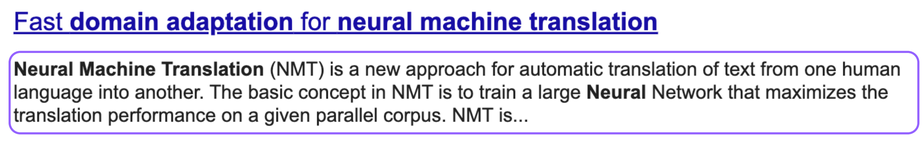
Search Result Presentation for Non-Native Language Documents

Tetsuya Sasaoka[1], Yoko Yamakata[2], Keishi Tajima[1]
[1]Kyoto University and [2]The University of Tokyo, Japan

1. Background

When users search for documents in non-native languages, reading **snippets in a non-native language** can be time-consuming and stressful, making it harder to quickly identify relevant documents.



snippets in a non-native language

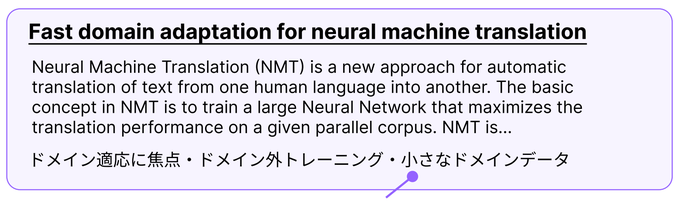
2. Proposed Solution

Search result presentation for helping **non-native language users** identify relevant documents.

(1) Machine Translation of Snippets

Machine Translation

(2) Keyphrases in the Native Language

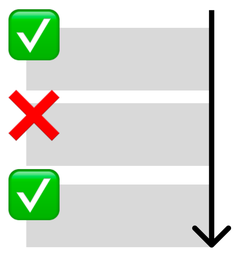


Document's Keyphrases

▶ Help users filter out irrelevant ones.

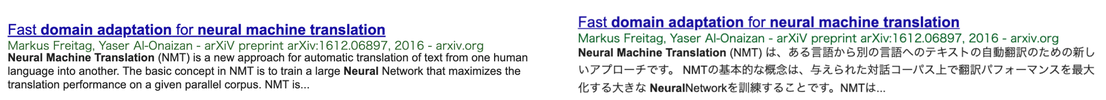
Steps to Find Relevant Documents

First:
Take a quick look at results to filter out obviously irrelevant ones



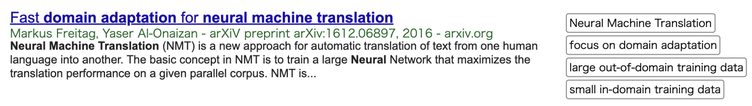
Second:
Read remaining potential relevant ones in detail

3. Evaluation Experiment

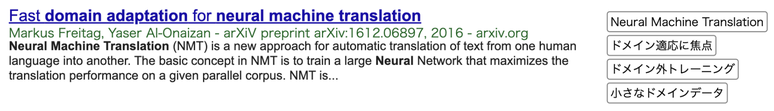


A: baseline

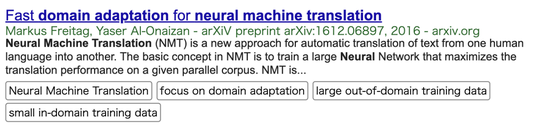
B: machine-translated snippet



C: keyphrases to the right



D: translated keyphrases to the right



E: keyphrases underneath

F: translated keyphrases underneath

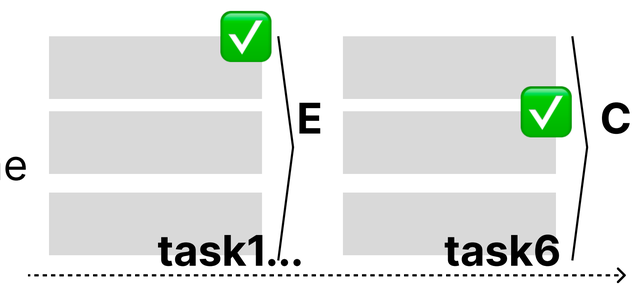
- Situation: Search for papers on certain topics
- Participants are shown the query and intent

Query
link prediction problem

Query Intent
link prediction in social network analysis

- Find a relevant paper from ten search results
- An interface changed in each task

Record
- the task completion time
- the average link clicks

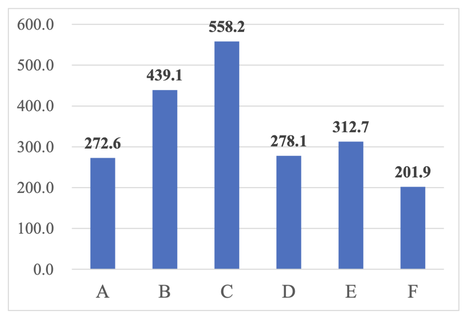


4. Result

the completion time

- F is the shortest
- B did not improve the efficiency

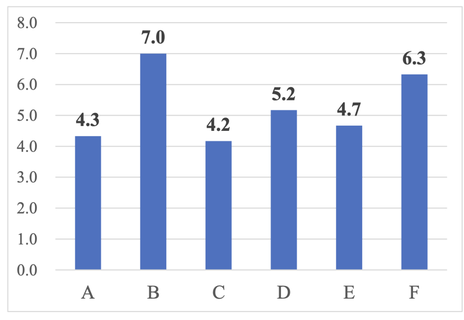
▶ Keyphrases in the users' native language help them quickly find relevant documents



the completion time

the average clicks

- The smaller number means that the participants could predict which results are relevant more accurately only from the search result display
- Participants accessed more documents with F than with A and E, despite F's shorter completion time.



the average clicks

▶ Keyphrases in participants' native languages did not enhance decision accuracy but made their decisions faster.

5. Conclusion

- We conducted an experiment where non-native users searched for academic papers in English.
- Results indicate that displaying keyphrases in the user's native language doesn't enhance relevance prediction accuracy but speeds up their decision-making, thereby reducing the overall task completion time.