

## **Translation Revision: Correlating Revision Procedure and Error Detection**

### **Abstract**

This article reports on an empirical study on translation revision. With the aim of investigating the possible link between revision procedure and quality, the research correlates an indicator of quality, error detection, with revision procedure. Error detection and revision procedure were studied drawing on a convergent parallel mixed-methods research design involving three different sources of data. Nine subjects performed a revision task and thus produced text data; their activities on the computer screen were captured and saved as video files; and retrospective interviews were conducted with the revisers upon completion of the task. Results show that the highest error detection scores were linked with a variety of revision procedures, but with one common denominator: the target text was consistently the point of departure. Revisers with high error detection scores thus engaged in various different revision procedures, but their focus of attention in the initial operations was the translation rather than the source text in all cases. Conversely, the revisers whose initial attention was directed towards the source text received the lowest error detection scores in the revision task.

### **1. Introduction**

Translation revision is an emerging topic in the translation industry, in translator training and in translation research. As any emerging field, it is characterized by lack of consensus regarding terms and definitions (Robert 2008; Mossop 2011; Rasmussen/Schjoldager 2011), and the term ‘revision’ itself is used to refer to a range of activities. Brian Mossop, one of the pioneers in the field, suggests the following broad definition: “Revision is the process of looking over a translation to decide whether it is of satisfactory quality, and making any needed changes” (Mossop 2011: 1). When this process is performed by the translator him- or herself as an integral part of the translation task, it is sometimes referred to as ‘self-revision’ (but also as ‘checking’ in EN 15038, see below). When revision is carried out by someone else as an additional quality check on the translator’s work, it is sometimes referred to as ‘other-revision’. As pointed out by Mossop (2011: 3), however, ‘revision’ has become the term of choice to describe the activity of other-revision, and in this article we shall follow this usage. Thus, the term ‘revision’ is used here to describe the process by which a person other than the translator checks a translation for errors and makes any necessary corrections in order to prepare the translation for delivery to the client. Note that this definition excludes revision of non-translated texts, sometimes referred to as ‘editing’ or ‘reviewing’. Also excluded from this article is revision of machine-translated output, which generally goes under the name of ‘post-editing’.

In the translation business, translations are frequently revised by a person other than the translator as one among several quality assurance procedures. International organizations have been pioneers. Surveys dating several decades back show that most translations produced within international organizations were subjected to revision at the time (Arthern 1983: 53; Horguelin/Brunette 1998: 10). Revision is, however, costly in terms of time and money, and attempts have been made in recent years towards “balancing risks and resources” in international organizations (Mar-

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\* *A. Helene Ipsen & Helle V. Dam*  
*Department of Business Communication*  
*Aarhus BSS, Aarhus University*  
*Jens Chr. Skous Vej 4*  
*DK-8000 Aarhus C*  
*ipsen88@yahoo.dk – hd@bcom.au.dk*

tin 2007: 60; see also Prioux/Rochard 2007). At the private market, on the other hand, the demand for translation revision is likely to increase. 2006 saw the publication of EN 15038, the European Quality Standard for Translation Services, which requires translation service providers certified under it to have every translation revised by a second translator. This requirement has been carried forward to the new international standard, ISO 17100, which was published in 2015. While little is known about the general uptake of these standards by translation service providers, a survey conducted in France shortly after the publication of EN 15038 shows that the general intention of translation providers was to implement this norm (Hernández Morín 2009: 147-8). Also a survey-cum-interview study among Danish translation companies by Rasmussen and Schjoldager (2011) shows an extensive use of revision. At the same time, however, Rasmussen and Schjoldager noted a “general absence of formalised revision guidelines” (2011: 108) and found that there was generally no formal training of revisers (2011: 110). Similarly, a decade or so ago, Künzli (2006b) reviewed the study programmes of translator training institutes that are members of CI-UTI (*Conférence Internationale permanente d’Instituts Universitaires de Traducteurs et Interprètes*) and found that few of them offered courses or modules on translation revision. While this situation may have changed by now, it is probably safe to say that revision is a relatively new topic in translator training. The same is true when it comes to research, as will become clear from the literature review in section 2 below.

In an attempt to contribute to our knowledge of the emerging topic of translation revision, this article presents selected results from research conducted for an MA thesis by the first author under the supervision of the second author (Ipsen 2015). Within a framework best described as open experimenting, the overall aim of the research was to explore what translators (do not) revise, why and how. Incidentally, the study also produced interesting results regarding the relation between a measure of quality (error detection, as explained in section 3) and revision procedure, and this will be the focal point of the present article. In a review of empirical research of revision, Brian Mossop poses the following question in a section entitled *what we need to know*: “Is there a revising method that produces higher quality?” (Mossop 2007: 19). This article wants to contribute to answering this central question.

Section 2 provides a review of the literature on translation revision, focusing on the article’s central topic, revision procedure, and positions the present study with respect to previous research. Section 3 describes the methodology of the research, and in section 4 the results are reported. Section 5 concludes the article and discusses research findings and methodology.

## **2. The literature on translation revision**

A review of the literature within translation studies shows that the first publications on revision appeared only some two to three decades ago, and most of them were handbooks or practical guides for students and practicing translators (e.g. Thaon/Horguelin 1980; Horguelin/Brunette 1998; Mossop 2001/2007/2014). A second wave of publications came in the 00s. These were based on empirical research, but tended to draw on indirect methodologies in the form of surveys and interviews: translators and translation companies were asked to report on their revision policies, procedures, parameters, etc. (e.g. Shih 2006; Robert 2008; Hernández Morín 2009; Rasmussen/Schjoldager 2011). Only in a third wave have studies of revisers in action based on observational methodologies begun to appear on the scene (e.g. Brunette et al. 2005; Künzli 2006a, 2007; Parra Galeano 2006, 2007; Robert 2013, 2014; Robert/Waes 2014).

### **2.1. Revision procedure**

As explained in section 3 below, the independent variable in the present study is revision procedure, i.e. how revisers go about the task of revising a translation. The literature on revision procedure reflects the three waves identified above: some publications make recommendations on procedures mainly based on personal experience, others describe the procedures revisers *say* they use

in surveys and interviews, and others again (albeit few) report on the effects of using one rather than the other procedure as studied in experiments or experiment-like set-ups.

### **2.1.1. Recommendations: the optimal procedure and order of operations**

To start with the recommendations, it is generally agreed that revision ideally proceeds in different steps, alternating between two main procedures: monolingual (also referred to as ‘unilingual’) and comparative (also referred to as ‘bilingual’) revision (e.g. Horguelin/Brunette 1998; Mossop 2014; see also Robert 2008 and Rasmussen/Schjoldager 2011). When performing a monolingual/unilingual revision, the reviser concentrates on the translation itself, checking it for language and logic, and refers back to the source text only if a passage seems questionable (although in some scenarios, the option of referring back to the source is not available). When performing a comparative/bilingual revision, the reviser consistently checks the translation against its source or, vice versa, checks the source text against its target. The comparative procedure is generally believed to be more time-consuming, but it allows the reviser to check systematically for accuracy and completeness of transfer.

The main issues in discussions of the ideal revision procedure are, on the one hand, the optimal order of monolingual and comparative operations and, on the other, which operation to choose in cases where time and money allow only one: should it then be a monolingual or a comparative reading? Graham (1989) and Gile (1995/2009) essentially propose a one-step procedure consisting of a monolingual revision of the translation, with the option of referring back to the source text in case of obvious problems. Most other authors recommend procedures in two or more steps. Rochard (1999), Hine (2003) and Samuelsson-Brown (1993), for example, propose a monolingual check of the translation followed by a comparative reading. Mossop (2014: 173-174) advocates essentially the same procedure, but his ideal model consists of as many as seven steps, starting with a (purely) monolingual reading then proceeding to a comparative revision, after which five stages mainly operating on the target text follow. Horguelin and Brunette (1998: 39) also suggest several steps, but their model differs from most others with respect to the order of operations: it suggests that the reviser should start by reading the source text alone and then proceed to conducting a comparative revision; only when these operations have been performed, should the translation be given a monolingual check. However, the authors add, in practice there is often only one reading: a comparative. With the exception of Horguelin and Brunette (1998), then, most authors recommend beginning the revision process with a careful check of the translation without, or only occasionally, referring back to the source text. The primacy given to the translation or target text in the initial stage of the revision process is explained by Mossop (2014), among others. For one thing, there is potential interference from the source text to be avoided: “the wording of the source text may get in the way of your target-language judgments”, as Mossop (2014: 16) explains. Moreover, reading the translation alone first gives the reviser “a golden opportunity to see the translation from the user’s point of view” (Mossop 2014: 167).

### **2.1.2. Surveys and interviews**

Some empirical studies have been conducted to inquire into revision procedures used in the translation industry, with data elicited on the basis of surveys (Robert 2008; Hernández Morín 2009), surveys followed up by interviews (Rasmussen/Schjoldager 2011) or interviews alone (Shih 2006). Taken together, the results of these studies are rather inconclusive. It appears that the survey respondents use a variety of revision procedures, both inter- and intrasubjectively, and different sub-studies in the research by both Robert (2008: 9-12) and Rasmussen and Schjoldager (2011: 104-105) seem to produce different results or even conflicting evidence. One major finding emerges from the survey studies, however: when asked what revision procedure they use, the industry representatives tend to claim that they use one or the other version of comparative revision, sometimes in combination with monolingual checking. This finding may reflect actual

behavior or the respondents' perception of ideal behavior: surveys and interviews are certainly not without merits, but these methods cannot reliably elicit information about actual behavior. This is where the third wave of research drawing on observational methods comes in.

### 2.1.3. Observational studies

Brunette et al. (2005) compared the results of monolingual revision of twenty three translations with the results of comparative revision (referred to as bilingual revision) of the same translations by the same translators some days earlier. The revisions were assessed for so-called *corrections* (i.e. actual quality improvements), *omissions* (i.e. errors left uncorrected) and *reviser-injected errors* (these categories are also often referred to as “justified changes”, “under-revision” and “over-revision”, respectively (Künzli 2007: 117-118)). The results were not impressive in any of the conditions, with a large number of omissions (under-revisions) and reviser-injected errors (over-revisions) in both tasks. Comparative revision did, however, produce more so-called corrections (justified changes) and was found to yield higher quality products than monolingual with regard to accuracy, readability, linguistic correctness and appropriateness to purpose and readership, although there were in fact fewer reviser-injected errors in the monolingual condition. Based on these findings, Brunette et al. (2005: 43) conclude that the results of comparative revision were “more attractive”, whereas monolingual revision “proved to be an irrational practice, even less helpful than no revision.”

The research reported in Robert (2013) and Robert and Waes (2014) addresses a similar topic but with more variables and data sources. They investigated the impact of four different revision procedures – monolingual, comparative (referred to as bilingual), comparative followed by monolingual, and monolingual followed by comparative – on revision quality, duration and so-called error detection potential. The data sources were revised texts, think-aloud protocols (TAPs) and keystroke logs. Quality was measured based on a score of justified changes, whereas error detection potential was measured based on justified changes and attempted but unsuccessful corrections (referred to as under-revisions) as evidenced by the text data, as well as on error detections which did not lead to corrections as evidenced by the TAPs and log files. Results of this rather sophisticated research showed that monolingual revision produced poorer results than the other three modalities in terms of both quality and error detection potential, thus corroborating the findings of Brunette et al. (2005). Moreover, monolingual revision was found not to take significantly less time than comparative checking, though it was faster than the two-step procedures. The differences between the other three revision procedures were found not to be statistically significant, neither in terms of quality, error detection potential nor duration. With respect to these three modalities, Robert and Waes therefore argue, “the choice is free” (2014: 317).

The study reported on in the present article picks up the thread laid out by the above studies. It studies revisers in action and draws on multiple data sources, which bear some resemblance to those employed by Robert and her co-author, though we have chosen not to use think-aloud protocols due to their intrusiveness. Instead, retrospective interviews are employed along with screen videos and text data (revised translations), as described in detail in section 3 below. Our research also employs a more open approach to the object of study in order to address a question that was left unanswered in previous research, namely: exactly what is involved in comparative revision? Brunette and co-authors do not define the two procedures that they put to the test at all; and neither Brunette nor Robert and their respective co-authors are specific about what kind of sub-procedures (also referred to as ‘micro-operations’ below) comparative revision is supposed to cover. Robert (2013: 89) tentatively explains comparative revision as “comparing the source text and the target text”. But does this mean that the reviser looks at the source text first? Or the target text? Or perhaps both at the same time? While these questions may seem trivial, they may turn out not to be. Brian Mossop devotes an entire section of his textbook to the order of (micro-)operations during comparative revision, stressing the importance of “[r]ead[ing] a sentence of the translation first, then the corresponding sentence in the source text” (Mossop 2014: 168), basically for the

same reasons as those he gives for recommending that revisers start any assignment by reading the translation in its entirety, without making reference to the source text (see section 2.1.1). The revisers who participated in the present research were not instructed to use any specific procedure but were asked to give detailed accounts of their mode of operation after the fact, a method that allows us to identify the procedures revisers spontaneously use and, more importantly, to elicit data about the micro-operations involved in comparative revision, if applicable, and study the efficiency of the various procedures used.

### 3. Methodology

As indicated, the aim of the present research is to correlate revision procedure and a measure of revision quality in order to contribute to our knowledge about the potential impact of procedure on quality. The independent variable is thus **revision procedure**. The dependent variable is not revision quality per se but an indicator which is likely to contribute to quality, namely **error detection**. As Mossop points out, “To state the obvious, *you cannot correct a mistake until you have found it.*” (Mossop 2014: 165; his emphasis). As he further explains, the “central challenge in revision is simply noticing problematic passages in the first place” (Mossop 2011: 5). This is amply documented in previous studies, which have shown that revisers overlook errors all the time (Brunette et al. 2005; Künzli 2006a, 2007; Robert 2013). Error detection in this study is similar to the variable Robert refers to as “error detection potential” and defines as “the capacity to detect an error even if the detection does not lead to a justified change” (Robert 2013: 89). Here, we are not interested in capacity but only in observable detections, hence the label ‘error detection’. On the other hand, we would argue, error detection is an indicator of *error correction potential* and, hence, potentially of quality: if you detect an error, you can potentially correct it, and the correction is, potentially, an improvement. In addition, in the research by Robert (2013) and Robert and Waes (2014), the results for the variable ‘quality’ and those for the variable ‘error detection potential’ show identical patterns, thus supporting error detection [potential] as a predictor of quality.

Error detection and revision procedure were studied drawing on a convergent parallel mixed-methods research design (Creswell 2014: 219-220) involving three different sources of data collected roughly at the same time. Nine subjects performed a revision task and thus produced text data; their activities on the computer screen were captured and saved as video files; and retrospective interviews were conducted immediately after completion of the revision task. The three data sources are complementary and enable triangulation.

#### 3.1. Subjects

Nine subjects participated in the study: six were final-semester students at Aarhus University enrolled in an MA programme in International Business Communication with a specialization in translation and interpretation between Danish and Spanish, whereas three had recently graduated from the same programme. Danish was the subjects’ native language and Spanish their first foreign language. None of the participants had received training in translation revision *per se*, but were of course trained translators or close (the six who were still students had completed (and passed) all courses and had only their MA theses or an internship pending). Three subjects had some experience with revision, whereas six were unexperienced revisers.

The participants were selected based on availability of candidates with the desired educational profile, with all the risks such a sampling method (convenience sampling) entails. However, research has shown that revisers in the translation industry are usually trained translators (as our subjects) and that they rarely receive any formal training in revision, at least in Denmark (Rasmussen/Schjoldager 2011). The subjects in the present study therefore resemble the actual actors in the field quite closely. The participants’ slightly different levels of experience with revision seemed less than ideal at the outset, but the differences turned out not to affect the results in any systematic way: the performances of the participants with some revision experience (subjects 1,

3 and 4) were not systematically different from those of the other subjects with respect to the investigated parameters (see results in tables 2 and 3, section 4<sup>1</sup>). The same applies for the small differences in educational status: no systematic differences could be detected between the performances of final-semester students and those of recent graduates (1, 2 and 4; see results in tables 2 and 3, section 4).

### 3.2. Material

The target text to be revised was an authentic translation from Spanish into Danish of an advertisement from a mobile operator. The translation and its source were made available by a translation agency located in Spain. In its real-life setting, the translation had been revised before it was delivered to the client, but it was the unrevised version that was used in the research. The text was not highly technical but contained some specialized terminology. It consisted of 514 words and was thus similar in length to material used in other studies (e.g. Robert 2013: 91).

Forty five errors were identified in or incorporated into the translation by the researchers in accordance with Brian Mossop's well-known model of revision parameters, i.e. types of problems a reviser should look for (Mossop 2014). The model includes twelve categories of potential errors divided into four groups according to the problem area of the errors. The four main groups are (keywords indicated in boldface and with sub-categories in brackets): (1) problems of meaning **Transfer** (accuracy, completeness); (2) problems of **Content** (logics, facts); (3) problems of **Language** and style (smoothness, tailoring to readers, sub-language (terminology, phraseology), idiom, mechanics (spelling, punctuation, etc.)); (4) problems related to the visual aspect of the text/ **Presentation** (layout, typography, organization) (Mossop 2014: 134-135). Other revision parameters have been proposed (e.g. Horguelin/Brunette 1998), but Mossop's model is widely used in training and in research, where it has been reported to reflect the parameters revisers look for in practice (e.g. Shih 2006; Rasmussen/Schjoldager 2011). The forty five errors in the task material were, then, distributed over Mossop's twelve categories as far as possible. There were no errors of layout or organization (Presentation) in the unrevised translation, nor could such errors be included in the text in any natural way, and these categories are therefore not represented in the material. On the other hand, the category of mechanics lends itself easily to incorporation of errors, and we therefore decided to divide this category into four sub-categories (grammar, punctuation, spelling, and correct usage according to customer requirements) to ensure a larger number of errors in the material and thus a broader data base. All in all, errors of thirteen different types were identified in or incorporated into the translation, with each category containing between two and six errors, as applicable. For an overview, see table 1 in section 4.1.

### 3.3. Data collection

Prior to the actual data-collection sessions, a pilot test was conducted with a translator who does not form part of the final sample, based on which some minor adjustments of the task material and the organization of the data-collection sessions were made.

Data were collected in individual sessions, with one subject at the time. The sessions took place in an office at Aarhus University and began with a brief introduction to the revision task. The reviser was seated in front of a laptop with the text to be revised prepared in the translation software *Memsorce* to make the task as authentic as possible. Like many other translation programs, *Memsorce* represents source and target texts in parallel, with source segments to the left and target segments to the right. During the task, the reviser had access to electronic dictionaries and to the internet, but the translation-memory and machine-translation facilities of the translation software had been switched off and misspelled words in the translation had been added to

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<sup>1</sup> Subject 1 is clearly an outlier in every respect, as can be derived from tables 2 and 3 in section 4, but the performances of revisers 3 and 4 do not stand out with respect to the investigated parameters.

the dictionary so that the electronic spell check did not highlight them. The reviser was provided with the Spanish source text on paper as well as with print copies of the client's original instructions (the translation brief) and the revision brief. The translation brief stated that the advertisement was to be translated from Spanish into Danish and that, since it was an advertising text, a good understanding of the original text was necessary (sic). Surprisingly, the brief did not mention target audience or where the text was to be published. The revision brief instructed subjects to revise the translation so that it would be ready for delivery to the end-client and informed them of the original translator's choices (such as the use of capital letters, punctuation choices, etc.). This brief also mentioned that the revisers could use translation aids of their own choice but gave no (further) indications about how to perform the task. A time-limit of forty minutes was set for the task for reasons of ecological validity: revisers usually work with a given time-frame, often shorter than forty minutes for 500 words, but the unusual setting and inexperience of the revisers were taken into account. After the instructions, the reviser was left alone in the office while he/she revised the translation. During the task, all activity on the computer screen was captured using the software *Snagit*. This program video-records all keyboard and mouse movements visible on the computer screen, including search actions in dictionaries and on the internet, in real time, and thus gives access to rich visual data without actually video-recording the person working or otherwise interfering with the task.

When the forty minutes had passed, the researcher returned to the room and asked the reviser to stop working and take a short break, and a cup of coffee, before the interview. During the break, which lasted five to ten minutes, the researcher saved the *Snagit* video and the revised text on the computer. The revised text was compared with the translation using the 'Compare documents function' in MS Word, which quickly and efficiently revealed all changes the reviser had made in the translation.

During the subsequent interviews, the revisers were first asked some general questions about their experience with revision. These were followed by a series of first open-ended and later increasingly close-ended questions about the procedure the interviewees had used during the revision task, including questions about the micro-operations involved in the individual revision stages they recounted having used. Subsequently, there was a session with classic cued retrospection. During this part of the interview, the reviser and the interviewer sat so that both could see the compared document on the computer screen. The interviewer also had a printed list with all the predefined errors, so that she was able to quickly spot which errors had been corrected and which had not. The reviser was asked to comment on both corrections made and not made during the task. Not all (potential) corrections could be addressed, however. The pilot test had shown that the interviewer had to be careful with questions regarding missing or unsuccessful corrections as such potentially face-threatening questions could have an impact on the interviewees' willingness to share their thoughts and considerations. While not all errors and potential corrections could therefore be addressed during the interviews, a good selection was discussed in any one interview. The interviews were audio-recorded and afterwards transcribed.

All in all, the research draws on three sources of data: (1) the translations as revised by the nine subjects; (2) the *Snagit* videos of the revisers' screen activities; (3) the transcriptions of the retrospective interviews.

### 3.4. Methods of analysis

As explained in section 3, the dependent variable of the present research is **error detection**. Error detection was measured based on the three data sources, and comprises:

1. **Errors corrected** as evidenced by the revised translations (sometimes referred to as **EC** below). This category of detections comprises all amendments performed in connection with the forty five predefined errors in the translation, be they successful or not, as justified in section

3: no matter if a correction is an improvement or not, the fact that it has been performed indicates that the error has been detected by the reviser.

2. **Errors Detected but Not Corrected** as clearly evidenced by the *Snagit videos* (sometimes referred to as **EDNC-videos** below). This type of detections were revealed by analyses of the videos alone and applies to cases where the revisers, for example, first corrected one of the predefined errors and then seemingly regretted and corrected back to the original wording, or when the videos revealed that the revisers made dictionary or internet searches in connection with the errors but eventually did not make a correction.
3. **Errors Detected but Not Corrected** as evidenced by the **interviews** and corroborated by the **videos** (sometimes referred to as **EDNC-interviews-cum-videos**). These detections are more subtle and were not noticed by the researchers when looking at the videos alone, but were taken to the fore during the interviews. EDNC-interviews-cum-videos stem from cases where the revisers, when interviewed about a predefined translation error that they had left uncorrected, said that they had noticed the error but had not corrected it for example because they could not come up with a better solution, or because the correction would take up too much valuable time. The researchers then went back to the videos, and if these confirmed the reviser's explanation through a hesitation or similar on the screen (for example, a standstill in the video and the cursor pointing at the word or segment with the error in question), this was accepted as evidence of EDNC-interviews-cum-videos.

If, on the other hand, the revisers stated in the interviews that they had in fact spotted an error pointed out by the interviewer but for some reason decided to leave it uncorrected, it was not registered as an error detection if it could not be validated by the videos. Thus, the videos served as the strongest data source in case of conflicting evidence.

Data on the independent variable, **revision procedure**, were mainly elicited based on the retrospective interviews. As indicated above, descriptions of procedure were obtained from the revisers by means of semi-structured interviews starting with open-ended questions and progressing with increasingly close-ended questions. The revisers' explanations were validated by means of the videos as far as possible. In the absence of an eye-tracker, however, the researchers were unable to see which text (source or target) the revisers looked at at any given point in time. But as the videos captured all activities on the screen, they could for example show if the revisers performed a monolingual reading first, as they would then simply scroll down the text without performing any corrections. In other cases, the revisers started correcting the translation right away, which suggests that they did not perform a full reading before they started revising. Based on the revisers' explanations as partially corroborated by the videos, the researchers drew up a map of the various procedures used by revisers. The procedures are summarized in section 4.2 below.

## 4. Results

In this section, results are presented first for the dependent variable, error detection (section 4.1), and afterwards for the independent variable, revision procedure (section 4.2). In section 4.3, the findings for the two variables are correlated.

### 4.1. Error detection

Table 1 below gives an overview of the different types of error detection in the data in relation to the different error categories in the translation. The table covers the performances of all nine revisers:



Group/Category	Total errors in translation (Errors per category x 9 translations)	Errors Corrected total number and %	Errors Detected, Not Corrected - videos total number and %	Errors Detected, Not Corrected – interviews- cum-videos total number and %	Total Error Detection total number and %
<b>Transfer</b>					
Accuracy	54	21 (39%)	3 (6%)	3 (6%)	27 (50%)
Completeness	18	9 (50%)	0	0	9 (50%)
<b>Total transfer</b>	<b>72</b>	<b>30 (42%)</b>	<b>3 (5%)</b>	<b>3 (6%)</b>	<b>36 (50%)</b>
<b>Content</b>					
Logic	18	8 (44%)	0	2 (6%)	10 (56%)
Facts	18	6 (33%)	0	0	6 (33%)
<b>Total content</b>	<b>36</b>	<b>14 (39%)</b>	<b>0</b>	<b>2 (6%)</b>	<b>16 (44%)</b>
<b>Language</b>					
Smoothness	36	20 (56%)	0	2 (6%)	22 (61%)
Tailoring	18	6 (33%)	0	0	6 (33%)
Sub-language	36	24 (67%)	0	1 (3%)	25 (69%)
Idioms	45	28 (62%)	0	0	28 (62%)
Grammar	27	23 (85%)	0	0	23 (85%)
Punctuation	45	14 (31%)	1 (2%)	1 (2%)	16 (35%)
Spelling	54	22 (41%)	0	0	22 (41%)
Correct Usage	18	7 (39%)	0	0	7 (39%)
<b>Total language</b>	<b>279</b>	<b>144 (52%)</b>	<b>1 (0.4%)</b>	<b>4 (1%)</b>	<b>149 (53%)</b>
<b>Presentation</b>					
Typography	18	3 (17%)	1 (6%)	1 (6%)	5 (28%)
<b>Total presentation</b>	<b>18</b>	<b>3 (17%)</b>	<b>1 (6%)</b>	<b>1 (6%)</b>	<b>5 (28%)</b>
<b>TOTAL</b>	<b>405</b>	<b>191 (47%)</b>	<b>5 (1%)</b>	<b>10 (3%)</b>	<b>206 (51%)</b>

Table 1. Errors detected during revision as distributed over the different error categories and types of evidence. Performances of all nine revisers.

As we can see in table 1, the overall error detection score is 51%, a result that does not differ in any essential way from what has been found in previous research with experienced revisers (Robert 2013). Some categories of errors clearly appear to be easier to detect than others. For example, only 28% of the errors of presentation were spotted against 53% in the language category, where detection of grammatical errors dominates (85%). Between them, the revisers detected errors in all categories, but this finding covers some individual differences, as can be derived from table 2:

<b>Reviser</b> <b>Parameter</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>Transfer</b>	7 (88%)	2 (25%)	3 (38%)	5 (63%)	3 (38%)	6 (75%)	5 (63%)	2 (25%)	3 (38%)
<b>Content</b>	2 (50%)	2 (50%)	2 (50%)	2 (50%)	2 (50%)	2 (50%)	2 (50%)	2 (50%)	0
<b>Language</b>	25 (81%)	12 (39%)	15 (48%)	18 (58%)	18 (58%)	17 (55%)	15 (48%)	15 (48%)	14 (45%)
<b>Presentation</b>	2 (100%)	1 (50%)	1 (50%)	0	1 (50%)	0	0	0	0
<b>TOTAL</b>	<b>36</b> <b>(80%)</b>	<b>17</b> <b>(38%)</b>	<b>21</b> <b>(47%)</b>	<b>25</b> <b>(56%)</b>	<b>24</b> <b>(53%)</b>	<b>25</b> <b>(56%)</b>	<b>22</b> <b>(49%)</b>	<b>19</b> <b>(42%)</b>	<b>17</b> <b>(38%)</b>

Table 2. Total error detections (EC + DENC-videos + DENC-interviews-cum-videos) by reviser as distributed over the main error categories.

As we can see in table 2, the individual differences are large, ranging from 17/38% detected errors (revisers 2 and 9) to 36/80% detections (reviser 1). At the same time, however, it is also clear that reviser 1 is an outlier, with a large jump down to the revisers with the second best score (4 and 6, both with 25/56% detections). The other revisers spread more evenly, with between 38% and 56% of errors detected, though this difference is not negligible either: the latter score is almost 50% higher than the former. On the other hand, the individual differences are mainly quantitative. Qualitatively, almost all revisers make corrections of errors of almost all kinds and in approximately similar proportions. Errors of presentation seem to constitute an exception within this overall pattern, but this category contains a small number of errors, which means that small performance differences may produce deceptively large effects. We shall return to these results in section 4.3, after a description of the various revision procedures the subjects engage in.

## 4.2. Revision procedure

Based on the revisers' explanations in the retrospective interviews as partially validated by the videos, six different revision procedures emerged. These can be summarized as follows:

### **Comparative revision** (one-step procedure involving both source text and translation)

- source-text segments were read before the corresponding target segments (revisers 3 and 9)

### **Comparative revision + monolingual revision** (two-step procedure); in the comparative stage:

- source-text segments were read before the corresponding target segments (reviser 2)
- target-text segments were read before the corresponding source segments (reviser 5)

### **Partly comparative revision + monolingual revision** (two-step procedure)

- target text in focus in the comparative stage, referring to the source text only when in doubt (the partly comparative check is in fact referred to by many authors as ‘monolingual’ or ‘unilingual’ (see section 2.1.1), but here we reserve these labels for the *purely* monolingual revision to be able to make more fine-grained distinctions<sup>2</sup>) (revisers 1, 4 and 6)

**Partly comparative revision + comparative revision + comparative revision** (three-step procedure)

- target text in focus in stage 1, referring to the source text only when in doubt; in stages 2 and 3, target-text segments were read before source segments (reviser 7)

**Monolingual reading of source text + monolingual reading of translation + comparative revision + monolingual revision** (four-step procedure)

- a complex procedure involving two monolingual *readings* (not revisions), starting with the source text (reviser 8)

At first sight, the procedures employed by the revisers seem to display a complex pattern with few similarities, but a correlation of error detection scores and revision procedure does in fact point to some recurring patterns, as shown in the following section.

### 4.3. Correlation of error detection scores and revision procedures

Table 3 below ranks the revisers with respect to their total error detection scores:

Reviser No.	Error detection scores
1	80%
4/6	56%
5	53%
7	49%
3	47%
8	42%
2/9	38%

Table 3. Ranking of revisers according to error detection scores

It is interesting to note that the three top-ranked revisers – 1, 4 and 6 – employed the same revision procedure: a two-step procedure, starting with what we refer to as a partly comparative revision for finer distinction, though many authors refer to it simply as mono-/unilingual, and concluding with a monolingual revision of the translation. The reviser who ranks No. four, with a score very close to the second and third ranked revisers, subject 5, employs a similar procedure: a two-step course of action concluding with a monolingual revision of the translation. On the other hand, (one of) the lowest ranked reviser(s), subject 2, also employs a two-step procedure, starting with

<sup>2</sup> The distinction made here between the purely monolingual modality (revising the translation without reference to the source text) and the not fully monolingual mode we refer to as *partly comparative* (revising the translation with occasional recourse to the source text) is justified by the fact that the two procedures enable revisers to perform different types of corrections. In our research, a triangulation of the retrospective interviews and text data thus showed that the types of corrections the revisers were able to perform in the purely monolingual mode differed from those they could make when using partly comparative revision (see Ipsen 2015).

a comparative check and concluding with a monolingual revision. There is, however, one potentially important difference between subject 2, on the one hand, and subjects 1, 4, 6 and 5, on the other: the material with which they begin. Subject 2, engaged in a comparative revision to begin with, reads source text segments before target segments; the top-ranked four do it the other way around: they look at the target text (segment) first. And this is a recurring pattern: the highest ranked subjects 1, 4, 6, 5 and 7 start working with the translation; the lowest ranked subjects 3, 8, 2 and 9 begin with the source text (segment), either in a monolingual reading or, more frequently, in a comparative revision.

## 5. Conclusion and discussion

This article has correlated error detection scores in a revision task performed by nine revisers with the participants' retrospective reports on revision procedure as partially validated by screen data. Error detection scores were argued to be indicators of revision quality based on the general literature on revision and previous research. Revision procedure was taken to be the independent variable as other variables remained identical or similar across participants and tasks. Results show that the best revision performances, as indicated by the highest error detection scores, were linked with a variety of procedures, but with one common denominator: the target text was systematically the point of departure. The best performers started either with a so-called partly comparative revision (often referred to as monolingual in the literature) or with a (fully) comparative revision, but the focus of attention in their initial operations was consistently the translation rather than the source text. Conversely, the revisers whose initial attention was directed towards the source text were the poorest performers.

The results match the recommendations in the literature to varying degrees. As we saw in section 2, the literature reflects a variety of recommendations, some of them conflicting, but the general consensus is to give primacy to the target text at the outset. The findings of the present study support this advice. Another general recommendation in the literature is to employ procedures comprising (at least) two steps, starting with a monolingual check followed by a comparative reading. None of the revisers in the present study employed this procedure (though, arguably, subject 7 proceeded more or less along those lines), and the group of best performers (1, 4 and 6) actually reversed the recommended order of operations, starting with a so-called partly comparative revision and concluding with a monolingual procedure. The first operation, the partly comparative revision, is arguably a monolingual check following the definition of most authors in the field and as such may be seen to comply with recommendations in the literature. However, the concluding monolingual operation is suggested by few scholars, with the important exception of Mossop (2014), who suggests a variety of check operations on the target text to conclude with. The final monolingual stage is also present in Horguelin and Brunette's model (1998). It is interesting to note that, during the interviews, all the revisers in the present study explicitly and spontaneously mentioned a final monolingual check of the translation as either an operation that they had put particular emphasis on performing or as a desirable operation they would have performed if they had had the time.

The research-based recommendation of Robert and Waes (2014), as supported by the findings in Brunette et al. (2005), is to avoid the use of monolingual revision. Their advice is to employ comparative revision or combinations of procedures that include comparative – a recommendation that is echoed in the voices of industry representatives, who seem to attach particular importance to comparative revision in interviews and surveys (see section 2.1.2). The results of the present research indicate that the comparative modality, at least when performed alone, is not necessarily a good option. It was used by revisers who were (among) the poorest performers (3 and 9). But as pointed out in section 2.1.3, the research by Brunette et al. (2005) and Robert and Waes (2014) did not take into account the order of micro-operations within the comparative modality. The present research indicates that this aspect is potentially important as low error detection scores are systematically linked with initial source-text focus (and vice versa). In other words, the

comparative procedure may not be good or bad *per se*. The crucial issue may be where revisers focus their initial attention. We would therefore suggest that more attention is paid to the order of micro-operations in future research on revision procedure, be it in connection with comparative revision alone or with any multi-step procedure involving comparative.

The findings of the present research are in no way conclusive, but the study should be assessed for what it is: a first exploratory and small-scale study that has pointed towards some interesting avenues for further exploration and, possibly, experimentation. One of the study's merits lies in the methods it proposes. The combination of three data-collection instruments allowed triangulation in a useful and uncomplicated way. We wish to point out, however, that the text data produced by far most evidence on error detection, whereas the interviews and screen captures each contributed little to measuring the dependent variable. As can be derived from table 1, the overall patterns in findings would not have been different if the study had drawn exclusively on text data to measure error detection. In future research, therefore, it should be considered if text data can reliably stand alone and thus make an already simple measure even simpler.

The software *Snagit* as such proved to be a non-intrusive, easy-to-use tool and a rich source of data. In the research reported on here, it was used mainly to add and validate evidence on the dependent and independent variables, but it also proved to be a rich source of information in its own right. For example, as the videos documented all screen activities in connection with error corrections, this tool convincingly illustrated that not all corrections are equally straight-forward. Problems of transfer (accuracy), for example, clearly required much more investment in time and effort (search actions, etc.) than, say, grammatical errors. Such qualitative analyses were included in the original research, but are not reported here for reasons of space and focus.

The main source of data on revision procedure, retrospective interviews, is debatable as it can produce information about claimed behavior only – not about actual behavior. Methods of direct observation such as video-recording of revisers at work, eye-tracking and/or observation by a researcher present in the room, could have been used instead of or in addition to interviews, but these methods tend to be more intrusive than the method employed here. In addition, interviews conducted in specific task contexts such as the present retrospective interviews can more reliably elicit information about behavior than the out-of-context surveys or interviews previous research has tended to draw on. On the whole, it is our impression that the procedure descriptions offered by the revisers during the retrospective interviews reflected their actual behavior during the task well. Their accounts were detailed, and they volunteered lengthy reflections on how they had solved the task and also on how they could perhaps have approached it in a better way. In addition, many of the revisers' explanations could be validated by means of the videos.

This article began with a quote by Brian Mossop concerning what we (still) need to know about translation revision. We shall conclude with another quote from the same source and on the same topic: “some people report that during comparative revision, they read a sentence or so of the translation first, and then the corresponding bit of source text, while others say they do the opposite. Does one of these produce better results?” (Mossop 2007: 19). More research is evidently needed, but the results reported in this article suggest that the former procedure may indeed lead to better results.

## References

- Athern, Peter J. 1983: Judging the quality of revision. In *Lebende Sprachen* 2, 53-57.
- Brunette, Louise/Gagnon, Chantal/Hine, Jonathan 2005: The GREVIS project: revise or court calamity. In *Across Languages and Cultures*, 6 (1), 29-45.
- Creswell, John W. 2014: *Research Design. Qualitative, quantitative, and mixed methods approaches*. Los Angeles, London, New Delhi, Singapore & Washington DC: Sage.
- Gile, Daniel 1995/2009: *Basic Concepts and Models for Interpreter and Translator Training*. Amsterdam & Philadelphia: John Benjamins.

- Graham, John D. 1989: Checking, revision and editing. In Picken, Catriona (ed.), *The Translator's Handbook*. London: Aslib, 59-70.
- Hernández Morín, Katell 2009: *La Révision comme Clé de la Gestion de la Qualité des Traductions en Contexte Professionnel*. Doctoral Dissertation. Université Rennes 2. <http://tel.archives-ouvertes.fr/docs/00/38/32/66/PDF/TheseMorinHernandez.pdf> (last accessed 23 November 2015).
- Hine, Jonathan 2003: Teaching text revision in a multilingual environment. In Baer, Brian James/Koby, Geoffrey S. (eds), *Beyond the Ivory Tower: rethinking translation pedagogy*. Amsterdam & Philadelphia: John Benjamins, 135-156.
- Ipsen, Anna-Helene 2015: *Revision af Oversatte Tekster. En empirisk undersøgelse af oversættelsesrevision* [Revision of Translated Texts. An empirical investigation of translation revision]. Master Thesis. Aarhus University, School of Business and Social Sciences, Department of Business Communication. <http://pure.au.dk/portal/files/85220365/SPECIALET.pdf> (last accessed 23 November 2015).
- Künzli, Alexander 2006a: Translation revision. A study of the performance of ten professional translators revising a technical text. In Gotti, Maurizio/Sarcevic, Susan (eds), *Insights into Specialized Translation*. Bern & Frankfurt: Peter Lang, 195-214.
- Künzli, Alexander 2006b: Teaching and learning translation revision. Some suggestions based on evidence from a think-aloud protocol study. In Garant, Mikel Del (ed.), *Current Trends in Translation Teaching and Learning*. Helsinki: Helsinki University Press, 9-24.
- Künzli, Alexander 2007: Translation revision. A study of the performance of ten professional translators revising a legal text. In Gambier, Yves/Shlesinger, Miriam/Stolze, Radegundis (eds), *Doubts and Directions in Translation Studies*. Amsterdam & Philadelphia: John Benjamins, 115-126.
- Martin, Timothy 2007: Managing risks and resources. A down-to-earth view of revision. In *The Journal of Specialized Translation* 8, 57-63.
- Mossop, Brian 2007: Empirical studies of revision: what we know and need to know. In *The Journal of Specialized Translation* 8, 5-20.
- Mossop, Brian 2011: Revision. In Gambier, Yves/van Doorslaer, Luc (eds), *Handbook of Translation Studies*, Volume 2. Amsterdam & Philadelphia: John Benjamins, 1-7 (online version).
- Mossop, Brian 2001/2007/2014: *Revising and Editing for Translators*. Manchester: St. Jerome (2001 and 2007)/London & New York: Routledge (2014).
- Parra Galiano, Silvia 2006: La revisión y otros procedimientos para el aseguramiento de la calidad de la traducción en el ámbito profesional. In *Turjuman* 15 (2), 11-48.
- Parra Galiano, Silvia 2007: La revisión como procedimiento para el aseguramiento de la calidad de la traducción: grados, tipos y modalidades de revisión. In *SENEZ* 32, 97-122.
- Prioux, René/Rochard, Michel 2007: Economie de la révision dans une organisation internationale: le cas de l'OCDE. In *The Journal of Specialized Translation* 8, 21-41.
- Rasmussen, Kirsten Wølch/Schjoldager, Anne 2011: Revising translations. A survey of revision policies in Danish translation companies. In *The Journal of Specialised Translation* 15, 81-120.
- Robert, Isabelle 2008: Translation revision procedures: an explorative study. In Boulogne, Pieter (ed.), *Translation and its Others. Selected Papers of the CETRA Research Seminar in Translation Studies 2007*, 1-25.
- Robert, Isabelle 2013: Translation revision: Does the revision procedure matter? In Way, Catherine/ Vandepitte, Sonia/ Meylaerts, Reine/Bartłomiejczyk, Magdalena (eds), *Tracks and Treks in Translations Studies*. Amsterdam & Philadelphia: John Benjamins, 87-102.
- Robert, Isabelle 2014: Investigating the problem-solving strategies of revisers through triangulation. An exploratory study. In *Translation and Interpreting Studies* 9 (1), 88-108.
- Robert, Isabelle S./Van Waes, Luuk 2014: Selecting a translation revision procedure: do common sense and statistics agree? In *Perspectives: Studies in Translatology* 22 (3), 304-320.
- Rochard, M. 1999: Terminologie, traduction et révision: de l'expérience à la pédagogie. In *Revue des Lettres et de Traduction* 5, 113-126.
- Samuelsson-Brown, Geoffrey 1993: *A Practical Guide for Translators*. Clevedon, Buffalo & Toronto: Multilingual Matters.
- Shih, Claire Yi-Yi 2006: Revision from translators' point of view. An interview study. In *Target*, 18 (2), 295-312.
- Thaon, Brenda M./Horguelin, Paul A. 1980: *A Practical Guide to Bilingual Revision*. Montreal: Linguattech.