ride. A review journal for digital editions and resources

published by the IDE

Tustep. Review of the Tübinger System von Textverarbeitungs-Programmen

Tustep - Tübinger System von Textverarbeitungs-Programmen, ITUG e. V. (ed.), 2018. https://www.tustep.uni-tuebingen.de/ (Last Accessed: 01.10.2019). Reviewed by Christian Griesinger (University of Wuppertal), griesinger@uni-wuppertal.de.

Abstract

This review deals with the Tübinger System von Textverarbeitungs-Programmen called TUSTEP. It describes some of the principal functions of TUSTEP, outlines sample use cases and shows benefits and downsides. While TUSTEP is one of the oldest and long-lasting applications in the area of text processing, its flexibility and functional scope make it worth to consider for present and future scientific projects dealing with text edition, manipulation and publishing.

General introduction

1 TUSTEP is a software toolbox or environment designed for the Digital Humanities. It has been under constant development since 1966, bearing the name of TUSTEP since 1978. It was located at the Zentrum für Datenverarbeitung (ZDV) of the University of Tübingen until 2003 and is since then the responsibility of the International TUSTEP User Group (ITUG).[1]

2 The program authors, Wilhelm Ott and Kuno Schälkle, still update and develop the program, issuing a new version approximately each year. TUSTEP 2018 is the latest stable version for production at the moment.

3 This version and older versions may be downloaded, installed and used for free. They are compatible with Windows, Linux and Mac operating systems and I found the installation to be straightforward.[2] This review is based upon the Windows version.[3] On Windows, it is sufficient to open the installation file and choose a folder for installation. It is recommended to additionally install GhostScript and/or GhostView[4] because Windows and TUSTEP do not have a native support for Postscript-files (.ps) and these are mandatory when it comes to typesetting. For MAC and Linux, this step is usually not necessary.

4 While TUSTEP is normally installed on a personal computer, it is also possible to run it on a Linux Server and there have even been successful experiments to run the software on Raspberry Pis.[5] The whole source code is provided in open access and may be modified and compiled under a BSD-license.

5 Being a software toolbox, TUSTEP does not have a single purpose, functionality or area of application – except that it is designed to work with texts. As will be explained in more detail in the next section, TUSTEP consists of a variety of modules, each of which being designed for its specific task. Those modules can be combined almost freely by the user to create very complex workflows, so that the program suits the users' individual needs. With regard to digital scholarly editions, TUSTEP supports all steps of a typical editorial workflow: From transcription to collation, from the constitution of critical texts with up to nine apparatus levels to the creation of indices and concordances, from professional typesetting to converting a text into any desired plain text file format.

What is TUSTEP capable of

6 As said above, TUSTEP consists of individual modules also referred to as commands. There are currently 54 commands in TUSTEP. Each has a German and an alternative English alias that consists of a leading "#", the command name and a variable number of parameters. For example, there is a command for copying the contents of one file into another. The name of this command is `#KOPIERE` (or `#COPY` in English). As shown below, it has a few comma separated parameters: "quelle" (source) and "ziel" (destination) ask for filenames, "modus" (mode) and "loeschen" (delete) ask in a short notation ("+" for yes, "-" for no) whether the line numbers of the file should be recounted or the destination file overwritten:

```
#KOPIERE,
quelle = file_a,
ziel = file_b,
modus = +,
loeschen = +
```

Code 1

7 The order of the parameters can be altered if one wishes to, but there is a standard order. TUSTEP comes with a command-line based user interface which is described in more detail below. The user tells TUSTEP the commands to be executed by typing them into the command line. In order to save a lot of typing, any command may be abbreviated after the second letter at the latest and all parameters names may be omitted if the standard order is observed. The above command may also look like this:

```
#KO, file_a, file_b, +, +
```

Code 2

8 Both notations do the same thing: Copy the contents of "file_a" into "file_b", recount the line numbers and overwrite the former contents of "file_b". It is possible to combine the short hand notation with the full notation.

9 One benefit of TUSTEP lies in the extensive functionality of its commands. While copying a file, the user may simultaneously want to manipulate the contents of that file. Let’s suppose, there is a certain XML or SGML tagset in "file_a" that should be converted to TEI-XML. The command accepts additional parameters (here between "*" and "*eof" – eof standing for "end of file"):

```
#KOPIERE, file_a, file_b, +, +, parameter = *
XX |<Name>|<persName>|
XX |</Name>|</persName>|
*eof
```

Code 3

10 The parameter "XX" exchanges strings with other strings. It also accepts string patterns, so it is possible to compress these two lines of parameters into one by making the backslash optional.[6] But this is not the only possible parameter. There are dozens for #KOPIERE that can be combined. One of them, for example, selects only lines in a file which meet certain criteria (e. g. contain a specific string), exchanges some parts of that string, adds consecutive numbers at the beginning of the line and introduces some tags. By this procedure, it would be easy to search for strings in a text and give all search results back as a numbered result set in XML, HTML or any other text format – perhaps you need a comma separated list to use in Excel or to import into a SQL-Database? That would be no problem.

11 Aside from #KOPIERE, TUSTEP contains a variety of commands for editing a text (#EDIERE), indexing a text (#RVORBREITE – prepare a registry by breaking down the texts into tokens, #SORTIERE – sort the tokens by any alphabetical or numerical order and #RAUFBEREITE – sum up the tokens into the registry entries with or without references), comparing two or more texts with each other (#VERGLEICHE and #VAUFBEREITE) or typeset a text (#SATZ). In digital scholarly editions, these are all very important features. Some of them will be discussed here below.

12 #EDIERE opens a text editor in which the user can edit a text file with up to 2 Gigabyte size. TUSTEP opens a file of this size in the same amount of time as a file of one kilobyte. While editors in office suits (Microsoft Word, Libre Office Writer etc.) and many programming editors (like Notepad++, Oxygen XML Editor) load the whole file at once, TUSTEP only loads as many lines as fit on the screen. The user can navigate "screen by screen" or jump to any particular part of that file without losing much time on scrolling or buffering the whole file. The editor comes with a pattern matching syntax (similar to regular expressions) in order to search for inflection forms or suffixes. It supports individual shortcuts, syntax highlighting and has the ability to perform user defined macros.

13 #VERGLEICHE can perform a comparison of multiple texts, as many as the user wants, by comparing each text with a base text. #VAUFBEREITE generates a formatted list of the differences between these texts. These two commands can be used for collating text witnesses, or to compare the changes made in previous working sessions – which is very useful when it comes to correcting. By adding parameters, it is possible to specify for every single comparison what is considered to be important or unimportant.

14 Automatically creating indices with #RVORBEREITE, #SORTIERE and #RAUFBEREITE is important for checking an edited text in search of errors or to create registers of persons and places. The fact that the creation of indices is broken down into three separate steps makes it very flexible. In every step, parameters can be added that, for instance, control which parts of a text are indexed, how the word forms are sorted and how they are summarized.

15 Finally, one of the most important features in TUSTEP is #SATZ, which enables to professionally typeset texts with or without footnotes, critical apparatus, illustrations, and thus prepare them for publication. In a review, it would be impossible to give a comprehensive description of this module alone, but at least I want to give an impression of its features. In the TUSTEP handbook, over 200 pages are dedicated to describe the functional scope of #SATZ, which includes native support for many alphabets like Latin, Greek, Coptic, Hebrew, Arabian or Russian, and give, for instance, the possibility to place any arbitrary superscript or subscript letter over or under another one.[7]

16 While it is nice to have a separate command for each purpose, research projects and especially editorial enterprises need more complex workflows, in which many steps have to be executed successively. So it would be very uncomfortable to type in the commands every time. In TUSTEP, the user can therefore create her/his own workflows by writing the commands needed into a temporary or permanent file and execute this file over and over again. This gives the ability to the user to create a customized program. It is also possible to execute such a file with variables to adapt the program at each execution. The user may furthermore save the interim results or create protocols for every step to analyze them later. A sample program may look like this (I have omitted all specifications just to show the concept). My comments are behind the two slashes:

```
#UMWANDLE, ... // Import an .xml-file into a TUSTEP file
#KOPIERE, ... // Copy the text of this file into another one while
manipulating it
#SATZ, ... // Typeset the manipulated text, in order to have page and line
numbers
#RVORBEREITE, ... // Break down the formatted text into tokens
#SORTIERE, ... // Sort the tokens
#RAUFBEREITE, ... // Create a register with the page and line numbers from
#SATZ
```

```
#KOPIERE, ... // Copy the register underneath the text
#SATZ, ... // Typeset text and register together
#*PSAUS, ... // Output both to Postscript, in order to send to a publisher a
.ps-file
#KOPIERE, ... // Copy both texts again, enriching them with HTML-tags for
digital publication
#DATEI, ... // Create a new file, for example an .html-file
#UMWANDLE, ... // Write the contents with HTML-tags into this file
```

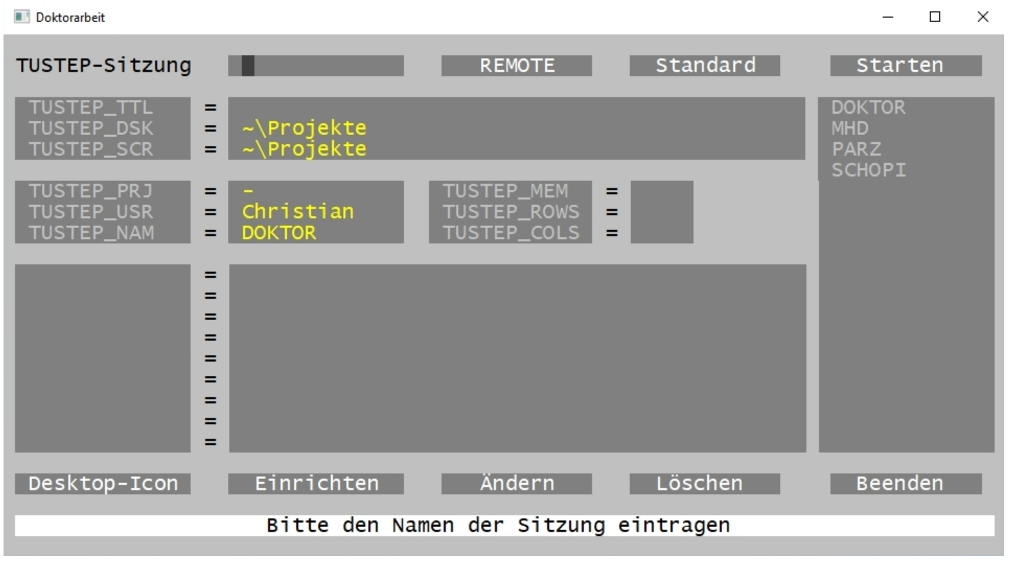
Code 4

17 TUSTEP is also equipped with a modern scripting language called TUSCRIPT. After writing TUSTEP-commands into a file, it is possible to control the workflow with structures from TUSCRIPT, like if-then-queries, loops and a variety of predefined functions. The scripting language allows to largely automatize the workflows.

18 But what is more important: TUSTEP gives to the user the possibility to create new and more complex tools (i. e. new programs) out of the pieces of software in the toolbox. Hence the true power of TUSTEP does not lie in the functionality of its single components, but in their flexibility and the possibility to combine them as needed to find customized solutions for specific and new problems. It is a major feature of TUSTEP that the user is able to import and export their data or edition materials at any time from and into any plain text format with any desired markup (for example custom XML or TEI-XML). Hence, the results of a TUSTEP based workflow can be processed further in other applications, and vice versa results from other applications can be processed with TUSTEP.

19 While many applications work with a specific markup, for example XML-tags, TUSTEP does not need a fixed markup, except when it comes to typesetting. When typesetting a text with #SATZ, the typesetting engine needs specific control instructions. But the user can tell #SATZ which elements of the markup should be converted into which control instructions.

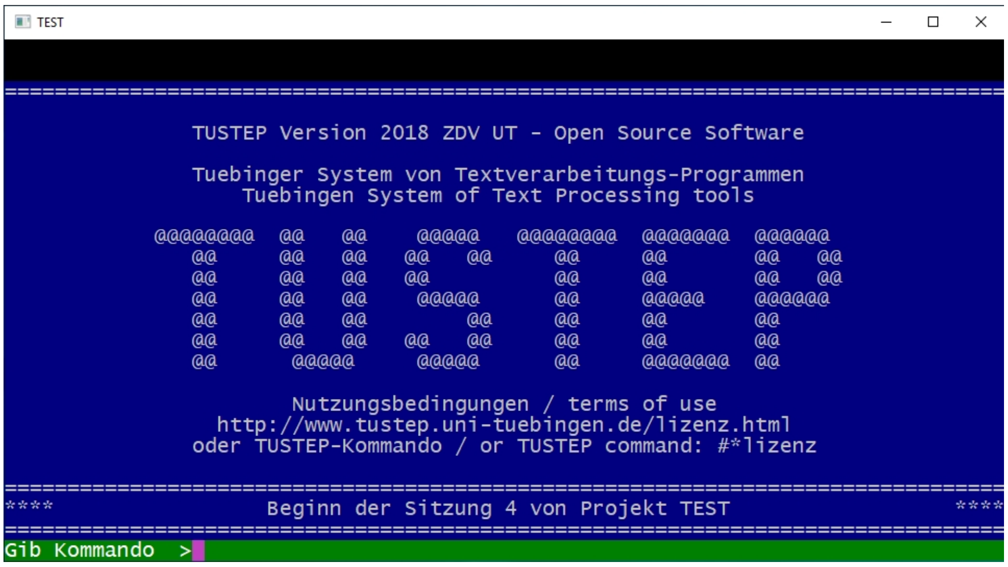
How to work with TUSTEP



```
Doktorarbeit

TUSTEP-Sitzung                      REMOTE     Standard     Starten

TUSTEP_TTL   =                                               DOKTOR
TUSTEP_DSK   =  ~\Projekte                                   MHD
TUSTEP_SCR   =  ~\Projekte                                   PARZ
                                                             SCHOPI
TUSTEP_PRJ   =  -            TUSTEP_MEM   =
TUSTEP_USR   =  Christian    TUSTEP_ROWS  =
TUSTEP_NAM   =  DOKTOR       TUSTEP_COLS  =

Desktop-Icon    Einrichten   Ändern     Löschen      Beenden

                Bitte den Namen der Sitzung eintragen
```

Fig. 1: TUSTEP starting screen to create a session.

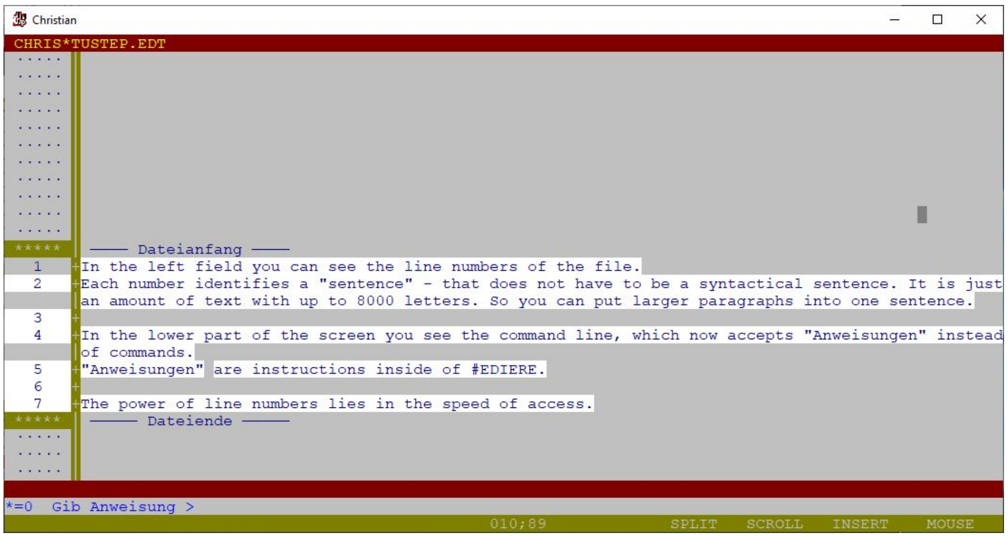
20 When starting the program for the first time, the screen leads the user to a menu (see Fig. 1) for creating a "Sitzung" (session). A session – one may think of as the project's default directory or root directory on the user hard drive – is a security concept and one that forces to keep order in the files. All files of a project have to be in this directory (or in sub-directories) to enable access to a TUSTEP session.[8] A session stores much information about actions in temporal files (for example the last commands typed, the last files opened, the individual shortcuts chosen for this particular project) – but it will never send this or any other information automatically over the internet.[9] Thus it is not only recommended but safe to create a session for each project one is working on. With the creation of a session, it is also possible create a desktop icon, that would start that particular session.



```
TEST
================================================================================

           TUSTEP Version 2018 ZDV UT - Open Source Software

           Tuebinger System von Textverarbeitungs-Programmen
               Tuebingen System of Text Processing tools

        @@@@@@@@  @@   @@    @@@@@   @@@@@@@@  @@@@@@@  @@@@@@
           @@     @@   @@  @@   @@      @@     @@       @@   @@
           @@     @@   @@  @@           @@     @@       @@   @@
           @@     @@   @@    @@@@@      @@     @@@@@    @@@@@@
           @@     @@   @@         @@    @@     @@       @@
           @@     @@   @@  @@   @@      @@     @@       @@
           @@      @@@@@     @@@@@      @@     @@@@@@@  @@

               Nutzungsbedingungen / terms of use
          http://www.tustep.uni-tuebingen.de/lizenz.html
           oder TUSTEP-Kommando / or TUSTEP command: #*lizenz

================================================================================
****                Beginn der Sitzung 4 von Projekt TEST                  ****
================================================================================
Gib Kommando  >
```

Fig. 2: Starting screen of the session.

21 Once TUSTEP is open with a session, the starting screen (see Fig. 2) pops up showing the command line at the bottom where the user can enter commands directly. In the blue field above, TUSTEP gives information about the program version and feedback on the commands entered. This includes error messages and notifications of success.



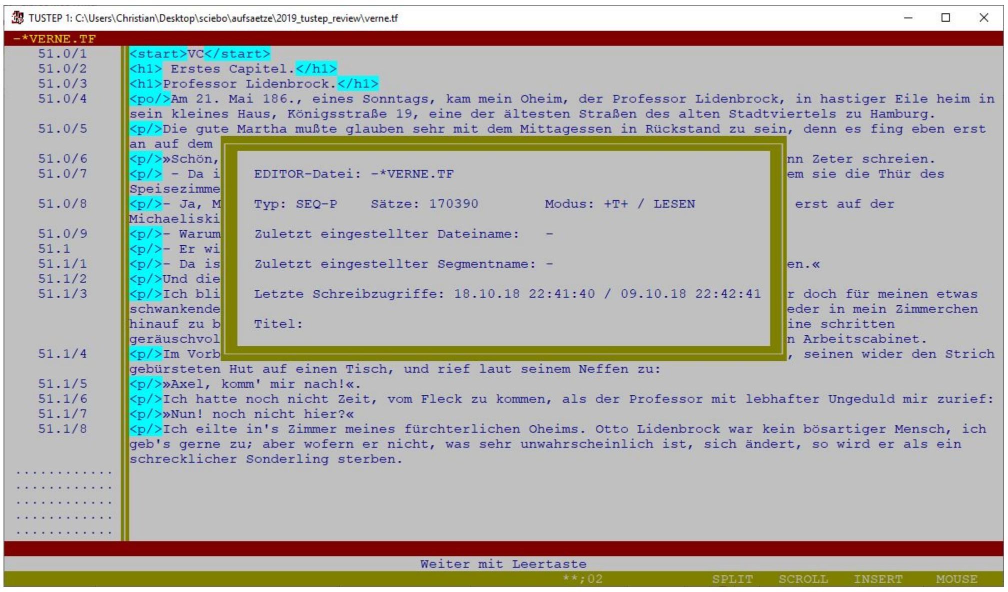
```
Christian
CHRIS*TUSTEP.EDT
 .....
 .....
 .....
 .....
 .....
 .....
 .....
 .....
 .....
 .....
 .....
 *****    ——— Dateianfang ———
   1    +In the left field you can see the line numbers of the file.
   2    +Each number identifies a "sentence" - that does not have to be a syntactical sentence. It is just
         an amount of text with up to 8000 letters. So you can put larger paragraphs into one sentence.
   3    +
   4    +In the lower part of the screen you see the command line, which now accepts "Anweisungen" instead
         of commands.
   5    +"Anweisungen" are instructions inside of #EDIERE.
   6    +
   7    +The power of line numbers lies in the speed of access.
 *****    ——— Dateiende ———
 .....
 .....
 .....

*=0  Gib Anweisung >
                                       010;89          SPLIT   SCROLL   INSERT    MOUSE
```

Fig. 3: The TUSTEP editor.

22 If the user types the command #EDIERE (or #e in short) into the command line and hits enter, the TUSTEP editor opens an empty file. The editor screen has three main parts (as shown in Fig. 3): A field for the line numbers on the left, a text field on the right and a command line at the bottom. While in many editors (like Oxygen XML editor or Notepad++) line numbers are just for display and are not an essential part of the file itself, TUSTEP's own file format saves the line numbers inside the file. That is why it is

necessary to import .xml or .txt or .rtf files into TUSTEP by converting them into the TUSTEP file format and exporting TUSTEP files back to other file formats: This adds (or eliminates) the line numbers which guarantee fast access to the file (as mentioned in the above section) and enable TUSTEP to load a reduced number of lines.

23 The line numbers can also be used to imitate simple text structures. Three levels of line numbers are accepted, such as 200.098/54. This number can be interpreted as page number 200 and line number 98 referring to a printed book, with a third additional number for editorial additions like apparatus entries or notes on the text of the line.



```
TUSTEP 1: C:\Users\Christian\Desktop\sciebo\aufsaetze\2019_tustep_review\verne.tf
-*VERNE.TF
   51.0/1     <start>VC</start>
   51.0/2     <h1> Erstes Capitel.</h1>
   51.0/3     <h1>Professor Lidenbrock.</h1>
   51.0/4     <po/>Am 21. Mai 186., eines Sonntags, kam mein Oheim, der Professor Lidenbrock, in hastiger Eile heim in
              sein kleines Haus, Königsstraße 19, eine der ältesten Straßen des alten Stadtviertels zu Hamburg.
   51.0/5     <p/>Die gute Martha mußte glauben sehr mit dem Mittagessen in Rückstand zu sein, denn es fing eben erst
              an auf dem
   51.0/6     <p/>»Schön,                                                                   nn Zeter schreien.
   51.0/7     <p/> - Da i   EDITOR-Datei: -*VERNE.TF                                        em sie die Thür des
              Speisezimme
   51.0/8     <p/>- Ja, M   Typ: SEQ-P    Sätze: 170390        Modus: +T+ / LESEN            erst auf der
              Michaeliski
   51.0/9     <p/>- Warum   Zuletzt eingestellter Dateiname:   -
   51.1       <p/>- Er wi
   51.1/1     <p/>- Da is   Zuletzt eingestellter Segmentname: -                            en.«
   51.1/2     <p/>Und die
   51.1/3     <p/>Ich bli   Letzte Schreibzugriffe: 18.10.18 22:41:40 / 09.10.18 22:42:41   r doch für meinen etwas
              schwankende                                                                   eder in mein Zimmerchen
              hinauf zu b   Titel:                                                          ine schritten
              geräuschvol                                                                   n Arbeitscabinet.
   51.1/4     <p/>Im Vorb                                                                   , seinen wider den Strich
              gebürsteten Hut auf einen Tisch, und rief laut seinem Neffen zu:
   51.1/5     <p/>»Axel, komm' mir nach!«.
   51.1/6     <p/>Ich hatte noch nicht Zeit, vom Fleck zu kommen, als der Professor mit lebhafter Ungeduld mir zurief:
   51.1/7     <p/>»Nun! noch nicht hier?«
   51.1/8     <p/>Ich eilte in's Zimmer meines fürchterlichen Oheims. Otto Lidenbrock war kein bösartiger Mensch, ich
              geb's gerne zu; aber wofern er nicht, was sehr unwahrscheinlich ist, sich ändert, so wird er als ein
              schrecklicher Sonderling sterben.
 ...........
 ...........
 ...........
 ...........
 ...........

                                  Weiter mit Leertaste
                                          **;02             SPLIT    SCROLL    INSERT    MOUSE
```

Fig. 4: A TUSTEP file containing all of Jules Verne's novels.

24 It is also possible to have a text collection in one file, for example all novels written by Jules Verne, which are differentiated by the first number. In this way, the user would have easy access to each novel whilst having the possibility to search and edit all novels at once. Fig. 4 shows the beginning of Jules Verne's *Reise zum Mittelpunkt der Erde* which is in this collection the 51st text, having line numbers beginning with the number 51. An information window showing the number of sentences in the file, among other information, is available. All novels by Jules Verne consume about 80 MB of hard drive space.

What are the downsides of TUSTEP

25 Since the software originally dates from the 1960s and the 1970s where mouse and touch screen were not common or even invented and screens had little resolution,

TUSTEP has a concept of usage that is not very intuitive to those who got to know modern graphical user interfaces first. It takes some time to get used to the TUSTEP way of using a computer program. The method of entering commands, via command-line and not having drop-down menus, is in itself useful – I believe one could enter commands faster using the keyboard instead of using a mouse –, but it forces the users to rethink their habits to operate an application.

26 As TUSTEP is a professional tool with numerous functionalities, it is not easy to use. The learning curve is quite steep at the beginning: Some weeks or even months are needed until working with TUSTEP takes up speed and one becomes familiar with all important functions. Furthermore, the technology used is TUSTEP-specific, thus the skills aquired cannot be reused in a different environment, unlike standards such as XQuery or XPath. On the other hand, within TUSTEP, once the user has learnt enough s/he can apply her or his knowledge to many projects, saving time. Also, with the skills to create, edit, analyze and typeset texts, one becomes less dependent on the skills of other persons.

27 Another downside is that there are some peculiarities in TUSTEP. For example, file names may be only up to 12 characters long (plus up to four characters in the file extension). If the user wants to use longer file names, s/he has to either rename the files or use a workaround by defining the longer file names as variables known to the session, in order to use the variable names instead of the file names. This and other peculiarities are part of the inheritance of the program's long history, which makes them understandable: but perhaps it is time to rethink these parts of TUSTEP for the future.

Where to find help

28 Due to the complexity of TUSTEP, it is recommended that beginners take an introductory course. The ITUG homepage informs about courses held at different universities in Germany, Switzerland and Austria. There is also the possibility to take a course within the scope of the annual ITUG conference.

29 Apart from that, there is a TUSTEP wiki[10] where beginners and advanced users find tutorials, help for troubleshooting and a series of sample programs for common problems. This is a good starting point, but if the tips in the wiki are insufficient to help you out, one can ask questions on the TUSTEP mailing list.[11] In my experience, answers arrive within 24 hours and they normally solve the problem directly or give enough hints

to find a solution. Although the TUSTEP community is quite small in comparison to other users software communities, I find it to be helpful, friendly and understanding; even the program authors will respond, particularly if the problem might indicate a bug.

30 As mentioned before, there is a handbook coming with each version of TUSTEP lying in the installation folder. The handbook offers a complete description of TUSTEP's features, but its terminology is quite abstract and it takes some time to get used to it. The time is not wasted though, because it gives an exhaustive overview of the functionalities and the parameters. Unfortunately, there is no up-to-date introduction in the form of a monograph.[12]

31 Now, who uses TUSTEP? Over the decades many editorial projects have relied on the program. A list of ongoing and finished projects is available on the ITUG homepage;[13] while this list is by far not comprehensive, it gives an impression of the variety of scientific contexts TUSTEP is used in.

Conclusion

32 TUSTEP is one of the oldest programs still in use in the Digital Humanities: it proves that software can survive more than just one decade. Many programs have come and gone in the time TUSTEP is around. Especially in the last few years so much software in the Digital Humanities has been developed and is in part already forgotten, because a new standard was introduced making the software obsolete, or a new version of an operating system was published and the software could not be run anymore, or a newer software was more powerful, so users had no need to use the older software.

33 The fact that TUSTEP has survived since the 1960s may be an indication that the software is still powerful and competitive, and that it successfully runs on different platforms. Indeed, TUSTEP files from the past on a magnetic tape would still be readable by TUSTEP 2018 – provided that you had a device that could still read a magnetic tape. So one may state that TUSTEP itself is sustainable and the developers have always tried to make the application compatible from one version to another.

34 Even though some parts of TUSTEP have aged and could be renewed in the future, like the built-in text editor (that is one of 54 commands), in my opinion TUSTEP is worth being considered in new scientific projects dealing with texts or text editions. Because of the possibility to easily convert from and into different file formats, TUSTEP

can also be used in combination with other software in a complementary and modular manner.

Notes

1. Cf. the ITUG homepage https://web.archive.org/web/20190919092455/http://www.itug.de.

2. Cf. the TUSTEP homepage https://web.archive.org/web/20190919092632/http://www.tustep.uni-tuebingen.de. The author is currently doctoral student at the Universities of Bern and Trier and lecturer at the University of Wuppertal (https://web.archive.org/web/20190919092052/https://www.germanistik.uni-wuppertal.de/de/teilfaecher/aeltere-deutsche-literatur-im-europaeischen-kontext/personal/christian-griesinger.html). He is TUSTEP-user since 2009 and user-developer since 2014. His research interests are Middle High German language, historical lexicography, edition philology and computer philology especially with TUSTEP, XML (TEI), SQL and PHP.

3. It will not take into account other operating systems. The installation guides for Linux or MAC are available on the TUSTEP homepage, unfortunately only in German.

4. Cf. the GhostScript homepage https://web.archive.org/web/20190919092731/https://www.ghostscript.com.

5. A demonstration of TUSTEP on Raspberry Pi was given at the 2018 ITUG Conference in Potsdam. See https://web.archive.org/web/20190919093206/http://www.bbaw.de/veranstaltungen/2018/oktober/LeibnizITUG.

6. It should be noted however that the use of string and string patterns replacement for refactoring XML would only work if the XML file has a regular content, something which is not imposed by the XML syntax: one may thing for instance of extra whitespaces or changes in the order of the attributes, which would cause mismatches.

7. TUSTEP supports Unicode; the fonts availability depends on the end user. For more information, see https://web.archive.org/web/20191210191210/http://www.tustep.uni-tuebingen.de/bi/bi99/bi997l1-unicode.pdf, unfortunately only available in German.

8. If files are to be shared, there is the possibility to create a remote session, where the files are stored on a server that all developers of a project have access to. TUSTEP

sessions avoid maintenance issues by ensuring that only one session at a time can have writing access to a single file.

9. Many applications (for example Microsoft Office or the Atom editor) send by default usage statistics, crash reports or other metrics (often referred to as diagnostic data) over the internet unless a user explicitly deactivates this functionality. In this review, of course, there is no room to discuss the pros and cons of programs sending usage information to their developers. Anyway, TUSTEP does not have a function to collect user data.

10. Cf. the TUSTEP wiki https://web.archive.org/web/20190919093425/http://85.214.95.119/docuwiki/doku.php.

11. The information for subscription to the mailing list on the ITUG homepage is available at https://web.archive.org/web/20181209212720/http://www.itug.de/tustep-liste/info-anmeldung.html.

12. The last book I am aware of is Peter Stahl TUSTEP für Einsteiger. It dates back to 1996 and has now become outdated.

13. Cf. the project section on the ITUG homepage https://web.archive.org/web/20190919093622/http://itug.de/projekte.html.

Factsheet

Resource reviewed	
Title	Tustep - Tübinger System von Textverarbeitungs-Programmen
Editors	ITUG e. V.
URI	https://www.tustep.uni-tuebingen.de/
Publication Date	2018
Date of last access	01.10.2019

Reviewer	
Surname	Griesinger
First Name	Christian
Organization	University of Wuppertal
Place	Wuppertal
Email	griesinger (at) uni-wuppertal.de

General information		
Type of reviewed software	What type of software is it? (cf. Catalogue 0.1.1)	Tool
Environment/ platform	On which platform runs the tool? (cf. Catalogue 1.4)	Operating System
Purpose	For what purpose was the tool developed? (cf. Catalogue 1.5)	General purpose
Funding	Which is the financial model of the tool? (cf. Catalogue 1.6)	Free
Maturity	What is the development stage of the tool? (cf. Catalogue 1.5)	Release
Methods and implementation		
Programming language(s)	Which programming languages and technologies are used? (cf. Catalogue 2.3)	other: TUSTEP, TUSCRIPT

Reuse	Does the tool reuse portions of other existing software? (cf. Catalogue 2.3)	no
Input format	Which programming languages and technologies are used? (cf. Catalogue 2.4)	XML, XML-TEI, txt, PDF, csv, HTML, JSON, RDF, other: any plain text file format
Output format	Which programming languages and technologies are used? (cf. Catalogue 2.4)	XML, XML-TEI, txt, PDF, csv, HTML, JSON, RDF, other:
Encoding	Which character encoding formats are supported? (cf. Catalogue 2.4)	latin-1, utf-8, utf-16, other: some windows codepages
Preprocessing	Is a pre-processing conversion included?	yes
Dependencies	Does the documentation list dependencies on other software, libraries or hardware? (cf. Catalogue 3.2)	yes
Dependencies installation	If yes, is the software handling the installation of dependencies during the general installation process (you don't have to install them manually before the installation)?	no
Usability, sustainability and maintainability		
Documentation	Is documentation and/or a manual available? (tool website, wiki, blog, documentation, or tutorial) (cf. Catalogue 3.4)	yes
Format of documentation	Which format has the documentation? (cf. Catalogue 3.3)	PDF
Sections of documentation	Which of the following sections does the documentation contain? (cf. Catalogue 3.3)	Getting-started (installation and configuration), Step-by-step instructions, Examples, Troubleshooting, Support section
Language of documentation	In what languages is the documentation available? (cf. Catalogue 3.3)	German
Active Support	Is there a method to get active support from the developer(s) or from the community? (cf. Catalogue 3.4)	yes
Type of support	Which form of support is offered? (cf. Catalogue 3.4)	Mailing list, other: a wiki platform

Bug/issue tracker	Is it possible to post bugs or issue using issue tracker mechanisms? (cf. Catalogue 3.4)	no
Build and install (personal learning curve)	Grade how straightforward it is to build or install the tool on a supported platform: (cf. Catalogue 3.6)	Straightforward
Testing	Is there a test suite, covering the core functionality in order to check that the tool has been correctly built or installed? (cf. Catalogue 3.7)	no
Deployment on platforms	On which platforms can the tool/ software be deployed? (cf. Catalogue 3.8)	Linux, Mac, Windows
Deployment on devices	On which devices can the tool/software be deployed? (cf. Catalogue 3.8)	Deployment on desktop, Deployment on laptop, other: Rasperry Pi
Deployment on browser	If the tool is web-based: On which browsers can the tool/software be deployed? (cf. Catalogue 3.8)	not applicable
Browser plugin	If the tool is web-based: Does the tool rely on browser plugins? (cf. Catalogue 3.8)	not applicable
API	Is there an API for the tool? (cf. Catalogue 3.8)	no
Code	Is the source code open? (cf. Catalogue 3.9)	yes
License	Under what license is the tool released? (cf. Catalogue 3.9)	other:
	Does the software make adequate acknowledgement and credit to the project contributors? (cf. Catalogue 3.9)	yes
Registered in software repository	Is the tool/software registered in a software repository? (cf. Catalogue 3.9)	no
Contributing possible	If yes, can you contribute to the software development via the repository/development platform?	not applicable

Code Analysability	Can the code be analyzed easily (is it structured, commented, following standards)? (cf. Catalogue 3.10)	unknown
Code Extensibility	Can the code be extended easily (because there are contribution mechanisms, attribution for changes and backward compatibility)? (cf. Catalogue 3.10)	unknown
Code Reusability	Can the code be reused easily in other contexts (because there are appropriate interfaces and/or a modular architecture)? (cf. Catalogue 3.10)	unknown
Information of security/privacy	Does the software provide sufficient information about the treatment of the data entered by the users? (cf. Catalogue 3.11)	yes
Maintenance	Is there information available whether the tool will be supported currently and in the future? (cf. Catalogue 3.12)	yes
Citability	Does the tool supply citation guidelines (e.g. using the Citation File Format)? (cf. Catalogue 3.13)	yes
User interaction, GUI and visualization		
User group	What kind of users are expected? (cf. Catalogue 4.1)	Researcher
User interaction	What kind of user interactions are expected? (cf. Catalogue 4.1)	Reading, Text editing, Text analysis, Searching, Comparing
User Interface	What kind of interface does the tool provide? (cf. Catalogue 4.2 and 0.1.1)	Command Line Interface
Visualization	Does the tool provide a particular visualizations (in terms of analysis) of the input and/or the output data? (cf. Catalogue 4.3)	yes
User Empowerment	Is the user allowed to customize the functioning of the tool and the output configuration? (cf. Catalogue 4.4)	yes

Accessibility	Does the tool provide particular features for improving accessibility, allowing „people with the widest range of characteristics and capabilities" to use it? (cf. Catalogue 4.5)	no