Introduction

The intellectual challenge

It's springtime in Life Before Internet. I pick up the large brown package from my mailbox and open it excitedly to discover that it contains a hefty volume of technical papers published by a German research centre. I'd written a letter to the centre, in the best formal German and the neatest handwriting I could muster (it's also Life Before PCs and Desktop Printers), and they'd replied by sending me this most impressive tome!

I'm working on my undergraduate translation dissertation on the topic of superconductivity. Superconductivity is the property of some materials to conduct electricity with no resistance when they're cooled to extremely low temperatures. In 1986 ceramics were discovered that superconducted at temperatures somewhat higher than before, that is, above 90 K, which is equivalent to –183°C. That was a significant breakthrough, because liquid nitrogen boils at 77K. So liquid nitrogen could now be used to cool superconductors for experiments and applications, making both suddenly much more practical and affordable than before. Since superconductors also repel magnetic fields, they have many possible applications. Superconductors are what makes the maglev trains levitate and they're a crucial component in the magnetic resonance imaging (MRI) machines now widely used in hospitals around the world.

Two scientists, Bednorz and Müller, were awarded the Nobel Prize for Physics in 1987 for their discovery of these high-temperature superconductors. The excitement around superconductivity was infectious, even touching a young undergraduate translation student working on her translation project. The enormous potential of the new materials led to extensive coverage in the popular press, usually accompanied by a photograph of a small magnet hovering, as if by magic, above a piece of superconducting ceramic immersed in liquid nitrogen. Scientists and engineers were also working hard on applications to exploit some of that promised potential.

I had chosen to translate a report on high-temperature superconductors for my project and was busy gathering material for my

research. So letters had been posted and lots of bulging packages received. No websites, no online journals, no Google, no Wikipedia!

The point of this account is not to fill you with sheer incomprehension as to how anyone could have existed in such a state of technological deprivation. Rather, it is to say that researching and learning about a scientific or technical topic in preparation for translation is exciting and intellectually challenging, whatever the tools and ways of working. It involves identifying and accessing relevant texts in both languages, and reading them to gain an understanding of the topic and its terminology. It involves gaining familiarity with the ways specialists communicate, whether they're producing technical data sheets, patent specifications or scientific research articles. It involves developing familiarity with genres that lots of people never have occasion to experience but that are essential in doing science and developing and exploiting technologies. Translation is also an essential part of scientific and technological activities.

I had a lot more time to work on my student project than anyone does for a professional translation job, where the specialized information has to be processed and assimilated very quickly. But encountering technical and scientific concepts, as a linguist, and learning something about them can be immensely interesting and satisfying. That intellectual challenge may be one of the main reasons why the activity of technical or scientific translation interests you. You may have heard of the two-cultures debate initiated in 1959 by C.P. Snow (1959, 1963), criticizing the gulf between the arts and the sciences. Many say the gulf has narrowed or been bridged somewhat since then, though it's often still socially acceptable for someone to proclaim that they're no good at mathematics or that they don't understand something technical (while they may be more reluctant to admit ignorance of Shakespeare or the literary canon). As technical and scientific translators, we aspire to be inquisitive and knowledgeable in a broad range of disciplines, spanning languages, sciences and technologies. That is the challenge to be relished.

Purpose of the book

Many of the world's translators work on scientific or technical texts, and many translator-training programmes deliver some tuition in scientific or technical translation. In spite of this, there are relatively few pedagogical resources in English for students and teachers of scientific and technical translation. This book is designed to fill that gap by providing a coursebook for a postgraduate (Masters level) course unit or module on scientific and technical translation. It is structured so that you can work through it, chapter by chapter, accumulating knowledge and skills and practising relevant tasks, thus

becoming increasingly adept in analysing and translating scientific and technical texts. It assumes no prior specialized translation experience. Used as a learning resource, the book will help you to achieve a set of learning aims, enabling you to develop the knowledge and skills you need for the activities of scientific and technical translation. Specifically, you will be able to

- understand some of the specific situations in which scientific and technical specialists communicate;
- recognize discursive and rhetorical purposes of scientific and technical texts;
- understand how professional translators operate in scientific and technical domains;
- analyse texts in your source and target languages using concepts and metalanguage of the field, in preparation for translation;
- apply a range of resources in your scientific and technical translation practice;
- generate your own translations of scientific and technical texts;
- justify your own translation decisions, using the metalanguage of the field;
- evaluate your own translations and the translations of others.

The book should be a useful resource for any higher-education programme in which technical or scientific translation is taught, as core or optional course units, between English and any other language, but it can also function well as a self-study resource for translators who have not had training or experience in scientific or technical translation.

Rationale and approach

In many countries entry barriers to the translation profession are low, that is to say, anyone can say they are a translator and can offer their services as a translator. In the past translators often entered the profession with degree-level language competence but little formal education in translation. Their effectiveness as translators was developed on the job; over time they developed their own approaches to translation and their own personal theories of translation, perhaps without knowledge of existing formal theories. Now in the UK and in many other countries there is a proliferation of translator-training programmes that formalize the acquisition of knowledge and skills for translation, and it is increasingly expected by employers that their translators will have undergone some postgraduate training in translation. Without replacing the on-the-job experiences and learning, academic training programmes can offer you theoretical and conceptual tools to help you to develop your knowledge and skills more efficiently than if you had

to discover everything through trial and error on the job, as your predecessors often had to do. Academic programmes also develop your analytical and reflective abilities. These form an important part of professionalism and allow you to have a rational and analytical understanding of your translation activities, so that you will be able to respond to previously unencountered situations and will be able adapt to new practices as they emerge. This is particularly pertinent in the case of the increasing technologization of translation activities. Therefore, these higher-level thinking skills will be a tremendous asset to you in the professional workplace. Those are the benefits of targeted training in scientific and technical translation that underlie this book and inform its approach.

The book does not reduce translation to a set of prescriptions or formulae. Rather, it focuses on familiarizing you with texts that are typically translated in scientific and technical domains. On many occasions you may be aiming to produce a text that is accepted as belonging to the scientific or technical domain in the target culture, so knowing what is typical or characteristic of the target language and culture will provide a useful guide as to what translation options to choose. However, you will also be guided in your decision making by what you know or assume about the expectations and needs of your translation commissioner and the end users of the text; and of course having such in-depth knowledge, understanding and awareness also enables you to decide whether to conform to or challenge conventions or expectations.

Throughout the book you are encouraged to research the texts and practices that you are learning about, so that you can relate the book's perspectives to the local, regional, national or international practices that are of particular relevance to you. You are also encouraged to familiarize yourself with published research on relevant topics to help you to inform and justify your own judgements and decisions. Emphasis is placed on developing higher-order thinking skills of analysing, evaluating and creating (see Krathwohl 2002 for a discussion of Bloom's revised taxonomy of educational objectives). These skills help you to become reflective professionals who can behave responsibly towards clients, apply specialist knowledge and exercise autonomous thought and judgement in your work.

Material, languages and structure

The coursebook focuses on scientific and technical genres for which translations are likely to be commissioned. There are two main areas of focus, mapping onto technical and scientific translation domains respectively. The first area pertains to the design, delivery and use of technical products. Here, you learn about technical material aimed at

end users, that is, instruction manuals (Chapter 3), product data sheets and technical brochures (Chapter 4), as well as technical documentation written by specialists for specialists, in the genre of patent specifications (Chapter 5). The second area of focus is the communication of scientific knowledge. Here, you learn about specialized scientific research (Chapter 6) and popular science reporting (Chapter 7).

The book also provides guidance on some of the resources that can help you in yourwork, with a particular focus on corpora (Chapter 2). Throughout the book examples give you insights into professional translation practices, to help prepare you for aspects of professional life.

In many cases English-language examples are used as a basis for discussion in the book, but you are encouraged to use similar analytical approaches to deal with texts in other languages, making the coursebook language-independent and of use for translator training and education in any language pair. Examples from other languages are integrated where practicable. Exercises at the end of each chapter aim to extend your experience further by encouraging you to find and work with additional examples for analysis and translation. They also prompt you to engage in discussions about your own linguistic and cultural contexts and your own translation work. Depending on organizational factors and the time and resources available, the exercises can be used for self-study or classroom activities. Many of them lend themselves well to group work, thus encouraging you to develop your team-working, collaborative and interpersonal skills too.

References

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