

# Evaluation of machine translation quality in assimilation scenario for English-Kazakh and Kazakh-Russian language pairs

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# Scenarios for MT use

- 1) receiving a translation of source text, which (with possible post-editing) is suitable for publication (Dissemination);
- 2) receiving a translation of source text which, while not grammatically or stylistically correct, still allows a user to understand the essence of the original (Assimilation).

# Assimilation

- Quality requirements may be low.
- Translation should be at least understandable with a minimum volume of post-editing, or, preferably, without any post-editing.
- With assimilation, a user is not familiar with foreign text
- With dissemination, a user is an interpreter who knows a foreign/original language.

# Methods of MT evaluation in assimilation scenario

- Post-editing and comparison done by bilingual experts
- Multiple Choice Tests
- Gap Filling
- + some variations

# Gap Filling

- A number of keywords are removed from translation of sentence performed by human.
- The participants of test are asked to fill in the gaps with suitable words with or without the help of machine translation.
- The purpose of Gap Filling is to assess how well users understand key points in the text, that is an equivalent to answering questions about the text.
- This approach does not directly evaluate quality of translation done by machine translation

# Supporting data

- Source sentence.
- Machine translation of source sentence.
- There are 4 possible combinations:
  - Only the task (in target language) without supporting data
  - The task and source sentence
  - The task and machine translation
  - The task and both types of supporting data

# Words to be deleted

- Two parameters are considered:
  - list of parts of speech that can be deleted
  - number of gaps that depends on the length of the sentence.
- For evaluation one can use:
  - gaps density of 10%, 20% or 30%,
  - following parts of speech: nouns (including proper names), adjectives, adverbs, verbs.

# Description of the experiment

- A combination of a task and both supporting data types were used.
- MT System - Apertium and its language pairs.
- Participants were al-Farabi KazNU students of 2, 3, 4 year.
  - 60 people for the Kazakh-English pair
  - 80 people for the Russian-Kazakh pair
- Subjects areas of the tasks: news, fiction, educational literature, spoken language.
- All sentences were selected from parallel



# Example of a task

Original text	Machine Translation	Fill in Gaps
Азаматтарды шақыру учаскелеріне тіркеу тұрғылықты мекенжайы немесе уақытша болу орны бойынша жүргізіледі.	Citizens registration to draft offices is carried out according to permanent residency place or temporary stay.	Citizens registration to draft offices is _____ out according to permanent residency place or _____ stay.
сыбайлас жемқорлыққа қарсы күрес пен құқық бұзушылықтардың алдын алуға ерекше назар аударылатын болады	special attention will be paid to fight against corruption and prevention of crimes	special attention will be paid to fight _____ corruption and prevention of _____

# Results

English-Kazakh	Kazakh-English
62,8%	68,8%

Russian-Kazakh	Kazakh-Russian
76,3%	81,7%

# Remarks for the experiment

- Such assessment reflects the importance of MT's contribution to understanding the essence of the text well.
- Such experiment can be carried out for any language pair for different machine translation systems.
- The presence of parallel corpora greatly simplifies the preparation of tasks for such assessment.

Thank you for Your attention!