A Ranking Method for Relaxed Queries in Book Search
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Background
- Book search situation
- Not sure about the title of the book
- Users only have vague memories of the stories

Why can't we find the target book?
2 types of query keywords missing in the description of the book in the book database
- Type 1: the short database description only includes very important keywords
- Type 2: keywords in the query are simply mistaken

Two-step ranking method

A sentence query from a user
In the book,
a boy makes paints with blue seeds.

Generate all subset queries
based on reliability of query words

Step 2: Rerank search results of each relaxed query

Original search result of query 1
1. Book A
2. Book B
3. Book C

Search result of query 1 reranked by M(D,W)
1. Book B
2. Book C
3. Book A

Step 1: Rank subset queries

M(D,W) is based on these two assumptions:
- If a word d in the book description is well-known, it is less likely to be mistaken.
- If a word d in the book description is as well-known as a word w in a original query, people are likely to mistake d for w.

We assume that a well-known word has a large number of its search result.

Experiment

We compared the rank of the target book of the 3 ranking methods:
- only Step 1
- only Step 2
- both Step 1 and Step 2 (proposed method)

The title of target books | only Step 1 | only Step 2 | both |
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Dwarfs in the house in the woods | 13 | 7 | 11 |
Treasure comparison | 211 | 235 | 207 |
When the Robbers Came to Cardamom Town | 677 | 256 | 462 |
Teacher’s report | 2 | 428 | 2 |
Terror video game | 81 | 89 | 77 |
Adventures of the Polar Cubs | 2 | 269 | 3 |
Seonggoeseogoe – An African Story | 120 | 125 | 76 |