

# Automatization of subprocesses in subtitling

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## Abstract

There has been noticeable growth in the use of intralingual and interlingual subtitling due to technological advances and accessibility legislation. The process of subtitling, however, has yet to be thoroughly investigated with empirical methods. Given that subtitling is a complex task, interpreting keylogging and eye-tracking data in the overall process can be complicated. We therefore focus on the subprocesses involved in subtitling, i.e. transcription and translation of movie dialogue. With advancements in neural machine translation (NMT) especially with creative texts (Toral et al. 2018), research in this special field of translation becomes even more essential to find meaningful ways of improving subtitling processes and informing subtitling training. This development is focus of CompAsS (Computer-Assisted Subtitling), a project funded by the EU and managed by ZDF Digital and University of Mainz with the aim to improve current subtitling processes.

Within CompAsS an exploratory study was carried out where the transcription and translation processes of 13 professional subtitlers and 13 translation students were recorded. Participants performed eight intralingual and interlingual transcription tasks. Here we focus on the

results of the three post-editing tasks from Swedish via English (pivot language) into German. Participants post-edited three automatically translated German transcripts of three two-minute video snippets of a Swedish crime series. The Swedish transcripts were first machine translated from Swedish into English and after post-editing further machine translated into German. Participants had to post-edit under three different conditions: a) with access to the Swedish video and the post-edited English transcript, b) only with access to the Swedish video and c) without access to the video and only with the English transcript. For the NMT Google Translate was used. Participants had a translation brief to produce high quality transcripts of the dialogue in the videos; there was no time limit and participants were able to research online.

The tasks were recorded in Translog-II (Carl 2012) with a plugin for eyetracking which allows for a fine-grained analysis of activities such as revisions, and source and target text reading. In combination with screen recording and eyetracking it is possible to observe when and where participants look in the video or text, while producing the transcripts. Triangulating the data with questionnaire ratings, we observe the impact of access to the video and English relay transcript during post-editing of NMT regarding attention

distribution, technical and temporal effort. The results in terms of time and quality guide the conception of a new subtitling tool. For the analysis of effort, we use established measures based on gaze and typing data, and subjective ratings (de Sousa, Aziz & Specia, 2011; Vieira, 2016). Our hypotheses were that post-editing is faster than translation tasks from scratch and that access to the video is essential for the post-editing task even if the source language is unknown. The results will be presented with statistical analyses per participant group and condition and combined in linear mixed-effects models.

## References

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