

A Methodological Framework for Writing Assistance Systems: Applications to Sibylle and VITIPI Systems.

Philippe Boissière (*), Igor Schadle¹(*), Jean-Yves Antoine (**)

(*) Institut de Recherches en Informatique de Toulouse – Université Toulouse III – CNRS,
118 Route de Narbonne, 31 062 TOULOUSE Cedex France

(**) Université François Rabelais de Tours, LI,
Campus Universitaire de Blois, 3 pl. Jean Jaurès, F-41000 Blois, France

(*) {boissier, schadle@irit.fr, (**) Jean-Yves.Antoine@univ-tours.fr

Abstract: This paper concerns the evaluation of Writing Assistance Systems (WAS). More precisely, it focuses on the evaluation of the linguistic process (words prediction) of these systems. We show that most of present evaluation frameworks are not really fitted to the real needs of disabled people. A methodological and a common evaluation framework of WAS is then proposed. This evaluation is based on an objective metric which is easy to compute and easy to interpret, as well as an “ecological” collection of test data (i.e. texts wrote by a disable person). This framework has been applied in an evaluation campaign that involved two systems: Sibylle and VITIPI. These experiments are described into details and results are given as well. Finally, we suggest future prospects for this evaluation framework.

Keywords: Writing Assistance System, evaluation, words prediction, words completion.

This paper is protected by copyright regulations. To receive a complete version of this paper, please contact the AMSE Journal on Modelling, Measurement & Control

Bibliography

- [1] Berard C., Neimeijer D. Evaluating effort reduction through different word prediction systems. IEEE/SMC, La Haye 2004 0-7803-8566-7/04/S20, 00.(2004)
- [2] Vella F. Vigouroux N., Truillet Ph. SOKEYTO: a design and simulation environment of software keyboards. 8th proceedings of (AAATE 2005), Lille, France. Sept. 2005. p. 723-727.
- [3] Schadle, I., Antoine J.-Y., Le Pévédic B., Poirier F. SibyLettre : Prédiction de lettre pour la communication assistée. Revue RIHM, 3(2), 2003., pp. 115-133.
- [4] Väyrynen P. Perspectives on the Utility of Linguistic Knowledge in English Word Prediction. Ph.D of the OULU University. November 19th 2005

¹ During its post Ph D at IRIT Institute

- [5] Leshner, G. W., Moulton, B. J., Higginbotham, D. J. Effects of n-gram order and training text size on word prediction. In Proc. of the RESNA '99 Annual Conference, Arlington. pp. 52-54.
- [6] Schadle I., Antoine J.-Y., Le Pévédic B., Poirier F. SibyMot - Modélisation stochastique du langage intégrant la notion de chunks. In proceedings of TALN 2004, Fès.
- [7] Menier, G., Poirier, F. Système adaptatif de prédiction de texte. In Atelier Thématique TALN 2001, Tours, 2-5 Juillet 2001, pp. 213-222.
- [8] Boissière Ph., Dours D. An evaluation framework for writing assistance systems: Application to VITIPI. Modelling, Measurement & Control, Série C, (bioengineering). (AMSE 2002) pp.119-128.
- [9] Ward D. J. Adaptative Computer Interfaces, in PhD. Thesis Cambridge University, Nov. 2001.
- [10] Mackenzie I., Zhang S. The Design and Evaluation of a High-Performance Soft Keyboard In Proceedings of CHI'99, Computer Human Interfaces, Pittsburg (USA) 15-20 May 1999, pp.25-31
- [11] Smith B.A., Zhai S. Optimized Virtual Keyboards with and without alphabetical ordering. In Proc. of Interact'2001, IFIP TCI3, Tokyo, Japan, pp.92-99
- [12] Soukoreff, R. W., & MacKenzie, I. S. [Metrics for text entry research: An evaluation of MSD and KSPC, and a new unified error metric](#). Proceedings of the ACM Conference on Human Factors in Computing Systems – CHI 2003, pp. 113-120. New York: ACM (2003)
- [13] Vigouroux N., Vella F., Raynal M., Boissière Ph. Solutions et défis pour une meilleure accessibilité et utilisabilité des communicateurs - Optimisation de la saisie de texte. In Handicap et Environnement. Entretiens de l'Institut de Garches, Nanterre, 24-25 novembre 2005. p209-222
- [14] Willis T., Pain H., Trewin S., Clark S. Informing Flexible Abbreviation Expression for User with Motor Disabilities In Proceedings of the 8th ICCHP'2002. LNCS 2398, pp 251-266
- [15] Shieber S.M., Baker E., Abbreviated Text Input In IUI'03, Proceedings of International Conference on Intelligent User Interface, Miami, Florida (USA), January 12-15, 2003.
- [16] Schadle, I. Sibylle : Système linguistique d'aide à la communication pour les personnes handicapées. Thèse de doctorat, Université de Bretagne Sud, 2003.
- [17] Boissière, P., Dours, D. VITIPI : Versatile Interpretation of Text Input by Persons with Impairments. 5th Proceedings of ICCHP, Linz July 1996, pp.165-172.
- [18] Wandmacher T. Antoine J.-Y., Schadle I., Krueger-Thielmann K. (2006) Sibylle AAC system : exploiting syntax and semantics for word prediction. Proc. ISAAC'2006. Duesseldorf, Germany.
- [19] Catach N., Les listes orthographiques de base du Français (LOB). Nathan 1984
- [20] Raynal, R. Maubert, S. Vigouroux, N. Vella, F. Magnien, L.. E-Assiste: A platform Allowing Evaluation of Text Input System. In 3rd Int. Conf. on Universal Access in Human-Computer Interaction (UAHCI 2005), Las Vegas, USA, 22 - 27 July 2005.