



**Translation
Practices
Explained**

**SCIENTIFIC AND
TECHNICAL
TRANSLATION EX-
PLAINED**

Jody Byrne



Translation Practices Explained

Translation Practices Explained is a series of coursebooks designed to help self-learners and teachers of translation. Each volume focuses on a specific aspect of professional translation practice, in many cases corresponding to actual courses available in translator-training institutions. Special volumes are devoted to well consolidated professional areas, such as legal translation or European Union texts; to areas where labour-market demands are currently undergoing considerable growth, such as screen translation in its different forms; and to specific aspects of professional practices on which little teaching and learning material is available, the case of editing and revising, or electronic tools. The authors are practising translators or translator trainers in the fields concerned. Although specialists, they explain their professional insights in a manner accessible to the wider learning public.

These books start from the recognition that professional translation practices require something more than elaborate abstraction or fixed methodologies. They are located close to work on authentic texts, and encourage learners to proceed inductively, solving problems as they arise from examples and case studies.

Each volume includes activities and exercises designed to help self-learners consolidate their knowledge; teachers may also find these useful for direct application in class, or alternatively as the basis for the design and preparation of their own material. Updated reading lists and website addresses will also help individual learners gain further insight into the realities of professional practice.

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Scientific and Technical Translation Explained

A Nuts and Bolts Guide for Beginners

Jody Byrne

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For my beautiful daughter, Áine

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This book is based on my experience over many years as a technical translator, technical writer, trainer and researcher and it draws on various aspects of my work with numerous translation agencies, localization vendors, translators and academics to provide what is, hopefully, a useful and accessible resource on scientific and technical translation. In particular, the many students I have taught at Dublin City University and the University of Sheffield as well as the people who asked insightful questions at conferences and guest lectures have played a vital role in determining which information is included in this book and how it should be presented.

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About this book

The purpose of this book is to introduce you to the issues involved in translating scientific and technical texts and to provide you with the skills and knowledge to deal with them. Despite varying estimates as to the true monetary value of scientific and technical translation, few people could deny that it is one of the most important areas of translation, both from a professional and, increasingly, from a training point of view. In this book, you will gain an overview of scientific and technical translation, explore its origins and its professional context and develop the knowledge and skills necessary to deal with a wide range of texts.

One of the main difficulties for anyone interested in scientific and technical translation has always been the chronic lack of resources on the subject. This has been an issue since I was an undergraduate translation student and unfortunately, if comments from students and trainers are anything to go by, the situation has improved very little since then. This book is aimed, therefore, at students who are interested in scientific and technical translation, both as a career choice and as a research area, but who have found it difficult to find sufficient information to help them get started. This book is also aimed at anyone who simply wants to learn more about the area.

In writing this book, I had three main aims. The first was to provide as broad and holistic an introduction to scientific and technical translation as possible so as to give a better understanding of this complex interdisciplinary area. By positioning scientific and technical translation within the field of technical communication, it will be apparent that communicating technical information between languages requires more than just a good dictionary and an ability to write clearly. This approach will also highlight areas of common interest between translation and other aspects of communication, and hopefully stimulate ideas for further research.

My second aim was to provide practical advice to help those starting out or intending to work as technical translators. While it is not possible to prepare translators for every eventuality, it is possible to highlight some of the more common scenarios and provide suggestions on how to deal with them. This means novice translators will not find themselves completely unprepared for the reality of professional scientific and technical translation.

Finally, I wanted to provide a range of practical activities to help students practise their skills and to familiarize them with the processes in scientific and technical translation. These activities can be found at various points in each chapter.

By presenting typical translation strategies drawn from professional practice and from various other sources, this book will help you to explore scientific and technical translation in more detail and develop your own translation strategies. The learning activities in particular are intended to inspire and encourage trainers and students to develop their own learning and teaching methods.

Using this book

This book is designed to provide knowledge and skills that can be applied in practical translation scenarios. It is not intended solely as a theoretical exercise, although it does draw, where necessary, on theory to provide a context for the practical strategies proposed. It also explains that scientific and technical translation is highly interdisciplinary, both as an activity and as a field of study.

This book can be used in a number of ways. It can be used in conjunction with classroom-based practical translation courses with individual sections and chapters being referred to as necessary. [Chapters 1 to 3](#) can also be used as initial reading at the start of a semester. Individual students will also find that the various activities are useful as self-study strategies as part of their independent learning.

[Chapter 1](#) begins by identifying scientific and technical translation and by describing what it is and, more importantly, what it is not. We will then examine the professional, organizational and theoretical context within which scientific and technical translation operates.

[Chapter 2](#) introduces the idea that scientific and technical translation should not be regarded just as a type of translation but as part of the broader field of technical communication. This is necessary not simply because technical communication is the traditional source of the texts which we will translate, but because of the shared interests and, in many respects, the overlap in activities and skills. This chapter introduces you to technical communication and emphasizes the role of scientific and technical translation as a communicative process that is aimed at specific audiences. Given the overwhelming importance of the audience in the translation process, it is important to understand their needs, their expectations and even their idiosyncrasies so that we can tailor our translations accordingly. The chapter concludes with some suggestions on how to go about gaining a better understanding of audiences.

[Chapter 3](#) examines the typical features of scientific and technical language before examining several main categories of texts. This is important if we are to understand the ways in which audiences' needs are met by particular types of text. For each main category, a discussion of the main features and content is provided with observations as to how some of these factors may affect the translation process. The chapter concludes by looking at how Translation Studies can help us to categorize and make sense of the various text types we will encounter.

After the preparatory background information provided in the previous chapters, [Chapter 4](#) looks at some of the main types of text you may be asked to translate. The first two examples are accompanied by document profiles, which highlight the main features of the text as well as a list of problems you are likely to face and how to deal with them. To help develop your text analysis skills, you will need to produce profiles for the remaining text types yourself, although [Appendix 4](#) contains sample profiles, which you can consult if you need to.

Chapter 5 looks at some of the general translation approaches, which may come in useful when translating scientific and technical texts. Starting with generic translation strategies with which most translators are familiar, the book looks at how strategies such as modulation, recategorization (which was once known as transposition) and borrowing are used in the context of scientific and technical translation.

We will also look at other more radical strategies such as restructuring, recycling information, expansion and contraction, again illustrating how they are applied to the translation of technical documentation. Next, we look at the different types of translation you may be expected to produce. Understanding what each type of translation involves will help you decide which translation macrostrategy is the most appropriate for a given project. This chapter also draws on the idea of the translation brief proposed by Skopos theory as a way of identifying what it is your translation is supposed to achieve. Again, this will help you decide how you need to tackle a particular translation.

Chapter 6 is perhaps the most practice-orientated chapter and in it we look at specific aspects of scientific and technical texts and the challenges they can pose for translators. These aspects cover a range of areas such as culture-specific features, errors in the source text, authoritative translations, and formatting issues that will require either a cautious approach, direct action or even no action at all. Finally, a glossary of key terms and other useful resources are also provided as appendices at the end of the book.

I hope that the topics covered in this book, together with the practical strategies and learning activities will do justice to what is an interesting, rewarding and demanding field of translation.

Jody Byrne

Dublin, May 2011
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1. Scientific and Technical Translation

In this chapter

This chapter introduces you to scientific and technical translation and explains its origins and its importance both from a historical perspective and in terms of its current position within the language and other industries. This chapter will also show that while scientific translation and technical translation are closely related fields, they are not identical and the terms scientific and technical cannot be used interchangeably. We will discuss the significance of this type of translation before examining how theories of translation can help the translator. You will also learn about who is involved in scientific and technical translation and gain an overview of the typical tools you will need to use as a translator. This chapter will discuss your responsibility as a scientific and technical translator from a legal and ethical point of view before presenting some practical activities to help you practise what you have learned.

1.1 Introduction

Scientific and technical translation is part of the process of disseminating information on an international scale, which is indispensable for the functioning of our modern society.

(Pinchuck 1977:13)

Translation is an important driving force of modern society. It facilitates the flow of ideas, expertise, values and other information between different cultures. It is also essential for scientific and technological advancement. In today's information age, the role of scientific and technical translation is more important than ever. It has facilitated some of the most significant scientific and technological advances of recent decades. These advances have transformed our daily lives to the extent that the world around us is virtually unrecognizable from fifty, or even twenty, years ago. Virtually every aspect of our lives from education and work to entertainment, shopping and travel has been swept along by a seemingly unstoppable wave of new inventions and technological advances. What many people do not realize is that these inventions and advances are accompanied at almost every step of the way by translation in its capacity as a vehicle for disseminating scientific and technical knowledge.

Although in terms of translation studies, scientific and technical translation is just one of a number of fascinating areas of study, it is, however, an area of translation which has had a profound impact on society. Furthermore, as a field of translation activity, it is one which will have most impact on the vast majority of translation students, as it is here that many translators find a sizeable amount of their income.

1.1.1 *Some distinctions*

Despite their similarities, technical and scientific translation are not interchangeable terms.

The aim of this book is to introduce the fundamental features of scientific and technical translation and the skills needed to engage in this type of activity. It is important to realize, however, that the terms *scientific* and *technical* are not identical and that the expression *scientific and technical* is not a tautological reference to the same type of translation. Part of the decision to group these areas together has to do with the way in which these subjects are traditionally taught, rather than any similarity between the two. The majority of translator training institutions offer modules with titles such as “Scientific & Technical Translation” or “Advanced Translation – Scientific & Technical” and presumably, this is a convenient way of organizing teaching provision.

Another reason is that the lines separating scientific and **technical texts** are becoming increasingly blurred. As we will discuss later, it is not uncommon for texts to combine elements of both scientific and technical texts and all of the issues that this entails. So, while the two areas are separate in many ways, the ways in which they appear in the real world mean that they need to be considered together.

Pinchuck (1977:13) identifies three key categories of information, which provide the materials for scientific and technical translation:

1. The results of pure science;
2. The results of applied scientific research carried out in order to solve a particular problem; and
3. The work of technologists, which is intended to result in an industrial product or process, which can be sold.

Pinchuck quite rightly points out, though, that there is always a significant amount of overlap between these categories and that the work of today’s scientists, i.e. theoretical scientific information, is likely to become tomorrow’s technology and as such give us various tangible products, devices, services and so on. From this perspective, it is worth remembering this relationship as we examine scientific and technical translation in this book; while the texts may differ and the information may take different forms, their foundations are ultimately built upon largely the same information. However, the way in which this information is presented and used varies quite significantly between scientific and technical translation. So, while a **technical text** is designed to *convey* information as clearly and effectively as possible, a **scientific text** will *discuss, analyze and synthesize* information with a view to *explaining* ideas, *proposing* new theories or *evaluating* methods. Due to these differing aims, the language used in each type of text, and consequently the strategies needed to translate them, may vary significantly.

It could even be said that scientific translation has just as much to do with literary translation as it does with technical translation. While the common view of scientific writing is that it is dry, highly objective and impartial, with all traces of

style and linguistic creativity chased from the discourse like a fox from a chicken coop, the reality is quite different. Locke (1992) comprehensively dismantles the idea that there is no place for individualism, style, metaphor and creativity in scientific discourse. Indeed, he argues that the very nature of science means that individual style and creativity are intrinsic parts of the scientific process. He cites, for example, the use of metaphors as a foundation of scientific language with terms such as the *Big Bang* and the *Greenhouse Effect* owing their existence to the creativity of scientists and writers. The implication of this for translators, then, is that they must be able to recognize and negotiate culture-bound metaphors in much the same way as literary translators must.

1.1.2 *Historical significance*

Technical translation's long and colourful history helps us understand its importance today.

Translation is practically as old as writing itself and for almost as long as humans have been writing they have been translating. Indeed, evidence of this can be found in ancient clay tablets containing bilingual Sumerian-Eblaite glossaries (Deslisle & Cloutier 1995:7). Some have gone so far as to say, rather humorously, that translation is the "second oldest profession" known to humanity (Baer & Koby 2003:vii). To many, translating sacred texts such as the Bible or Koran immediately springs to mind when we speak of translation in historical terms. However, the translation of scientific and technical texts has a history, which is as long as that of religious translation, if not longer. That translation has accompanied virtually every significant scientific and technological discovery throughout the ages is well documented and it is difficult, if not impossible, to find a single example of an invention or discovery which was not exported to another language and culture by means of translation.

While translation has always facilitated the dissemination of knowledge, it was not until the 15th century that it really came into its own. In 1447, Johannes Gutenberg developed what is widely credited as being the first moveable type printing system which revolutionized printing and made it much easier to produce and, indeed, own books. That this invention had such an impact on translation and the dissemination of scientific and technical knowledge is due to the ensuing explosion in the number of books produced in Europe. Tebeaux (1997:14-30) describes how, during the English Renaissance, countless books were written on topics such as medicine, farming methods, animal husbandry, fishing, gardening, household management, horse riding, falconry, fencing, military science, navigation, road building, carpentry, stained glass making and so on. Gutenberg's press permitted unprecedented levels of distribution for these books thanks to the relative ease and cost-effectiveness with which they could be produced. Not only did this make it easier to distribute original language texts, it also made it easier to disseminate information in translation.

And so, translation, newly empowered by widespread printing, continued to play a central role in the dissemination of scientific and technical information for centuries. However, it was only during the last 100 or so years that translation

really made its mark on science and technology. This was a time when scientists were making countless new discoveries and writing about their findings in their own native languages. With other researchers eager to acquire new knowledge and learn new techniques, the demand for translations of these scientific texts was unprecedented. This translation activity in turn fuelled new research, which resulted in even more new discoveries. Imagine how under-developed science would be, were it not for translation; each language area would be intellectually isolated and each language community would have to discover the entire body of scientific and technical knowledge for itself. This would not simply be a case of reinventing the wheel, but of reinventing the wheel dozens, if not hundreds, of times.

The following are just a few examples of significant scientific pioneers and the languages in which they published their work:

- **Physics:** Max Planck and Albert Einstein (German), Nils Bohr (Danish), Robert Boyle (English), Hideki Yukawa (Japanese);
- **Biology and genetics:** Camillo Golgi (Italian), Tang Dizhou (Chinese);
- **Radiology and medical diagnostics:** Pierre and Marie Curie (French), Wilhelm Conrad Röntgen (German);
- **Bacteriology:** Alexander Fleming (English), Louis Pasteur (French);
- **Psychiatry:** Sigmund Freud (German).

The advent of printing also marked the start of a new era in translation itself, which, it could be argued, saw the way in which translation was viewed and carried out change quite significantly. In the centuries before printing, there existed a manuscript culture with texts being handwritten, fragile and almost ephemeral objects. Texts, usually of a scientific or technical nature, were copied by scribes and were often modified, whether intentionally or unintentionally, through the addition, omission or modification of information. This resulted in variability and uncertainty with regard to texts and the problem became even more pronounced when translation was added to the mix. At the time, translating lacked the standards of accuracy and quality that we expect today with the result that mistranslations or even omissions of difficult passages were common (Montgomery 2002:178).

Indeed, such was the extent of the problem it was not uncommon for copies of the same work held, for example, in libraries in Paris and Oxford to differ quite significantly in terms of content (Grant 1992:367). As Grant points out: “knowledge was as likely to disappear as to be acquired” as a result of the translation process. This was made all the more problematic when we consider that there might only have been one copy of the source text and this would have been written on fragile vellum or papyrus. This trend can be traced back to ancient Rome and Greece where the concept of intellectual property as we currently know it simply did not exist. In Greece, for example, the demand for knowledge, particularly of a scientific and technical nature, gave rise to what we now call compilers. These compilers, whose name comes from the Latin “to plunder”, effectively “misappropriated” whole chunks of texts, usually through translation and presented them as their own work (Stahl 1962:55). Translators at the time

used source texts as the basis for new books and combined the ideas of the original with their own ideas, opinions and suggestions.

Consequently, many of the great works by some of the most important scholars such as Posidonius or Ptolomy have effectively been lost; despite numerous publications purporting to contain the writings of these scholars, there is no trace of their actual writings left as a result of countless publications which combined, modified, assimilated or falsified their work. Roman translators were no less cavalier in their approach to scavenging knowledge and passing it off as their own. Indeed, the Romans described these practices as **inventio** (invention), which involved the rewriting or rewording of the original during translation, and **contaminare** (contamination), which involved combining translations together from different sources to form an entirely new work.

This changed quite significantly, however, with the advent of relatively high volume printing as facilitated by Gutenberg's invention. Texts became fixed – objects to be respected rather than ragged scraps of vellum, which could be written and copied by anyone. The process of printing texts on paper and binding them gave the knowledge they contained a legitimacy and permanency which had rarely existed previously. In the case of translation, the existence of a fixed and standardized source text made translators more accountable for omissions and mistranslations because it was easier to consult the original source text. We could argue that printing raised standards within scientific and technical translation and that, ultimately, it was instrumental in the emergence of various translation theories and concepts such as equivalence, faithfulness or **loyalty** and later concepts such as adequacy.

Practical Exercise 1: The language of science

Think of three major scientific discoveries and find out who are the main scientists associated with them. What is the nationality and working language of each scientist? Now identify three products or inventions that make use of one or more of these discoveries and find out in which country they were made.

1.1.3 Modern scientific and technical translation

Various factors over the centuries have changed the way we look at technical translation today.

In today's globalized economy, scientific and technical translation in many respects represents the backbone of international trade and the scientific endeavour which fuels it. Virtually every product sold or specialized service provided – whether MP3 players, telephone conferencing systems, luxury cars, flame retardant cladding for use in the construction industry, online shopping websites, mobile phone services or designing a steel mill – will require the involvement of scientific and technical translators at some point in its lifecycle. This involvement may come as early on as the design and consulting phase, during development and manufacture, as part of sales and marketing activities or to provide support to customers and users.

It has been estimated that scientific and technical translation now accounts for some 90% of global translation output (Kingscott 2002:247). Of course, this figure is unlikely to be completely accurate for a number of reasons – one of which relates to how we define scientific and technical translation (see Byrne 2006:3). However, even assuming that the figure is exaggerated due to various confounding variables, this figure is unlikely to be too far off the mark. This is all the more likely when we consider that the localization industry, which traditionally makes extensive use of scientific and technical translators, is estimated to be worth around US\$12 billion (DePalma & Beninatto 2006:4).

Indeed, scientific and technical translation forms such a crucial part of modern industry and society that it is the subject of numerous laws, regulations and directives and many international scholarly scientific journals, even those which publish papers in various languages, require translations of abstracts at the very least.

Practical Exercise 2: Exporting languages

Make a list of the electrical appliances you have in your home and note the countries in which they were designed and/or built. With your national language at the centre, draw a diagram illustrating the languages from which documents relating to your appliances have been translated.

Try to find some of the documentation that came with these appliances. Are there any features, for example style, subject, language or formatting which you think would pose problems for a translator? If you had to translate one document yourself, how would you approach these features?

1.1.4 Some legal dimensions

Understanding how various legal factors affect how and why we do our work.

One of the most compelling reasons for studying scientific and technical translation is that in many cases the translation of documents in these domains is an activity which is required by law. In Europe, EU Council Resolution C411 specifically states that in order to be able to legally sell or distribute technical products and appliances, all **technical documentation** relating to the product must be translated into the language(s) of the country where the product is to be sold (Council of the European Union 1998). A result of the Directive is that products are only regarded as being complete when they are accompanied by full operating instructions in the users' own language; if there are problems or inaccuracies in the instructions, the whole product can be regarded as defective. To put this into perspective, any product that involves some form of technology, be it electronic, electrical, mechanical, chemical etc., must be accompanied by documentation in a variety of languages. Assuming that few companies have the resources to

employ **technical writers** to produce documentation in each of the languages concerned, it is fair to say that there is a huge demand for translators (usually **freelancers**) who can translate this documentation into different languages.

The translation of **technical documentation** is also subject to a range of other laws, regulations and directives. Another provision of Resolution C411 is that instructions must be clear, comprehensible and must provide clear warnings to prevent misuse of products and to advise users of possible risks and hazards. Since in practice these translations are not regarded as translations *per se*, but rather as original **target language** documents, the regulations regarding technical writing and documentation will apply.

Other pieces of legislation which affect scientific and technical translation include Directive 2001/95/EC, which deals with general product safety, and Directive 88/378/EEC, which deals with the safety of toys. Both state that clear warnings about possible risks must be given in the users' own language. Similarly, Directive 90/385/EEC, which deals with medical devices, and Directive 76/768/EEC, which relates to cosmetics, state that documentation must be translated and it must anticipate potential risks (Byrne 2007:16). But even after translations have been produced, the law still plays an important role because translators can be held liable for mistakes in their texts as a result of contractual obligations or as a result of other liabilities arising from tort law (*ibid.*).

Practical Exercise 3: Translation and liability

Consider the following scenario: When translating an installation manual for a gas heater, a translator notices that the source text contains a serious factual error. It says that the gas supply **must not be turned off** before starting work. It should have said that the gas supply **must be turned off**. However, the translator retains this incorrect information in the target text. An engineer installing a gas heater follows the instructions and as a result, the heater explodes, killing the engineer and three other people who were working nearby.

What are the key issues to be considered in this case? Who do you think is responsible for the deaths? Should the translator be found negligent and fined/imprisoned? Why? Are there any mitigating factors?

Practical Exercise 4: Finding legal resources

An important aspect of law is that in many jurisdictions it is constantly evolving as a result of new court rulings, laws and legislation. Websites such as EUR-Lex [<http://eur-lex.europa.eu>] provide a wealth of information on legislation in the EU.

Using the Internet, your local library or whatever information sources are available to you, find three sources of national case law and legislation for your own country and three sources of international legislation. Try to identify any cases or laws which relate to translation or the provision of specialized technical information.

1.2 A place for translation theory?

What can translation theory tell us about translating technical documentation?

Translation theory has always been a problematic area of study. Part of the problem is that it seeks to understand and explain translation, which is itself a complex and notoriously difficult concept to pin down. In the rush to explain the various facets of translation - and possibly to justify translation as a discrete field of study - a plethora of theories, models and approaches have emerged, some of which are extremely insightful and useful, but amidst the noise created by so much work it is sometimes difficult to make sense of it all.

An introductory book intended to explain the practice of scientific and technical translation is not the place for a lengthy discussion of translation theory, although it is necessary to mention briefly some of the more relevant theoretical approaches which relate to this area. The following paragraphs will provide a very brief outline of how translation theory can be applied to scientific and technical translation.

One of the most difficult aspects of translation theory is that scientific and technical translation have traditionally been neglected by scholars and none of the mainstream theories really addresses scientific and technical translation specifically. Some models have been developed as general theories of translation while others have emerged from particular types of translation, such as literary translation or bible translation. As a result, applying any of the available theories to scientific and technical translation is fraught with difficulty.

Difficulties also arise because, as Chesterman (2000:49) points out, many theories of translation adopt a binary approach to translation consisting of diametrically opposed extremes. Some examples of this include *formal vs. dynamic* equivalence (Nida & Taber 1964), *semantic vs. communicative* (Newmark 1977) and *covert vs. overt* (House 1977). While this approach certainly serves to make the theories neater and easier to describe, it represents a rather oversimplified vision of the translation process. Translation inevitably involves shades of grey – new scenarios, unusual combinations of factors and so on – which means that trying to shoe-horn a translation into one category or the other is often uncomfortable, if not impossible. Conversely, having too many categories or options can make classifying a particular translation scenario equally challenging.

While a lot of valuable work has been done in the field of **LSP** (Language for Special Purposes) and text typologies, which help us to understand why and how texts are produced in specific communicative contexts, there is still a lot to be done before we can comfortably apply a theoretical model to scientific and technical translation. Typologies are discussed in [Chapter 3](#) but for more information see, for example, Göpferich (1995) and Trosborg (1997).

1.2.1 *Recreating the source text*

Traditionally, the source text has been regarded as the most important element in translation, particularly as it is the starting point for the whole process and

the basis upon which **target texts** are produced. The prevailing view has been that, for a translation process to exist there has to be a source text, otherwise we would not be translators, we would be writers. In recent years, however, the focus of translation theory has, particularly in non-literary spheres, shifted away from frameworks based on the source text towards a more communicative approach. This means that translation is increasingly being regarded as a communicative process and, as such, the guiding factors are the message and recipient, i.e. the content and the target audience. This change of focus has made the study of translation clearer in that we can relate it to actual real-world events with real participants.

The emphasis on the source text is perhaps most apparent in the numerous definitions and types of **equivalence**, which all rely on one thing: a link or bond of some sort between the source text and the target text. It is this relationship that, according to Kenny (1998:77), allows the **target text** to be considered a translation of the **source text**. As Catford (1965:49) explains, “the TL text must be relatable to at least some of the situational features to which the SL text is relatable”.

The focus in equivalence theory on the need to have a strong link between the source and target texts is unfortunately taken to extremes, however, with the result that the source text can erroneously be regarded as the most important component in the translation process, with translators striving to create as close a replica of the source text as possible. Indeed, some would argue that it should be the sole guiding principle for translators. Taking this approach to its natural conclusion, we would have a situation where we could never separate the source text and target text; the target text could not function as a translation without the ever-present source text.

While this is clearly problematic in many ways, to deny that there must be at least some link would also be misguided. Quite simply, without the source text there can be no translation. While this relationship can, to a certain extent, be abused through, for example, an insistence on excessively literal translations motivated out of an unquestioning and sometimes misguided loyalty to the author, often to the detriment of the target language (TL) reader, the fact remains that the source text forms the basis for the translation.

Perhaps the most well known types of equivalence are *formal* and *dynamic equivalence* proposed by Nida in 1964. Formal equivalence is concerned with the message in terms of its form and content. With this type of equivalence the message in the TL should match the different elements in the source language as closely as possible, be they lexical, syntactic, stylistic, phonological or orthographic. According to Catford, a formal correspondent (or equivalent) is “any TL category (unit, class, structure, element of structure, etc.) which can be said to occupy, as nearly as possible, the ‘same’ place in the ‘economy’ of the TL as the given SL [source language] category occupies in the SL” (Catford 1965:27).

Dynamic equivalence, on the other hand, is based on the notion that the **TT** should have the same effect on its audience as the **ST** had on its own audience. With dynamic equivalence, the emphasis is not so much on finding a TL match for

an SL message but rather on creating the same relationship between the target audience and the message as that which existed between the SL audience and the message (Nida 1964:159). The aim here is to produce a target text which is natural and idiomatic and which focuses on the TL culture. According to dynamic equivalence, a successful translation needs to capture the sense of the ST and not just the words. As such, it can only be regarded as a successful piece of communication if the message is successfully transmitted to the target audience.

Nida & Taber make the point, however, that eliciting the same response from two different groups of people can be difficult, particularly when we consider that no two people from the same language group will understand words in exactly the same way (1969:4). This sentiment is also expressed by Steiner (1975:28). What we are left with, therefore, is an approach which is theoretically quite desirable but difficult to implement and imprecise in practice. Applying the idea of formal and dynamic equivalence to any type of translation, not just to scientific and technical translation, rarely produces anything tangible or specific for a translator to make use of because they are such vague and subjective concepts.

There are a number of systems, which have been put forward to examine the levels of equivalence (see, for example, Komissarov 1977, Koller 1979, Baker 1992). One of the most enduring of these is the scheme proposed by Koller (1979:188-189), according to which equivalence can occur on the following levels:

- **Denotational meaning**, namely the object or concept being referred to;
- **Connotational meaning**, which is, according to Koller divided into language level, sociolect, dialect, medium, style, frequency, domain, value and emotional tone;
- **Textual norms**, which are typical language features of texts such as legal documents, business letters etc.;
- **Pragmatic meaning**, which includes reader expectations;
- **Linguistic form**, namely devices such as metaphors, rhyme and so on.

Each of these levels then gives rise to a particular type of equivalence, which can be used to describe the relationship between the ST and TT. In scientific and technical texts, achieving equivalence on any of these levels might require the translator to focus more on the information being communicated (denotational meaning) in the case of an instruction manual, on the *way* in which information is expressed (linguistic form) in a popular science article or on set phrases and document conventions (textual norms) in the case of a certificate of conformity (see [Chapter 4](#)). In order to emphasize equivalence on one of these levels, translators may find themselves having to settle for lower levels of equivalence on one or more of the remaining levels.

It has become rather fashionable to dismiss equivalence when discussing professional translation (Pym 1995 & 2010). The insistence of equivalence-based approaches on maintaining what some would regard as excessively close links between the target text and the source text and its original audience seems incongruous when the point of translation is to communicate to a new audi-

ence. Equivalence can also be criticized for its general difficulty in incorporating real-world, extratextual issues such as time constraints, preferred terminology and style, reader expectations, etc. However, to dismiss equivalence out of hand because it appears old-fashioned, excessively concerned with the source text and isolated from the world in which translation takes place is like saying that walking is not as useful as running and should be banned. In reality, both running and walking have their advantages and their disadvantages, it all depends on what it is you are trying to achieve.

These levels of equivalence give us, in theory at least, the ability to compare source and target texts, once a translation has been produced. However, we need to be wary of trying to use the various types of equivalence to *dictate* how a translation should be produced and how the ST and TT should relate to one another. They are simply not designed to do this; equivalence cannot tell us which of its various levels should be used, primarily because it has difficulty taking account of the fact that, as Toury (1995:26) says, a translation is a fact of the target language that hosts it. This means that scientific and technical translations will be governed and judged in the context of the norms, expectations and rules of the target text. In other words, they will be treated as if they were originally produced in the target language and not as translations. Moreover, equivalence does not take into account those real-world issues which play as much a role in shaping the translation process as the source and target languages, the text and its content etc. All that we can realistically expect to achieve using the various levels of equivalence is describe how the source and target texts relate to one another after the translation has been completed. A more helpful way of using equivalence is to employ its levels and types during the translation process as a set of tools or policies which can be selected in order to achieve some translation goal. In practice, this might mean that when translating an instruction manual, for instance, we would decide that denotational equivalence is more important than equivalence of linguistic form or connotational equivalence and that we would concentrate on conveying the information rather than on recreating the particular stylistic features of the source text.

The difficulty in adopting this type of approach, as hinted at above, is that we do not know which of the various levels of equivalence and, by extension, which aspects of the source text, are the most appropriate for a particular context. Simply knowing the different ways in which a source text and target text *can* be equivalent does not mean that a translator will choose the most appropriate one for a particular project. As a result, translators are usually left to their own devices in choosing the most appropriate translation strategy and may or may not choose the right one.

1.2.2 *Focusing on the target text*

Skopos theory was developed by Hans Vermeer in 1978 and was the first theory to fully recognize the professional reality of translation and that, unlike equivalence, the target text, or more precisely the **purpose** of the target text, is the

most important in determining the way we should translate texts (Vermeer 1982; 1987a). This theory is based on the principle that translation is a communicative activity, which is performed for a specific reason; a text is written for a specific purpose and it is translated for a specific purpose. It is this purpose, which is known as the **Skopos**, which governs the translation process, unlike equivalence, where the ST and its effects on the SL audience determine the translation process, or for that matter **functionalism**, where the ST function defines the TT function and the translation process.

Skopos theory maintains that the translation process is determined by the Skopos of the TT as specified by the commissioner and the translator. A text, according to Skopos theory, is an *offer of information*, i.e. the raw materials from which any number of possible translations can be produced (Vermeer 1987b). The way in which a translator selects the “correct” translation depends on the intended purpose of the translation being known. While this may seem rather vague, it does in fact reflect the reality of translation. For example, the way in which we translate a document will depend on who is going to read it, how they are going to use it, the way in which the text will be distributed and so on. These factors do not necessarily remain constant between source and target text and they are particularly important in scientific and technical translation.

Take, for example, a situation where we are asked to translate the user guide for a toaster. In both languages, such texts are expected to have an informative function so the primary function will not change. In the original source language culture, it is normal for such documents to adopt a tone which emulates an expert “speaking down” to a layperson who is instructed to follow certain procedures. However, target language readers would react quite badly to what they would perceive as a patronizing and demeaning, almost insulting, tone. If this document were being translated for distribution in the target country, the appropriate course of action would be to translate the text in such a way that this expert-layperson register is replaced by a peer-to-peer register where the reader is *advised* to follow certain procedures. A translator would be entirely justified in making such changes, as the translation would fail in its purpose otherwise.

However, if the user guide is simply being translated for use by a service engineer, the emphasis will be on the information and the reader is unlikely to be “offended” by harsh orders and will not need to have the translator explain every concept in simple terms. Ultimately, we would have two quite different translations originating from the same source text. But if, according to Vermeer, an ST is an offer of information and can give rise to any number of potential translations (Nord 1991:23), how is the translator to know which one is the most appropriate one? If it were left to chance, there is the risk that the translator may pick the wrong one, i.e. translate the text in a way that does not meet the client’s requirements.

Rather than leave such an important strategic decision to chance, Skopos theory introduces the notion of the **translation brief**, which is defined as a form of project specification which sets out the requirements for the translation (Byrne 2006:39). This brief is intended to form the basis for identifying the Skopos of the translation and is supposed to, among other things, clearly define what the trans-

lation is to be used for and who will use it. In his definition of translation, Sager (1993:116) acknowledges the need for some form of brief or instructions “from a third party” on the basis of which the translation is carried out. Unfortunately however, producing a translation brief is quite a hit and miss affair with clients rarely able to provide anything more relevant or specific than “I have a 7,500 word document that I need translated. It’s got something to do with electronics and I need it by the end of the week.”¹ In such cases, the translator generally needs to ask certain probing questions such as “is the text for publication?” etc. and on this basis construct some form of translation brief. This unfortunately weakens the effectiveness of Skopos theory somewhat.

This problem is compounded by the fact that nobody seems to know exactly what should go into a translation brief although the general consensus seems to be that it should provide some form of information about the target audience, intended purpose of the text and any stylistic or terminological requirements. Sunwoo (2007), in her paper “Operationalizing the translation purpose (Skopos)”, seeks to address this problem and presents a detailed “model for constituting the translation purpose from the translation commission” and a way of situating the text. The result is a very detailed analysis although it is probably much too complex for practical use.

Skopos theory can be tricky to use in practice because of the vagueness of the notion of the translation brief and also because it does not actually say how we are to fulfil a particular Skopos. But it does help us to concentrate on the most important aspects of the translation process.

From this very brief description, we can see certain limitations which are also indicative of other theoretical approaches to translation. For example, while equivalence gives us theoretical criteria with which to compare translations against their originals and which can be used as strategies if needed, it cannot account for the numerous factors which exist outside texts but which nonetheless play a crucial role in translation. Nor for that matter does equivalence tell us which of the various levels and types of equivalence is the most appropriate for a given translation scenario. Equivalence frequently places too much emphasis on the role of the source text to the detriment of all other factors.

While the introduction of **functionalism** (see House 1977, for example) was a groundbreaking step in that it lessened the emphasis of translation on purely textual factors, it still, unfortunately, maintained the excessive importance attached to the source text. Skopos theory, on the other hand, is valuable in that it explicitly addresses the professional context of translation and takes a more holistic approach.

Unfortunately, it can be problematic from the point of view that the Skopos of a translation is based on the undefined notion of the translation brief, which is open to interpretation and may, in some cases, be very difficult to formulate

¹ I once received an email asking whether I would be available to translate a medical text. Before agreeing to take the job I asked to see the text first, whereupon it emerged that the text was actually about guns, not medicine. The company for whom the text was to be translated normally made medical devices but had diversified into manufacturing accessories for guns.