A Kickoff Presentation on

CREATIVE QUERIES FOR EXPLORATIVE SEARCH

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AGENDA

- MOTIVATION

- INTRODUCTION

- LITERATURE REVIEW

- ALGORITHMS AND TOOLS

- ARCHITECTURE & APPROACH TOWARDS IMPLEMENTATION

- MILESTONES OF THE PROJECT

MOTIVATION

1.17 Billion People Use Google Search

Unique searchers worldwide in December 2012 (in millions)

Search Engine	Users
Google	1,168m
Baidu 百度	293m
YAHOO!	292m
Microsoft	269m
Yandex	74m
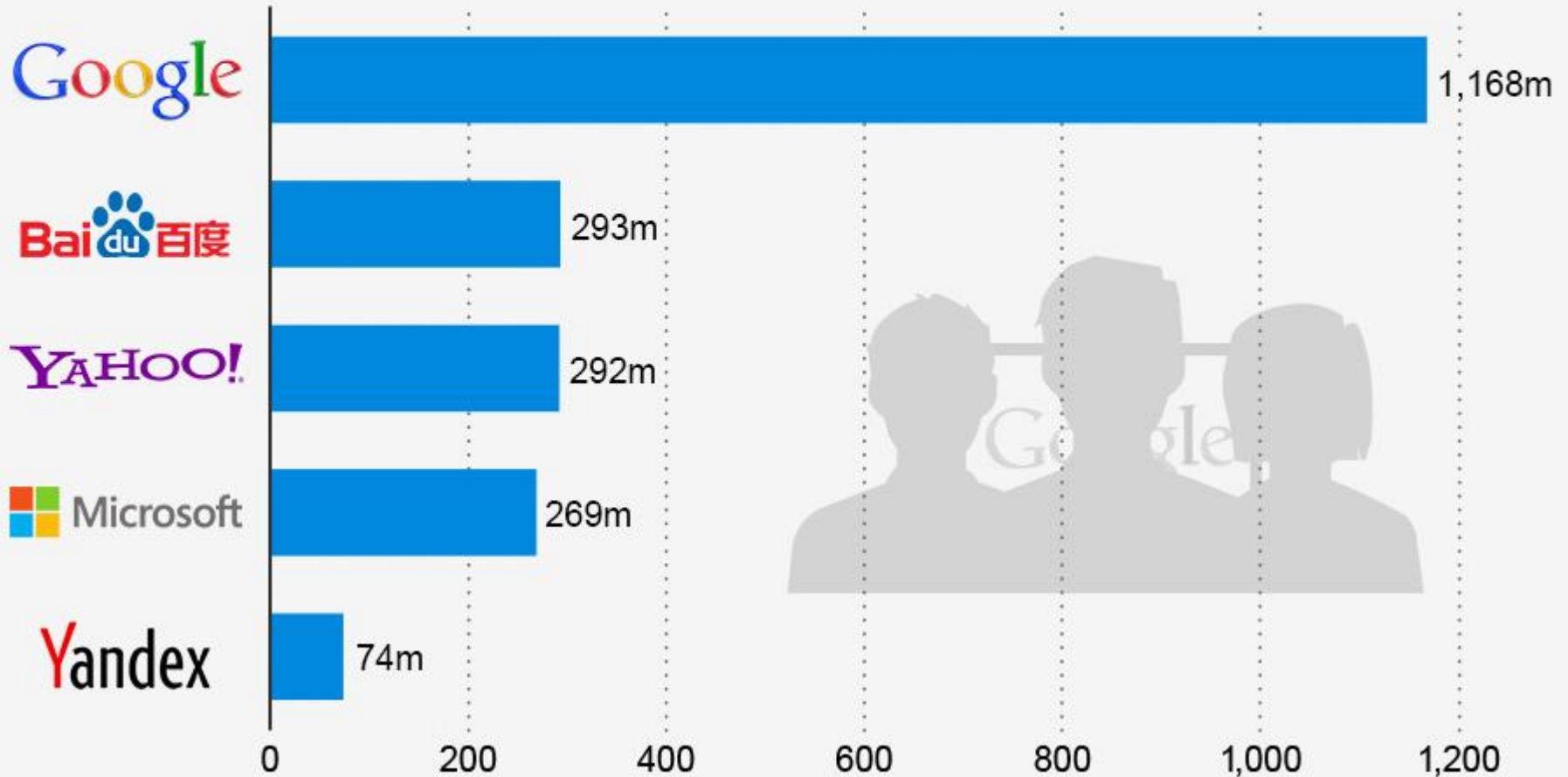
GOOGLE STANDS AS THE TOP SEARCH ENGINE WITH 1.17 Billion USERS

EXAMPLE: IMPACT OF COOKIES USAGE
IN GOOGLE ON SYSTEM 1

Manam (film) - Wikipedia, the free encyclopedia
https://en.wikipedia.org/wiki/Manam_(film) ▾
Manam (English: Us) is a 2014 Indian Telugu drama film written and directed by Vikram
Kumar and produced by Akkineni Family under the Annapurna Studios ...
Plot - Cast - Production - Themes and influences

Kanulanu Thaake Full Video Song || Manam Video Songs ...
https://www.youtube.com/watch?v=30Bjg_7KuoE
Jul 30, 2014 - Uploaded by Aditya Music
Watch & Enjoy Kanulanu Thaake Full Video Song from **Manam**
Movie Starring Naga Chaitanya,Samantha ...

"MANAM" Exclusive Theatrical Trailer || Akkineni ... - YouTube
https://www.youtube.com/watch?v=Y4Bq4SQc_eM
Apr 7, 2014 - Uploaded by Annapurna Studios
"MANAM" Exclusive Theatrical Trailer || Akkineni Nageswara Rao,
Akkineni Nagarjuna, Naga Chaitanya ...

Manam (2014) - IMDb
www.imdb.com/title/tt2926068/ ▾
★★★★☆ Rating: 8.3/10 - 4,768 votes
Directed by Vikram K. Kumar. With Akkineni Nageshwara Rao, Nagarjuna Akkineni

Manam

2014 film

8.3/10 · IMDb

A married couple die in an accident, leaving behin
up, he comes across reincarnations of his father a
youngsters and tries his best to unite them.

Release date: May 23, 2014 (India)

•DOMINANCE OF COOKIES AND KEYWORD METHODOLOGY

EXAMPLE: IMPACT OF COOKIES USAGE IN GOOGLE ON SYSTEM 2

• DOMINANCE OF COOKIES AND KEYWORD METHODOLOGY

SEARCHING ON WEB

USER 1: Who knows specifically what he wants

For EXAMPLE:
- FIFA 2014 Results
- Latest Volkswagen Model
- JAVA Language Tutorials

http://10best4u.com/10-best-search-engines-on-web-to-make-your-searches-easy/

Traditional Search Engine like GOOGLE implements searching on web

EXPLORATIVE SEARCH ON WEB

USER 2: Unfamiliar with the domain of their goal.
Unsure about the ways to achieve their goals.
Or even unsure about their goals in the first place.

For EXAMPLE :
ENTERTAINMENT

https://en.wikipedia.org/wiki/Exploratory_search

Reference to all images [1]

INTRODUCTION

SEARCH ENGINE THAT SUPPORTS CREATIVITY

- Think BEYOND THE BOX

- Experience SERENDIPITY

- Turn It Over And See It Another Way

- Re-CONTEXTUALISATION

- VIRTUOSITY

- The 'Aha!' moment

http://www.messagemakers.com/about/

Google Search for word LIVE

• Live Cricket Scores

• Youtube Live

• XBOX Live Gold

• Microsoft Account

Live cricket Scores | Ball by Ball commentary | ESPN Cricinfo
www.espncricinfo.com/ci/engine/match/ ▾
Live cricket scores and commentary from around the world, updated real-time, from ESPN Cricinfo.
Live Scores - Recent Results - Jul 14 Tue - Jul 10 Fri

Sign in to your Microsoft account
https://login.live.com/ ▾
Your account, our priority. Adding security information helps protect your account.
Add now. Don't have a Microsoft account? Sign up now ...
Microsoft - Account

Cricket Matches - Live Cricket Scores, Results, Fixtures ...
www.cricbuzz.com/cricket-match/live-scores ▾
PAKISTAN V ENGLAND IN UNITED ARAB EMIRATES, 2015. ... WEST INDIES TOUR OF SRI LANKA, 2015. Sri Lanka vs West Indies.

CricBuzz – Live Cricket Scores, schedules, cricket news ...
www.cricbuzz.com/ ▾
Get live cricket scores, ball by ball commentary, schedules of International, Domestic & IPL cricket matches along with latest news and ICC cricket rankings on ...

#Live - YouTube
https://www.youtube.com/channel/UC4R8DWoMoI7CAwX8_LjQHig ▾
YouTube Live - Watch great live streams, such as live gaming, live music, live sports, live news, and Google+ Hangouts.

Live Cricket Scores - Sports
sports.ndtv.com/cricket/live-scores ▾
Catch Live Cricket Scores, Live Ball By Ball Commentary, Latest Cricket Updates and scores of all International and domestic cricket matches.

Xbox Live Gold | India
www.xbox.com/en-IN/Live ▾
With Xbox Live Gold, you get the most advanced multiplayer, free games, exclusive member discounts up to 50-75% on games in the Xbox Store, and more.

OTTO VON GUERICKE
UNIVERSITÄT
MAGDEBURG

INF FAKULTÄT FÜR
INFORMATIK

Creative search for word LIVE

Taste Of Bitter Love (dead Soul Edit) - SoundCloud
https://soundcloud.com/dead.../taste-of-bitter-love-dead-soul-edit-gladys-... ▾
May 8, 2015 - Stream Taste Of Bitter Love (dead Soul Edit) - Gladys Knight & The
Pips FREE DOWNLOAD private message me by Dead Soul from desktop or ...

Four Dead In Ohio - Taste Like The Good Love (CDr) at ...
www.discogs.com/Four-Dead-In-Ohio-Taste-Like-The...Love/.../1872278
Four Dead In Ohio – Taste Like The Good Love. Label: YoYo Acapulco – BMX004.
Format: CDr, Single, Promo. Country: UK. Released: 2008. Genre: Rock.

Dead Rose Music Company's Just a Bitter Love sample of ...
www.whosampled.com/.../Dead-Rose-Music-Company-Just-a-Bitter-Lov... ▾
"Just a Bitter Love" by Dead Rose Music Company sampled Gladys Knight & the
Pips's "Taste of Bitter Love". Listen to both songs on WhoSampled, the ultimate ...

iTunes - Music - Taste Like The Good Love by Four Dead In ...
https://itunes.apple.com/us/album/taste-like-the...love/id310756028 ▾
Preview songs from Taste Like The Good Love by Four Dead In Ohio on the iTunes
Store. Preview, buy, and download Taste Like The Good Love for $1.98.

Four Dead In Ohio - Taste Like The Good Love - YouTube
www.youtube.com/watch?v=YoLBJzQbuXs
Jan 11, 2015 - Uploaded by Captain Rick
Four Dead In Ohio - Taste Like The Good Love ... Four Dead In
▶ 4:44 Ohio - Jesus Won't Dance (in my high ...

Tommy Overstreet Dead at 78 - Taste of Country
tasteofcountry.com/tommy-overstreet-dead/ ▾
Nov 4, 2015 - Taste of Country ... Tommy Overstreet Dead at 78 ... "Send Me No
Roses," "I'll Never Break These Chains" and "Heaven Is My Woman's Love.

I see dead people. | Why Do Kids Love the Taste of ...
knowyourmeme.com/.../465805-why-do-kids-love-the-taste-of-cinnamo... ▾
See more 'Why Do Kids Love the Taste of Cinnamon Toast Crunch?' images on

- Dead Rose Music Company

- Four dead in Ohio

- iTunes Music

- Tommy Overstreet dead at 78

LITERATURE REVIEW

LITERATURE REVIEW

Creative Search Using Pataphysics (Raczinski et al.,2013)
By: Fania Raczinski;
         Hongii Yang ;
         Andrew Hugill;

The syzygy surfer: (Ab)using the semantic web to
                          inspire Creativity(James et al.,2013)

By:James Hendler;
     Andrew Hugill;

- Principles of Pataphysics
- Creativity wrt searching
- Algorithms for creative search
- Aim of pataphysical searching
- Possible applications of creative search tool

ALGORITHMS & TOOLS

ALGORITHMS :

- Consider THE SYZYGY, CLINAMEN and *THE* ANAMOLY of the WORD than the word alone

- SYZYGY: A pair of connected or corresponding things.

- CLINAMEN: Inclination or tendency to turn aside.

- ANAMOLY: something that deviates from what is standard, normal, or expected.

- WORDNET Dictionary is required to implement these algorithms

SYZYGY:

We use WORDNET lexical database to find suitable results.
For a specific search term t

$\text{syzygy}(\ ) = \{\ h : h \in \text{union}(\ ) \wedge \exists\ h \in V\ \}$
$\text{union}(\ ) = \text{hypo}(\ ) \cup \text{hyper}(\ ) \cup \text{holo}(\ )$
$\text{hypo}(\ ) = \{\ h : h \in \text{hyponyms}(\ )\ \}$
$\text{hyper}(\ ) = \{\ h : h \in \text{hypernyms}(\ )\ \}$
$\text{holo}(\ ) = \{\ h : h \in \text{holonyms}(\ )\ \}$
$\text{syno}(\ ) = \{\ s : s \in \text{synonyms}(\ )\ \}$
$\text{for}\ \ s \in \text{syno}(\ )$
$V \in$ original vocabulary of the text

SYZYGY:

 t : live

Synonyms for (t)

S(t): populate, inhabit, **be, domicile**

   hypernym -> S : **be**

   Holonym ->   S : **domicile**, reside
                     S : Camp, tent
                     S : nest

   Hyponym ->   Null

   SYZYGY : (Hyopernym) U (Holonym) U (Hyponym) ∩ V
          : **be, domicile**

CLINAMEN:

The clinamen function uses the Damerau-Levenshtein algorithm which measures the distance between two strings

For a specific search term t
clinamen ( ) ={ v : 0 < dameraulevenshtein (t,v) ≤ 2 },
for $v \in V$

Example: LIVE= LOVE, LIES, SIZE, RIVER

ANAMOLY:

Anamoly function simply made use of WordNet's antonyms.

• We first get all synonyms for query term and then find any

• antonyms for related word.

For a search term t

antinomy( ) = { h : $h \in$ anto( ) and $\exists\, h \in\ V$ }

anto( ) = { h : $h \in$ antonyms( ) }

syno( ) = { s : $\in$ synonyms( ) } for s $\in$ syno( )

EXAMPLE: LIVE:

ANTONYM (LIVE): DEAD, RECORDED

SYNONYM(LIVE): ALIVE, ANIMATE, BREATHING

ANTONYM(ALIVE): DEAD

ANTONYM(ANIMATE): DEPRESS, INHIBIT…

ANAMOLY(LIVE): DEAD

DESCRIPTION OF WORDNET DICTIONARY

Lexical Categories in WORDNET
- NOUN(117798+82115)
- ADVERB(11529+13767)
- ADJECTIVE(21479+18156)
- VERBS(4481+3621)

but ignores prepositions, determiners and other function words.
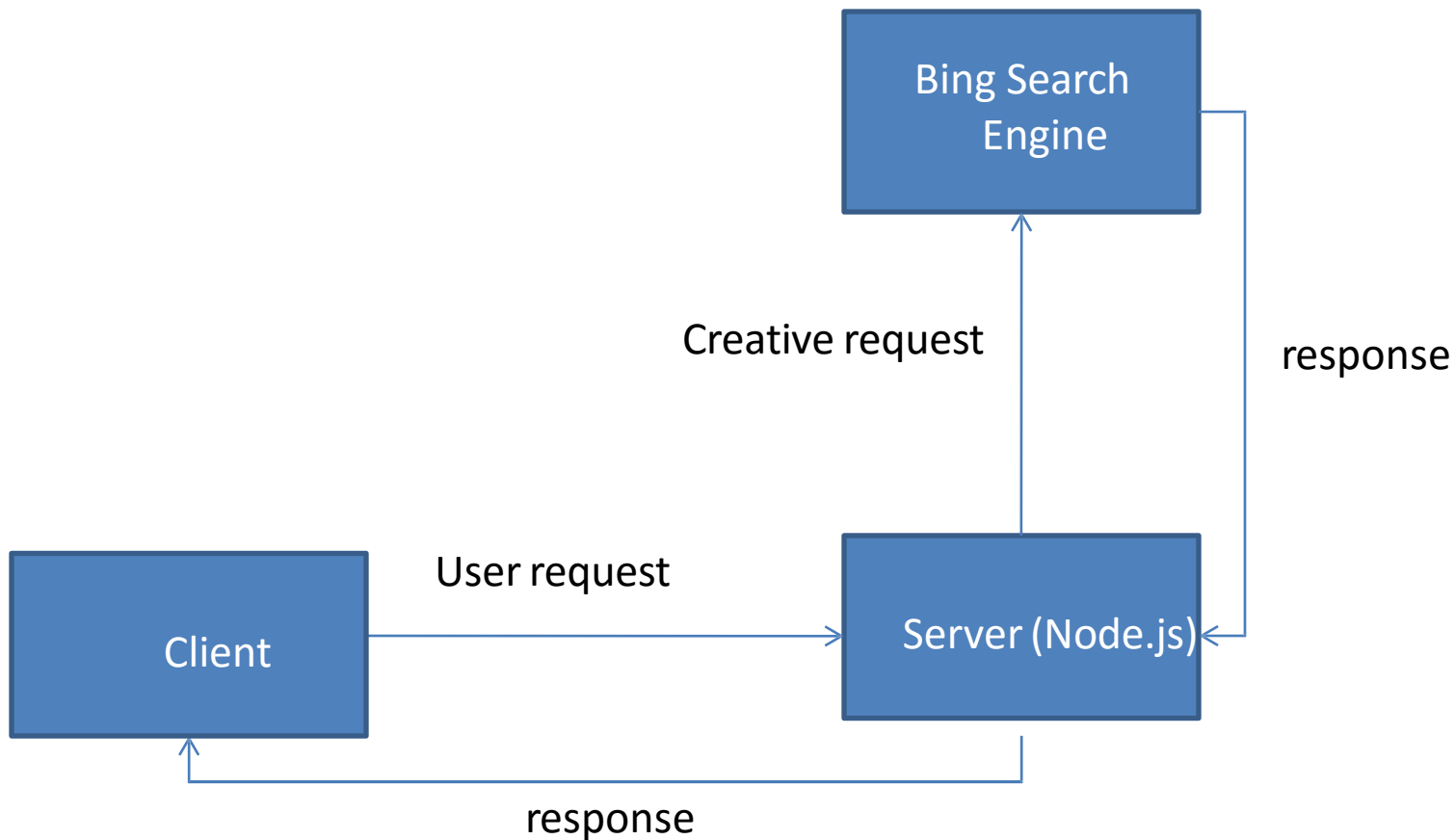
Wordnet Dictionary determines
- Similarity between the words
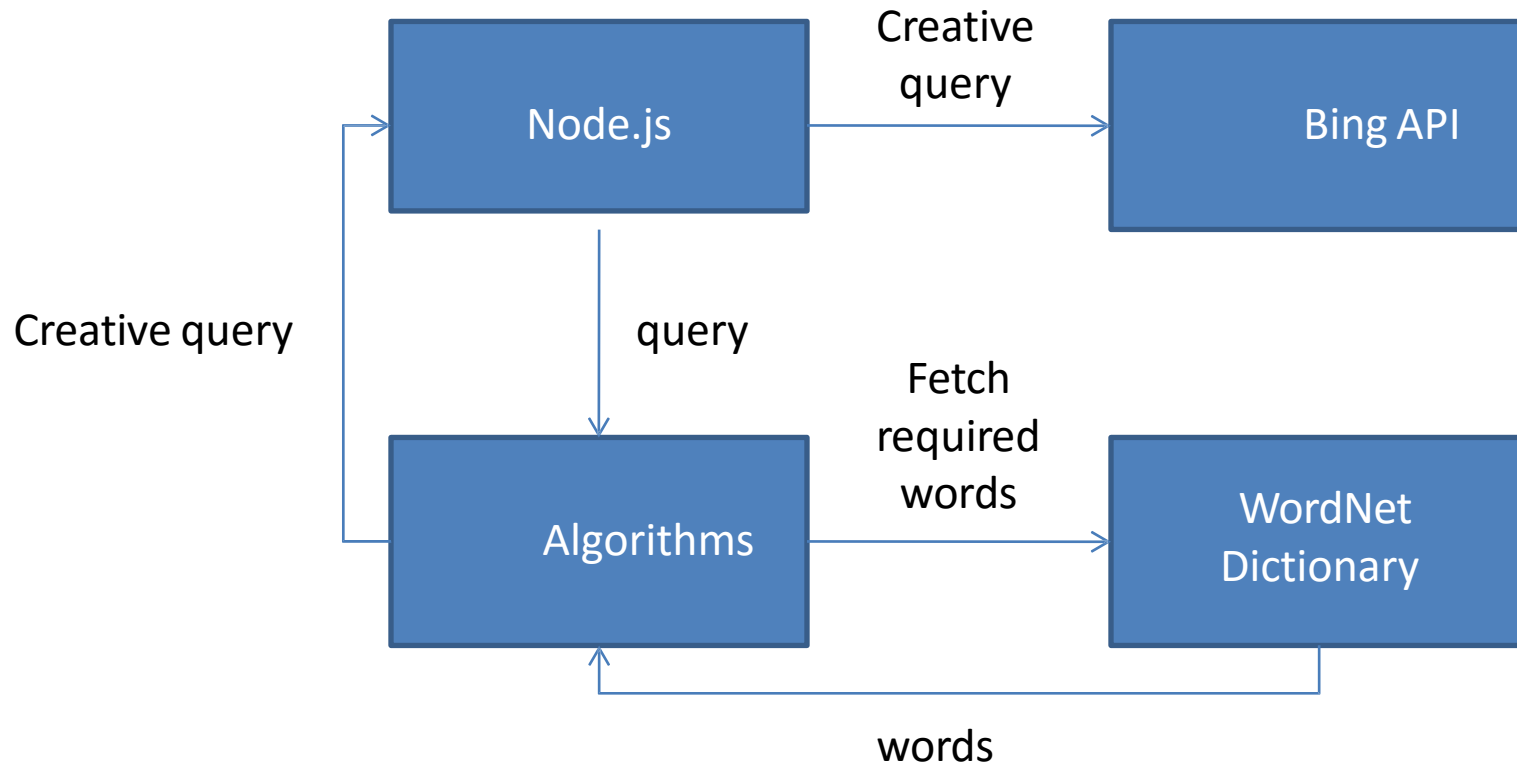- Distance amongst the words
- Produces Synsets

Word Net dictionary comprises a total of 206941 Word sense pairs(Unique strings+synsets)
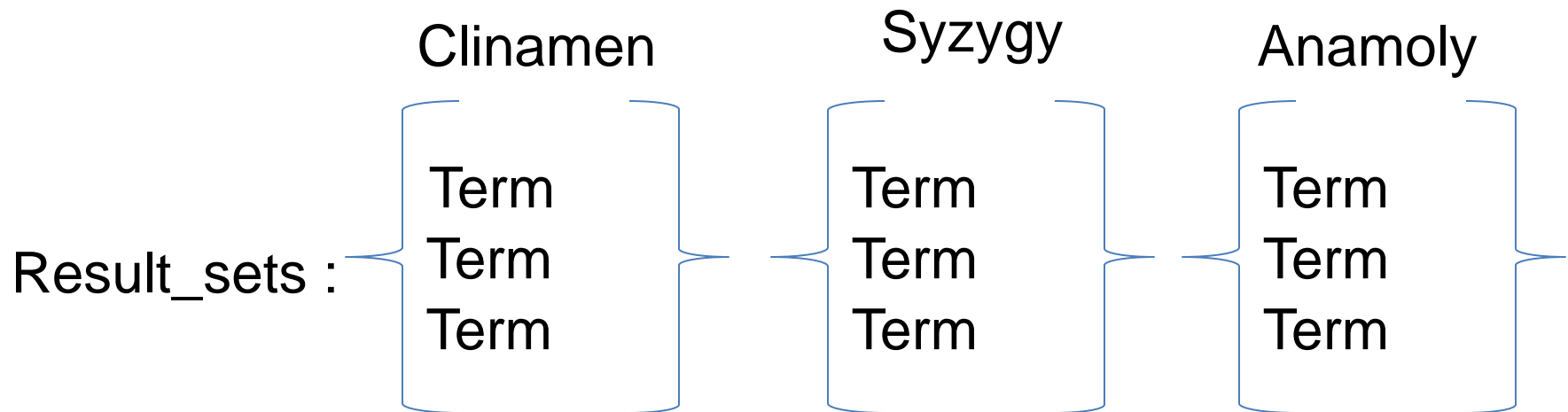
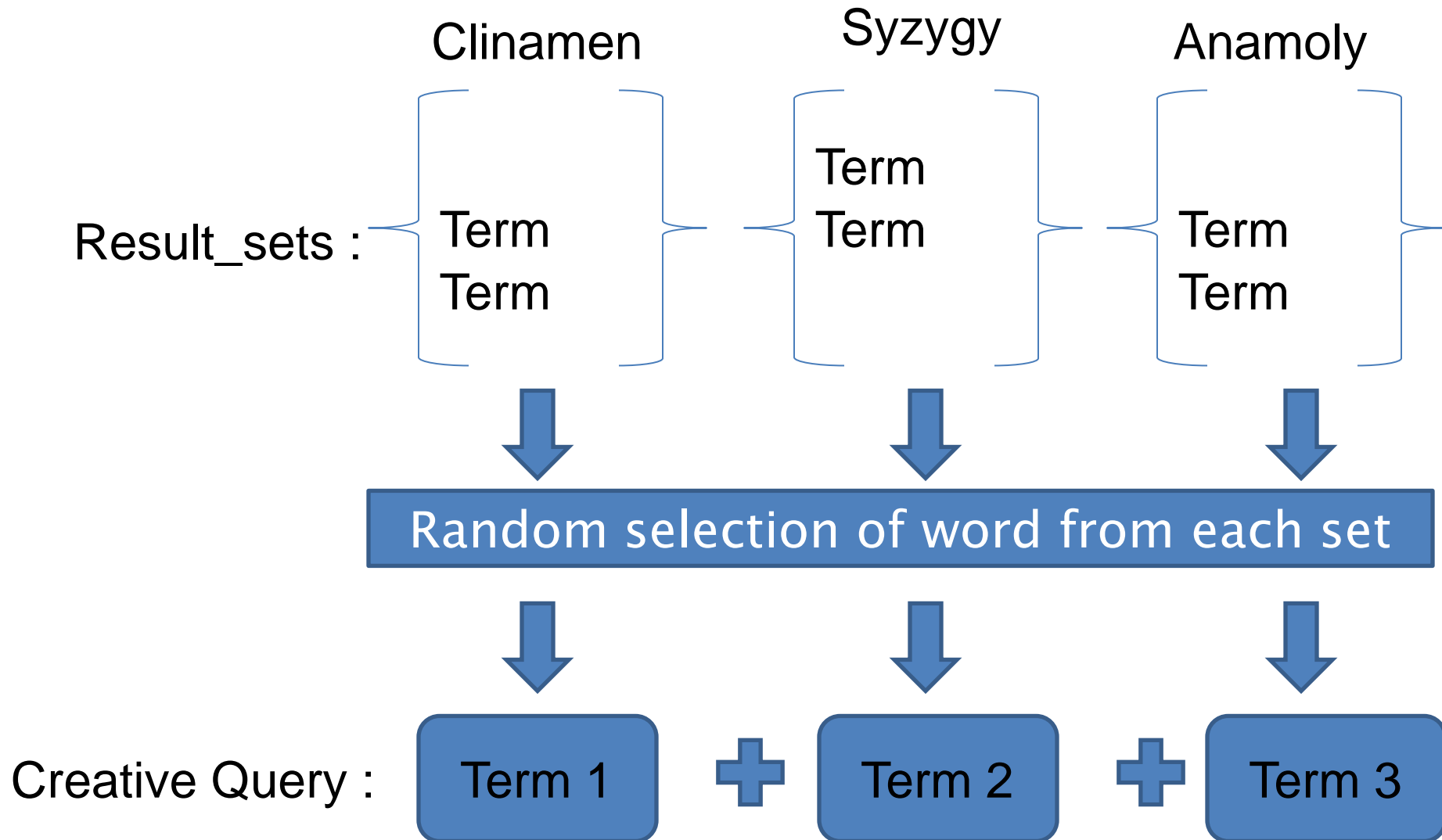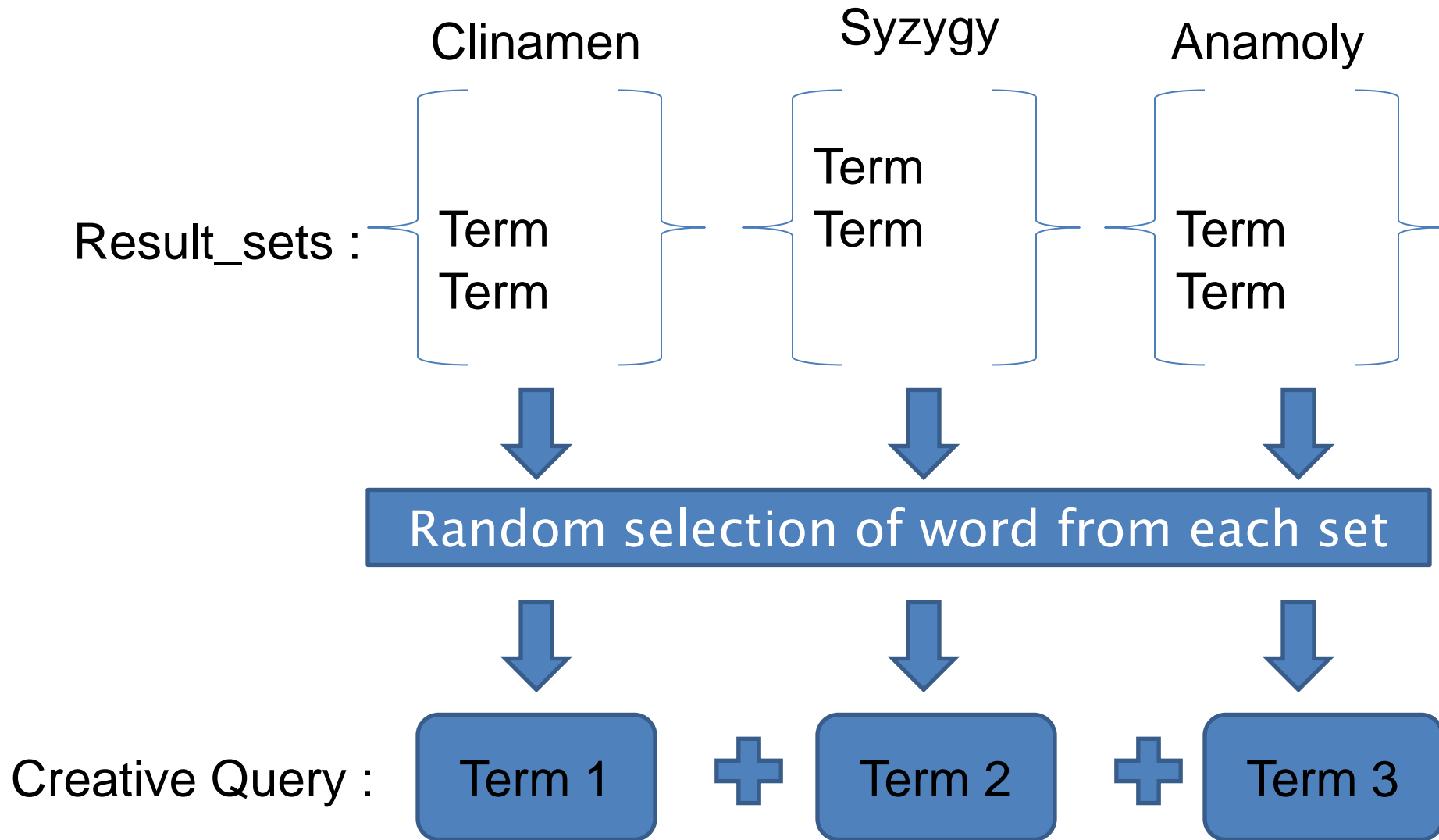# ARCHITECTURE & APPROACH TOWARDS IMPLEMENTATION

ARCHITECTURE

Bing Search Engine

Creative request

response

User request

Client

Server (Node.js)

response

ARCHITECTURE

Selection of terms from sets

Clinamen   Syzygy   Anamoly

Result_sets :

Term	Term	Term
Term	Term	Term
Term	Term	Term

Selection of terms from sets

Clinamen   Syzygy   Anamoly

Result_sets :
Term
Term

Term
Term

Term
Term

Random selection of word from each set

Creative Query :   Term 1   +   Term 2   +   Term 3

Selection of terms from sets

If (set_size > 1) remove_selected_word_from_set;

Selection of terms from sets

Clinamen   Syzygy   Anamoly

Result_sets :

Random selection of word from each set

Creative Query :   Term 1   +   Term 2   +   Term 3
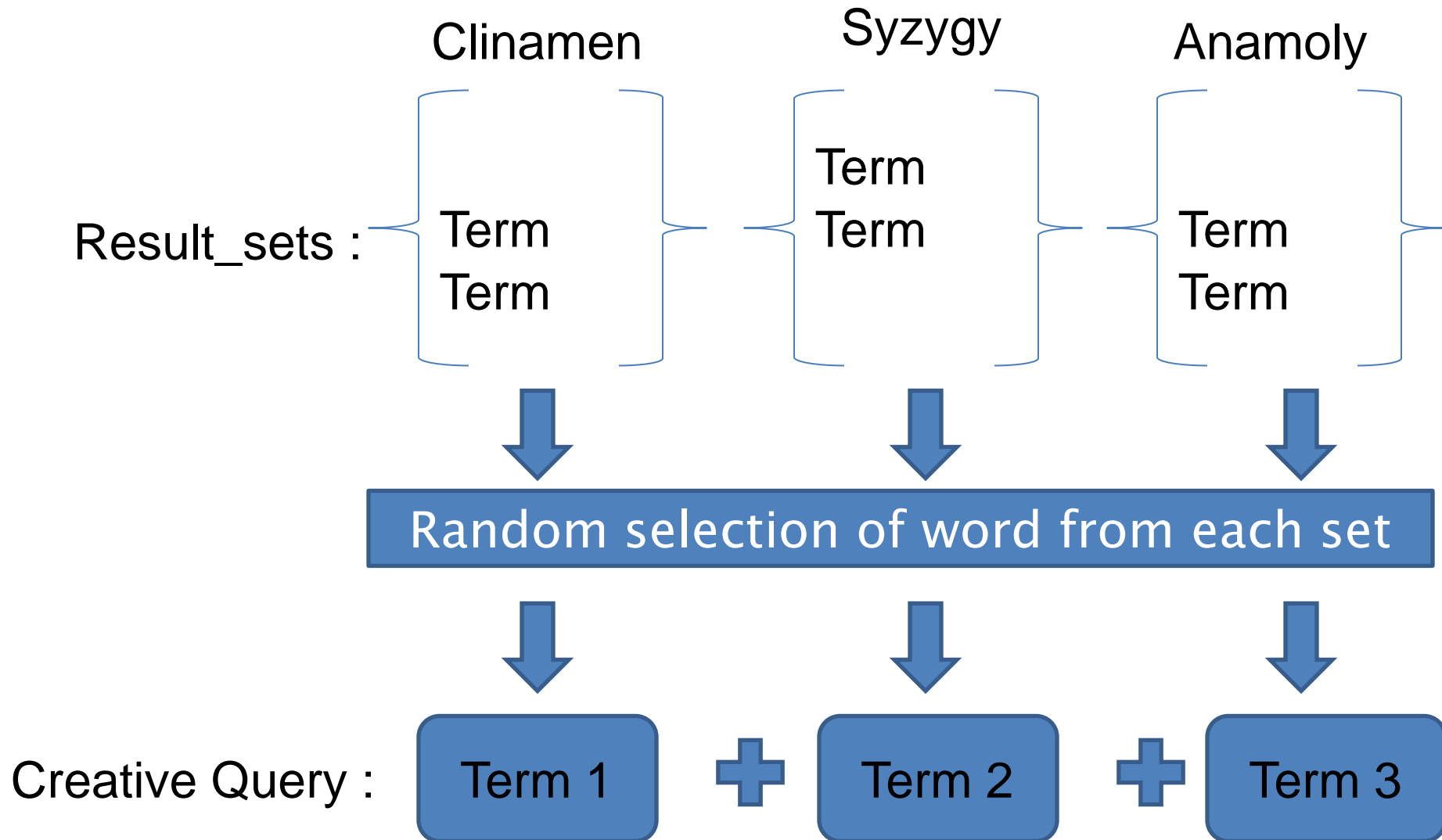
If(number_of_results == 0) repeat_random_selection_process ;

RANDOM SELECTION

ADVANTAGES

- Its easy to implement
- Takes less processing time

DISADVANTAGES

- It will skip some combinations of words
- less creative

Make all combinations then random selection

Clinamen

Syzygy

Anamoly

Term
Term
Term

Term
Term
Term
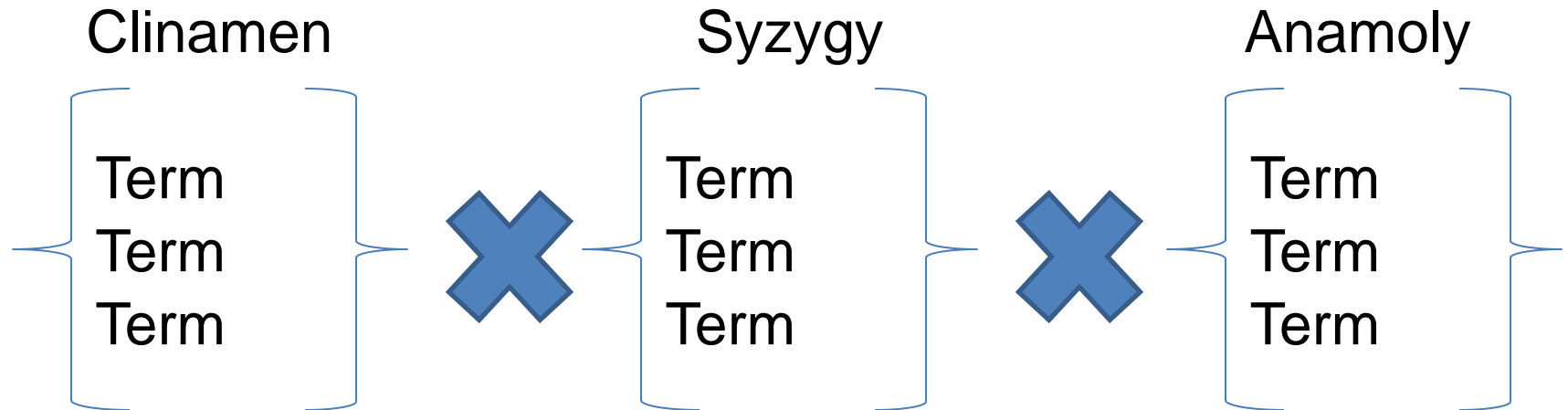
Term
Term
Term

Possible combination of terms

Make all combinations then random selection

Possible combination of terms

Random selection from set of combinations

Creative Query :   Term 1   ➕   Term 2   ➕   Term 3

If(number_of_results == 0) repeat_random_selection_process ;

RANDOM SELECTION

ADVANTAGE

- It makes possible to have more creative query

DISADVANTAGE

- problem is processing time of making combinations
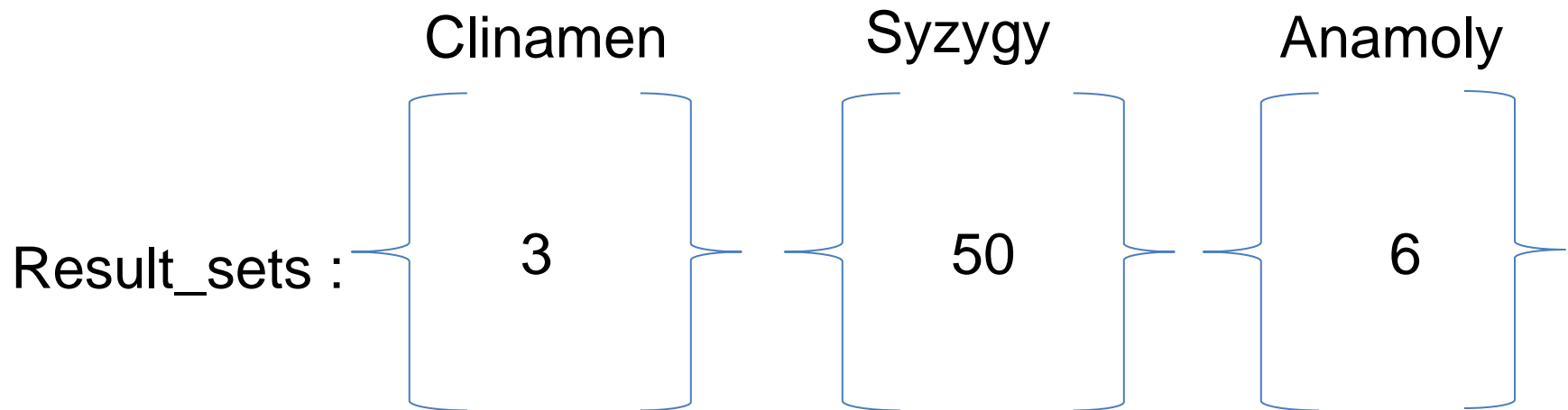
Make all combinations then random selection

Clinamen   Syzygy   Anamoly

Term   Term   Term
Term   ✖   Term   ✖   Term
Term   Term   Term
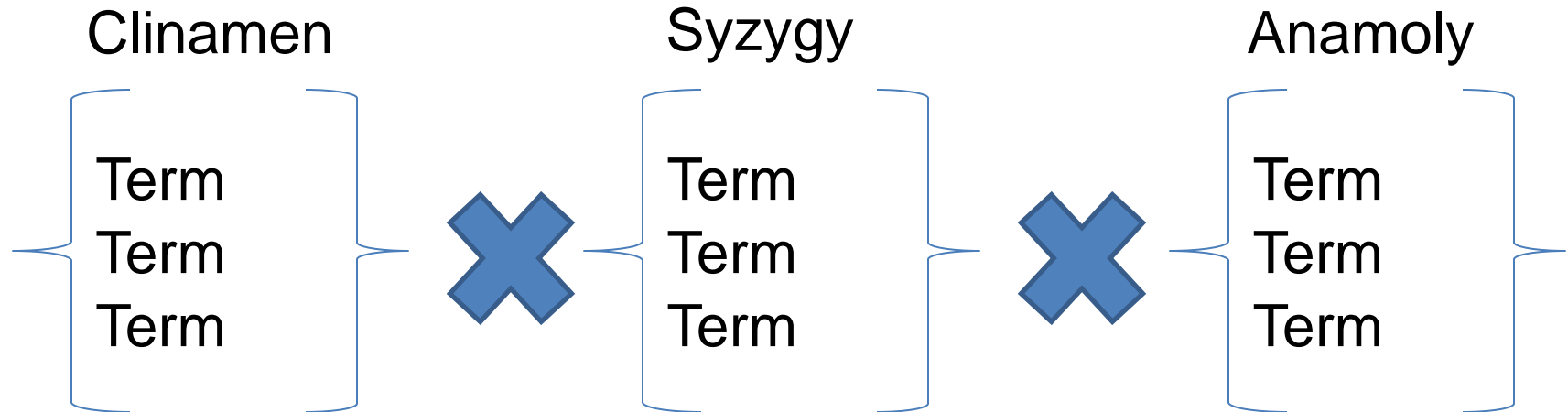
We can set threshold on number of combinations

Possible combination of terms

For Both methods

We are not giving weightage to set
based on number of terms in set

Clinamen   Syzygy   Anamoly

Result_sets :   3   50   6

Idea : more terms -> more generic term -> close to stop word

Considering Zipf's distribution law
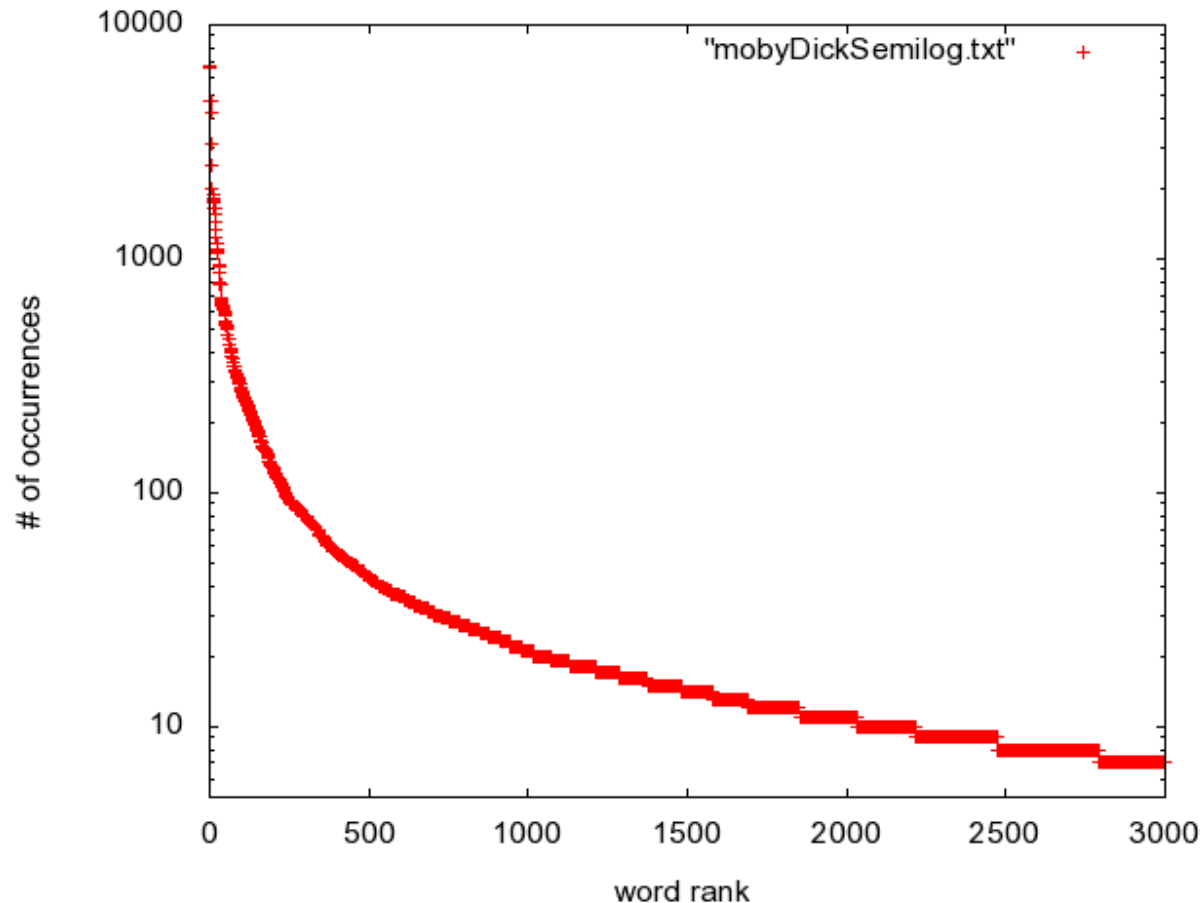
Avoid ignorance from search engine, we will use more words from that set

FOR BOTH METHODS

We are not giving weightage to set
based on number of terms in set

Clinamen Syzygy Anamoly

Term 3 50 6

W = 1 W = 2 W = 1
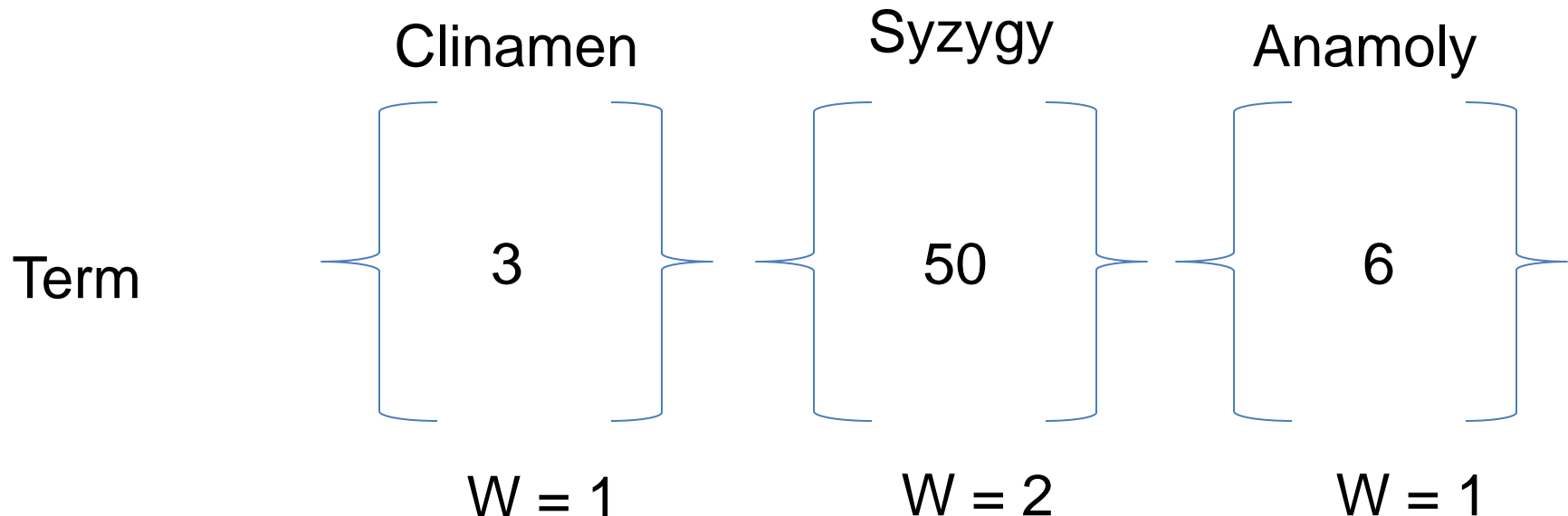
Weight = no of terms / threshold
threshold = 20 (not sure about it yet)

Query Display Mockup

Term set 1: Original term
Term set 2,3,4 : Creative terms

Grid Mockup

Interactive Mockup

MILESTONES OF THE PROJECT

MILESTONES OF THE PROJECT

TASK	IKRAM	SHRAVYA
STATE OF THE ART	Ca 25 hrs	Ca 25hrs
MOCK UP FOR FRONT END DESIGN		Ca 10 hrs
DESIGNING FRONT END (Html & CSS)		Ca 30 hrs
INTEGRATION OF BING API AND LEXICAL DICTIONARY(NODE.JS)	Ca 25 hrs	Ca 15 hrs
INSTALLING NODE.JS SERVER , NPM PACKAGE STRUCTURE	Ca 40 hrs	
IMPLEMENTATION OF ALGORITHMS(Javascript)	Ca 60 hrs	Ca 60 hrs
SMALL USER STUDY	Ca 30 hrs	
DOCUMENTATION		Ca 40 hrs

Thank you for listening. Any questions?

REFERENCES

Raczinski et al.,2013:

https://scholar.google.co.in/citations?view_op=view_citation&hl=en&user=sRce9ogAAAAJ&citation_for_view=sRce9ogAAAAJ:TFP_iSt0sucC

James et al.,2013 :

https://scholar.google.co.in/citations?view_op=view_citation&hl=en&user=sRce9ogAAAAJ&citation_for_view=sRce9ogAAAAJ:e5wmG9Sq2KIC

[1]Sports:

https://www.google.co.in/search?newwindow=1&biw=1242&bih=585&tbm=isch&sa=1&q=sports&oq=sports&gs_l=img.3..0l10.103378.104573.0.105407.6.6.0.0.0.0.131.671.1j5.6.0....0...1c.1.64.img..0.6.663.siDaaxFZ2QI#imgrc=-1DK2TJ5lVuXqM%3A

[1]TV shows:

https://www.google.co.in/search?newwindow=1&biw=1242&bih=585&tbm=isch&sa=1&q=tv+shows&oq=tv+shows&gs_l=img.3..0l10.79917.81712.0.82233.8.7.0.1.1.0.141.754.1j6.7.0....0...1c.1.64.img..0.8.765._PJaAWoTtnw#imgrc=_v6UYojsFyD0UM%3A

[1]facebook:

https://www.google.co.in/search?newwindow=1&biw=1242&bih=585&tbm=isch&sa=1&q=facebook&oq=facebok&gs_l=img.3.0.0i10j0j0i10l2j0j0i10l3j0j0i10.29428.30764.0.32350.7.5.0.2.2.0.134.558.0j5.5.0....0...1c.1.64.img..0.7.574._9NfFoykG_8#imgrc=LUjnnkvhX4rfvM%3A

[1]games:

https://www.google.co.in/search?newwindow=1&biw=1242&bih=585&tbm=isch&sa=1&q=games&oq=games&gs_l=img.3..0l10.48184.49089.0.49919.5.5.0.0.0.0.135.534.2j3.5.0....0...1c.1.64.img..0.5.530.uSx1Ezd9qX0#imgrc=6K8fHew_LyI1rM%3A

[1]technology:

https://www.google.co.in/search?newwindow=1&biw=1242&bih=585&tbm=isch&sa=1&q=technology&oq=technology&gs_l=img.3..0l10.48782.50732.0.51413.10.8.0.2.2.0.113.843.1j7.8.0....0...1c.1.64.img..0.10.855.Kt2GCGGFKuM#imgrc=lSRH5n6g3a9wzM%3A

[1]Movies:

https://www.google.co.in/search?newwindow=1&biw=1242&bih=585&tbm=isch&sa=1&q=movies&oq=movies&gs_l=img.3..0l10.45832.46892.0.47092.6.6.0.0.0.0.162.696.1j5.6.0....0...1c.1.64.img..0.6.692.1k0ZdGwFaBE#imgrc=FvhmHpwP0i4_xM%3A

SUPPLEMENTARY DATA

DESCRIPTION OF WORDNET DICTIONARY

RELATIONS	Also Called	Example
Hypernym	Superordinate	Breakfast - meal
Hyponym	Subtype	Meal - lunch
Member Meronym	Has member	Faculty - professor
Member Holonym	Member of	professor- Faculty
Has Instance		Composer - MJ
Instance		MJ– author
Part Meronym	Has part	Table - leg
Part Holonym	Part of	Wheel - bike
Antonym	Opposite	Leader- follower