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On the cognitive difference between literary and specialized translation

Abstract

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In order to be a part of an explanatory theory of translation, translation competence should be taken as the specific competence a translator needs beyond general types of competence, such as the knowledge of the source language and the target language. In literary translation, the translator is an expert reader of the source text, whereas in scientific translation it is unrealistic and not necessary to expect this. This imposes different requirements on translation competence.

Keywords: translation competence, literary translation, scientific translation

In this article, I will explore the differences between literary and specialized translation. It is not my purpose to delimit *literary translation* and *specialized translation* in a strict sense. Instead, I will take an example of each and explore their properties. In the conclusion, I will return to the question of how the insights gained in this way can be generalized.

As an example of literary translation, I will take the German translation of the short novel *Animal Farm* by George Orwell (1903–1950). The novel was originally published in 1945 and a German translation appeared in 1946. As an example of specialized translation, I take Hopcroft and Ullman (1979), a classic textbook on mathematical linguistics, and its German translation. Arguably, Hopcroft and Ullman (1979) is less typical of specialized translation than Orwell (1945) is of literary translation, but an advantage of choosing it is that the published German translations are more easily comparable than if I had taken, for instance, a financial report or a scientific article.

The aim of the analysis is a comparison of the cognitive processes involved in the production and reception of the English original and the German translation of these two works. In section 1, I will introduce some general ideas about the framework for studying these cognitive processes. Section 2 considers their application to Orwell (1945) as a literary work. In section 3 I turn to the writing and reading of Hopcroft and Ullman (1979) and its German translation as a scientific text. Section 4 considers how the process of translating Hopcroft and Ullman (1979) can be modelled. Section 5 concludes with some more general considerations about the extent to which the insights from sections 2 and 3 can be generalized.

1 Concepts of competence

One of the general questions of translation studies concerns the nature of translation competence. In approaching this question, I will draw a parallel with the notion of *competence* as discussed in linguistics.

Arguably, one of the greatest insights contributed to the study of language by Noam Chomsky (b. 1928) is the distinction between *competence* and *performance*. Chomsky (1965: 4) describes this distinction as in (1).

(1) We thus make a fundamental distinction between *competence* (the speaker-hearer's knowledge of his language) and *performance* (the actual use of language in concrete situations).

The formulation in (1) has given rise to a rather extensive body of discussion (cf. ten Hacken 2007: 41–53). The crucial difference between the two concepts is that competence is an entity in the speaker's mind, whereas performance is the speaker's output. Both are empirical and both can be found as linguistic expressions. They are empirical in the sense that they exist independently of an observer or researcher. A linguistic expression such as *pig* or *context-free grammar* may be part of a speaker's competence when we consider that the speaker knows the expression and has it in their mental lexicon. In (2), we find two examples of these expressions in performance.

(2)a. After a little thought the pigs sent for buckets and milked the cows fairly successfully, their trotters being well adapted to this task.
b. In Chapter 10 we sketch the principal ways in which efficient parsers that behave as pushdown automata can be built from certain kinds of context-free grammars.

When we consider *pig* as realized in (2a), from Orwell (1945: 16) and *context-free grammar* as realized in (2b), from Hopcroft and Ullman (1979: 9), they are part of performance. It is unlikely that (2a) or (2b) would be part of any speaker's

competence. However, the individual words or word combinations and the rules of grammar must be part of a speaker's competence in order to understand (2). In the performance, only the form is realized. The author and the reader can interpret this form, because in their competence the expressions and rules are stored with their meaning.

The use of *competence* in (1) is clearly geared towards language. From a didactic point of view, mathematical linguistics is also a competence, but it is not competence in the sense of (1). What is meant by *competence* in (1) is knowledge of the grammar and lexicon of a language. This knowledge is not explicit, so that it cannot be retrieved directly as rules or lexical entries. It is stored so as to be usable in producing performance. In order to avoid confusion with the didactic interpretation of the term, I will use *linguistic competence* where a differentiation is necessary.

An objection that has sometimes been raised against (1) is that it is overly restrictive. Hymes (1971), for instance, argues that the object of study should be what he calls *communicative competence* rather than competence in the sense of (1). The conflict does not turn on the way linguistic communication works. In fact, Chomsky (1965: 4) addresses this in (3).

(3) To study actual linguistic performance, we must consider the interaction of a variety of factors, of which the underlying competence of the speaker-hearer is only one.

One can speculate about the other factors alluded to in (3). One necessary factor is a knowledge component that includes the speaker's knowledge about what is expected in a particular situation. Chomsky (1980: 224) introduces the term *pragmatic competence* to refer to such knowledge. Kasher (1991) proposes an elaboration of this concept and its interaction with linguistic competence. Ten Hacken (2014) proposes a different elaboration. What is definitely clear is that pragmatic competence cannot be the only other factor alluded to in (3). At least two other factors must be distinguished. One is the component of the mind that makes a choice among the possibilities offered by the interaction of linguistic and pragmatic competence. We could call it *free will*. The other is any disturbance that may intervene between the decision on how to formulate the output and the realization of the output. This is at the basis of any unintended errors that can be recognized by means of linguistic and pragmatic competence.

Obviously, Hymes's (1971) concept of *communicative competence* cannot encompass all factors referred to in (3). There are factors, such as what I called *free will* above and the disturbances leading to errors, that cannot be modelled as competence. The distinction between Chomsky's and Hymes's models is that Chomsky proposes to analyse the competence involved in producing performance whereas Hymes favours a holistic approach. Chomsky's approach may

lead to the identification of the individual factors involved in performance, followed by an account of their interaction. This is the scientific method that in natural science has led to explanatory theories. A holistic approach may seem more attractive as a basis for description, but it does not offer any basis for explanation.

This opposition between analytic and holistic views of competence can also be extended to the study of translation. For the concept of *translation competence*, a holistic approach starts from the assumption that it encompasses the entire competence used by a translator in the task of translation. This approach does not offer a proper basis for explanatory theories. In order to advance translation studies scientifically, an analytic approach is necessary. In the same way as linguistic competence does not include pragmatic competence, translation competence does not include the knowledge of the source and target languages. In ten Hacken (2014) I outline a proposal for an analysis in which translation competence is taken to be the specific knowledge that is used in translation. We will come across some components of translation competence in sections 2 and 4.

2 Reading and translating literary texts

There are many different types of reader of literary texts. One distinction is the one between professional and non-professional readers. Professional readers include, for instance, literary critics and literary scholars. Both are expert readers, in the sense that they have a lot of background knowledge, but they have a different purpose. Literary scholars formulate and discuss theories. Literary critics evaluate literary works. In the case of Orwell (1945), literary critics did their job shortly after the appearance of the work. Literary scholars may still read and reread it with different theories in mind.

Another type of reader that could be labelled *professional* are school children. They are professional readers in the sense that they have to read literature because of the position they have. They are not expert readers. Orwell's (1945) classic is quite popular among school children, because it is accessible and relatively short.

Non-professional readers are people who read literature (only) for entertainment. They show a wide range of difference in degree and type of expertise. It is usually the general public that is the main intended readership for a literary work.

When we speak of the level of expertise, there are at least three types of knowledge that have to be taken into account. First, there is the knowledge of the language used. Orwell's (1945) novel is in English. The readers are not necessarily native speakers of English, but they need to understand English sufficiently in order to read it. A second type of knowledge concerns knowledge of the outside world. Without a certain degree of knowledge of the political issues alluded to, Orwell (1945) will be only "a fairy story", as the title page calls it. As not only the knowledge but also the perception of the world is quite different between speakers,

this aspect may affect the reception of the novel in ways that are not always easy to predict. Finally, there is the knowledge of other stories. Intertextuality is lost on readers without the relevant experience. It is here that the expertise of the literary scholars and literary critics is most evident. Whereas for texts such as Orwell (1945) it is usually assumed that the expertise required is available among readers, for older texts, footnotes are often used to compensate for an expected lacuna.

Compared to the analysis of the types of knowledge involved, it is harder to make generalizations about the readers' purpose in reading Orwell (1945). For non-professional readers, I assume they read literature for entertainment. For professional readers, one may hope they also enjoy reading it. School children have to read books because they are assigned to them. Critics and scholars work with them. The best generalization is perhaps that for all readers, the purpose of reading a work of literature is determined, at least to a large extent, by its status as a work of art. Works of art are enjoyed, appreciated, evaluated, explained, etc.

Let us now turn to the German translation of Orwell (1945). One of the salient properties of a translation of a novel is that its readers could turn to the original if they know the language. This means that for the German translation of an English novel, there are few professional readers. School children are told to read the original. Literary scholars and critics will generally ignore the translated text unless they want to study or evaluate the translation as such, rather than the novel. For non-professional readers, however, the convenience of a language they know better may be sufficient for them to choose the translation if it exists.

The importance of the original language is clear when we consider the readership and reception of Minco (1957), a narrative in Dutch of about the same length as Orwell (1945). Minco (1957) is very popular on school children's reading lists in the Netherlands, for very similar reasons as Orwell (1945) is. English and German translations exist, but they are not typically read by school children. Most literary scholars and critics outside the Dutch-speaking area will work with the translations as their only access to the work.

The expertise readers bring to reading the German translation of Orwell (1945) is in principle similar to the expertise of readers of the English original. Of course, instead of English, knowledge of German is required and can be assumed. The knowledge of the world and of other stories is not substantially different from what is assumed for the English original, but of course there are cultural differences. The readers' purpose is somewhat more homogeneous than for the English original, because some categories of reader will use the original rather than the translation.

Having considered the readers of the original text and the translation, we can now turn to the translator. A translator of Orwell (1945) into German will of course need an excellent command of English and German. They will also need a profound knowledge of the literary tradition from which the original text stems

and the literary tradition in which readers of the translation will embed their interpretation. The world knowledge to be taken into account will have to encompass not only the one linked to the English and German culture of the readers of the original and of the translation, but also that of the author.

The translator can be classified as a special kind of expert reader. In addition to an expertise that is at least comparable to the literary scholar and the literary critic in the source language, they will also have to have corresponding levels of knowledge for the target language, literature and culture.

3 Reading scientific texts and their translations

For scientific texts, the readers and their purpose in reading the text are generally much more homogeneous than for literary texts. Whereas for literary texts, the non-professional reader is the prototypical one, a textbook such as Hopcroft and Ullman (1979) will have few if any non-professional readers. As a textbook, it addresses itself primarily to university students. The preface has a section "Use of the book" (Hopcroft and Ullman, 1979: v), quoted in (4).[1]

(4)a. Both authors have used Chapters 1 through 8 for a senior-level course, omitting only the material on inherent ambiguity in Chapter 4 and portions of Chapter 8.
b. Chapters 7, 8, 12, and 13 form the nucleus of a course on computational complexity.
c. An advanced course on language theory could be built around chapters 2 through 7, 9 through 11, and 14.

The textbook consists of 14 chapters. In (4), the authors indicate three possible courses it could be used in. (4a) is the basis, because it is only characterized by its level, not by its topic. However, chapters 1–8 only cover 55% of the pages. In (4b), only four chapters are selected. Here it is obvious that the book is not necessarily intended to be read from cover to cover. It is possible to skip chapters and still work with material in later chapters. In (4b), 41% of the page length of the book is used. (4c) uses the largest portion of the book, 63%. Chapter 7 is the only chapter used in all three courses. Each chapter is used in at least one of the courses outlined in (4).

The way (4) is formulated implies that students are not the only intended readership for the book. If that were the case, it would make more sense to publish a book that corresponds more precisely to a course. The preface in fact presents it first of all as an overview of the field. University teachers are another target group. The inclusion of (4) in the preface indicates that the authors expect teachers to

1| The division in a, b, and c has been added for convenience of reference.

select the material from the overall description of the field. In addition, they mention that rather than an encyclopaedic overview, they preferred selecting "topics central to the theoretical development of the field or with importance to engineering applications" (Hopcroft and Ullman, 1979: v). This implies that the intended readership also includes scholars and engineers. Still, the readership is significantly more restricted and more homogeneous than for a literary work.

The purpose of reading a book such as Hopcroft and Ullman (1979) is also much more focused. The difference to a literary work such as Orwell (1945) can be expressed in terms of Jakobson's (1960) model of communication. Orwell expresses his opinion in a way that exploits literary conventions and intends to influence the reader's views. Therefore, the emotive, poetic and conative functions are prominent. Hopcroft and Ullman's (1979) work is first and foremost an overview of information. The referential function prevails over all others. The poetic function, relating to the form of the message, plays a role in the sense that stylistic conventions are observed and material is presented in a way that information is easy to find and the line of the argument easy to follow. The differences in the role of the poetic function follow from the fact that Orwell (1945) is a work of art and Hopcroft and Ullman (1979) is not.

For a literary work, we distinguished three types of knowledge used in its reception, viz. language competence, world knowledge and intertextuality. For a work such as Hopcroft and Ullman (1979), the language competence is similar. The world knowledge required is at the same time much more restricted in scope and much more profound. It is rather domain knowledge that is required. Even for a textbook, a level of background knowledge of the domain is presupposed. Thus, while Hopcroft and Ullman (1979: 4–5) explain a basic notion such as inductive proof in their first chapter ("Preliminaries"), they use a formula that requires a good level of algebraic insight in their explanation. Where literary works use intertextuality, however, a book such as Hopcroft and Ullman (1979) only uses some stylistic conventions. In mathematics, a typical example is the way proofs are formulated.

One of the consequences of the differences in purpose and readership between Orwell (1945) and Hopcroft and Ullman (1979) concerns the German translations of these works. For a literary work, the readership of the translation is reduced. In the case of a novel written in English, professional readers will hardly use the German translation unless the translation as such is in focus. For Hopcroft and Ullman (1979), the use of the German translation or the English original depends only on convenience, i.e. whether the reader has a better knowledge of English or of German.

As a consequence of this relationship between the original and the translation, there is no sense of privileged access for readers of the original. An example of a textbook with a similar scope to Hopcroft and Ullman (1979) is Levelt

(1973). Levelt's book is in Dutch and has been translated into English. In section 2, we saw that for Minco (1957), as a literary work in Dutch, the translations have a different function compared to the translations of Orwell (1945), because Dutch is a less widespread language than English. Dutch readers of the original get a more direct access to the text, but non-Dutch readers depend on the translation. While in a literal sense this is also true of Levelt (1973), this direct access is much less significant, because the reader's purpose will in both cases be the extension of knowledge. The experience of the formulation is less relevant as long as the knowledge remains accessible.

4 Translating scientific texts

The difference in the relationship between originals and translations for literary and scientific texts affects the translator's task and the types of competence that are necessary. For literary texts, we saw in section 2 that a monolingual literary scholar activates three types of competence. A translator mirrors them for the two languages. In addition, the author's perspective and the readers' perspective in the source language will have to be distinguished. This leads to a total of seven knowledge components that the translator uses to modulate translation decisions. This models the expectation that the literary translator is an expert reader of the source text. In the case of scientific texts, expert readers are scientists. However, scientific translators are not necessarily (or typically) scientists.

Let us therefore consider how the difference in the expectations on literary and scientific translators can be related to the perception of original and translated literary and scientific texts. Of course, each text requires linguistic competence in the language the text is written in. This is not different for literary and scientific texts.

A factor that is quite specific to literary texts is the intertextuality. The importance of intertextuality means that the more related literary texts a reader (and a translator) have read, the better their grip on this aspect of the appreciation of a literary text. In scientific texts, intertextuality does not play a significant role. The closest equivalent are the stylistic conventions in organizing a text, both at macro-level (e.g. how a book is organized in chapters) and at micro-level (e.g. how sentences and clauses are organized). A major difference between intertextuality and stylistic conventions is that competence in the former can grow indefinitely, whereas competence in the latter levels out quite soon. Moreover, stylistic conventions for scientific texts are relatively similar between different languages. Observations such as that in scientific texts in English, sentences tend to be shorter than in German or that German has two words corresponding to different uses of *but*, *aber* and *sondern*, are significantly simpler in their implementation than incorporating allusions to Bunyan's *The Pilgrim's Progress* or Goethe's *Faust*.

An area where scientific translation seems to impose more requirements on the translator than literary translation is world knowledge. After all, scientific texts have a much more complex subject matter. The main question in this context is how the complexity of the subject matter is managed by the translator.

In literary translation, the translator has to work with three different perceptions of world knowledge. The world knowledge of the source text author interacts with the author's intention with the text. The world knowledge of the source text readers is what the author can expect among their readership. The world knowledge of the target text readers is what the translator has to take into account in formulating the target text. The author of the source text will not have written for this readership, which may result in challenging problems in the formulation of the translation. The issue of the difference between the target readership for the original text and the actual readership occurs also monolingually, e.g. for older works or hermetic texts. It can be solved by using explanatory footnotes, but of course such footnotes constrain the interpretation process by selecting the information deemed necessary for a successful interpretation.

In scientific texts, there is much less variation in knowledge among the different types of reader. For a textbook such as Hopcroft and Ullman (1979), it can be expected that the authors have a more profound knowledge of the domain. In other text types, there may be less difference (e.g. scientific articles) or the target readers' knowledge is more profound (e.g. dissertations). In any case, the degree of knowledge is more homogeneous among authors and readers and their knowledge is significantly more profound than the translator's.

In order to see the nature of the difference, let us consider (5), taken from Hopcroft and Ullman (1979: 92).

(5) Let *G* be a context-free grammar generating a language not containing ε. By Theorem 4.4, we can find an equivalent grammar, $G_1 = (V, T, P, S)$, such that *P* contains no unit productions or ε-productions.

In (5), we have the start of a proof. The language is highly formulaic and has a high density of symbols and terms. It should be noted that large parts of the textbook consist of theorems and their proofs, with occasional short paragraphs of connecting text. Let us first focus on the expression *context-free grammar*. For a mathematical linguist or a student who has made it up to page 92, *context-free grammar* is the name of a well-known concept. Hopcroft and Ullman (1979: 76–106) devote an entire chapter to it, giving a precise definition (1979: 79) and exploring its formal properties.

Crucially, the concept of *context-free grammar* is realized in the minds of individual people. The richness of the concept depends on the individual speaker's knowledge of it. A student working through the textbook in a university course of the type in (4a) should know the definition and should be able to understand the

properties of these grammars treated up to this point. They should also have a basic view of the significance of the concept, i.e. why it is useful to distinguish context-free grammars from other types of grammar, and the relationships to concepts treated earlier. How much of this knowledge is realized depends on the success of the course and of the student. This is the type of knowledge tested in an exam. A teacher using Hopcroft and Ullman (1979) on a course will likely have a much more profound knowledge of the concept. In the exam, they will test to what extent the students' concept is compatible with their own and rich enough to use it successfully.

For readers of the German translation, the concept will be basically the same, but it is stored under the name *kontextfreie Grammatik*. Each reader will of course have a concept of their own in their mental lexicon, but the content and the variation in content is not dependent on the language used. If we could have a direct full access to a particular speaker's representation of the concept, e.g. in some graphical format, we would not be able to determine from the concept whether the speaker has an English or a German name associated with it.

The translator is in general not a mathematical linguist. One might object, of course, that students are not mathematical linguists either. Compared to students, however, translators have three disadvantages in absorbing the knowledge while working through the book. First, as (4) shows, students are generally not going through the book from cover to cover. Translators have to process the entire text. Secondly, students work through the book in a course. They have a teacher explaining the material and answering their questions. Translators work on their own. Thirdly, students have a degree of background knowledge preparing them for the subject matter when they start which is in general much higher than that of translators.

While this indicates that students have a better point of departure than translators for building up a full concept of *context-free grammar*, this conclusion does not show that translators are inadequately equipped for their task. After all, whereas students have to gain enough knowledge to solve the exercises and pass the exam, the translator does not have to do this. In the case of *context-free grammar*, the most relevant piece of knowledge for the translator into German is that the translation is *kontextfreie Grammatik*. Any further understanding is only necessary to the extent that it improves the quality of the translation.

In the case of terms such as *context-free grammar*, it is generally sufficient to replace the form in the source language by its standard equivalent. In this way, the reader of the target text will understand the meaning because it is retrieved in their mental lexicon. As ten Hacken and Fernández Parra (2008: 3–5) show, it is not always straightforward to identify such an equivalent. Even if we have one, however, this does not solve all problems, because (5) does not consist of terms alone. In (6) the English original is followed by the German translation in Hopcroft and Ullman (1990: 99).

(6)a. Let *G* be a context-free grammar generating a language not containing ε. By Theorem 4.4, we can find an equivalent grammar, $G_1 = (V, T, P, S)$, such that *P* contains no unit productions or ε-productions.

b. Sei *G* eine kontextfreie Grammatik, die eine Sprache erzeugt, die nicht ε enthält. Nach Satz 4.4 können wir eine äquivalente Grammatik $G_1 = (V, T, P, S)$ finden, so daß *P* keine Kettenproduktionen und keine ε-Produktionen enthält.

The translation in (6b) is very close to the original. The use of the subjunctive *sei* at the start of a proof is conventional in German. It is interesting to consider the difference in status of *context-free grammar* and *equivalent grammar*. The former is a multi-word term, the latter a combination. It is not necessarily the task of the translator to recognize this difference. Whether this is necessary depends on whether it affects the translation.

Another observation concerns *unit production* in (6a). It is rendered as *Kettenproduktion* (lit. 'chain production') in (6b). This is an example of a term that is not prominent enough in the domain to have a widely known, standardized designation. It is quite likely that the anonymous translator of Hopcroft and Ullman (1990) had to choose a German designation himself. A literal translation would be problematic, because *Einheitsproduktion* would have the association with *einheitlich* ('standardized'), cf. *Einheitsformat* ('standard format'). In such cases, the translator has to choose a term that will serve the purpose of conveying the meaning to the target language reader as well as possible and use it consistently.

What these observations illustrate is that the ultimate measure for the evaluation of a translation of a work such as Hopcroft and Ullman (1979) is to what extent the translation enables the reader of the German text to build up a mental representation corresponding to the intention of the authors. Any analysis on the part of the translator should first of all serve this purpose.

5 The role of translation competence

In conclusion, let us consider how translation competence is involved differently in different types of translation. As we found in section 1, translation competence should not be taken as whatever competence the translator has, but it is the specific competence necessary for translation, which interacts with general types of competence used in other tasks. As such, the language competence in English and German is not part of the translation competence of an English-German translator, but strategies to resolve mismatches between the two languages, e.g. the choice between *aber* or *sondern* as a translation of *but*, are.

When comparing the role of the literary translator in section 2 to the role of the scientific translator in section 4, the most striking difference is the level of understanding of the source text the translator is expected to have. In literary

translation, the translator is expected to be an expert reader, whereas in scientific translation, the translator is a facilitator, mediating between subject experts. In ten Hacken (2018), I propose an analysis of this difference in terms of the representation of the meaning of the text. Here the focus is on the use of translation competence.

The literary translator's expertise concerns the intertextuality and the world knowledge referred to in the source text, as well as the knowledge that can be expected in this respect among the readership of the target text. As such, the translator combines the expertise of expert readers of the source text and expert readers of the target text. The translation competence concerns the management of the different types of expertise, especially where they produce conflicting constraints. A particularly good translation is one that solves such problems in a convincing way.

The scientific translator is generally not an expert on the subject field, or at least not to the same extent as the author of the source text and the intended reader of the target text. Instead, their expertise concerns language and style. A central component of the translation competence used by a scientific translator is the recognition of cases where further research into the meaning and significance of an expression will result in a better translation. Here the quality of the translation is determined by the degree to which the communication between experts (i.e. the author and the intended readers) is successful. For terms, a scientific translator has to use the standardized corresponding expression if it exists. This requires recognizing what is a term and being able to find the proper translation as a term. It also means recognizing how other expressions than terms will be perceived and assessing to what extent this perception is appropriate.

I do not intend to claim that one of literary or scientific translation is more challenging or more worthwhile than the other. My claim is that they involve different types of expertise and a different use of translation competence. The examples discussed in sections 2–4 are taken as prototypes of the relevant types of translation. Probably, it is more adequate to see them as points on a cline, perhaps close to its extremes, than as representatives of classes with precise boundaries. Depending on the field of knowledge, some cases of scientific translation may be closer to literary translation. There are of course also types of translation that are neither literary nor scientific. I expect that in most cases they can be assigned a point on the cline somewhere in between the types of literary and scientific translation discussed here.

The most important point I want to make here is that translation competence is not the same in literary translation and in scientific translation. A general theory of translation competence encompassing both areas without a variable corresponding to the cline proposed here is unlikely to have the necessary explanatory power to account for both of them adequately.

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