What Kind of Discarded Textual Pieces in a Text Writing Process are Reusable?

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Abstract : We collect discarded textual pieces in a text writing process, and discuss what kind of them are reusable. A suitable method for collecting them is also discussed.

Keywords : Discarded textual pieces, Knowledge reuse

1. Introduction

A lot of studies on reuse of knowledge have been performed so far [1]. The ordinary studies have mainly attempted to reuse "useful knowledge" most of which are formally described as, for example, technical papers. On the other hand, there are many pieces of information that had been once generated but finally discarded because of some reasons such as that they were not consistent with the subject. There are possibilities that such discarded pieces of information would become useful in some different subjects. However, to the best of our knowledge, there have been no attempts to collect and utilize the discarded pieces of information. Towards utilization of the discarded pieces of information, in this paper, we collect discarded textual pieces (DTPs) from text that an author is writing by using a special text editor we developed, and discuss what kind of DTPs are reusable based on results of an user study.

2. System Overview

The special text editor is equipped with a function to collect the DTPs as well as usual functions of an ordinary editor such as copy, cut and paste, and find and replace functions. The DTP-collecting function automatically collects and stores the DTPs when it detects the following three types of user actions.

(1) Hitting elimination keys (ex. "Delete key" and "Backspace key"),
(2) Inputting some characters while a string is selected, and
(3) Executing the replace function.

When the user hits the elimination keys, the text editor collects eliminated string as a DTP piece. Similarly, when the user inputs characters while selecting a string, the text editor collects the string as a DTP piece, and the text editor collects the replaced string as a DTP piece when the user executes the replace function.

3. User Study

We asked four Japanese (including the first author) to perform a writing task using the special text editor. Each subject wrote a part of conference paper in Japanese as the writing task. The results of the writing task are shown in Table 1.

Table 1. Results of the User Study

	Subject 1	Subject 2	Subject 3	Subject 4
# of characters	4726	2468	535	418
# of sentences	72	43	12	10
# of DTPs	551	124	16	99

4. Discussion

We analyzed the results and found following three possible factors of generating the DTPs in accordance of user actions.

(1) Correcting mistypes,
(2) Revising expression, and
(3) Eliminating sentences which is inconsistent with the subject.

While factors (1) and (2) relate to merely expressive matters of the DTPs, factor (3) relates to their contents. Therefore, only the DTPs generated by factor (3) would be reusable. In the user study, however, few DTPs were generated by factor (3) and most of them were generated by factors (1) and (2). In order to obtain more reusable DTPs, we need to create a tool that is available for upstream process of document composition where trial-and-error frequently occurs; the ordinary text editors (including our special editor) are suitable for making fair copy rather than for the upstream process. At present, we have been implementing a new tool for collecting desired DTPs referring to Art#001 system [2].

5. Conclusion

In this paper, we implemented the special text editor for collecting DTPs and conducted the user study to investigate reusable DTPs. In near future, we would like to report the usefulness of the new tool that is now under development.

Acknowledgment

References

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