

Assignment 2

- Lancelot -

Rachael-Joy F. Cowham

Team 7

May 17, 2009

Contents

Introduction.....	3
Criteria for Evaluation.....	4
Overview	4
Precision.....	4
Recall	5
“Go for the Gold” Fallout	5
Testing.....	6
Four Queries	6
General Testing Procedures	6
Queries.....	7
Query Set #1 (Rachael)	7
Query Set #2 (Ron)	8
Query Set #3 (Kathryn)	10
Query Set #4 (Michael)	12
Results	14
Precision.....	14
Recall	15
Fallout.....	16
Table: Results of searches for each criteria by field	17
Conclusions.....	18
Improvements	18
APA Citation	18
Abstract	18
Pre-co.....	18
Post-co	19
Suggested Changes.....	19
Search Choice.....	19
Natural Language.....	19
Pre-Co	20
Post-co	20
Summary	20
References.....	21
Team 7	22

Introduction

A well designed database structure containing LIBR 202 supplemental article surrogates will aid the LIBR 202 student effectively as it offers creative ways of accessing important course concepts. Currently, LIBR 202 students are provided with a list of required supplemental readings to augment their understanding of information retrieval, and each article is listed according to its specific APA citation for retrieval purposes. Students must browse this list to find articles that serve their interests and that fulfill their course needs. The articles are grouped in broad categories, some of which include background reading and reference; information seeking, problem solving, and cognition; data structures; and relevance, satisfaction, and performance. Many of the article citations contain direct links to the articles themselves, but some must be otherwise retrieved by students from a database.

Team 7's database (named Lancelot after Professor Irwin's armored knight theme for the class) was created to provide a user friendly and convenient way for LIBR 202 students to retrieve the supplemental readings mentioned above. Lancelot is a database that incorporates all of the concepts learned in LIBR 202 represented by twenty-one article surrogates. Team 7 has made a great effort to represent and adequately index the aboutness of each of the twenty-one articles used to create Lancelot. The database has been designed to allow for indexing of current supplemental reading material, and was deliberately made flexible enough to expand to incorporate future additions should the need arise. This database uses a combination of natural languages and controlled vocabulary to represent the article surrogates contained within it, and while the natural language is extracted from the APA citation and the original article abstracts, the controlled vocabulary was created as a joint effort by Team 7. After Team 7 created Lancelot and agreed that the vocabulary design and data structure was sufficient enough to move forward with the assignment, each team member participated in testing the database's ability to return relevant results specific to a query. The results and analysis of the test queries are below. Please note that the testing portion of this assignment was done as a Team, therefore, each query is attributed to the team member who created it.

Criteria for Evaluation

Overview

As Team 7 switched hats to database analysts/evaluators, the task of developing a set of criteria presented itself. The criteria were used to evaluate the subject access the fields in the database provide. As mentioned by the instructor, “You can’t evaluate something until you’ve decided what your criteria for the evaluation will be!” (Irwin, 2004, p. 4). The primary focus for evaluating the subject access within the database will be on the usefulness of the pre-co and post-co vocabularies and the effectiveness of the title and abstract fields to produce relevant results. After careful deliberation, Team 7 decided that precision, recall, precision inverse, and fallout would be used as evaluating criteria (in this report precision inverse is omitted). Precision and recall were included, first, because they are required measurements for the assignment, second, because they are basic and necessary measures of search effectiveness for a database, and third, because they are “numerical ways of stating the degree to which a search has succeeded” (O’Connor, 1996, p. 66). To count the other side of the coin, Team 7 decided to include precision inverse and fallout as two more forms of evaluation because they give an opposite look at the database’s effectiveness: these two measurements show how ineffectively a query has been answered. Together, the four criteria Team 7 has decided on will allow each team member to conduct a thorough and detailed evaluation of the database’s subject access.

Precision

Precision is represented as the percent of retrieved documents that are relevant to a search. Precision measures “the ratio of relevant to total material retrieved by a query or set of queries” (Meadow, Boyce, Kraft and Barry, 2008, p. 328). The formula is presented as:

$$\text{precision} = \frac{|\{\text{relevant documents}\} \cap \{\text{retrieved documents}\}|}{|\{\text{retrieved documents}\}|}$$

Precision is also known as precision power or “the capability of the indexing system to hold back documents that are not relevant to the user” (Cleveland and Cleveland, 2001, p. 186). As an example, if 100 documents are retrieved and 50 of those documents are relevant to the query, the precision ratio is 50 to 100 or (50/100). Precision for this search was 50 percent effective. Clearly, the desired outcome is a high percentage of relevant results and a low percentage of irrelevant results. Otherwise stated as high values for results rightly put into patrons’ hands and rightly left out of patrons’ hands. This would imply then that a desired outcome would also be a low value of results wrongly put into patrons’ hands and a low value of results wrongly left out (O’Connor, 1996, p. 66). For this assignment, precision is fairly easy to calculate since the database is quite small in size (only holding 21 records) and since relevance has been predetermined by team members for each query. An example query (that is similar to the approach Team 7 took during the evaluation phase of the assignment) might be to assume that a collection of 20 documents exists and it is known which documents

satisfy a query, as well as all of the documents that could have satisfied a query. If eight documents are put into the patron's hands, and six of them are useful, then we have a result of 75 percent precision.

Recall

Recall is represented as “the ratio of the number of relevant records retrieved to the number of relevant records present in the file [database]” (Meadow et al., 2008, p. 329). The formula is presented as:

$$\text{recall} = \frac{|\{\text{relevant documents}\} \cap \{\text{retrieved documents}\}|}{|\{\text{relevant documents}\}|}$$

A high percentage of recall implies that most all relevant records were retrieved by the query. Recall is a measure of “just how many of the useful documents in the collection actually ended up in the patron's hands” (O'Connor, 1996, p. 66). According to O'Connor, there is generally an inverse relationship between precision and recall. This means that if one's query is broad enough to capture everything one wants (high recall), it is likely that there will be many results that are useless (low precision). In contrast, if a query is designed to return as little useless material as possible (high precision) one risks missing a wealth of useful material (low recall) (p. 68).

As stated above in the discussion of precision, relevant records were predetermined by the team making recall (much like precision) fairly simple to calculate. However, for larger databases and circumstances that are not as controlled as they are for this assignment, recall is very difficult to measure. How is one to know the total number of useful records in a collection? If there is no known number of relevant works, how is a recall ratio determined? The measurement of recall is troubling and difficult to determine because of “what is not known (or easily knowable)” (O'Connor, 1996, 68).

“Go for the Gold” Fallout

Fallout is the ratio of non-relevant articles retrieved to the total number of non-relevant articles indexed in the database (Reitz, n.d.). Fallout is not to be confused with false drops which are non-relevant documents retrieved as a result of a semantic break down. For example, a false drop would be a query for “Venetian blinds” that might also result in information on “blind Venetians” (Cleveland and Cleveland, 2001, p. 255).

Fallout is used to measure the percentage of irrelevant records retrieved. Realistically, the number of non-relevant items in a given database is often impossible to determine, except in very small databases which was the case for Team 7. Like precision and recall, fallout was calculated with a simple formula where relevance was pre-determined by each team member.

Testing

Four Queries

Together, Team 7 developed four queries to test the database. The main goal for the creation of the queries was to cover a broad range of subjects to fully test the effectiveness of the indexing efforts of the team. Team 7 attempted to create simple queries that represent the interests of LIBR 202 students. After all, they were created by LIBR 202 students who are interested in these subjects. After discussion and deliberation, Team 7 concluded that each team member would approach the testing of the database with different strategies, and each team member would bring their own biases to the experience. Team 7 agreed that team collaboration would be the best way to judge the effectiveness of the searches, and that collaboration would include everyone's biases and allow for evaluation from each team member.

1. Rachael's Query: I would like to learn more about information-seeking strategies and user satisfaction.
2. Ron's Query: I would like to learn more about the history of information retrieval.
3. Kathryn's Query: I would like to learn about youth and their unique information seeking behaviors.
4. Michael's Query: I would like to learn more about the user's perspective in information retrieval.

General Testing Procedures

With approval from the instructor, Team 7 decided to approach the testing portion of the assignment a little differently. Instead of individually completing four test queries, Team 7 shared queries and results. From there, each team member evaluated the results on their own.

Each team member brought a query to an Elluminate meeting to share with the rest of the team. Then, each team member chose a query to test (a team member did not necessarily have to choose the query he/she came up with). During the Elluminate meeting the team discussed what criteria would be best to use as a "go for the gold" criteria. The team decided on fallout because of its importance in measuring the percentage of irrelevant records retrieved during a search.

With the criteria set in place, the team used the application sharing tool to run some query tests as a group so everyone would be able to see the testing in action and evaluate accordingly. After each team member completed their own testing, results were posted for all to see. Because Team 7 decided to test as a group, the results in each individual Part B report will be the same (except for minor alterations as each author deems necessary).

Queries

Query Set #1 (Rachael)

- Query: I would like to learn more about information-seeking strategies and user satisfaction.
- There are eight surrogates deemed relevant (29, 30, 33, 38, 44, 49, 50, and 55) to this query. There are more relevant surrogates for this query than any other because the test query is very broad and incorporates two ideas, information seeking strategies being one and user satisfaction being the other.
- There are twenty-one surrogates in the database, eight are relevant to this query and thirteen are not.
- Boolean terms: "information seeking" and "user satisfaction" and "strategies"
- Preco: Information Seeking; User Needs
- Postco: User; Satisfaction
- Preco and postco terms were selected from the validation list except when testing natural language. Otherwise all queries were entered as free text.

Field: APA Citation						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	Information Seeking & User Satisfaction	0	0	0%	0%	0%
Boolean OR	Information Seeking / User Satisfaction	2	2	100%	25%	0%
Natural Language	User Satisfaction	1	1	100%	12.5%	0%
Field: Abstract						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	Information Seeking & Strategies	0	0	0%	0%	0%
Boolean OR	Information Seeking / Strategies	4	4	100%	50%	0%

Natural Language	User Satisfaction	1	1	100%	12.5%	0%
Field: Pre-co						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	=Information Seeking & =User Needs	0	0	0%	0%	0%
Boolean OR	=Information Seeking / =Skills	9	5	55.6%	62.5%	30.8%
Natural Language	User Strategies	1	1	100%	12.5%	0%
Field: Post-co						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	=User & =Satisfaction	3	2	66.7%	25%	7.7%
Boolean OR	=User / =Satisfaction	6	3	50%	37.5%	23.1%
Natural Language	Satisfaction	4	2	50%	25%	15.4%

Query Set #2 (Ron)

- Query: I would like to learn more about the history of information retrieval.
- Three articles are relevant (41, 42, and 45) to this query. They were chosen as relevant because the article itself was a historical retrospective on some part of information retrieval. In other words, the article provided a historical context for an idea about information retrieval. Articles about information retrieval more generally that were written over ten years ago were briefly considered to be included as relevant finds, but the author was not specifically interested in those articles when the query was written, so they were discarded as irrelevant.
- There are twenty-one articles in the database, three are relevant to this query and eighteen are not.
- Boolean terms: "retrieval" and "histor*"

- History was truncated with the asterisk in order to pick up "historical" should it be in the database.
- Preco: Information Retrieval; Information Retrieval History
- Postco: Information; Retrieval
- Preco and postco terms were selected from the validation list except when testing natural language. Otherwise all queries were entered as free text

Field: APA Citation						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	retrieval & histor*	2	2	100%	66.7%	0%
Boolean OR	retrieval / histor*	5	2	40%	50%	16.7%
Natural Language	information retrieval histor*	0	0	0%	0%	0%
Field: Abstract						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	retrieval & histor*	0	0	0%	0%	0%
Boolean OR	retrieval / histor*	11	3	27.3%	100%	44.4%
Natural Language	information retrieval histor*	0	0	0%	0%	0%
Field: Pre-co						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	=Information Retrieval & =Information Retrieval History	2	2	100%	66.7%	0%
Boolean OR	=Information Retrieval / =Information Retrieval	10	2	20%	66.7%	44.4%

	History					
Natural Language	Information Retrieval History	2	2	100%	66.7%	0%
Field: Post-co						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	=Information & =Retrieval	6	3	50%	100%	16.7%
Boolean OR	=Information / =Retrieval	15	3	20%	100%	66.7%
Natural Language	Information Retrieval	0	0	0%	0%	0%

Query Set #3 (Kathryn)

- Query: I would like to learn about youth and their unique information seeking behaviors.
- There is only one article deemed relevant (29) to this query. It was selected as relevant because it was the only article indexed that spoke about youth specifically.
- There are twenty-one articles in the database, one is relevant to this query and twenty are not.
- Boolean terms: "information" and "seeking"
- Preco: Information Seeking Behavior; User Needs
- Postco: Information; Searching; User
- Preco and postco terms were selected from the validation list except when testing natural language. Otherwise all queries were entered as free text.

Field: APA Citation						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	Information & seeking	1	1	100%	100%	0%
Boolean OR	Information / seeking	14	1	7.1%	100%	65%
Natural Language	Information	14	1	7.1%	100%	65%

Field: Abstract						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	Information & seeking	4	1	25%	100%	15%
Boolean OR	Information / seeking	16	1	6.3%	100%	75%
Natural Language	Information	15	1	6.7%	100%	70%
Field: Pre-co						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	=Information seeking behavior & =user needs	0	0	0%	0%	0%
Boolean OR	=Information seeking behavior / =user needs	5	1	20%	100%	20%
Natural Language	Information seeking	12	1	8.3%	100%	55%
Field: Post-co						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	=Information & =searching	3	0	0%	0%	15%
Boolean OR	=Information / =searching	11	0	0%	0%	55%
Natural Language	Information searching user	0	0	0%	0%	0%

Query Set #4 (Michael)

- Query: I would like to learn more about the user's perspective in information retrieval.
- There are four articles deemed relevant (29, 33, 50, and 51) to this query based on their focus on the user's interaction with the information retrieval process itself, rather than the items retrieved because the latter would rightfully fall under a query about relevance.
- There are twenty-one articles in the database, four are relevant to this query and seventeen are not.
- Boolean terms: "user" and "perspective"
- Preco: User Strategies; User Experiments
- Postco: User; Retrieval; Perspective
- Preco and postco terms were selected from the validation list except when testing natural language. Otherwise all queries were entered as free text.

Field: APA Citation						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	User & Perspective	0	0	0%	0%	0%
Boolean OR	User / Perspective	1	0	0%	0%	5.9%
Natural Language	User perspective	0	0	0%	0%	0%
Field: Abstract						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	User & Perspective	0	0	0%	0%	0%
Boolean OR	User / Perspective	7	1	14.3%	25%	35.3%
Natural Language	User perspective	0	0	0%	0%	0%
Field: Pre-co						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %

Boolean AND	=User Strategies & =User Experiments	0	0	0%	0%	0%
Boolean OR	=User Strategies / =User Experiments	2	2	100%	50%	0%
Natural Language	User perspective	0	0	0%	0%	0%
Field: Post-co						
Method of Search	Search Terms	Number Retrieved	Number Relevant	Precision Ratio as %	Recall Ratio as %	Fallout as %
Boolean AND	=User & =Retrieval	3	2	66.7%	50%	5.9%
Boolean OR	=User / =Retrieval	13	2	15.4%	50%	64.7%
Natural Language	User perspective	0	0	0%	0%	0%

Results

Precision

SEARCH TYPE	APA CITATION	ABSTRACT	PRECO	POSTCO
Boolean AND	100	25	100	61.1
Boolean OR	49	37	49	28.5
Natural Language	53.6	53.4	69.4	50

According to Meadow, Boyce, Kraft, and Barry (2008), “relevance, by any definition, has the merit of appearing to be the most important concept of an IR operation” (p. 328). Because Team 7 has created a binary system for measuring relevance, meaning the database has been divided into relevant and non-relevant and retrieved and not retrieved, evaluating the precision ratio is for the most part straight-forward. By looking at the averages above, it can be said that on a scale of 1-10 (10 being 100 percent precision) the database’s ability to filter out non-relevant records is a 6. The precision ratio average is at fifty percent or greater for seven out of twelve averages. Saying that precision is “somewhere in the middle” is not exactly a scientific measurement, but one must remember that measuring relevance is not an exact science as relevance is determined by any individual with an information need who is faced with determining whether or not a query has been rightly satisfied.

It should be stated that the averages above do not present a detailed examination of the query results and are only meant to be discussed in general terms. By taking a closer look at the query data discussed in **TESTING**, it is clear that Team 7 was successful with returning acceptable precision ratio percentages. Team 7’s precision return is considered acceptable due to the fact that 29 out of 48 queries returned relevant records overall. Queries done using the pre-co field (for all search types) were most successful, but still only five out of forty-eight queries were at fifty percent or greater. For each of those five queries, two or more relevant records were retrieved, and for all eight pre-co returns, relevant articles were always returned. The percentages for APA Citation and pre-co Boolean AND queries are deceiving due to the number of zero results returned. Of the twelve Boolean AND queries, Query Set #2 holds the only return for pre-co, and of the twelve Boolean AND queries Query Sets #2 and #3 hold the only returns for APA Citation.

By doing a brief scan of the testing data, it is clear that Boolean OR performed the best with respect to retrieving records. Boolean OR returned the most records across the board. This can be attributed to the operator’s ability to form records that are in either the first or second search terms used (Meadow et al., p. 157).

Recall

SEARCH TYPE	APA CITATION	ABSTRACT	PRECO	POSTCO
Boolean AND	83.5	100	66.7	58.3
Boolean OR	58.3	68.8	70	63
Natural Language	56.3	56.3	59.7	25

Calculating an accurate recall ratio requires that the total number of relevant documents in the database is known. This predetermined relevance was done by each team member before queries were tested. Recall is represented as “the ratio of the number of relevant records retrieved to the number of relevant records present in the file [database]” (Meadow et al., 2008, p. 329). Considering all Query Sets, if Boolean OR is looked at in detail one will recognize that this operator, again, performs above all others. In Query Set #1, all four fields returned at least a 25% recall ratio. Query Set #2 returned at least 50% recall ratio in all fields. Query Set #4 returned at least a 25% recall ratio for all fields except APA Citation which returned zero results. Query Set #3 is a special case due to the fact that only one record was deemed relevant by the tester. Since three out of four fields returned the one relevant record, recall ratio is 100% for all fields except post-co which returned zero records.

It should be mentioned that the averages above do not present a detailed examination of the query results and are only meant to be discussed in general terms. Take for example the 100 average percentage recall ratio for Abstract Boolean AND. This happens to be a perfect percentage only because the only Abstract Boolean AND query that retrieved any result was in Query Set #3 where only one record was predetermined to be relevant, and that one record was retrieved. This is not a true representation of the database’s ability to perform high recall since all other Query Sets show zero results for abstract Boolean AND.

Because the database is so small, and records deal with similar subjects, recall is at a higher percentage that it would normally be in a real-life working database. For testing and learning purposes, Team 7’s database succeeds in showing the team how recall works.

Fallout

SEARCH TYPE	APA CITATION	ABSTRACT	PRECO	POSTCO
Boolean AND	0	15	0	11.3
Boolean OR	29.2	51.6	31.7	52.4
Natural Language	65	70	55	15.4

Fallout is used to measure the percentage of irrelevant records retrieved. Again, as stated previously, because this database is so small, and because records overlap in subject area, the results are similar across the board. Query Set #3 is a great example to look at as an examination of how fallout works (and because the database is small, the results are magnified). For Query Set #3, only one article was predetermined relevant, and because of this, when the query returned many results, but only the one relevant article, fallout was extremely high. Looking at the results, half of the queries in the set returned at least 50% fallout (four of which have 65% or greater fallout).

Natural Language search type is also a unique case in this database with respect to fallout. If one were to omit the entire Query Set #3 (because of its conflict with having only one relevant record), all but one query would have zero fallout for Natural Language queries. Four queries returned zero fallout with 100% precision, and seven queries returned zero fallout with zero results returned.

Table: Results of searches for each criteria by field

P=Precision as % R=Recall as % F=Fallout as %

(Zero values were not included in the averages)

Field: APA Citation												
Query	Boolean AND				Boolean OR				Natural Language			
	P	R	F		P	R	F		P	R	F	
1	100	66.7	0		40	50	16.7		0	0	0	
2	100	100	0		7.1	100	65		7.1	100	65	
3	0	0	0		100	25	0		100	12.5	0	
4	0	0	0		0	0	5.9		0	0	0	
Average	100	83.4	0		49	58.3	29.2		53.6	56.3	65	
Field: Abstract												
Query	Boolean AND				Boolean OR				Natural Language			
	P	R	F		P	R	F		P	R	F	
1	0	0	0		27.3	100	44.4		0	0	0	
2	25	100	15		6.3	100	75		6.7	100	70	
3	0	0	0		100	50	0		100	12.5	0	
4	0	0	0		14.3	25	35.3		0	0	0	
Average	25	100	15		37	68.8	51.6		53.4	56.3	70	
Field: Pre-co												
Query	Boolean AND				Boolean OR				Natural Language			
	P	R	F		P	R	F		P	R	F	
1	100	66.7	0		20	66.7	44.4		100	66.7	0	
2	0	0	0		20	100	20		8.3	100	55	
3	0	0	0		55.6	62.5	30.8		100	12.5	0	
4	0	0	0		100	50	0		0	0	0	
Average	100	66.7	0		49	70	31.7		69.4	59.7	55	
Field: Post-co												
Query	Boolean AND				Boolean OR				Natural Language			
	P	R	F		P	R	F		P	R	F	
1	50	100	16.7		20	100	66.7		0	0	0	
2	0	0	15		0	0	55		0	0	0	
3	66.7	25	7.7		50	37.5	23.1		50	25	15.4	
4	66.7	50	5.9		15.4	50	64.7		0	0	0	
Average	61.1	58.3	11.3		28.5	63	52.4		50	25	15.4	

Conclusions

Improvements

APA Citation

Overall, APA Citation performed poorly. Seven out of twelve queries returned at least one relevant record, and if Query Set #3 (where only one record is relevant) is taken out of the results, only four of twelve queries returned at least one relevant record. The author was unsure of how to approach APA Citation. Since relevant articles were known ahead of time, a team member could easily use a word or series of words from the title as his/her query. The author assumes that this was the strategy used in Query Set #3, making the retrieval of the relevant record simple. The author also assumes that for someone using this database who has no prior knowledge of the surrogates it contains, extreme difficulty would be had returning any results using the APA Citation field. APA Citation was used in place of a field dedicated as Title. The team decided this would set the database apart from others and show that some extra thought went into the design of the data structure. The problem arises when titles do not properly relate an article's aboutness. This is a problem that would occur whether or not the title has its own field or if it is shared with APA Citation.

Abstract

Again, the author concludes that Abstract also performed poorly. It should be mentioned that the author had high expectations for the Abstract field. Abstracts contain many descriptive words, and the sole function of an abstract is to capture the aboutness of something. A searcher has more freedom to develop a query with the Abstract field since it is a natural language field. There are no restrictions to the language that can be used to retrieve records. Still, only seven out of twelve queries returned at least one relevant record, and if Query Set #3 (where only one record is relevant) is taken out of the results, only four of twelve queries returned at least one relevant record. However, it should be mentioned here that the Abstract field was second in retrieving a high number of records even if the majority of the articles retrieved were irrelevant to a query. This is attributed to the power of natural language to broaden a search to include more than what is necessary. Abstract is a great tool for browsing and natural language suites this field just fine.

Pre-co

Pre-co performed very well. Eight out of twelve queries retrieved at least one relevant article. Developing the pre-co vocabulary was a team effort, so all team members were familiar with the vocabulary contained within the database. This helped with creating queries, and is a fact that the team could not escape from. Unless a team member wanted to sabotage his/her own testing by choosing terms that are known to be irrelevant to the article/s in question, one would have to pre-determine pre-co

vocabulary for the articles. A strategy that helped to retrieve relevant articles is using the validation list. By browsing one's choice of terms, and noting how many records each term is linked to allow for better accuracy while executing a query.

Post-co

Finally, Pre-co returned the most records overall with nine out of twelve queries retrieving at least one relevant record. The author attributes this performance to the power placed in the hands of the person making the query. Terms are single entities that can be combined by the person making the query. Since the testers of this query are already familiar with the surrogates, combining terms to satisfy a query was the ultimate search strategy. Post-co combined with Boolean OR is a power punch when it comes to retrieving records as this combination performed well together.

Suggested Changes

Below is a list of suggested changes that the author would make to the database with hopes of improving its retrieving capabilities.

1. Add a field specifically for title to the database, while keeping APA Citation as its own field.
2. Change the Pages field to represent only the total number of pages since the APA citation will also include this information along with the original page numbers where the item can be found.
3. Change DocNo to RecNo. The author believes RecNo better represents the surrogates that the database holds. Since the database is designed to index items other than documents, change DocNo to RecNo seems appropriate.
4. The author believes the team should have spent more time developing pre-co and post-co terms. Pre-co needs to be more inclusive and broad, while post-co should better represent specific subfields of LIS.

Search Choice

Natural Language

Natural language is the "language we 'naturally' speak" (Meadow, et al., 2008, p. 59). Natural language searches allow users to formulate queries in language that is familiar rather than conforming to a particular thesaurus of terminology. Because this database is so small, and the subject matter is controlled, natural language is an appropriate option for searching. Natural language can be used in the APA Citation field, Abstract, Author, and Journal Name. There are many search options available to a searcher. Natural language gives the searcher more control of how a query is executed, but the searcher might not always be satisfied with the results. Natural language is also a great way to browse an unfamiliar subject. While a searcher chooses terms that are familiar to him/her to begin with, as records are retrieved other more specific terms can be browsed and used to iterate and repeat the query.

Pre-Co

Pre-coordinated strings provide context, which is needed for “disambiguation, suggestibility, and precision.” Pre-coordinated strings have a sophisticated syntax that can express concepts better than single words, yet also can be faceted by systems to group topics into categories for post-coordinated displays when desirable (Cataloging and Support Office, 2007). Knowing that records have been assigned specific terms allows a certain amount of relief for the searcher. Novice searchers are often faced with having to find information with little knowledge of the subject matter, or worse, with little knowledge of how information is stored in the first place. Pre-co searching allows a searcher to browse predetermined search terms and choose the ones that he/she thinks will satisfy the information need.

Post-co

The post-co vocabulary in this database is a controlled set where the searching terms are combined at the time of searching by the user. The retrieval engine coordinates the terms as it searches for matches. The advantage using post-co searching is that single words may be combined, which increases recall. There are disadvantages to relying upon post-co vocabulary to finding relevant articles. False coordination by the searcher due to lack of subject knowledge can result in low precision and a high percentage of fallout. Similar to natural language, post-co vocabulary allows searchers to formulate queries in language that is familiar while at the same time being able to browse an index of pre-assigned terminology.

Summary

Overall, this assignment provided a great learning experience and Team 7 came away from it with a better understanding of how pre-co and post-co vocabulary is used in electronic information retrieval systems. Even though the database was too small to really gauge its accuracy in retrieving relevant records, the process was most useful in gaining an awareness of the concepts involved and the steps information professionals must take while creating a successful retrieval system.

Did Team 7 effectively capture the aboutness of the indexed articles? Ultimately, Team 7 made a great effort at representing the aboutness of the articles, but it will be obvious to any professional that these efforts are of novice indexers. The purpose of this assignment was to compare and evaluate the controlled vocabularies created by the team. Team 7’s vocabularies were successful in retrieving relevant articles, and with a refinement, these vocabularies can be modified to perform more accurate searches. As Cleveland and Cleveland (2001) state, “The purpose of index evaluation is to determine the effectiveness, efficiency, and value of that we have done by careful study and appraisal. We evaluate indexes to determine how good they are, and our work is not complete until such evaluations are made. A good or bad index is not the result of a single component but of many factors, ranging from human judgment to economic constraints” (p. 179). Creating an effective IRS is an ongoing process, and it can be stated (and has been stated) that this process is never-ending.

References

- Cataloging Policy and Support Office, Library Services (2007). *Library of Congress subject headings*. Washington, DC: Library of Congress.
- Cleveland, D.B, and Cleveland, A.D. (2001). *Introduction to indexing and abstracting* (3rd Ed.). Greenwood Village, CO: Libraries Unlimited
- Irwin, E. (2004). Assignment 2: subject analysis. LIBR 202 spring 2009 Assignment 2 Instructions.
- Meadow, C. T., Boyce, B. R., Kraft, D. H., Barry, C. (2008). *Text Information Retrieval Systems* (3rd Ed.). United Kingdom: Emerald Group Publishing Limited.
- O'Connor, B.C. (1996). *Explorations in indexing and abstracting: pointing, virtue, and power*. Englewood, CO: Libraries Unlimited.
- Reitz, J. M. (n.d). Online Dictionary for Library and Information Science. Retrieved May 17, 2009, from http://lu.com/odlis/odlis_f.cfm.

Team 7

Michael Ballard
Ron Cascella
Nicole Chiodo
Kathryn Whitehouse