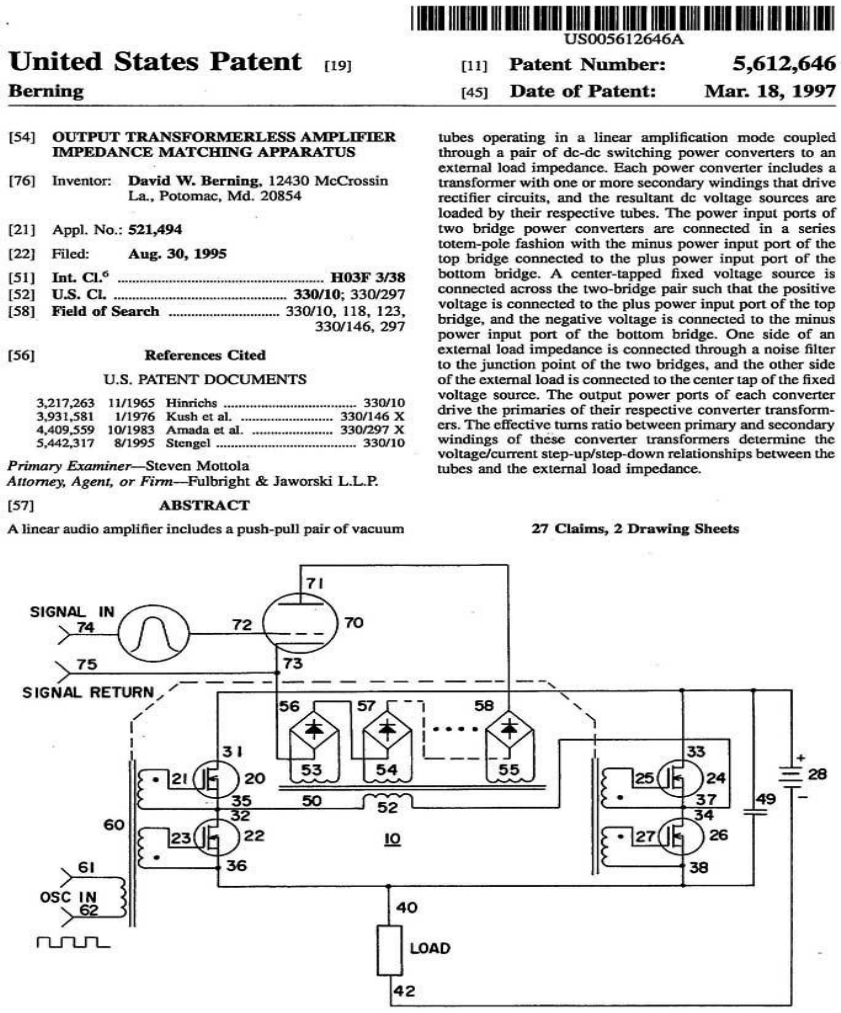
Structured and unstructured data in Patent Mining

Structured patent data:

Bibliographic information:

Unstructured patent data:

Running text in various parts of patents words and expressions in title, summary and claims.



US005612646A

United States Patent [19]
Berning

[11] **Patent Number: 5,612,646**
[45] **Date of Patent: Mar. 18, 1997**

[54] **OUTPUT TRANSFORMERLESS AMPLIFIER IMPEDANCE MATCHING APPARATUS**

[76] Inventor: **David W. Berning**, 12430 McCrossin La., Potomac, Md. 20854

[21] Appl. No.: **521,494**

[22] Filed: **Aug. 30, 1995**

[51] **Int. Cl.**[6] **H03F 3/38**
[52] **U.S. Cl.** **330/10**; 330/297
[58] **Field of Search** 330/10, 118, 123, 330/146, 297

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,217,263	11/1965	Hinrichs	330/10
3,931,581	1/1976	Kush et al.	330/146 X
4,409,559	10/1983	Amada et al.	330/297 X
5,442,317	8/1995	Stengel	330/10

Primary Examiner—Steven Mottola
Attorney, Agent, or Firm—Fulbright & Jaworski L.L.P.

[57] **ABSTRACT**

A linear audio amplifier includes a push-pull pair of vacuum tubes operating in a linear amplification mode coupled through a pair of dc-dc switching power converters to an external load impedance. Each power converter includes a transformer with one or more secondary windings that drive rectifier circuits, and the resultant dc voltage sources are loaded by their respective tubes. The power input ports of two bridge power converters are connected in a series totem-pole fashion with the minus power input port of the top bridge connected to the plus power input port of the bottom bridge. A center-tapped fixed voltage source is connected across the two-bridge pair such that the positive voltage is connected to the plus power input port of the top bridge, and the negative voltage is connected to the minus power input port of the bottom bridge. One side of an external load impedance is connected through a noise filter to the junction point of the two bridges, and the other side of the external load is connected to the center tap of the fixed voltage source. The output power ports of each converter drive the primaries of their respective converter transformers. The effective turns ratio between primary and secondary windings of these converter transformers determine the voltage/current step-up/step-down relationships between the tubes and the external load impedance.

27 Claims, 2 Drawing Sheets

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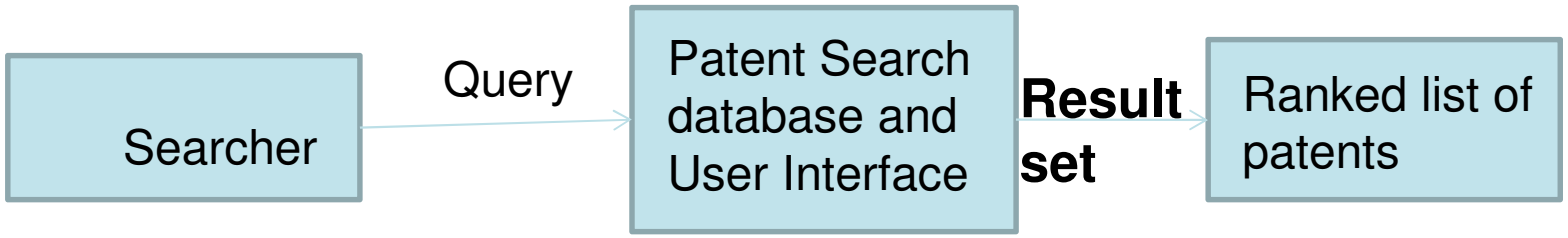
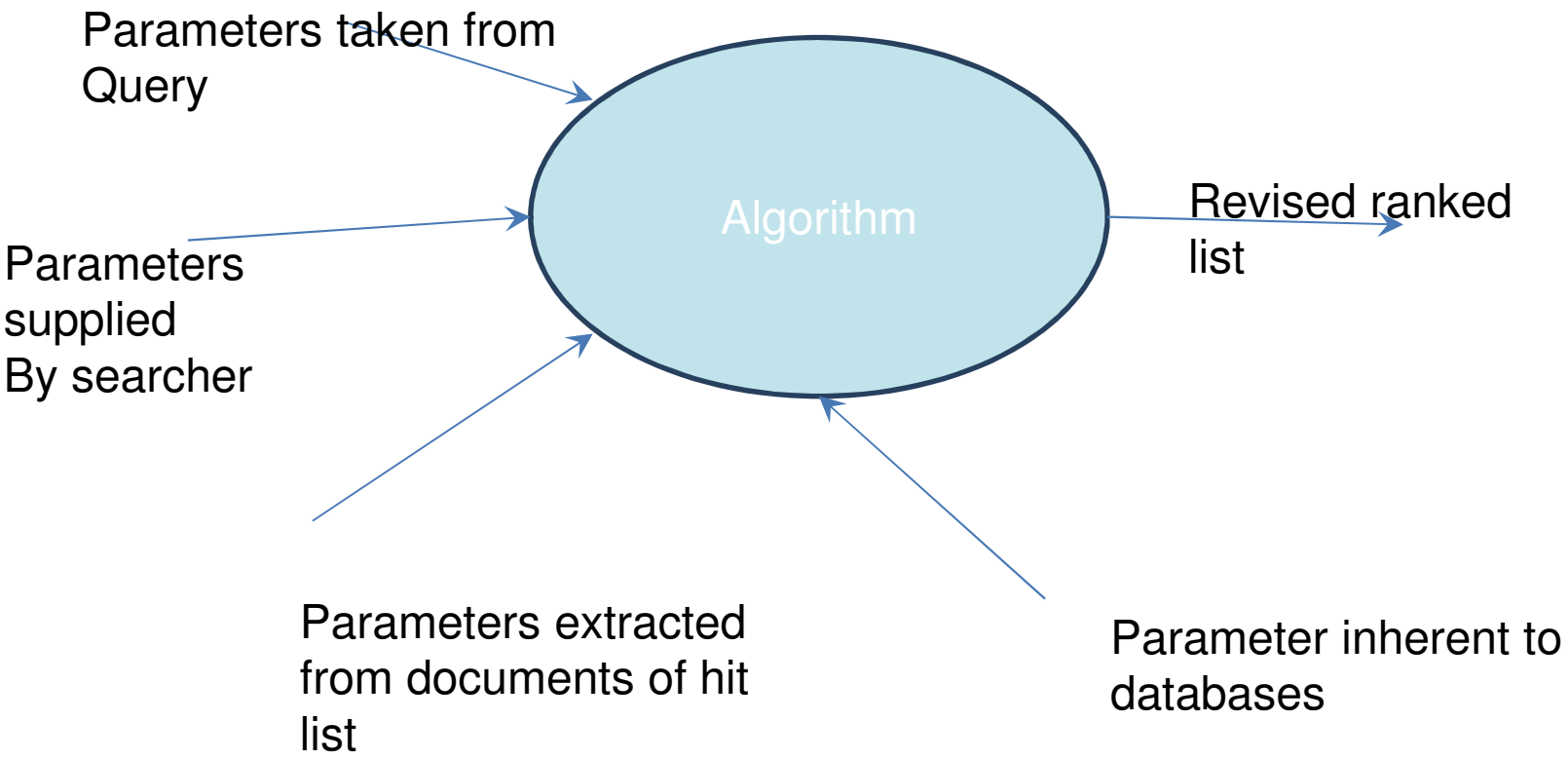
Search result set



Influencing parameters

Problem setting:Influencing parameters



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Motivation to Re-ranking

- Huge results which needs to be analyzed
- The relevant patent lies in the middle
- Knowledge of best patent lies with the searcher (Influencing parameters)
- Searcher should be able to automatically re-rank already retrieved patent set

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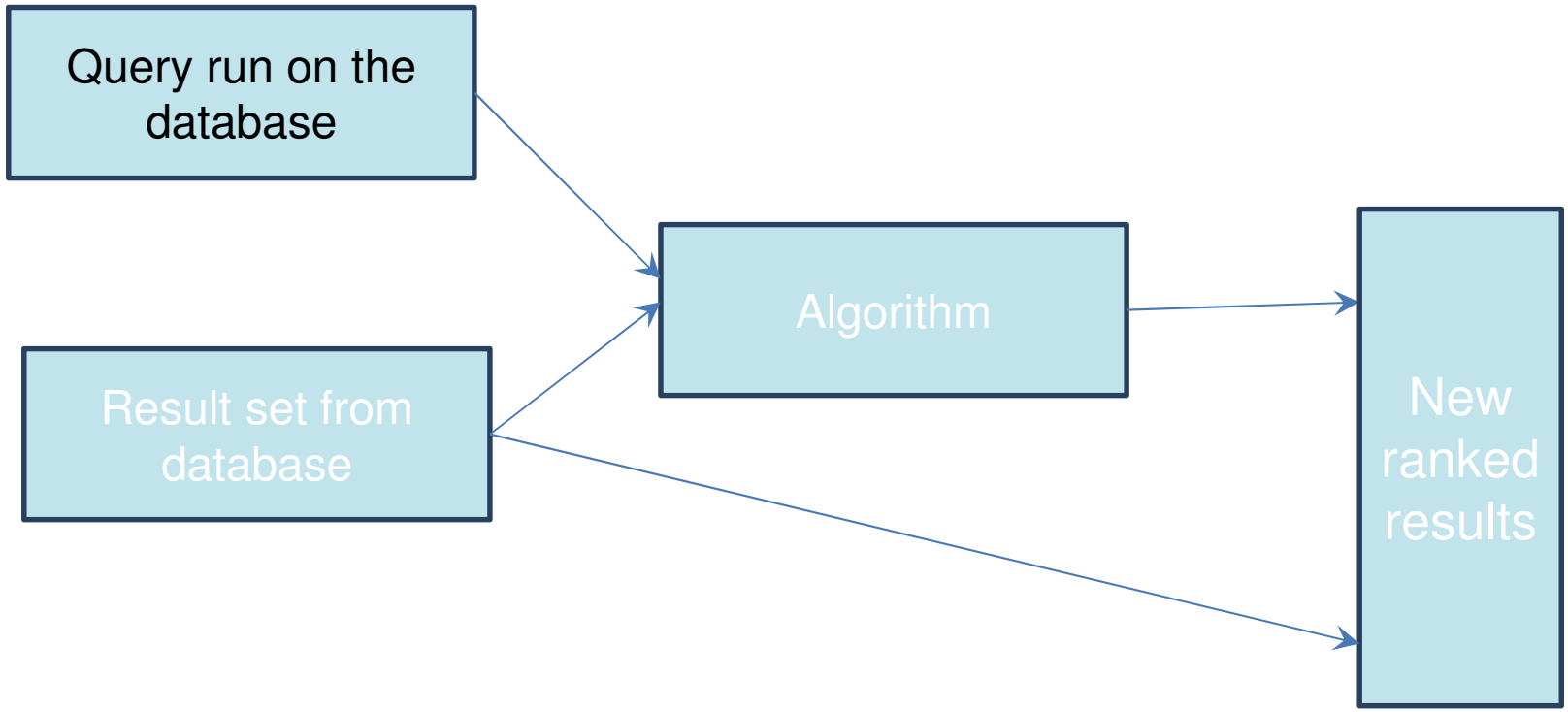
Proposed method



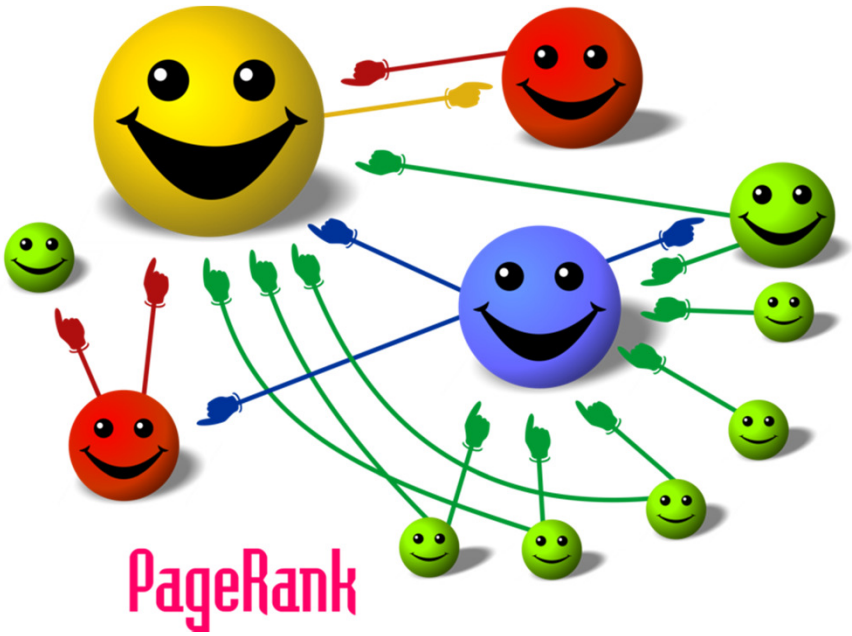
Page/Relevant Ranking

Having a high page rank will help you reach the front page of search engines as well as generate traffic from other websites.

The idea being if it is relevant to you and you can help the user more than any other website they want those users to use your website vs. another site that has a much higher bounce rate or lower quality content.

http://organicseoexpert.org/increase-google-page-rank/

Page rank



Yahoo's patented method of ranking

The patented method described in the documents calculates search rankings based on a combination of automated algorithms and human editor input. In the patent, Yahoo describes a way that previously-collected input from human editors can be mixed in (“blended”) with what its search algorithms return, essentially resulting in better search results.

http://techcrunch.com/2009/10/06/yahoo-obtains-u-s-patent-for-human-aided-search-ranking-method/

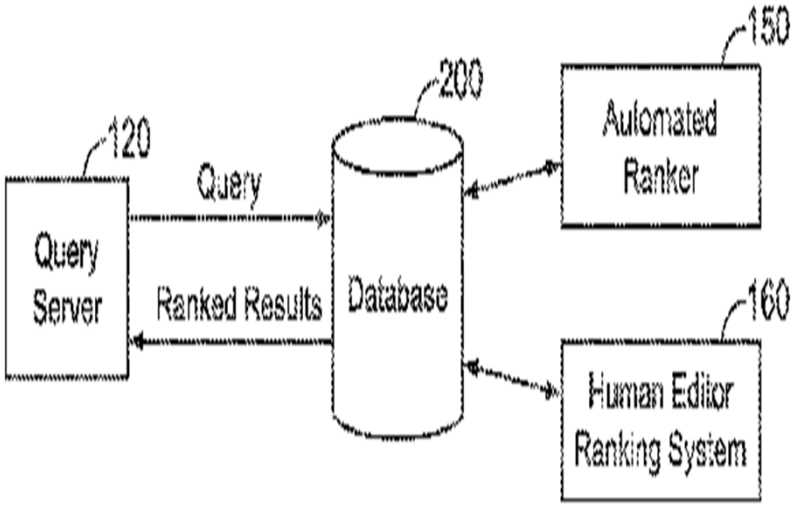


FIG. 2

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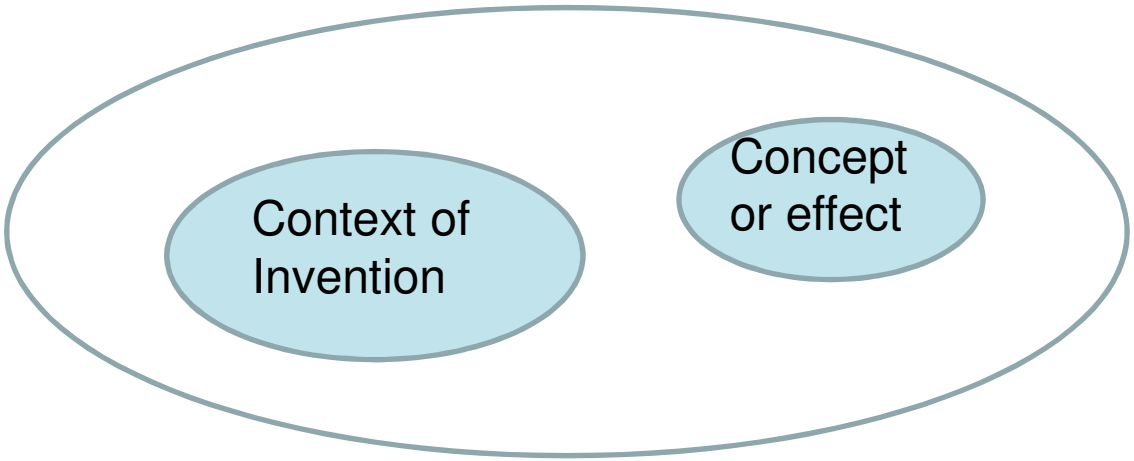
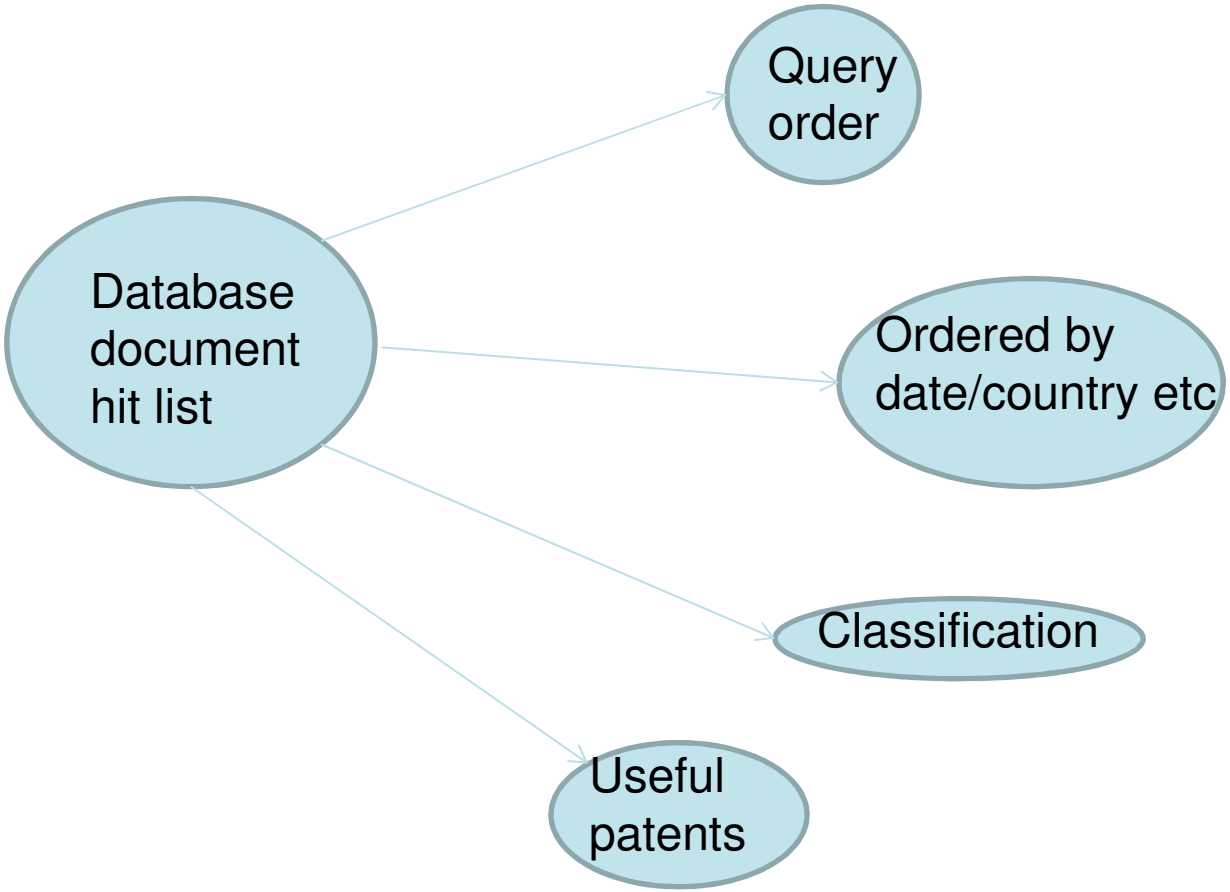
Influencing parameters (Taken from query)

Context,concept,Novelty,Distance



Influencing parameters (Parameters extracted from document hit list)



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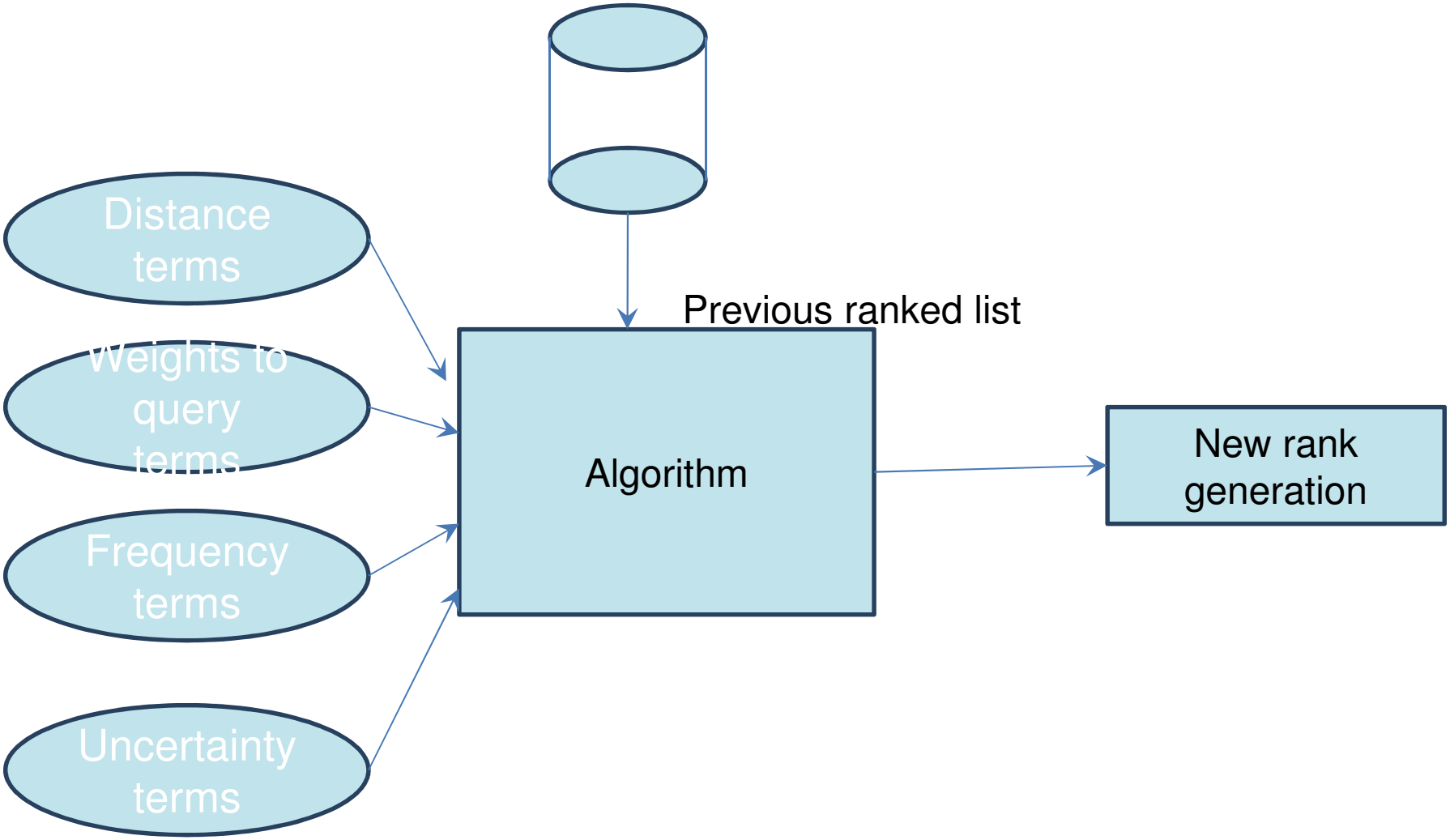
Data flow diagram of algorithm



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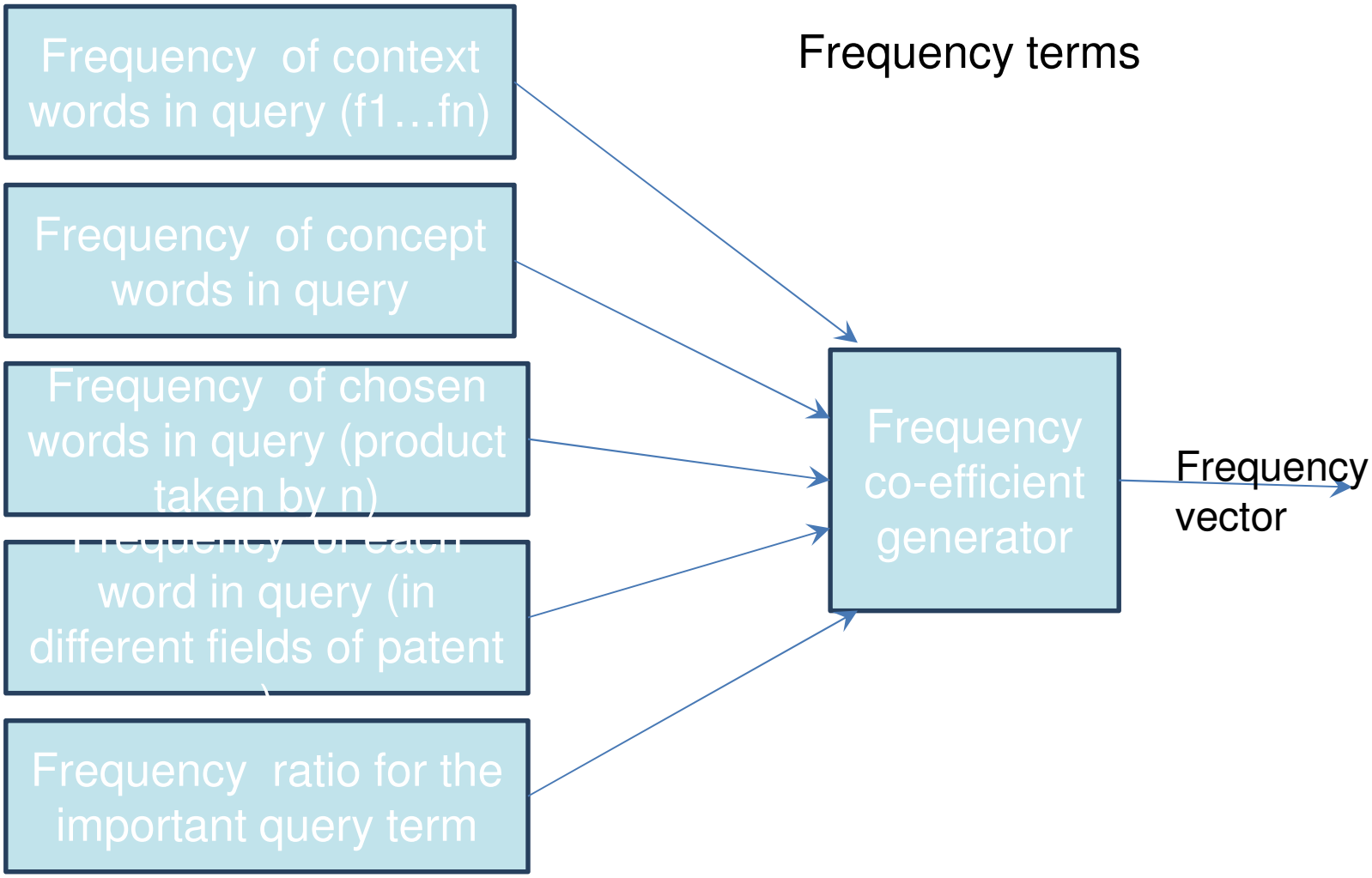
Frequency terms
Frequency of context words in query (f1…fn)
Frequency of concept words in query
Frequency of chosen words in query (product taken by n)
word in query (in different fields of patent
Frequency ratio for the important query term
Frequency co-efficient generator
Frequency vector

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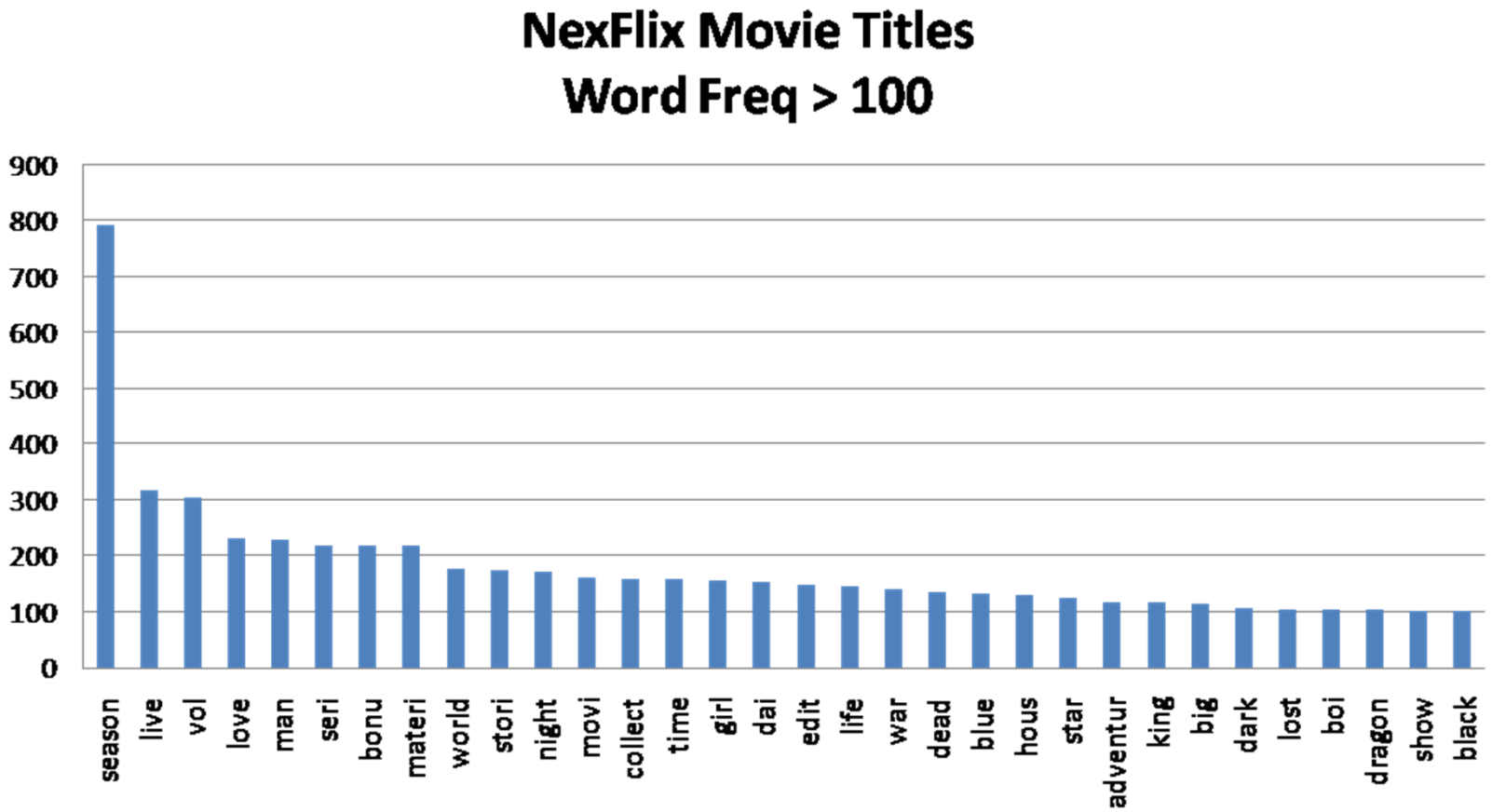
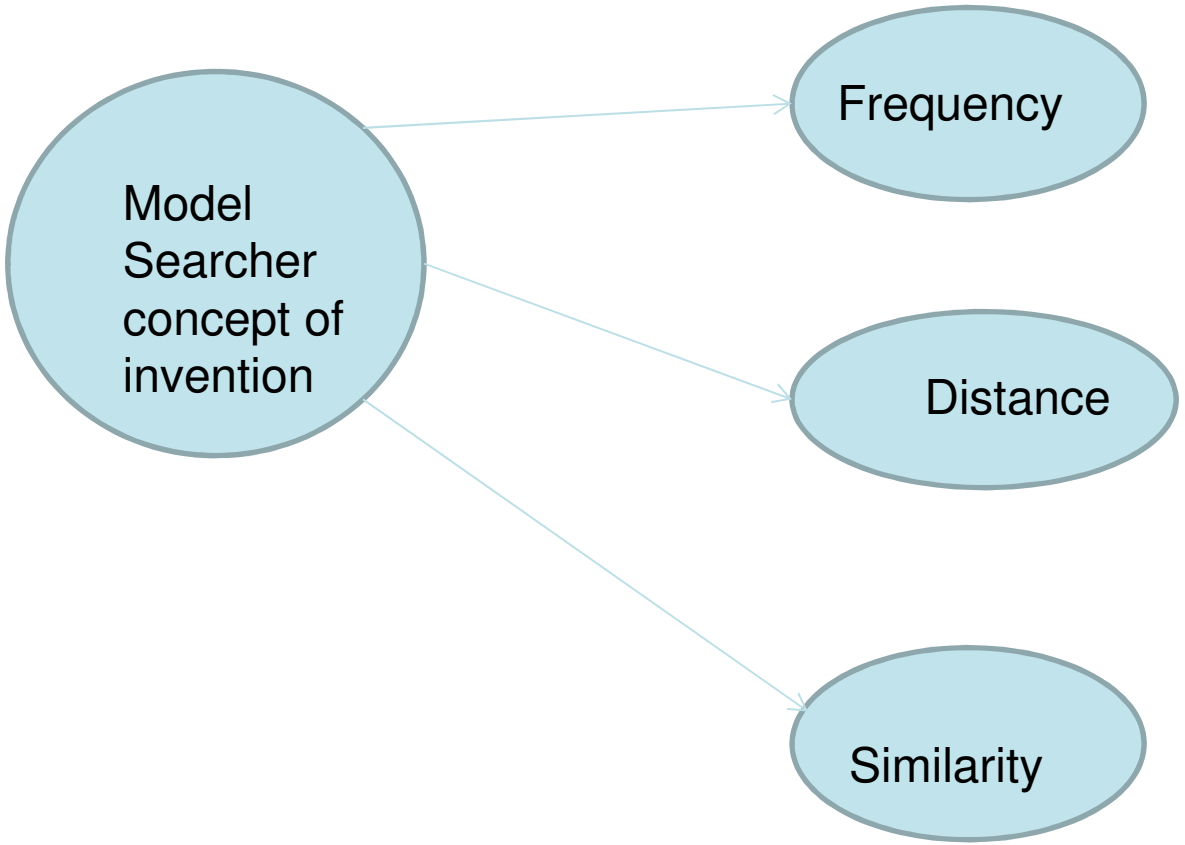
tfidf

$$w_{i,j} = tf_{i,j} \times \log\left(\frac{N}{df_i}\right)$$

- The **tf*idf** weight (term frequency–inverse document frequency) is a numerical statistic which reflects how important a word is to a document in a collection or corpus. - The **inverse document frequency** is a measure of whether the term is common or rare across all documents. It is obtained by dividing the total number of documents by the number of documents containing the term, and then taking the logarithm of that quotient.



Influencing parameter (supplied by searcher)



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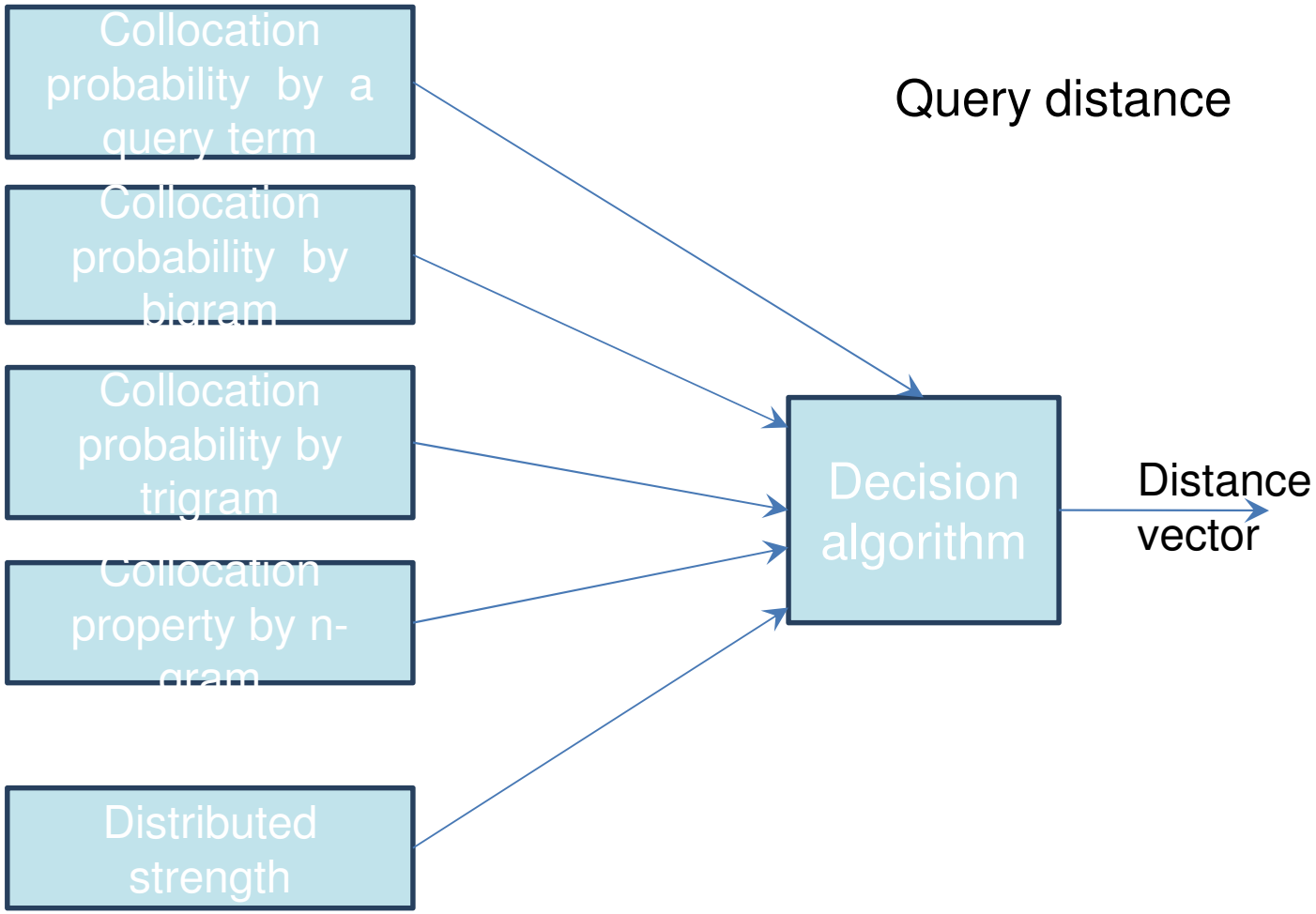

1) (MRI or (magnetic adjacent by 2 resonance)) adjacent by 9 (image adjacency processing)
2) (MRI or (magnetic adjacent by 2 resonance)) and (image processing)

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Google Ngram

Google Ngram trends of "patent mining" and "data mining"

Patent Mining:

http://books.google.com/ngrams/graph?content=patent+mining&year_start=1800&year_end=2000&corpus=0&smoothing=5

(there is just a huge correlation in places: but when observed over time - the term patent mining changed in meaning - basic usage is for American mining laws, mining and engineering and not Patent mining)

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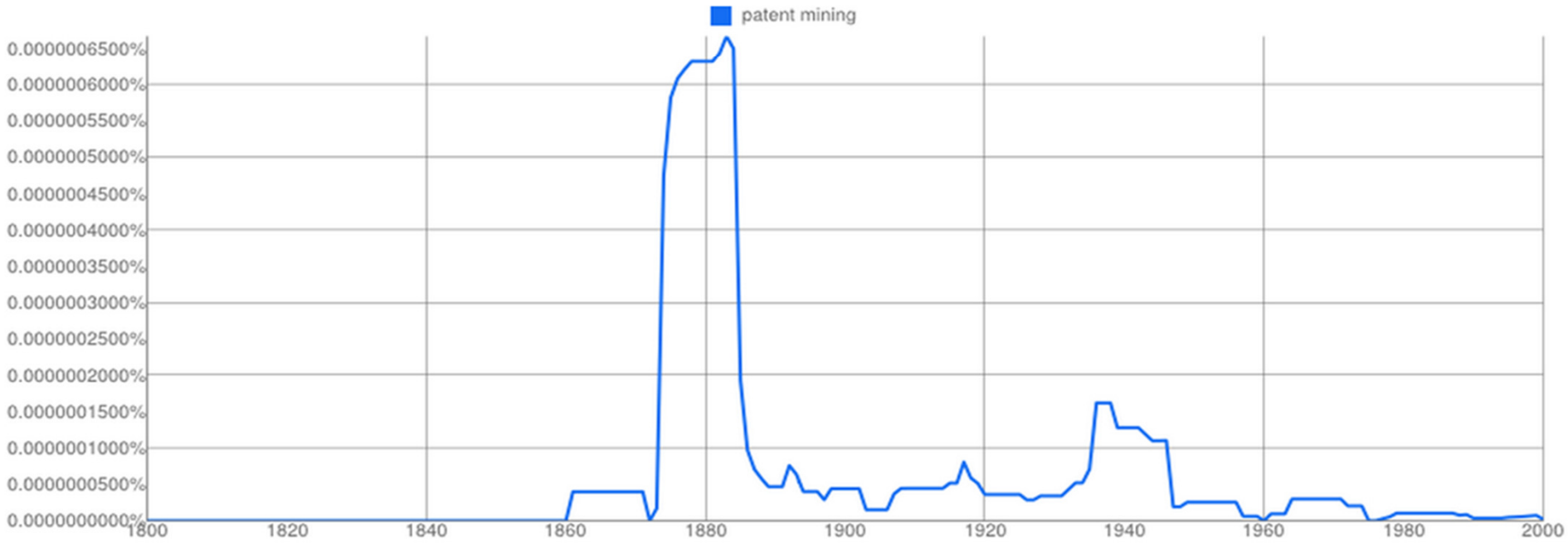
Ngrams - "patent mining"

Google books Ngram Viewer

Graph these ***case-sensitive*** *comma-separated phrases:* patent mining
between 1800 *and* 2000 *from the corpus* English *with smoothing of* 5 .
Search lots of books



Search in Google Books:

1800 - 1878	1879	1880	1881 - 1940	1941 - 1951	patent mining (English)

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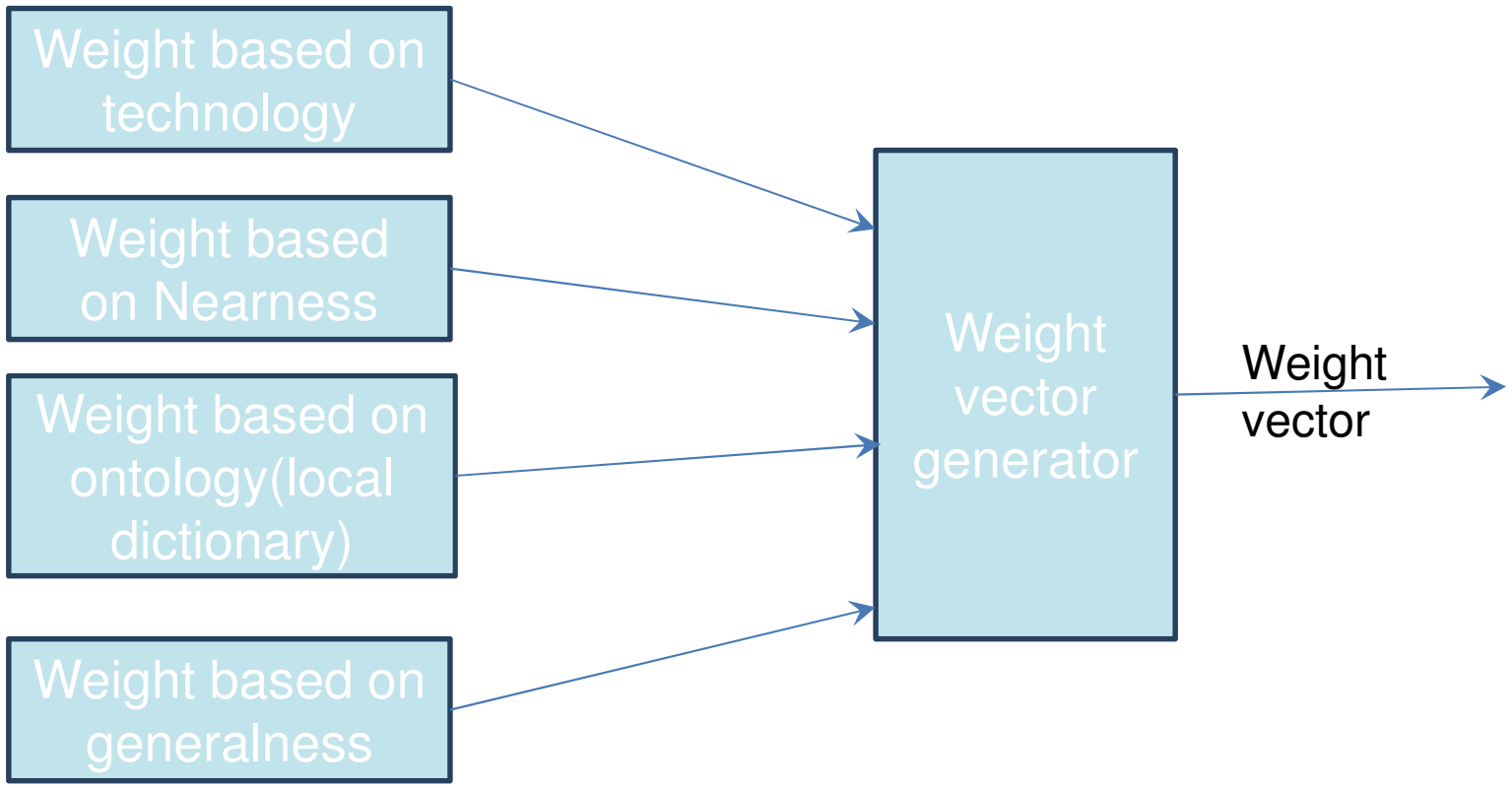
Weight of the query term



Classifiers in text mining

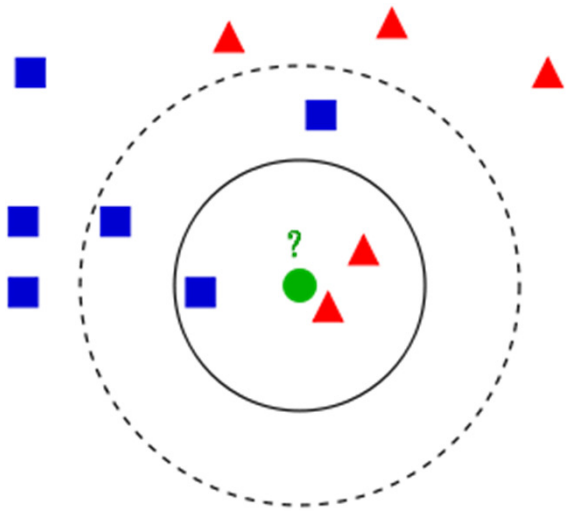
Naïve Bayes Approach

http://www.cs.sunysb.edu/~cse634/spring2009/Group3Bayes.pdf

Calculating the probability that a document d belongs to a category or class c, denoted as P(c|d)

KNN-classifiers

KNN classifier uses distance as to weight the contribution of the K neigbouring documents in class assignment. Weight can be tfIdf or score or frequency



http://www.cis.uab.edu/zhang/Spam-mining-papers/A.Simple.KNN.Algorithm.for.Text.Categorization.pdf

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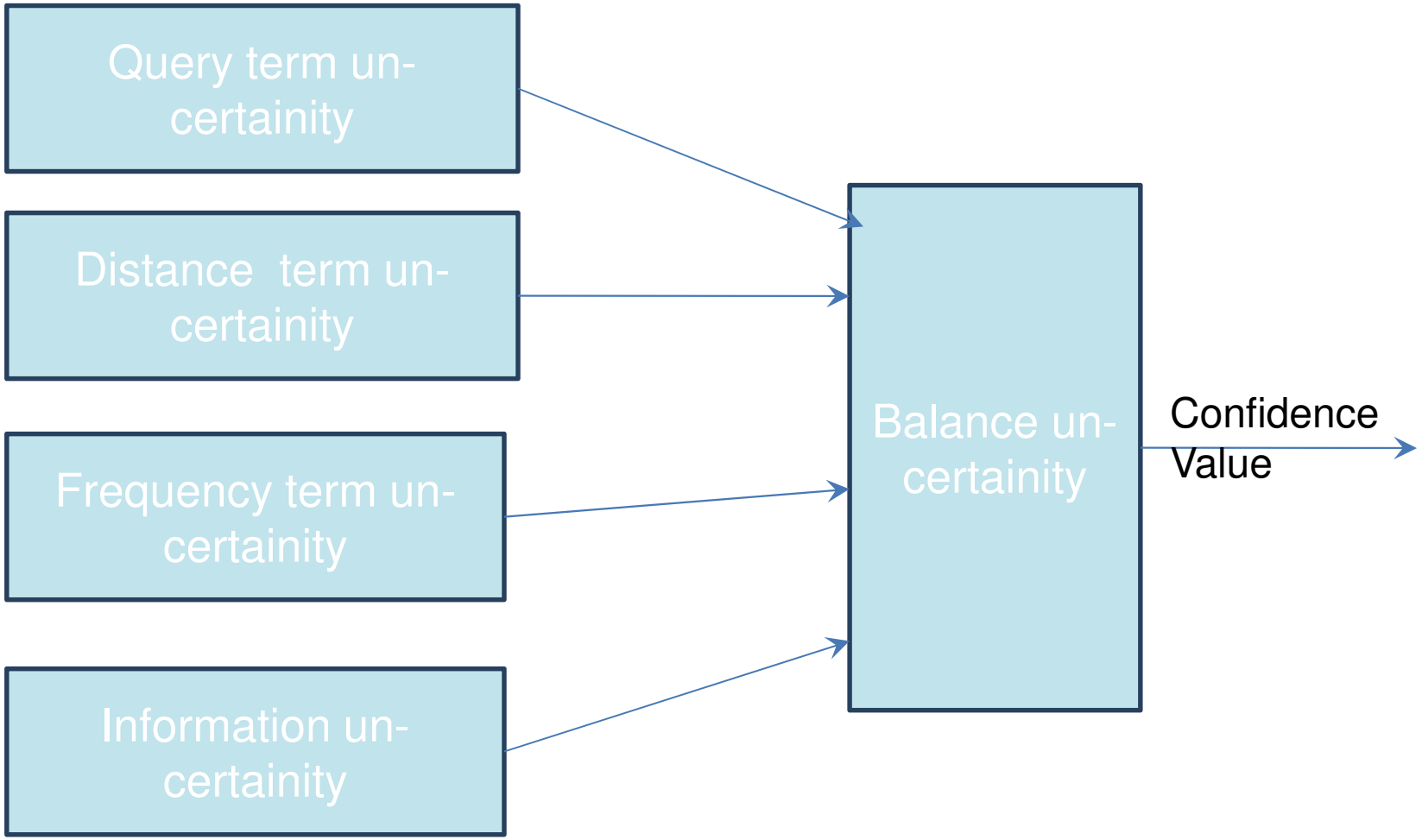
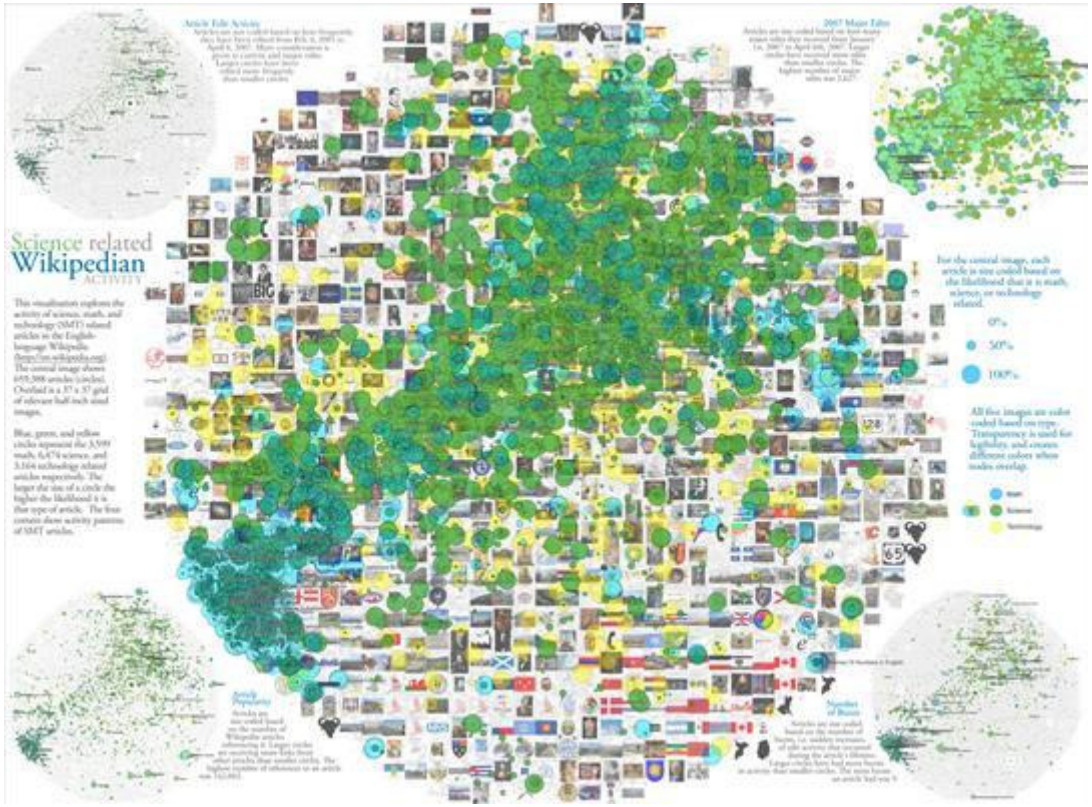
Un-certainity representation



Visualizing Wiki



Data mining and text mining Visualizing Wikipedia

http://datamining.typepad.com/data_mining/wikipedia/

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Reranking Solutions

Re-ranking based on highest citations

Re-ranking based on IPC classification
Score each IPC code by the number of its occurrence in the extracted top-k documents

Re-ranking by researching using similar patent

Re-ranking relevancy

- Patentics search platform, uses a relevancy ranking,
- The relevancy ranking based on search query,
- users can alter the query rank the relevancy according to a specific patent document or keyword

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Correlation matrix

	Patent1	2	3	4
Distance vector	p11	p21	p31	p41
Frequency vector	p12	p22	p32	p42
Weights to query terms	p13	p23	p33	p43
Confidence value	p14	p24	p34	p44

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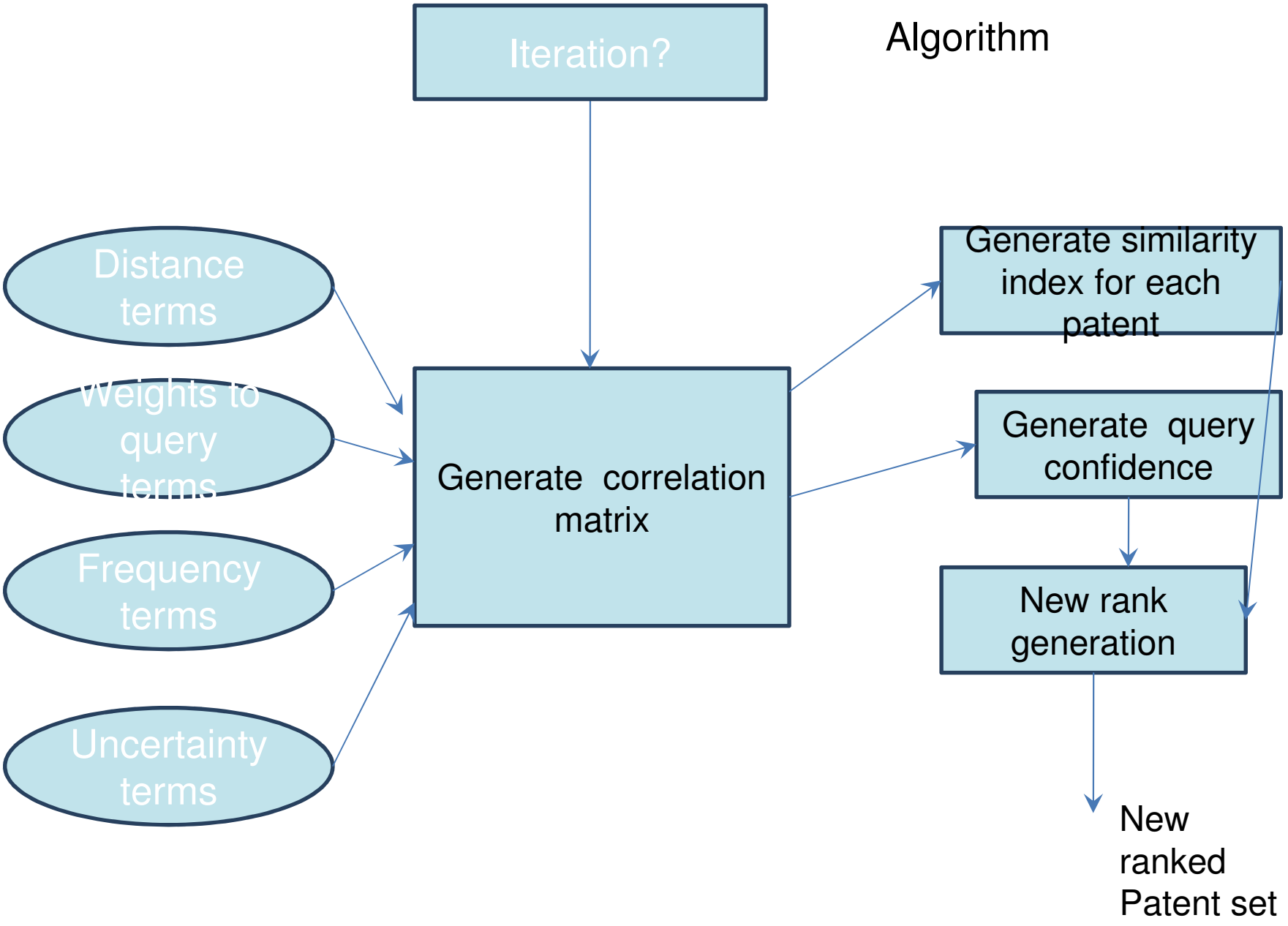
Algorithm



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Our Motivation has been met

The previous methods have no involvement with the searcher at all it is based on knowledge collected from the existing collection and re-ranking based on that.

This method involves the searcher, who can provide the invention structure and other influencing parameters

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Motivation met

1) Searcher identifies context words
2) Identifies concept/ effect of invention words
3) Algorithm uses frequency of these and distance of the operator terms
4) Using these a vector is formed for qualifying the documents, which provide similarity terms which can be used for re-ranking
5) Database provides an GUI for optimization and re-ranking

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Conclusions

- Frame work does not cover all cases
- There should be many iterations to reach the best results
- The classifier which involves frequency terms of concept and context terms can be more distinct to cover classification and other details

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Interesting Websites

- http://en.wikipedia.org/wiki/Patent_visualisationhttp://en.wikipedia.org/wiki/Precision_and_recallhttp://en.wikipedia.org/wiki/Bag_of_words_modelhttp://en.wikipedia.org/wiki/Document-term_matrixhttp://en.wikipedia.org/wiki/Tf-idfhttp://publik.tuwien.ac.at/files/PubDat_191980.pdfhttp://libra.msra.cn/Publication/13998399/improving-access-to-large-patent-corpora
- http://www.informatik.uni-trier.de/~ley/db/indices/a-tree/b/Bashir:Shariq.html
- http://www.inf.usi.ch/phd/mahdabi/Mahdabi_paper_10_p.pdf
- http://publik.tuwien.ac.at/files/PubDat_191966.pdf
- http://www.springerlink.com/content/tj363038n0501806/
- http://www.ercim.eu/publication/ws-proceedings/DelNoe02/hiemstra.pdf
- http://intellogist.wordpress.com/2011/09/21/relevancy-and-concept-searches-with-patentics/

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Related Art

- **KNN and re ranking models KNN re-for English patent mining at NTCIR-7**

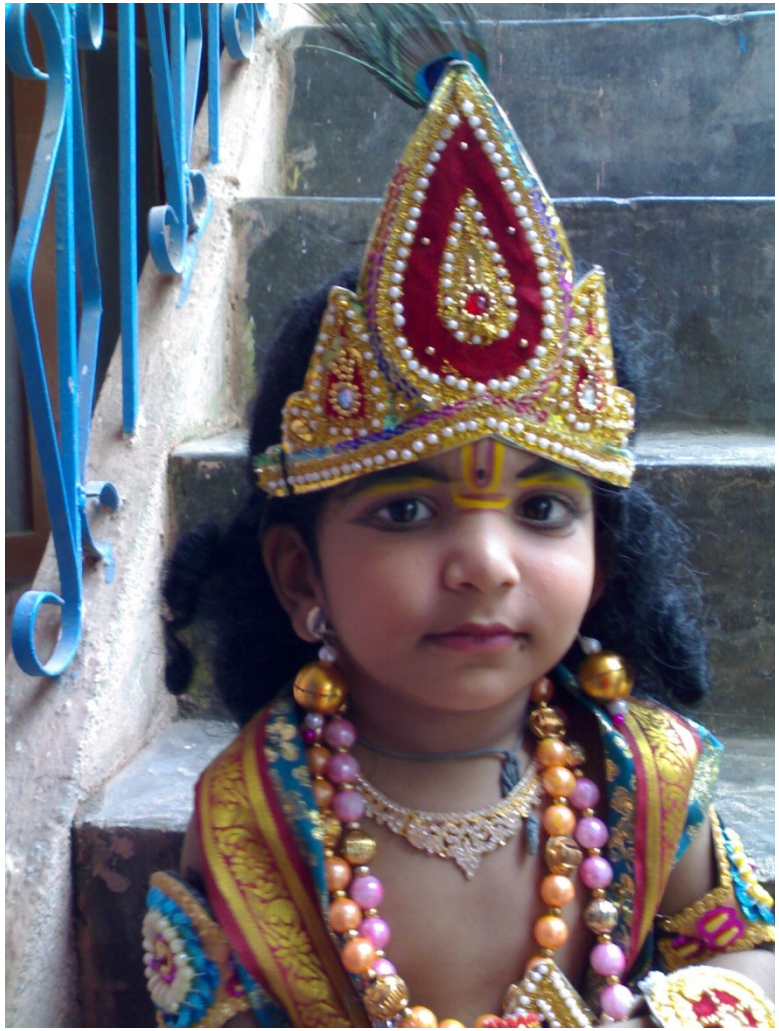
By Tong Xiao, Feifei Cao, Tianning Li, Guolong Song, Ke Zhou, Jingbo,Zhu HuizhenWang and Huizhen Wang,Natural Language Processing Lab,Northeastern University (P. R. China)

- **A Simple KNN Algorithm for Text Categorization**

Pascal Soucy Guy W. Mineau, Department of Computer Science, UniversitCLaval, QuCbec, Canada

Thank You

- We thank you all for listening
- We thank the website and document owners for the images and information
- We thank the organizers for giving us the opportunity to speak and encouraging learning

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