Effects of the Variety of Document Retrieval Methods on Interactive Information Access
-- An Experiment in the NTCIR-9 VisEx Task --

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Research Question
How do different document retrieval methods provided by an information access environment influence the results and process of interactive information access?

An Experiment in VisEx
Comparing the baseline system provided by the organizers with our experimental UTLIS system

The baseline system only provides a common keyword-based retrieval method.

The UTLIS system provides two retrieval methods in addition to keyword-based retrieval.

• Narrowing-down of obtained documents by specifying related place names and publication dates

• Similarity-based retrieval

Data Analysis

Report Analysis
No apparent difference between the baseline and the UTLIS system in the quantity of contents in the reports. The introduction of two additional document retrieval methods to the baseline did not make a large difference in retrieved articles.

Similarity to the baseline in terms of Retrieved Articles

<table>
<thead>
<tr>
<th>Event</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid</td>
<td>0.48</td>
<td>0.28</td>
<td>0.50</td>
<td>0.57</td>
<td>0.46</td>
</tr>
<tr>
<td>TMD011</td>
<td>0.44</td>
<td>0.41</td>
<td>0.70</td>
<td>0.75</td>
<td>0.57</td>
</tr>
<tr>
<td>UTLIS</td>
<td>0.54</td>
<td>0.28</td>
<td>0.67</td>
<td>0.67</td>
<td>0.54</td>
</tr>
<tr>
<td>Trend</td>
<td>0.76</td>
<td>0.60</td>
<td>0.20</td>
<td>0.70</td>
<td>0.56</td>
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<tr>
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<td>0.35</td>
<td>0.41</td>
<td>0.78</td>
<td>0.51</td>
</tr>
<tr>
<td>UTLIS</td>
<td>0.72</td>
<td>0.66</td>
<td>0.38</td>
<td>0.79</td>
<td>0.64</td>
</tr>
</tbody>
</table>

Cosine measures between sets of articles collected and referred to in the reports.

Log Record Analysis
No significant difference between the baseline and the UTLIS system in time periods spent for result list examination, editing and so on.

The distributions of retrieval related actions show large differences. The number of times of keyword-based retrieval and page moves are much smaller for the UTLIS system than for the baseline.

In the UTLIS system, narrowing-down is used in both subtasks, while similarity-based retrieval is used mainly for the event collection subtask.

Summary
• The additional document retrieval methods of narrowing-down and similarity-based retrieval were used as alternatives to keyword-based retrieval and sequential examination of result list pages.

• The functions were well accepted, but had little influence on the quantity and quality of information obtained.

• Narrowing-down supports a kind of systematic search in which the user sequentially checks articles obtained by keyword-based searches, according to the related place or date. It also encourage users to conduct such systematic searches.