**Introduction**

**Overall research issue**

How can the design of search result lists best support users’ search strategies?

**Fundamental question about search strategies**

In what order do users tend to look at the entries in a search result list?

**Strictly depth-first strategy**

The user examines each entry in the list in turn, starting from the top. She decides whether to open the document in question before looking at the next entry.

**(Partly) breadth-first strategy**

The user looks ahead ... to the end of the whole list ... or perhaps just a couple of entries. She then revisits the most promising entries to open the documents.

**Required methodology**

Eye tracking of users processing search result lists

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**Experiment 1**

**Subjects**

41 largely experienced web users

**Task**

Process a page of 25 search results returned by Google for the query “building blocks” (in German) assessment center. Goal: Acquire information to prepare for a visit to an assessment center. 

Time limit: 10 minutes

**Behavior recorded**

Mouse clicks and scrolling

Eye movements

**Equipment**

ASL S04 remote eye tracker

GazeTracker software

**Coding**

Based on video recordings with superimposed cross indicating point of gaze and on fixation plots (cf. the examples for Experiment 2)

**Three types of strategy distinguished**

- **No Looking Ahead**
- **Over Part of List**
- **Over Entire List**

**Explain the look-ahead index (Experiment 2)**

Each time a subject opened document M after having looked as far ahead as document N, \( N - M \) was added to her look-ahead index for the task in question.

Documents opened after the subject had reached the bottom of the search result list in a depth-first manner were not taken into account in the computation of this index.

**Experiment 2**

**Subjects**

27 largely experienced web users, not including any subjects from Experiment 1

**Task**

As in Experiment 1, except:

- Only 5 minutes per query
- Extra motivation for selective opening of documents:
  - Only 10 in all could be opened
  - For each relevant document opened, an extra reward of 10 Euro cents was paid
  - For each query, 12 or 13 documents were in fact relevant

**Coding**

More detailed coding method applied than in Experiment 1 (cf. graph for Experiment 2)

**Overall, a similar distribution of strategies**

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**Implications**

**Overall lesson**

The design of search result lists should take into account the fact that a minority of users may process the list in a partly or entirely breadth-first manner.

This strategy can be more effective than depth-first search where resource limitations encourage selective opening of documents.

E.g., long download times; monetary cost for each document

**Design issues raised**

How can search result pages be designed to facilitate ... remembering entries that have been looked at and (at least superficially) evaluated? ... switching attention quickly between entries?

**Solutions currently being investigated**

1. **Optional provision of check boxes** (or radio buttons ...)

   Cf. the screen shot on the right

   Well received by some subjects, especially those who applied a breadth-first strategy

2. **Design elements that make list entries more distinctive in short-term memory**

   E.g., colors, icons