

Translog-II: a Program for Recording User Activity Data for Empirical Reading and Writing Research

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Abstract

This paper presents a novel implementation of Translog-II. Translog-II is a Windows-oriented program to record and study reading and writing processes on a computer. In our research, it is an instrument to acquire objective, digital data of human translation processes. As their predecessors, Translog 2000 and Translog 2006, also Translog-II consists of two main components: *Translog-II Supervisor* and *Translog-II User*, which are used to create a project file, to run a text production experiments (a user reads, writes or translates a text) and to replay the session. Translog produces a log files which contains all user activity data of the reading, writing, or translation session, and which can be evaluated by external tools. While there is a large body of translation process research based on Translog, this paper gives an overview of the Translog-II functions and its data visualization options.

Keywords: Translation Process Research, Keyboard logging, Eyetracking

1. Introduction

Human translation process research analyses the translation behaviour of translators such as properties of reading and text production rhythms, mental memory and search strategies, types of textual units that translators focus on, etc. It investigates the temporal and contextual structure of those activities and describes inter- and intra personal variation in terms of translation competence and translation performance. In order to acquire objective data about human translation processes, the program Translog has been designed. Translog can be used to study translation processes, hence the name Translog, but it can be equally used for other kinds of computer-based reading or writing. Since its first conception in 1995, Translog has gone through several re-implementations. Right from its beginnings, Translog had two main components, originally called *Writelog* and *Translog*, (Schou et al 2009) the former component was designed for recording writing processes in time, while the latter component served for playback. These components are now referred to as the *Translog-User* and the *Translog-Supervisor* which are two interdependent programs. A major extension was introduced in the context of the EU project Eye-to-IT in 2006 when a new version *Translog-2006* could connect to eye-tracker through the GWM module (Sparkov, 2008) so as to record both, keyboard and gaze behaviour in time. Translog-2006 was a complete re-implementation in C#, supporting Unicode and XML. However, the communication with the eye tracker through GWM¹ turned out to be too inflexible and so a further development of Translog-II now communicates directly with the eyetracker. This paper describes the purpose and usage of the Translog-II software.

Similar programs such as ScriptLog (<http://www.scriptlog.net/demo.asp>), and InpuLog

(<http://www.inputlog.net/download.html>) are mainly intended for logging and analyzing writing processes, while Translog is specially designed for the acquisition of data for translation process research, and is widely used in the translation process research community. Schou et al (2009) count more than 80 publications making use of Translog, for translation process research of linguistic phenomena, (e.g. the translation of metaphors, cognates, idioms, etc.) as well as translator behaviour and cognitive processes (e.g. translator's awareness, memory constraints, (self)revision etc.), translation expertise, translation under time pressure, and machine translation post-editing. Translog is also used for translator training, teaching and learning purposes.

Translog-II records user activity data (UAD), that is, all the keystrokes and gaze movements (if an eye-tracker is connected). It classifies the keystroke data as 1) insertion, 2) deletion (delete and backspace), 3) navigation (cursor movements), 4) copy/cut-and-paste, 5) return key or 6) mouse operations. Since the keylogger runs in the background, the recording does not interfere with the writing or translation process. Translog-II logs the exact time at which each keystroke operation is made. If connected to an eye-tracker², Translog-II also records 7) gaze-sample points, 8) computes fixations (i.e. clusters of gaze-samples) and 9) mappings of fixations to the closest character on the screen. This latter operation performs a mapping from the spacial location of the gaze on the screen to a character offset in the text. That is, an X/Y coordinate of a fixation center is mapped onto a character position of the text that is being looked at. Since there is some noise in the recordings of gaze-sample points, the representation in the log file is such that fixations and to a certain extent also mappings can be re-computed offline. The gaze and the keystroke information can then be

¹ which were Borland C++ implementations communicating with Translog through COM`

² Currently connection to Tobii eye tracker is supported, but other interfaces are planned.

