Aline Ferreira & John W. Schwieter (eds.). (2015) *Psycholinguistic and Cognitive Inquiries into Translation and Interpreting* [Benjamins Translation Library 115]. Amsterdam: John Benjamins.

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A few decades back, much effort was invested in developing Translation Studies (TS) as a discipline in its own right. In recent years it is obvious that the main growth has come from exciting new interaction with disciplines like anthropology, ergonomics, expertise theory, and psychology. Perhaps the most fruitful interaction of all has been with cognitive sciences, including neuroscience, cognitive psychology, and psycholinguistics. Volume 115 in the Benjamins Translation Library series aims at illustrating this latter trend by presenting the current state of the art in cognitively oriented Translation and Interpreting (T&I) research. The volume is evidence of the continued methodological strengthening of T&I research that has taken place and the increasing use of new technology. Inspiration from cognitive psychology and psycholinguistics has increased the focus on empirical investigation, laboratory experimentation, technological tools, and advanced statistical data analysis. All of this has turned T&I research into a highly demanding discipline in its pursuit of what goes on in translators' and interpreters' heads as they exercise their still somewhat intriguing and mysterious skill.

The eight contributions to the volume are organized in two parts. Three contributions in part one deal with intersections of T&I with cognitive psychology and psycholinguistics, while the five chapters in part two are T&I studies from psycholinguistic and cognitive perspectives: two on simultaneous interpreting, one on translation process and text studies, one on post-editing, and one methodological contribution.

Chapter 1 (3–15) by the editors (and Daniel Gile) provides a quick overview of the enormously diverse area that TS has spread across since the 1950s, finding inspiration in such fields as linguistics, psychology, literary theory, sociology, (foreign language) pedagogy, and cultural studies.

In Chapter 2 (17–40), "Translation process research at the interface," Fabio Alves gives a very fine insider's account of the interface between translation process research (TPR) and several disciplines, which TPR has been developed in dialogue with. It is an authoritative, synoptic contribution, which offers a very insightful examination of theoretical and methodological relations between TPR

on one hand and cognitive science, psycholinguistics, expertise studies and expertise theory on the other. Within cognitive science, the chapter details relationships between TPR and cognitivism, connectionism (which seeks to model intellectual abilities by means of neural networks), and Humberto Maturana's theory concerning embodied or situated cognition. The section on TPR and psycholinguistics focuses especially on new technology, new experimentation, and the new relevance of strong statistical methods of data analysis. Expertise theory and expertise studies are discussed on the basis of leading views in the field, as represented primarily in the work of K. Anders Ericsson. Altogether, this contribution presents no less than a strengthened theoretical basis for TPR.

In Chapter 3 (41–64), "The contributions of cognitive psychology and psycholinguistics to conference interpreting: A critical analysis," Daniel Gile gives a similarly expert critical account of how conference interpreting interfaces with cognitive science and psycholinguistics. A simultaneous interpreter at work is facing what appears to be a more stressful situation than is normally the case for a translator at work and has to manage a cognitive challenge which seems to require very considerable mental agility. For such reasons cognitive psychology and psycholinguistics were early resorted to in interpreting studies in the attempt to explain how conference interpreters were capable of handling such a stressful challenge, how they were able to listen to new speech while simultaneously speaking a translation of something heard earlier, as well as many other cognitive matters. The chapter makes extensive reference to other synoptic reviews, but it also presents a personal and original perspective on its topic, for instance by its special focus on contributions by 'practisearchers' (interpreting practitioners *cum* researchers) and by its account of the rise and long dominance of Interpretive theory, which the author is able to present from the perspective of a critical insider. Similarly, after the turn of the tide and more widespread acceptance in interpreting research of the relevance of cognitive psychology and psycholinguistics, the author has the advantage of having himself formulated the influential Effort model, which views the simultaneous interpreter as walking a tightrope, close to cognitive saturation, and having to balance several efforts simultaneously: a listening and analysis effort, a production effort, and a short-term memory effort. A subsection on Methods is a fine discussion of options and constraints applying in the field of interpreting research from the perspective of cognitive science and psycholinguistics primarily, with very sound recommendations concerning the need for proper training of practisearchers in scientific research. In the interest of heightening the quality and status of research in the field it is argued that for some simultaneous interpreting research purposes, surveys, (retrospective) interviews, corpus studies of recorded speech, and ethnographic methods can be more efficient than strictly controlled laboratory experiments.

Part II of the volume includes five "Studies from psycholinguistics and cognitive perspectives." The first two of these (Chapters 4 and 5) deal with simultaneous interpreting. They are followed by a small-scale descriptive study of how metonymic expressions are translated, and one on cognitive and interactional phenomena in post-editing of machine-translated text. The closing methodological chapter is an attempt to suggest a more robust approach to integrating interpretations of think-aloud data and keylog data.

Chapter 4 (67–100), "Discourse comprehension in simultaneous interpreting: The role of expertise and information redundancy," by Adelina Hild, is a fine piece of original research reporting what the author describes as a quasi-experimental study of effects of interpreting expertise and information redundancy on higher-level processes of discourse comprehension in simultaneous interpreting. Extensive relevant literature is expertly reviewed and the well-designed experiment is reported and related to leading theories of discourse structure (Asher and Lascarides' SDRT [segmented discourse representation theory] developed from Hans Kamp's DRT). Professional interpreters were found to perform better on all the quantitative discourse parameters examined than the novices. Professionals had more instances of strict correspondence and acceptable paraphrase and fewer instances of wrong solutions and omissions. Qualitatively it was found that experts excelled particularly in their performance of integrative processes in the high-informativity text, where there was a density of propositional content and little redundancy. An interesting concluding statement is that even highly skilled simultaneous interpreters "continue to allocate proportionally more attentional and information processing resources to comprehension than to production and translation" (94). It would be interesting to see if this conclusion generalizes across other language pairs than Bulgarian and English, and if it is also true of how translators allocate their processing resources.

Chapter 5 (101–126), by Šárka Timarová et al., reports an exploratory correlational study aimed at testing "whether a relationship exists between working memory capacity (WMC) and simultaneous interpreting (SI) performance measures" (101). The chapter appears to be largely based on Timarová's 2012 PhD dissertation. With 28 participants in the complex set of experiments on which the study is based, it represents one of the most comprehensive empirical attempts to come to grips with the role and nature of simultaneous interpreters' WMC. The report is very fully and technically documented in tight, compact scientific discourse, which reflects its high level of scientific rigour and ambition, and perhaps also its origin as a study for a PhD dissertation. The study is remarkable in that it does not find evidence to support the assumption that experienced simultaneous interpreters have (developed) greater WMC than young and inexperienced interpreters, but its multidimensional examination of multiple correlations sets a fine

standard for the kind of inquiry, not always found in the field of TS, which not only takes its inspiration from cognitive-psychological theory, but uses a methodology largely inspired by cognitive science.

Chapter 6 (127–143), "Process and text studies of a translation problem" by Sonia Vandepitte, Robert J. Hartsuiker and Eva Van Assche reports three related exploratory case studies, all of which seek to address the problem of translation of metonymic expressions. Abstract words and the metonymic constructions in which they appear are found to be consistently hard to translate. The studies are sequel studies to Vandepitte and Hartsuiker (2011), to which extensive reference is made. Content-wise the main contribution of this chapter is the formulation of three hypotheses to be tested in future experiments, the most interesting of which is that translation problems are not only reflected in translation onset times, but also in medial and final sentence pause patterns.

Chapter 7 (145–174), by Michael Carl, Silke Gutermuth and Silvia Hansen–Schirra, despite its title ("Post-editing machine translation: Efficiency, strategies and revision processes in professional translation settings") is well integrated in the overall theme of the volume, its main focus being on the human processes involved in post-editing of machine-translated (MT) text. This is studied from a cognitive perspective employing standard translation process research methodology with keylogging, eye-tracking and retrospective interviews to elicit both machine-recorded user-activity data and subjective verbalization of users' experience and assessment of own performance. It is a well-researched and thoroughly documented contribution, which presents original results of an experiment involving 24 participants, each of whom edited, post-edited or translated six texts in addition to answering two questionnaires. Methodologically, it is very interesting that the subjective statements generally contradicted what the machine-recorded data seemed to indicate. Translators reported that they much preferred to translate from scratch, despite clear evidence in the gaze and keystroke data that much less effort had been spent on the (post)editing tasks. The authors speculate that the discrepancy may be attributed to subjects' negative attitude to MT-generated text, and they optimistically believe that this attitude may change over time. It is well-known that emotional attitude can affect verbalized responses, but if what subjects report is in flagrant conflict with what we think we see in the recorded data, TPR may have a serious methodological challenge in need of examination.

Finally, Chapter 8 (175–201), "On a more robust approach to triangulating retrospective protocols and key logging in translation process research" by Igor da Silva, investigates how a more robust approach can be developed to triangulating retrospective protocols and keylog data with higher reliability. Da Silva's suggestion is to combine the criteria of segmentation (of keylog data) and representation (from retrospective protocol data) and analyse the presumed correlation of

the two data sets in a triangulation paradigm. The chapter gives a fine account of a number of methodological issues, many of which remain unresolved. It is not possible to demonstrate a straightforward correlation between domain knowledge and segmentation patterns, gaze behavior or typing speed, and it still remains unclear what mental processes motivate the observed behaviour of translators. The suggested methodology was applied in an interesting pilot study. However, the reported results do not altogether support an assumption of straightforward correlations between segmentation and representation. Nevertheless, the attempt to introduce more rigorously scientific criteria for triangulated analysis is both original and timely.

The volume is a welcome and important contribution to cognitive T&I studies. It includes two highly authoritative survey articles and several contributions with interesting new methods and theoretical approaches. Comprehensive and well-designed experiments which are interesting in themselves are reported, although they do not always lead to very substantial new findings. There is no doubt that with its focus on the contribution of cognitive psychology and psycholinguistics (more of the former than of the latter), the volume has the potential to influence research in the area considerably.

Reference

Vandepitte, Sonia, and Robert J. Hartsuiker. 2011. "Metonymic Language Use as a Student Translation Problem: Towards a Controlled Psycholinguistic Investigation." In *Methods and Strategies of Process Research: Integrative approaches in Translation Studies*, ed. by Cecilia Alvstad, Adelina Hild, and Elisabet Tiselius, 67–92. Amsterdam: John Benjamins.
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