

MEASURING THE IDENTIFICATION CAPABILITY OF ACRONYMS ON THE WORLD WIDE WEB: A COMPARATIVE STUDY

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Many people in Hungary use the Web to obtain information from public institutions and organizations. Because these users typically do not know the URL of the desired institution's home page, they use a Web search engine and the acronym of the institution is used as query to get there. Users prefer using acronyms because they usually do not know the full names of the institutions exactly. Acronyms are easy to remember and are extensively used in media and by people in everyday life. In this paper results from an analysis of the usefulness of the acronyms of Hungarian higher educational institutions present on the Web, i.e., the ability of acronyms to identify their own institutions is reported. The usefulness of acronyms of general institutions is used as a comparison. The working hypothesis is that higher educational acronyms are more effective than general acronyms. The study confutes the assumption and shows that the majority of acronyms of higher educational institutions are not effective in identifying their own institution. Causes are presented, and possible remedies are suggested.

Key words: Web Retrieval, Acronyms, Ranking
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1 Introduction

As it is well known, the World Wide Web (briefly Web) has become one of the most popular and important Internet applications both for users and information providers. Web pages can be classified into several category labels, e.g. Yahoo! [1] organizes Web pages into a hierarchy consisting of thousands of category labels. One important category of information stored in Web pages is the generic category of institutions, which includes the Web pages of institutions and organizations of interest to a large mass of users such as state departments or ministries, financial institutions, public transportation companies, libraries, civil organizations, political parties, public health institutions etc.. The primary aim of a user wanting to obtain information from a specific institution is to get to the home page of that institution as easily and quickly as possible. On the other hand, the primary aim of an institution is that its home page be easily found by users.

A Web user has three alternative ways to reach a Web page on the Web:

- The user knows the page's URL from various sources such as advertisements, newsletters, etc.
- Through a navigational link for the URL, which may be on some other Web pages.
- Through search engine results in response to a query.

Because most users do not know the URL of the home page they want, they usually:

- (i) select a Web search engine,
- (ii) enter the acronym (or full name) of institution as a query,
- (iii) examine the first page (or two) of the hit list.

Institutions usually have long, multiple words official names. Also, every institution has got its own official acronym that uniquely identifies it. An acronym usually consists of the initials of name's words which may be expanded with extra-letters to ease pronunciation such that consider Table 1:

Table 1. Acronyms of Hungarian institutions (examples).

Acronym	Name of Institution
MEH	Magyar Energia Hivatal
GVH	Gazdasági Versenyhivatal
MABISZ	Magyar Biztosítók Szövetsége

Users may prefer using acronyms as queries in Web searching for various reasons, such as for example:

- Because they usually do not know the full names of the institutions exactly.
- Because acronyms of institutions' names are commonly and very often used in both media and by people in everyday life.
- The number of single short queries like acronyms submitted to search engines has tripled in four years [2].

A paper investigating the ability of the acronyms of Hungarian institutions' names to find the home page of their own institutions when being used as queries in Web searching is timely and provides insight into the usefulness of acronyms on the Web. The significance of the evaluation is twofold; it is of value to Web users and providers alike.

2 Problem Statement

There are many studies on evaluating the effectiveness of Web search engines, for example [3, 4, 5, 6], to quote just a few. In addition, there are also many acronym finders on the Web (e.g., [7]), these are

not in Hungarian, and their primary aim is to give indications for possible meanings of an acronym. These are only used by a few people mainly because of language difficulties.

However, to the best of our knowledge, a practical study on the usefulness of institutions acronyms is lacking: is the acronym of an institution able to identify its own institution? Therefore, in [8] a method was developed and applied to the study of the usefulness of the acronyms of Hungarian institutions present on the Web. We investigated the ability of the acronyms of Hungarian institutions' names to find the home page of their own institutions when being used as queries in Web searching, i.e., the usefulness of acronyms.

We identified 114 institutions in Hungary that have acronyms and are present with their own Web site on the Web [9, 10, 11, 12, 13]. The acronyms of those Hungarian public institutions were selected that are turning up in the media most frequently, e.g. acronyms of state departments, ministries, financial institutions, public transportation companies, libraries, civil organizations, political parties, public health institutions etc. (cited later on as general acronyms). A list was compiled containing the full name, home page URL, and acronym for every institution. Table 2 shows a fraction of the list.

Table 2. Full name, home page URL, and acronym of general institutions in Hungary.

Full Name	Home Page URL	Acronym
Budapesti Közlekedési Vállalat	http://www.bkv.hu/	BKV
Magyar Energia Hivatal	http://www.eh.gov.hu/	MEH
Országos Meteorológiai Szolgálat	http://www.met.hu/	OMSZ
Országos Közoktatási Intézet	http://www.oki.hu/	OKI

The experiment was carried out during September–October 2002 by entering each acronym to each of the six search engines listed in Section 3.2, and evaluating the first ten hits according to usefulness measures as defined in [8] and recalled in Section 4. The results showed that the majority of acronyms are useful (58% of the acronyms have pseudo–precision greater than 0.5 but less than 1), a few are very useful (6% of the acronyms have pseudo–precision equals 1) and about 36% can hardly be judged as being useful (pseudo–precision is less than 0.5). In addition, the majority of the acronyms perform better in general search engines than in the Hungarian ones. Based on the results 34 acronyms were identified that can identify their institutions in Hungary. This is only 28% of the examined acronyms. It was assumed that an acronym can identify its institution if its pseudo–precision is greater than 0.8, i.e., at least five of the six search engines have found the desired institution's home page. However, an acronym is defined as useful if more than half of the search engines have found the desired home page using the acronym as query.

In this paper, based on earlier experience, the methodology from [8] is being made more exact, and, on the other hand, it will be applied to the study of the usefulness of higher educational acronyms (i.e., their ability to identify their own institution on the Web) and the results will be compared with our former results, i.e., with the usefulness of general acronyms. The working hypothesis is that higher educational institutions are more useful than acronyms in general (the working hypothesis is detailed in Section 3.1).

The rest of the paper is organized as follows. Section 3 describes the experiment, including the test data and the implemented evaluation method. Section 4 gives an overview over the implemented usefulness measures. Section 5 presents and discusses the results. Section 6 shows the conclusions and future work.

3 Experiment

The goal of the experiment is to evaluate the usefulness of acronyms of Hungarian higher educational institutions on the Web, i.e. the ability of the acronyms of Hungarian institutions' names to find the home page of their own institutions when being used as queries in Web searching. The experiment was as follows.

3.1 Evaluation of Higher Educational Acronyms

We identified 191 Hungarian higher educational institutions that have acronyms and are present with their own Web site on the Web [14, 15, 16]. The working hypothesis of this experiment was that at higher educational institutions there is a well skilled staff (professionals) responsible for the management of the Web site of the institution. Hence, it is assumed that these home pages have better Web page design. Consequently, these home pages should be easier found by Web search engines when the acronyms of higher educational institutions are used as queries, i.e. they are assumed to be more useful than acronyms in general. This experiment was carried out during March 2004 by entering each acronym to each of the six search engines and evaluating the first ten results according to usefulness measures of Section 4.

3.2 Experimental Settings

Six Web search engines were used to evaluate the usefulness of the acronyms. Table 3 presents the selected search engines.

Table 3. List of selected search engines: the first three are Hungarian search engines; the next three are general search engines.

Name of the Search Engine	URL of the Search Engine
Heuréka	http://www.heureka.hu
AltaVizsla	http://www.altavizsla.hu
Ariadnet	http://www.ariadnet.hu
Google	http://www.google.com
Metacrawler	http://www.metacrawler.com
AltaVista	http://www.altavista.com

Heuréka, AltaVizsla and Ariadnet are the most frequently used Hungarian search engines (they are hosted and operated in Hungary) in Hungary which primarily index and search Hungarian Web pages. They are preferred by most Hungarian users, who are lay people and have language difficulties when trying to use search engines in another language. However, three well-known general search engines (Google, Metacrawler, AltaVista) were also used because, on the one hand, they are preferred by the computing society, and, on the other hand, non-Hungarian speaking people might want to find out information on Hungarian institutions (for example, when they plan to travel to Hungary, or if they plan to study in Hungary, or if they live in Hungary).

In order to try to minimize biases (it is well known that biases, both conscious and unconscious, do affect any such test to a certain extent, and this cannot be totally excluded), exactly the same search expressions were entered to each of the search engines. This means that the searches were based on the exact official form of the acronyms. It was ignored whether search engines regard or disregard capitalization not to give advantage any of the search engines.

Only the first ten hits returned, i.e., the first page of hits, were evaluated for every acronym and search engine. The examination of the first ten hits is suggested because on the one hand it would be extremely time consuming to assess each page in the entire retrieved set, on the other hand because users typically do not examine more links. A paper [2] reported that the trend of viewing fewer pages of search results is going up.

A set of criteria was written down for categorizing the links. Every link was assigned to exactly one of the following three categories:

- *Category 1*: link to the home page of the institution. This is the Web page that is desired to be retrieved when the institution's acronym is used as query.
- *Category 2*: link to a page or site page (i.e., it is not the home page) that contains a site map or a navigational link to the home page.
- *Category 3*: irrelevant link. It is neither a link to the desired home page, nor a link to a page or site page that contains a site map or a navigational link to the home page.

Thus in the experiment some twelve thousand hits were examined because there were *Category 2* and *Category 3* links in the hit list as well. As the aim is to have a measure for the usefulness of acronyms rather than for search engine effectiveness, the following measures were used.

4 Measures

In the following, the measures that were defined in [8] and were used to evaluate the usefulness of the acronyms are presented.

4.1 Pseudo-Precision

For every acronym a , a measure called *pseudo-precision*, denoted by Π_a , was defined and calculated as follows:

$$\Pi_a = \frac{r_a}{N} \quad (1)$$

where N is the total number of search engines used ($N = 6$ in our experiment), and r_a is the number of search engines that retrieved a *Category 1* link (i.e. the home page of the desired institution). Pseudo-precision is defined as an analogue of the classical precision measure. It is defined as the proportion of search engines for which the acronym proves useful. The value of pseudo-precision is normalized. It has values between zero and one. The more search engines retrieve a home page, the most useful the acronym is.

4.2 Mean Reciprocal Rank

While pseudo-precision is a measure of the usefulness of an acronym, a more articulate and combined measure should give an indication of how easy it is for the user to get to the home page looked for from the hit list. Thus, another measure is defined and calculated as follows.

For every acronym a and every search engine i , a measure called *reciprocal rank*, denoted by RR_{ia} , was calculated first as follows:

$$RR_{ia} = \begin{cases} \frac{1}{r_{ia}} & \text{category1 link in position } r_{ia} \\ \frac{1}{\kappa \cdot r_{ia}} & \text{category2 link in position } r_{ia} \\ & \text{and no category1 link} \\ 0 & \text{no link in categories 1 or 2} \end{cases} \quad (2)$$

where r_{ia} is the rank of the home page for a in the hit list of search engine i and κ is a penalty factor. In our experiments, the rank is taken as being the sequence number of the link in the hit list, but it could also be taken as the relevance value, if this is known, of the link given by the search engine. The penalty factor is set to two in our experiments, but it could be taken as being equal to any other positive integer. The higher the reciprocal rank, the better the acronym, i.e. the higher the reciprocal rank, the easier it is for the user to get to the desired home page, i.e., the reciprocal rank and the number of links to be examined are inversely proportional with each other.

Because we want a measure for the usefulness degree of acronyms regardless of the search engines used an average reciprocal rank was also computed for every acronym a , called *mean reciprocal rank*, denoted by MRR_a , as follows:

$$MRR_a = \frac{1}{N} \sum_{i=1}^N RR_{ia} \quad (3)$$

where N is the number of search engines used.

5 Results and Discussion

5.1 Pseudo-Precision

Pseudo-precision of the acronyms was measured as the proportion of search engines for which the acronym proves useful, i.e., the proportion of search engines that found the desired home page. The more search engines retrieve a home page, the most useful the acronym is.

Fig. 1 shows a pseudo-precision histogram of general acronyms for all search engines. These figures were obtained during our previous experiment detailed in [8] and are discussed here as a comparison. It can be seen that the majority of acronyms are useful (pseudo-precision is more than 0.5 but less than 1); as perhaps expected, a few are very useful (pseudo-precision equals 1), and about 36% can hardly be judged as being useful (pseudo-precision is less than 0.5).

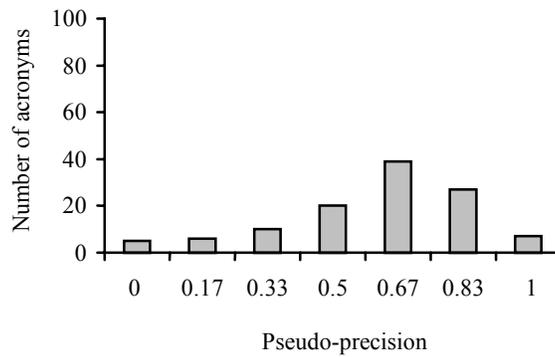


Fig. 1. Pseudo-precision histogram of general acronyms over all search engines.

In this experiment the pseudo-precision of higher educational institutions' acronyms were measured. Fig. 2 shows a Pseudo-precision histogram of acronyms of higher educational institutions for all search engines. It can be seen that the majority of acronyms are not so useful (74% of the acronyms have pseudo-precision less than 0.5), only a 6% are very useful (pseudo-precision equals 1), and about 38% cannot be judged as being useful (pseudo-precision equals 0).

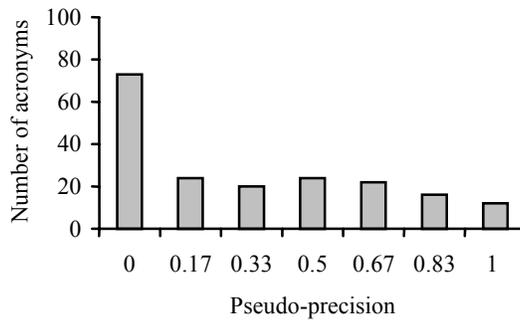


Fig. 2. Pseudo-precision histogram of higher educational acronyms over all search engines.

Table 4 compares the distribution of general and higher educational acronyms over usefulness categories. The usefulness categories are defined as follows:

- Not useful: pseudo-precision equals 0,
- Somewhat useful: $0 < \text{pseudo-precision} \leq 0.5$
- Useful: $0.5 < \text{pseudo-precision} < 1$,
- Very useful: pseudo-precision equals 1.

The categories were defined so that both the most promising and also the worst cases can be compared. The categories do cover the whole interval of pseudo-precision.

Table 4. Percentage of general and higher educational acronyms over usefulness categories.

	General acronyms	Higher educational acronyms
Not useful	4%	38%
Somewhat useful	32%	36%
Useful	58%	20%
Very useful	6%	6%

Only 6% of the acronyms are very useful in case of both general and higher educational acronyms. This means that only 6% of the desired home page was found by all the six search engines, when the institutions' acronym was used as query. The proportion of not useful acronyms differs significantly. 38% of the higher educational institutions' home page could not be found using their acronyms as queries in Web searching. This rate is only 4% in case of general acronyms.

Fig. 3 shows pseudo-precision histograms of general acronyms separately for Hungarian and general search engines. These figures also were obtained during our previous experiment detailed in [8] and are discussed here as a comparison. It can be seen that the majority of the acronyms perform better in general search engines than in the Hungarian ones. While the average pseudo-precision is 0.44 in Hungarian search engines; it is much higher, 0.78 in general search engines.

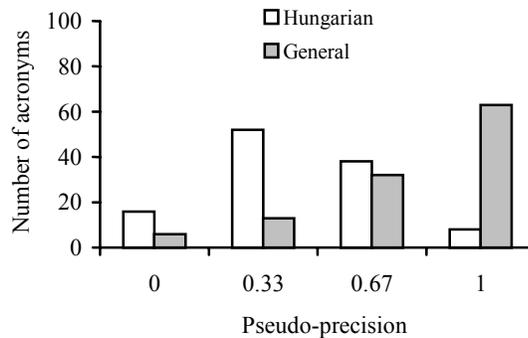


Fig.3. Pseudo-precision histogram of general acronyms separately for Hungarian and general search engines.

In this experiment the pseudo-precision of higher educational institutions' acronyms were measured. Fig. 4 shows pseudo-precision histograms of acronyms of higher educational institutions separately for Hungarian and general search engines.

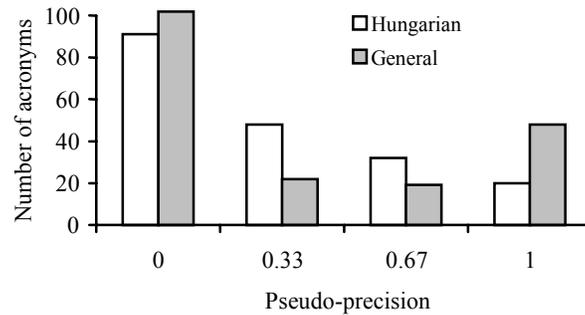


Fig. 4. Pseudo-precision histograms of higher educational acronyms separately for Hungarian and general search engines.

25% of the acronyms are very useful in general search engines, and 10% in Hungarian search engines. The average pseudo-precision is 0.3 in Hungarian search engines, and 0.36 in general search engines. The pseudo-precision regarding general search engines decreased by 40% relative to the general acronyms.

Table 5 compares the distribution of general and higher educational acronyms over the above defined usefulness categories separately for Hungarian and general search engines. It can be seen that both general and higher educational acronyms perform better in general search engines than in Hungarian ones.

Table 5. Percentage of general and higher educational acronyms over usefulness categories separately for Hungarian and general search engines.

	General acronyms		Higher educational acronyms	
	Hungarian search engines	General search engines	Hungarian search engines	General search engines
Not useful	14%	5%	48%	53%
Somewhat useful	46%	12%	17%	12%
Useful	33%	28%	25%	10%
Very useful	7%	55%	10%	25%

This result is perhaps unexpected on the one hand in that one would have thought that the acronyms of higher educational institutions perform similarly or better as those of general institutions. It is assumed that at higher educational institutions there is a well skilled staff (professionals) responsible for the management of the Web site of the institution. Hence, it is also assumed that these home pages have better Web page design. Consequently, these home pages should be easier found by Web search engines when the acronyms of higher educational institutions are used as queries, i.e. they are assumed to be more useful than acronyms in general.

On the other hand this result is unexpected in that one would have thought that the acronyms should perform well in Hungarian search engines as well, or better. The differences in performance of acronyms may be due to the fact that each individual search engine uses its own unique formula (algorithm) to index and rank Web sites, and the algorithms use various factors to rank pages in their search results. Search engines may provide basics of their indexing and page ranking policies, however the Hungarian search engines used do not provide the same.

5.2 Mean Reciprocal Rank

Mean Reciprocal Rank is a measure of how easy it is for the user to get to the home page looked for from the hit list.

The mean reciprocal rank histograms of acronyms of general institutions are recalled from [8] and are presented for comparison. The mean reciprocal rank histograms of acronyms of higher educational institutions are obtained in this experiment.

Fig. 5 shows the mean reciprocal rank histogram of acronyms of general institutions for all search engines.

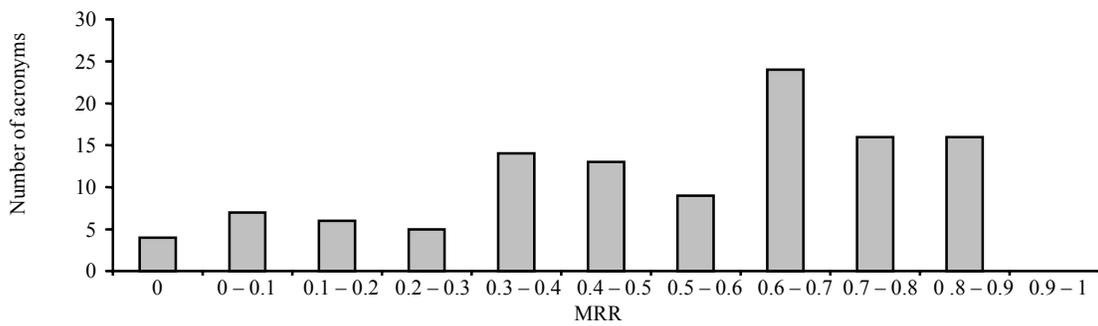


Fig. 5. Mean reciprocal rank histogram of general acronyms for all search engines. The intervals represented are half-closed, and only the upper endpoints are included.

Fig. 6 shows the mean reciprocal rank histogram of acronyms of higher educational institutions for all search engines.

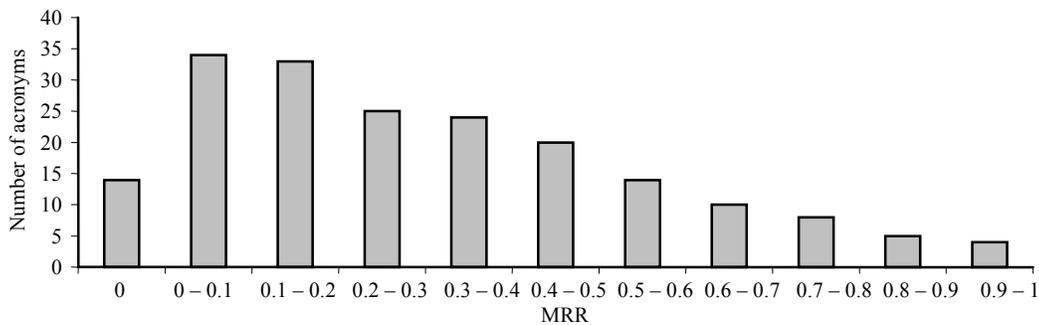


Fig. 6. Mean reciprocal rank histogram of higher educational acronyms for all search engines. The intervals represented are half-closed, and only the upper endpoints are included.

Table 6 shows the number and percentage of general and higher educational acronyms at different *MRR* intervals over all search engines respectively. The intervals represented in Table 6 are half-closed, and only the upper endpoints are included.

Table 6. The number and percentage of general and higher educational acronyms at different *MRR* intervals over all search engines. The intervals represented are half-closed, and only the upper endpoints are included.

<i>MRR</i>	Number of general acronyms	Percentage [%]	Number of higher educational acronyms	Percentage [%]
0	4	4	14	7
0–0.1	7	6	34	18
0.1–0.2	6	5	33	17
0.2–0.3	5	4	25	13
0.3–0.4	14	12	24	13
0.4–0.5	13	12	20	11
0.5–0.6	9	8	14	7
0.6–0.7	24	21	10	5
0.7–0.8	16	14	8	4
0.8–0.9	16	14	5	3
0.9–1	0	0	4	2

It can clearly be seen that, as expected on the basis of meta-precision, the degree of usefulness of about half of the general acronyms is much higher than that of higher educational ones in case of over all search engines. Interestingly enough none of the general institutions' home page was found and listed in the first position in the hit list by all the six search engines. However four of the higher educational institutions' home page was listed as 1st by all the six search engines.

Fig. 7 shows the mean reciprocal rank histogram of acronyms of general institutions for Hungarian search engines.

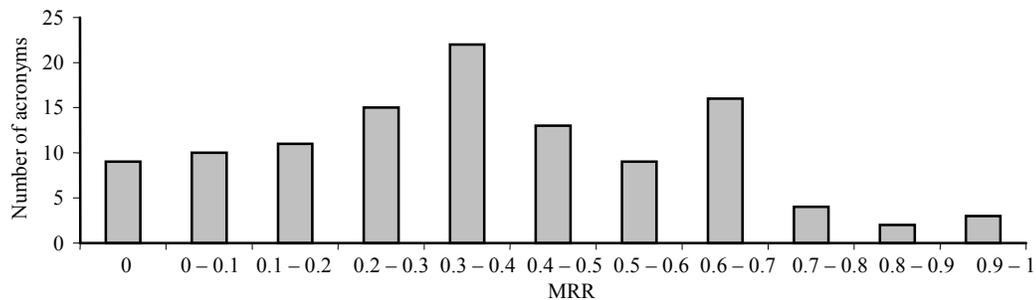


Fig. 7. Mean reciprocal rank histogram of general acronyms for Hungarian search engines. The intervals represented are half-closed, and only the upper endpoints are included.

Fig. 8 shows the mean reciprocal rank histogram of acronyms of higher educational institutions for Hungarian search engines.

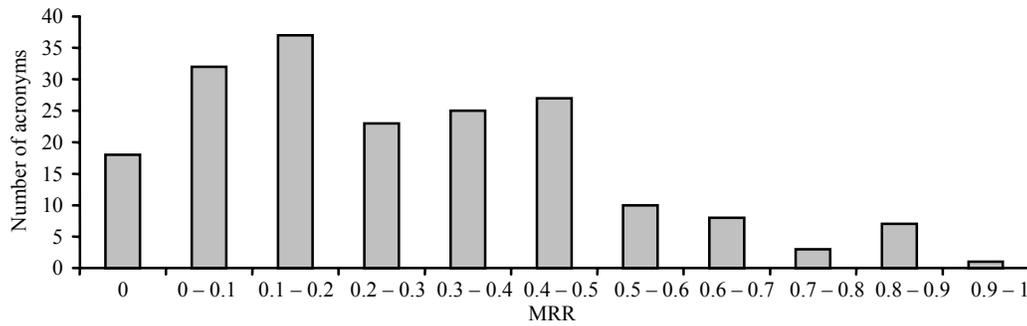


Fig. 8. Mean reciprocal rank histogram of higher educational acronyms for Hungarian search engines. The intervals represented are half-closed, and only the upper endpoints are included.

Table 7 shows the number and percentage of general and higher educational acronyms at different *MRR* intervals for Hungarian search engines respectively. The intervals represented in Table 7 are half-closed, and only the upper endpoints are included.

Table 7. The number and percentage of general and higher educational acronyms at different *MRR* intervals for Hungarian search engines. The intervals represented are half-closed, and only the upper endpoints are included.

<i>MRR</i>	Number of general acronyms	Percentage [%]	Number of higher educational acronyms	Percentage [%]
0	9	8	18	9
0-0.1	10	9	32	17
0.1-0.2	11	10	37	19
0.2-0.3	15	13	23	12
0.3-0.4	22	19	25	13
0.4-0.5	13	11	27	14
0.5-0.6	9	8	10	5
0.6-0.7	16	14	8	4
0.7-0.8	4	3	3	2
0.8-0.9	2	2	7	4
0.9-1	3	3	1	1

The results show that about 42% of general institutions' home page and 31% of higher educational institutions home page can easily be found (*MRR* is greater than 0.5) by users using their acronym as Web query in Hungarian search engines. General acronyms also perform better than higher educational acronyms in Hungarian search engines.

Fig. 9 shows the mean reciprocal rank histogram of acronyms of general institutions for general search engines.

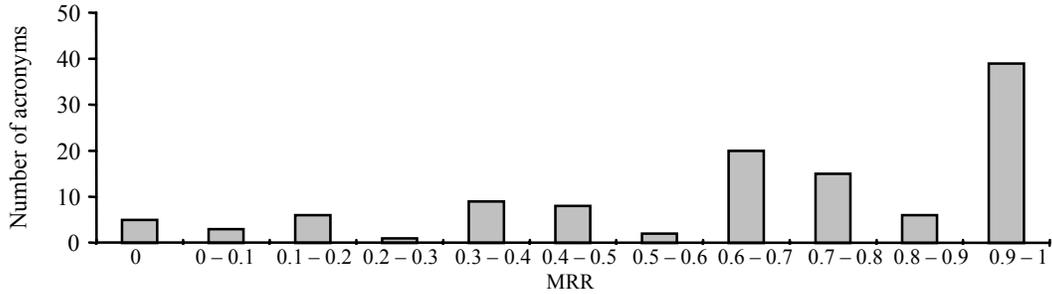


Fig. 9. Mean reciprocal rank histogram of general acronyms for general search engines. The intervals represented are half-closed, and only the upper endpoints are included.

Fig. 10 shows the mean reciprocal rank histogram of acronyms of higher educational institutions for general search engines.

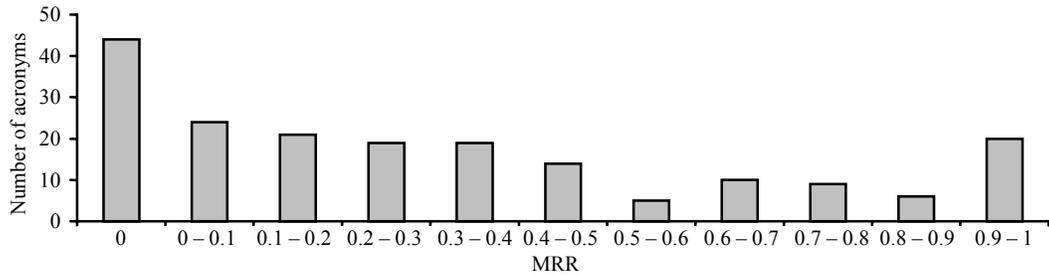


Fig. 10. Mean reciprocal rank histogram of higher educational acronyms for general search engines. The intervals represented are half-closed, and only the upper endpoints are included.

Table 8 shows the number and percentage of general and higher educational acronyms at different *MRR* intervals for general search engines respectively. The intervals represented in Table 8 are half-closed, and only the upper endpoints are included.

Table 8. The number and percentage of general and higher educational acronyms at different *MRR* intervals for general search engines. The intervals represented are half-closed, and only the upper endpoints are included.

<i>MRR</i>	Number of general acronyms	Percentage [%]	Number of higher educational acronyms	Percentage [%]
0	5	4	44	23
0-0.1	3	3	24	13
0.1-0.2	6	5	21	11
0.2-0.3	1	1	19	10
0.3-0.4	9	8	19	10
0.4-0.5	8	7	14	7
0.5-0.6	2	2	5	3
0.6-0.7	20	18	10	5
0.7-0.8	15	13	9	5
0.8-0.9	6	5	6	3
0.9-1	39	34	20	10

The results show that about 79% of general institutions' home page and only 33% of higher educational institutions home page can easily be found (MRR is greater than 0.5) by users using their acronym as Web query by general search engines. General acronyms also perform better than higher educational acronyms in general search engines.

It can clearly be seen that, as expected on the basis of pseudo-precision, the degree of usefulness of about half of the acronyms is low, however it is higher in general search engines than in Hungarian ones and also higher in case of general institutions than in higher educational ones. The desired institution cannot be found in 23% in general search engines and in 10% in Hungarian search engines at all using the acronyms. Only 0.5 % of the institutions' home page can easily be found by Hungarian search engines and 10% by general search engines.

Average values of the mean reciprocal ranks are shown in Table 9.

Table 9. Average mean reciprocal ranks.

	Average <i>MRR</i>	
	General institutions	Higher educational institutions
Over all search engines	0.53	0.3
Over Hungarian search engines	0.38	0.29
Over general search engines	0.68	0.33

It can be seen that the value of mean reciprocal rank of higher educational institutions' acronyms is less than that of general acronyms by 23% in all search engines, by 9% in Hungarian search engines, and by 35% in general search engines.

This poor performance of higher educational institutions' acronyms can be seen as a noteworthy situation. The causes of poor performance may be the same than that in case of general acronyms, namely the following two causes can be identified.

Poor Web page design of home pages and sites is one of the causes. Apart from content information (using the acronym as content or meta-data) also page-related factors (format, placement of the title tag, frequency of keywords etc.) and overall Web page design contribute to search engine ranking. The usage of title tags, fonts, character sizes, colors as well as of content need be considerably revised and improved by webmasters.

Another cause regarding general acronyms is that quite a few acronyms have multiple meanings. For example, the acronym MNB (which identifies the Hungarian National Bank) also stands for the following institutions:

- Magyar Nemzeti Bibliográfia
- Magyar Nemzeti Bizottság
- Moffat, Nichol & Bonney INC.
- Moody National Bank
- Malvern National Bank

which, due to a much better web page design, are retrieved more easily (ahead of the Hungarian MNB).

However, most Hungarian higher educational institutions have a unique acronym. This is because the acronyms for e.g. university faculties are composed of the acronym of the university name and of the acronym of the faculty name. Examples are presented in Table 10.

Table 10. Acronyms of Hungarian higher educational institutions (examples).

University	Faculty	Acronym
Veszprémi Egyetem	Műszaki Informatikai Kar	VE MIK
Szent István Egyetem	Gépészmérnöki Kar	SZIE GÉK
Szegedi Tudományegyetem	Bölcsészettudományi Kar	SZTE BTK

6 Conclusions and Future Work

The usefulness of the acronyms of Hungarian higher educational institutions to identify institutions was evaluated on the Web using Hungarian as well as general search engines. The usefulness of general acronyms was used as a comparison. The results show that the majority of the acronyms are not effective in identifying their institutions. This means that

- (i) they fail to fulfill their roles of identifying their institutions,
- (ii) webmasters should seek ways to improve on the situation by a more careful design of home pages taking into account the different ways in which different search engines index and rank Web pages.

The results are surprising to the affect that they refute the working hypothesis — formulated in Section 2 — that acronyms of higher educational institutions are more useful than acronyms of general institutions. It was assumed that higher educational institutions have well, or better designed home pages due to the fact that they usually employ professionals.

The method used in this paper is language independent, and it can be used for carrying out similar experiments in other countries, too. Considering the results of the experiment, it would be useful to apply this method to investigate the usefulness of several categories of institutions and also to repeat the experiment in other countries too, where acronyms are being used. The unexpected result raises several questions. Are also the acronyms of other institutions not useful? Is it (nearly) impossible to find an institution on the Web if only the acronym is known? These are relevant questions where acronyms of institutions' names are commonly and very often used in both media and by people in everyday life.

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