PiPeNovel: Pilot on Post-editing Novels

Final report

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1 Introduction

PiPeNovel is a project funded by the European Association for Machine Translation through its 2015 sponsorship of activities programme. This document contains the final report of the project.

Machine translation (MT) has progressed enormously over the last years and it is widely used nowadays for gisting purposes. However, its use in professional translation is still largely confined to the post-editing of technical and legislative text. The aim of PiPeNovel is to carry out a pilot study to assess the feasibility of broadening the use of the post-editing workflow to literary text, in particular to novels.

PiPeNovel is timely given (i) the rise of a new paradigm to machine translation based on neural networks that results in more fluent and less literal output than previous models and (ii) the maturity of machine-assisted translation via post-editing in industry. The translation direction covered in the project is English-to-Catalan. The rest of the this document details the activities completed in the project and outlines avenues of future work.

2 Progress and Milestones Achieved in the Project

2.1 First Activity: Literary-adapted MT

The first activity of the project consisted of building a literary-adapted neural MT (NMT) system and evaluating it against a system pertaining to the previous dominant paradigm in MT: statistical phrase-based MT (PBSMT) (Toral and Way, 2018). Both systems were trained on over 1,000 novels. We conducted a human evaluation on three novels by Orwell, Rowling and Salinger; between 17% and 34% of the translations, depending on the book, produced by NMT (versus 8% and 20% with PBSMT) were perceived by native speakers of the target language to be of equivalent quality to translations produced by a professional human translator.

2.2 Second Activity: Post-editing Effort

In the second activity, using these MT systems, we conducted a post-editing study with six professional literary translators on a fantasy novel (Toral et al., 2018). We analysed temporal effort and found that both MT approaches result in increases in translation productivity: PBMT by 18%, and NMT by 36%. Post-editing also led to reductions in the number of keystrokes (technical effort): by 9% with PBMT, and by 23% with NMT. Finally, regarding cognitive effort, post-editing resulted in fewer (29% and 42% less with PBMT and NMT respectively) but longer pauses (14% and 25%).

2.3 Third Activity: Translators' Perceptions

Finally, we analysed the perceptions of the translators that took part in the post-editing experiment (Moorkens et al., 2018), which were collected via questionnaires and a debrief session. While, as stated before, all participants were faster when post-editing NMT, they all still stated a preference for translation from scratch, as they felt less constrained and could be more creative. When comparing MT systems, participants found NMT output to be more fluent and adequate.

3 Next Steps

PiPeNovel has built literary-adapted MT systems and has assessed to what extent they can be useful to assist professional literary translators by means of post-editing. We consider two future lines of work:

1. Evaluate the quality of the resulting post-edited translations. With remaining funds of the project we are currently conducting a rank-based evaluation in which we assess two dimensions: translation condition (from scratch vs post-editing) and translators.

2. Study the translation process of literary text with eye tracking. To this end, the first author will attend an upcoming training workshop in eye tracking for translation studies.[1]

The project will be presented with a poster at EAMT 2018 later this month.

Publications

- Moorkens, Joss, Antonio Toral, Sheila Castilho and Andy Way. 2018. Perceptions of Literary Post-editing using Statistical and Neural Machine Translation. Translation Spaces (under review).

- Toral, Antonio and Andy Way. 2018. What Level of Quality can Neural Machine Translation Attain on Literary Text? In Translation Quality Assessment. Springer (in press).

- Toral, Antonio, Martijn Wieling, and Andy Way. 2018. Post-editing Effort of a Novel with Statistical and Neural Machine Translation. Frontiers in Digital Humanities (in press).

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1 https://www.aston.ac.uk/lss/research/lss-research/clara-home/news-and-events/processing-eye-tracking-data-workshop/