John Benjamins Publishing Company

This is a contribution from *Interpreting* 17:1

© 2015. John Benjamins Publishing Company

This electronic file may not be altered in any way.

The author(s) of this article is/are permitted to use this PDF file to generate printed copies to be used by way of offprints, for their personal use only.

Permission is granted by the publishers to post this file on a closed server which is accessible only to members (students and faculty) of the author's/s' institute. It is not permitted to post this PDF on the internet, or to share it on sites such as Mendeley, ResearchGate, Academia.edu.

Please see our rights policy on <https://benjamins.com/#authors/rightspolicy>

For any other use of this material prior written permission should be obtained from the publishers or through the Copyright Clearance Center (for USA: www.copyright.com).

Please contact rights@benjamins.nl or consult our website: www.benjamins.com

Corpus-based research into the presumed effects of short EVS

Bart Defrancq
Ghent University

The aim of this study, based on 32 French speeches simultaneously interpreted into Dutch at plenary sessions of the European Parliament in late 2008, was to ascertain whether short ear-voice span (EVS) affects the quality of the interpretation as is commonly stated in the literature. The speeches and interpretations were taken from the 'EPIC Ghent' corpus, which is in preparation at Ghent University. Three phenomena were identified as potential effects of a short EVS: syntactic *transcodage* (maintaining the right-branching French 'noun+*de*+noun' structure, not using a more natural left-branching structure, in the Dutch interpretation), use of cognates similar in sound to source language forms ('*glissement phonétique*'), and certain self-repairs (Barik 1973; Gile 1995). Time tags were applied to both the source and target texts, so that EVS could be measured to the nearest second from the onset of a source language item to the onset of the target language equivalent. The hypothesis was that EVS would be shorter in contexts where these three phenomena occur than elsewhere in the subcorpus. This was borne out in only one case, i.e. use of cognates: short (2 secs.) and very short (1 sec.) EVS was significantly more frequent in contexts where cognates occurred than elsewhere. There was no statistically significant frequency difference in the context of *transcodage* or of the relevant self-repairs.

Keywords: corpus, EVS, transcodage, repair

1. Introduction

Within the still fairly young discipline of interpreting studies, research into EVS (ear-voice span, also called time lag or *décalage*) has a long-standing tradition. The first author to mention the time lag between a speaker and a simultaneous interpreter was probably Paneth (1957), and the subject has generated a considerable number of publications since then (see, for instance, Ono et al. 2008). Many

of these focus on the length of EVS, on the mental operations that coincide with it, and on factors that are likely to affect it. Even though the literature contains a wealth of information about supposed effects of short or long EVS on the interpretation, there has nevertheless been relatively little empirical research on the subject. The purpose of this paper is to at least partially fill that gap.

Regarding the length of EVS, the results of most studies more or less coincide on an average of 2 to 4 seconds, with peaks of up to 10 seconds (as reported in Oléron & Nanpon 1965). The agreement across studies is remarkable, considering the different methodologies used to measure EVS. The tendency is mostly to measure EVS in an experimental setting, by identifying semantically equivalent lexical items in the source and target texts, though Barik (1975) explicitly warns against using strictly lexical equivalence based on only one word at a time.

There are also differences in the unit of measurement used. Some earlier studies measure EVS in words or other linguistic constituents (Gerver 1969; Goldman-Eisler 1972; for a more recent application, see Donato 2003), but the most common practice in more recent research is to measure it in seconds. Setton (1999) rejects the word as a unit of measurement, arguing that word structure varies too much across languages. On the other hand, measuring EVS in seconds requires detailed and consistent methodology as to the exact point where the timing starts and ends. Few studies provide adequate information in this respect. Only Christoffels (2004) and Ono, Tohyama and Matsubara (2008) do so, specifying that the end of EVS coincides with the onset of the target language item but differing in whether measurement should start from the onset (Christoffels) or the end (Ono et al.) of the source language item. These two studies are also the only publications to date which measure EVS by digital technology.

Finally, authors opt for different intervals between successive items used as reference points: Gerver (1969) measures EVS in relation to every fifth word in the source text, while Barik (1973) uses one source language item every five seconds. Christoffels (2004) places reference points at the beginning and end of each sentence. Ono, Tohyama and Matsubara (2008) mark all content words in the source text. These methodological differences mean that, though each study individually provides interesting data, their comparability is severely limited.

In the earlier stages of interpreting research, measuring EVS was expected to provide useful information on the interpreter's cognitive processes. There was thus a focus on the amount of information needed to start interpreting, and on the 'chunking' of information. EVS was thought to be an indicator of the amount of input needed by the interpreter in order to start interpreting: Goldman-Eisler (1972) found that interpreters usually wait for the predicate of a sentence before they start interpreting it. In the same vein, it has been pointed out that, due to differences in word order between languages, the EVS tends to be longer in some

language pairs than in others and that interpreters tend to ‘wait for the verb’ before starting to interpret (Lederer 1981; Lee 2002; Ono et al. 2008). Much of the early research involved a comparison between interpreting and shadowing, based on the expectation that, as interpreting required deeper levels of linguistic analysis than shadowing, it would be characterized by longer EVS. Treisman (1965) and Gerver (1969) found that this was indeed the case. Anderson (1979, 1994) showed that the mean EVS of an interpreting task is only slightly longer than that of a rephrasing task in the same language, suggesting that most of the additional effort required in interpreting as opposed to shadowing is taken up by reformulation. Gile (1995) speaks of EVS as a possible indicator of how the various components in the Effort Model of simultaneous interpreting relate to each other: thus, a long EVS might reflect that the Listening Effort is prioritized over the Production Effort in the segment concerned.

Much attention has been paid to contextual factors that could affect EVS. In addition to language combination, a number of studies have found that source text presentation rates and speech/pause ratios (Barik 1973; Gerver 1969; Lee 2002; Oléron & Nanpon 1965), source text length and type (Adamowicz 1989; Barik 1973; Oléron & Nanpon 1965) and sentence length (Lee 2002) have an impact on EVS length, as does the interpreter’s degree of prior preparation (Díaz Galaz 2011). By contrast, noise levels appear to be EVS-neutral (Gerver 1974). It has also been reported that source text difficulty can affect EVS (Díaz Galaz 2011). Anderson (1994) notes, however, that interpreters’ personal preferences may outweigh any of the input factors mentioned above.

While various factors impacting EVS have been studied empirically, the effects of EVS on the interpretation process and product have sparked substantially less research. This is surely not for lack of ideas or hypotheses. A short EVS is often thought to increase the risk of “*traitement linguistique*” (Lederer 1981), i.e. limited processing of input which tends to result in *transcodage*, or word-for-word translations (see also Barik 1975). Gile (1995) hypothesizes that short EVS can lead to production problems in terms of inappropriate sentence planning and self-repairs: interpreters might run into problems as they realize they cannot correctly finish a sentence started off with too little input material. Self-repairs are then needed to put the interpretation back on the right track. On the other hand, long EVS is believed to result in a high memory load and, as a result of limited memory capacity, omissions (Barik 1973; Gile 1995). In one of the rare empirical studies examining the effects of EVS on interpretation quality, Lee (2002) found that long EVS (i) increases the interpreter’s delivery rate, as s/he is trying to catch up with the speaker; (ii) has a negative impact on the quality of the interpretation, though it is unclear how the author understands and measures this. Barik (1973) reports that long EVS is, indeed, associated with increased omission rates.

Given the many references in the literature to the effects of different EVS lengths, the relative paucity of empirical research on this topic may come as a surprise — all the more so, if one considers that the supposed effects of EVS length are often mentioned in a didactic context. Thus, students of interpreting are warned against over-shortening of EVS in relation to the risk of *transcodage* and repairs. But are there empirical data to back such a warning?

In this paper, I will describe empirical testing of the correlation between short EVS and frequency of *transcodage* and repairs. First, however, I will focus on the usefulness of a corpus-based approach to measure EVS and investigate its effects.

2. Corpus-based interpreting research

All previous studies on EVS were conducted in the framework of an experimental research design or on the basis of *ad hoc* recordings made at a conference. Shlesinger (1998) points out two important shortcomings of such data. First, the data generated in this way are limited. Second, the experimental samples are largely made up of student interpreters, as it is difficult to find enough professional interpreters willing to participate in research. Experimental research admittedly offers the advantage of controlled conditions. However, Shlesinger (1998) points out that these conditions are not necessarily representative of those actually experienced in the field: thus, interpreters in an experiment might be working alone, often interpreting short pieces of text (typically up to five or 10 minutes) or loose collections of pre-recorded sentences, with no audience.

Corpus data, on the contrary, are collected from real-life interpreting at conferences or in other contexts. Corpora are typically designed to do justice to the variety of linguistic phenomena and paralinguistic conditions that are representative of language in use. Their use need not therefore be limited to the study of only one or two phenomena, as is usually the case in experimental research.

Corpus-based linguistic research has become increasingly popular since the late 1970s, when the first large collections of linguistic data, both written and spoken, were made available. In translation studies, corpus-based approaches go back to Mona Baker's (1993) seminal paper on the subject. Use of corpora took far longer to become an established practice in interpreting studies, not least because the compilation and transcription of interpreting data is extremely labour-intensive and time-consuming (Thompson 2005). The first large simultaneous interpreting corpus was compiled at the University of Bologna, from recordings of a series of European Parliament sessions (Bendazzoli & Sandrelli 2005). Research groups at the universities of Rome, Trieste and Hamburg then began compiling corpora (for an overview of current research in corpus-based interpreting studies, see Straniero

Sergio & Falbo 2012). The research reported in this paper is based on a corpus that is being compiled at Ghent University (Belgium), as described in the next section.

3. EPIC Ghent

Like EPIC Bologna, EPIC Ghent consists of transcriptions of speeches and their interpretations recorded during plenary sessions of the European Parliament.¹ In its current shape it comprises approximately 160,000 words, including mainly French and Spanish source texts and Dutch target texts. Source and target texts were transcribed according to the Valibel instructions (Bachy et al. 2007). The sub-corpus discussed below was taken from sessions in September and October 2008.

Time tags based on equivalent lexical items were applied, where possible, to both the source text and target text. In some cases, the target language equivalent identified for this purpose might actually be a *mistranslation* of the related source text item. Intervals between time tags generally fall within a limited range (3–7 seconds, mean 4.75 seconds). The timing method was very simple: for both the source text and the target text, time indications were those overwritten on the video file downloaded from the website of the European Parliament (the video comprises 23 audio channels: one for the original, 22 for the interpretations in the other official languages of the EU). Both source language items and their target language equivalents were timed at their onset, tags being marked to the nearest second. EVS was then calculated, as the difference between the time tags attached to the source language item and the target language equivalent.

When differences in source and target language word order meant that tagging different items within a syntactic unit would give different EVS data, the items used were the ones giving the shortest EVS. In extract (1), for instance, tagging the adjectives (underlined) gave a shorter EVS than would have been the case if tagging the nouns (bold characters, underlined). This is because French and Dutch are right- and left-branching respectively:²

- (1) a. l'adoption d'une directive sur les soins de santé transfrontaliers
 'the adoption of a directive relating to cross-border health care'
 (EPICG_25.09.08_paquetsocial_roselynebachelotnarquin_fr)

1. As pointed out by a reviewer, interpretations during the plenary sessions at the European Parliament may not be an entirely adequate response to the shortcomings of experimental data, as they too are generally very short (1 to 6 minutes) and are not always listened to.

2. In this and subsequent examples, an English gloss is usually not provided for the Dutch interpretation unless needed to highlight any divergences from the French original.

- b. goedkeuring van de richtlijnen inzake grensoverschrijdend euh
gezondheidszorg
 (EPICG_25.09.08_paquet-social_roselyne-bachelot-narquin_I_nl)

For this study, 32 French source texts and their interpretations in Dutch were analysed. The texts were randomly selected by students. Judging by the recorded voices alone, there were fourteen interpreters (seven men and seven women). Details of the source texts are provided in the Appendix. This subcorpus comprises 2 hrs 26 mins of source speech. The source texts have a total length of 22,915 words, the target texts 18,656 words. Source texts are on average 6 minutes or 716 words long, varying between 2 minutes (302 words) and 16 minutes (2,192 words). The average source text delivery rate is 157 words/minute, with rates varying from 106 w/min to 213 w/min. For source texts and target texts considered as a whole, a total of 1,850 time tags have been applied.

The average EVS in the subcorpus is 2.68 seconds, which is in line with most other findings in the literature. Figure 1 lists the number of times each EVS length occurs in the subcorpus.

Figure 1. Frequencies of EVS lengths (in seconds) in the subcorpus

EVS lengths in the subcorpus range between -1 and 10 seconds. A negative EVS implies that the interpreter is ahead of the speaker and is anticipating what the speaker is about to say, with the result that the tag for the item concerned occurs first in the target language and then in the source language. Where EVS is 0 seconds, the source and target language items coincide. In this case, the interpreter is not ahead of the speaker but has evidently not had time to hear (let alone process) the source language input and must therefore, in practice, have anticipated it. This is referred to by Lederer (1981) as *interprétation en roue libre* ('freewheeling interpretation'). In total, anticipations account for about 1.5% of the data. The most frequent EVS lengths are between 1 and 4 seconds (88.4% of the data). Instances of EVS longer than 4 seconds account for only 10% of the data.

The distribution of the data in Figure 1 is clearly skewed, which is in line with most response latency tests. As a skewed distribution does not allow parametric tests to be used, I have opted for the Mann-Whitney *U*-test to compare EVS in two conditions: (i) in the context of *transcodage* or particular types of repairs (see below); (ii) in all other positions. The null hypothesis is that the distribution of EVS lengths in both conditions will be identical.

4. Operationalizations

To quantify the supposed effects of a short EVS, it is necessary to operationalize concepts such as *transcodage* and repair.

4.1 *Transcodage*

Transcodage is usually taken to indicate that the interpreter has failed to extract the broader meaning ('sens') of the source text and resorts to a word-for-word translation (Lederer 1981). Such a definition, however, is too loose to provide a criterion for systematic study of the phenomenon. If a target language sentence has the same structure and word order as the original, that does not necessarily mean that the interpreter has failed to extract the meaning of the source text. After all, the target language may allow the same grammatical patterns as the source language, and a word-for-word translation may give a perfectly acceptable target language equivalent. For purposes of corpus-based research such as the study described here, it is therefore important to identify *transcodage* only with those cases where at least one alternative — and more typical — structure would be possible. Only in such cases can the effects of short EVS be appropriately assessed.

In introducing the subcorpus analysed here, it has already been pointed out that French and Dutch are right- and left-branching languages respectively. Any right-branching structure in the Dutch interpretation, where a left-branching alternative exists, is thus a potential case of *transcodage*. In this study, I focus on one particular right-branching structure in which the difference between French and Dutch is particularly clear-cut: noun phrases in which two nouns occur in succession. In French, these are usually linked by a preposition, with the head noun preceding the dependent noun. Thus, in example (2), *le droit de grève* (the 'right to strike') is a particular type of right, and not a particular type of strike. This is indicated here by underlining the dependent noun, *grève*:

- (2) *Nous reconnaissons et soutenons le droit de grève.*
 'We recognize and support the right to strike'

In Dutch, the head noun and dependent noun are usually merged into a single compound, with the dependent noun (*'staking'*) first. This is illustrated in example (3):

- (3) *Wij erkennen en steunen het stakingsrecht*
 'We recognize and support the right to strike'

Right-branching Dutch forms, such as that in example (4), are atypical:

- (4) *Wij erkennen en steunen het recht op staken.*³
 'We recognize and support the right to strike'

As an interpretation of the French original in (2), this can be considered a case of *transcodage*: the interpreter seems to have translated one item at a time, whereas the Dutch formulation shown in example (3) would have been more typical of the left-branching structure which is generally preferred in Dutch.

Examples (5) and (6) illustrate different approaches to the translation of the same item in the source text. In each case, (a) and (c) are forms occurring in the source text examples; (b) is an interpreter's version consistent with the usual left-branching structure of Dutch; (d) is based on *transcodage*.

- (5) a. trop souvent la politique de sanction est approximative et flexible
 'too often sanction policies are unclear and flexible'
 (EPICG_03.09.08_évaluationdessactions_hélèneflautre_fr)
- b. al te vaak wordt het sanctiebeleid op een wat euh / algemene vage manier geformuleerd
 (EPICG_03.09.08_évaluationdessactions_hélèneflautre_I_nl)
- c. il faut concevoir une politique de sanctions globale et intégrée
 'there should be a global and integrated sanction policy'
 (EPICG_03.09.08_évaluationdessactions_hélèneflautre_fr)
- d. er moet een globale geïntegreerde beleid van sancties komen
 (EPICG_03.09.08_évaluationdessactions_hélèneflautre_I_nl)
- (6) a. le système de Dublin doit permettre / en effet / de déterminer l'Etat membre responsable d'une demande d'asile
 the Dublin system should indeed allow us to determine which Member State is in charge of an application for asylum
 (EPICG_01.09.08_évaluation du système de Dublin_martineroure_fr)
- b. het Dublinsysteem / moet het / inderdaad mogelijk maken om na te gaan welk euh / land verantwoordelijk is voor een asielaanvraag
 (EPICG_01.09.08_évaluation du système de Dublin_martineroure_I_nl)

3. '*Staken*' is a nominalized infinitive in this particular structure. It is formally different from the derived noun '*staking*', but within the noun phrase it counts as a noun and not as a verb.

- c. l'application du système de Dublin / a fait l'objet d'une évaluation technique
the implementation of the Dublin system was assessed on the technical level
(EPICG_01.09.08_évaluation du système de dublin_jacquesbarrot_fr)
- d. de toepassing van het systeem van Dublin / is technisch onder de loep genomen
(EPICG_01.09.08_évaluation du système de dublin_jacquesbarrot_I_nl)

For each occurrence of a more 'alien' right-branching structure and a more natural left-branching form in Dutch noun phrases of this kind, EVS length was determined on the basis of the time tags immediately preceding or coinciding with the target language items. EVS in contexts of this kind was compared, according to whether the interpretations featured a left-branching structure or showed evidence of *transcodage*. The statistical test used for this was the Mann-Whitney U-test. For convenience and brevity, right-branching structures in Dutch will be referred to below as SO (source order), and left-branching structures as RO (reverse order).

The second instance of *transcodage* analysed here concerns the use of cognate forms by the interpreter. Not all scholars would agree that cognates are a form of *transcodage*, as they involve phonetic similarity but not syntactic transposition. Thus, Lederer (1981) uses the term '*glissement phonétique*' to describe the occurrence of cognates in the interpretation. Nevertheless, some authors such as Christoffels (2004) do place cognates within the *transcodage* category.

For the present study, the same rationale as in the case of right- or left-branching noun phrases was applied: the focus was thus restricted to cognate forms for which at least one alternative would have been available to the interpreter. In examples (7) and (8), taken from the corpus, (a) is the source text; (b) is the interpretation actually provided, the specific point of interest being the underlined cognate form; and (c) suggests possible non-cognate alternatives available to the interpreter for the word concerned:

- (7) a. tout ceci n'est pas incompatible avec le maintien d'une industrie financière compétitive et innovante
'this is not incompatible with maintaining a competitive and innovating financial industry'
(EPICG_08.10.08_preparationoftheeuropecouncil2_jouyet_fr)
- b. dit alles is niet / incompatibel met een concurrentievolle euh en innoverende financiële industrie
(EPICG_08.10.08_preparationoftheeuropecouncil2_jouyet_I_nl)
- c. onverzoenbaar, onverenigbaar

- (8) a. adopter une position / pro-géorgienne ou pro-russe / ne peut conduire que dans l'impasse
(EPICG_01.09.08_situation en georgie_franciswurtz_fr)
'adopting a pro-Georgian or pro-Russian position can only lead to stalemate'
- b. daartegenover een pro-georgische of pro-russische euh houding aannemen kan alleen maar tot een impasse / leiden
(EPICG_01.09.08_situation en georgie_franciswurtz_I_nl)
- c. patstelling

Here again, EVS length was determined on the basis of the time tags immediately preceding or coinciding with the cognate. The resulting values of EVS were compared to EVS data in the subcorpus as a whole.

4.2 Self-repairs

Gile (1995) offers a general comment on the increased likelihood of repairs becoming necessary if the interpreter adopts a short EVS:

En se rapprochant de l'orateur, il réduit les besoins de l'Effort de mémoire. En revanche, il prend le risque de se tromper dans la compréhension du discours et d'avoir à déployer un intense Effort de production par la suite pour redresser une phrase partie dans la 'mauvaise direction'. (Gile 1995 : 134)

'In drawing closer to the speaker, the interpreter reduces the [processing capacity] needs of the Memory Effort. On the other hand, s/he also takes the risk of misunderstanding the speech and of then having to intensify the Production Effort in order to put a sentence which is headed in the wrong direction back on track.'
(my translation)

Here, the error is referred to as 'a sentence headed in the wrong direction', and the repair as the compensatory adjustment to 'put [the segment concerned] back on track' ('*redresser*'). Two features emerge from Gile's description: the unit to be repaired (or *reparandum*, in Levelt's (1983) terms) is probably longer than a single lexical item, but shorter than a sentence; the problem is semantic, as it results from flawed understanding of the source text. The correction is essentially thought of as a version which is semantically closer to the source text.

In his seminal paper on self-repairs in spontaneous speech, Levelt (1983) distinguishes several categories of repairs. These are broadly grouped into covert repairs, which do not offer a corrected version of the utterance; or overt repairs, which do. Among overt repairs, he distinguishes the following types:

- 'different' (D) repairs, allowing the speaker to replace one message with another;

- ‘appropriateness’ repairs (A), replacing one lexical item with another which is considered more appropriate, because less ambiguous (AA), more coherent (AC) with previous lexical choices or more precise (AL);
- ‘error’ repairs, which correct lexical (EL), syntactic (ES) and phonological errors (EF);
- other, ‘residual’ repairs (R), which fit none of the above categories.

Gile’s statement in the above quotation comes close to what Levelt describes as D-repairs, where:

[t]he speaker may, while speaking, change his mind and realize that he better expresses another message than the one he is currently formulating. (Levelt 1983: 51)

The subcorpus for the present study includes a number of cases in which a sentence is replaced by another sentence. In example (9b), for instance, the interpreter provides two different versions of a single sentence in the source text (the *reparandum* being indicated in bold characters, while the repair is underlined):

- (9) a. ce programme d’action fera l’objet d’une consultation publique au début de l’année prochaine deux mille neuf
 ‘this action programme will be submitted to a public consultation at the beginning of the year’
 (EPICG_03.09.2008_heuresdesquestions_jacquesbarrot_fr)
- b. **dit euh actieprogramma // zal / ook door het publiek euh beke/ kunnen worden / in tweeduizend-negen zal er publieke raadpleging zijn**
 ‘this erm action programme can be looked into by the general public in two thousand and nine there will be a public consultation’
 (EPICG_03.09.2008_heuresdesquestions_jacquesbarrot_I_nl)

This can be considered a D-repair. It also corresponds quite well to Gile’s (1995) description of a sentence headed in the wrong direction, as the interpreter clearly misinterprets the wording ‘*consultation publique*’ in the source text: whereas the speaker intends to convey the idea of a public consultation, the interpreter says that the public will be allowed to have a look at the action programme.

In spontaneous speech, repairs are most often responses to what are sometimes termed linearization problems: the speaker realizes too late that a particular piece of information should come first, interrupts delivery of the ongoing utterance and inserts the missing item of information. Excerpt (10) is a typical example of a repaired linearization problem in an interpretation:

- (10) a. l’essentiel est que les Européens agissent ensemble et prennent leurs responsabilités aux côtés de la Banque centrale européenne

‘it is absolutely necessary for Europeans to cooperate and take their responsibilities alongside the European Central Bank’

(EPICG_08.10.08_preparationoftheeuropcouncil2_jouyet_fr)

- b. het is absoluut nodig dat de Europeanen samen handelen en hun verantwoordelijkheid nemen naast de **centraal** *Europese* centrale bank
 ‘it is absolutely necessary for Europeans to cooperate and take their responsibilities alongside the central European Central Bank’
 (EPICG_08.10.08_preparationoftheeuropcouncil2_jouyet_I_nl)

After hearing the French source text ‘*la Banque centrale européenne*’, the interpreter starts off with the adjective ‘*centraal*’. He then realizes that the adjective ‘*Europese*’ should come first in Dutch and repairs his initial version accordingly.

It is unclear how examples such as (10) are to be analysed in Levelt’s (1983) terms. They are not D-repairs, as the *reparandum* is not ‘a message’, but a lexical item. They are probably not what Gile (1995) refers to as ‘sentences headed in the wrong direction’, as the problem shown here is not semantic and is not due to a misunderstanding by the interpreter. Nevertheless, repairs such as the one illustrated in (10) are interesting because they are likely to be the result of a short EVS. In this particular case, the interpreter should reverse the order of the three elements in the noun phrase in reformulating from French into Dutch, by bringing forward the adjective which French places in final position. However, a short EVS makes it unlikely that the interpreter will hear the noun phrase to the end before starting to interpret it. Hence the need for a repair, so that the adjective can be brought forward to the right position. I will call cases such as this linearization repairs.

Examples similar to both (9) and (10) will be included in the analysis, as cases of what will be referred to as EVS-sensitive repairs. EVS before all types of repairs will be compared, in order to determine whether those illustrated in extracts (9) and (10) are more frequent when EVS is relatively short.

5. Results

5.1 Transcodage

5.1.1 Noun phrase structure

The source texts in the subcorpus contained 200 occurrences of a ‘noun+*de*+noun’ pattern. In 70 cases, the interpreter omitted the noun phrase or part of it. In 102 cases, interpreters reversed the order of the nouns, producing a left-branching structure typical of Dutch. The 28 other cases are instances of *transcodage*, with the right-branching word order of the source language maintained by the interpreters.

The average EVS associated with the cases of *transcodage* is slightly longer than in the RO condition and in the corpus as a whole (2.88 vs. 2.71 and 2.68 respectively), contradicting the claim that a short EVS increases the risk of *transcodage*. However, EVS in contexts where the interpreter uses SO does not differ significantly from those with RO wording ($U = 1567.5$, $z = -0.84$, $p > 0.2$), or from other contexts ($U = 24240$, $z = -0.06$, $p > 0.4$). This means that the occurrence of *transcodage* in the subcorpus shows no tendency to co-occur with either short or long EVS.

Figure 2 gives an overview of the relative frequencies of different EVS lengths, both in ‘noun+*de*+noun’ contexts and elsewhere.

Figure 2. Frequency of EVS lengths in the context of ‘Noun *de* Noun’ translations

Medium (3 seconds) and long (≥ 4 seconds) EVS measurements occur with similar frequency for both RO and SO interpretations. On the other hand, the association between EVS length and the presence of SO vs RO shows opposite trends for short (2 seconds) and very short (1 second) EVS: the 2-second and 1-second bands co-occur more often with SO and RO respectively. In practice, it is only with EVS of 1 second that RO is clearly more frequent (while this also seems to be the case at 0 and 5 seconds, frequencies in both cases are too low to allow any meaningful conclusion). Thus, very short EVS does not seem to favour *transcodage* at all.

5.1.2 Cognate translation

There are 144 instances in the subcorpus where interpreters use Dutch cognates of a French source text item, even though more Dutch-sounding alternatives could have been used. The average EVS in the context of a cognate translation is 2.36 seconds, which is shorter than the average EVS for the subcorpus as a whole (2.68 seconds). The difference between the distribution of EVS in a cognate translation context and elsewhere is significant ($U = 105404$, $z = 2.83$, $p < 0.005$). This lends

weight to the hypothesis that a short EVS is more likely in the context of a cognate. Figure 3 shows the relative frequency of different EVS lengths, both in contexts where Dutch cognates are used and elsewhere in the subcorpus.

Figure 3. Relative frequencies of EVS lengths co-occurring with cognates and elsewhere in the subcorpus

The relative frequency of short and very short EVS (1–2 seconds) is higher in the context of a cognate than elsewhere, whereas medium (3 seconds) or long (≥ 4 seconds) EVS is less frequent. This indicates that a cognate is, indeed, more likely to occur with a shorter EVS. There are no instances of cognates in a context of anticipation (≤ 0 seconds): this is logical, as the source item first needs to be perceived before it can be a stimulus for the selection of a cognate.

5.2 Repairs

Five types of repairs are considered: D-repairs, linearization repairs, lexical, grammatical and phonological repairs. In all, 116 repairs were found in the subcorpus. Table 1 provides an overview of the different repair types and their frequencies:

Table 1. Frequencies of different repair types in the subcorpus

Repair type	Frequencies
D-repair	10
linearization repair	28
lexical repair	53
grammatical repair	2
phonological repair	23
total	116

For statistical testing, EVS-sensitive repairs (D-repairs and linearization repairs) were grouped together, for comparison with the remaining categories. For both EVS-sensitive repairs and others, the distribution of EVS lengths was compared with contexts where no repair was involved. The average EVS in the context of EVS-sensitive repairs is slightly shorter than for other repairs (2.63 vs 2.81 seconds). The distributions of EVS do not differ significantly ($U=1385$, $z=0.57$, $p>0.1$). In addition, the distributions of EVS in the EVS-sensitive repair condition and in contexts where no repair is involved do not differ significantly ($U=32329.5$, $z=0.2$, $p>0.4$).

Figure 4 shows the relative frequencies of EVS lengths in the context of EVS-sensitive repairs, in the context of non-EVS-sensitive repairs, and in contexts where no repair is involved. The frequencies in all categories are remarkably similar, except for very short EVS (1 second), which is clearly more frequent in the context of an EVS-sensitive repair than in the other conditions.

Figure 4. Relative frequencies of EVS lengths before EVS-sensitive repairs and other repairs

Even though the overall picture does not support the idea that a short EVS is typically associated with D-repairs and linearization repairs, the contrast between the 1-second EVS and all other EVS lengths suggests that, at least for very short EVS, the claim does seem to hold.

5.3 Very short EVS

The results presented above raise an interesting methodological issue. While the statistical tests for EVS in different contexts are inconclusive in two out of three cases ('noun+*de*+noun' contexts vs others, contexts with cognates vs. others, EVS-sensitive vs. other repairs), all three show the largest frequency gap between the

two tested conditions for the 1-second EVS. This seems to suggest that, in the two data sets where EVS does not differ significantly according to the context (see Figures 2 and 4), any discrepancies in frequencies of the various EVS lengths level out over the sample as a whole. Arguably, this levelling out masks what might be the most relevant finding, as the 1-second EVS is probably the one at which the effect of a short EVS on the interpreter's performance is best observed: the shorter the EVS, the greater the likelihood that EVS-dependent phenomena occur. A Fisher exact test was therefore carried out on two sets of data: the frequency of 1-second EVS; and the sum of all the frequencies of the other EVS lengths. This shows to what extent the frequency distribution of 1-second EVS over the two conditions which are compared (e.g. SO vs. RO) differs from that for all the other EVS lengths. Results are shown in Table 2.

Table 2. Frequencies of 1-second EVS and other EVS lengths for the three phenomena studied

	SO	RO	Cognate	All	EVS-sens.	non-EVS-sens.
EVS 1 sec.	4	27	38	340	9	14
other EVS	24	75	106	1510	29	64
<i>p</i> (two tailed)	0.218		0.027*		0.468	

The results are again inconclusive for the first and third data sets (SO vs. RO, EVS-sensitive vs. non-EVS-sensitive repairs), and point to a significant difference in the second data set only (use of cognates).

6. Conclusions

The aim of this paper was to ascertain whether short EVS is associated with the effects on the quality of interpretation which many authors attribute to it. Three different phenomena were identified as potential effects of a short EVS: two types of *transcodage*, and linearization repairs. It was expected that EVS in the context of these phenomena would be shorter than elsewhere in the interpretations.

The data, collected from a subcorpus of French speeches simultaneously interpreted into Dutch at the European Parliament, reinforce this hypothesis for only one of the three phenomena studied, i.e. the interpreter's use of cognate forms which 'echo' the corresponding source language items. Short and very short EVS was significantly more frequent in contexts of this type than elsewhere in the subcorpus. On the other hand, there was no such difference in frequency with transcodage of French 'noun+*de*+noun' forms or with linearization repairs. We can

therefore conclude that the only feature for which a short EVS seems to increase the likelihood of occurrence is the interpreter's 'transcoding' of source language lexical items as target language cognates.

The results of this study thus seem to contradict widely held views on the effects of short EVS, both in the interpreting research literature and in the interpreting community. However, the limitations of this study should be borne in mind: the interpretations it is based on are all performed by professional, accredited interpreters with many years of experience, who may have developed strategies to pre-empt the possible effects of a very short EVS. The context they are working in also involves a high degree of standardization, especially with regard to terminology. This could explain why there are few instances of *transcodage*, as the Dutch equivalents for many of the French 'noun+*de*+noun' forms like *droits de douane* (customs duties) and *demandeur d'asile* (asylum seeker) are much used in this context. The risk that the practised interpreter will transcode source text structures, even when keeping EVS very short, is thus considerably reduced. It could very well be that relatively inexperienced interpreters working in less standardized contexts are far more vulnerable to the effects of a short EVS. Further research could focus on other presumed effects of short EVS, and larger and more varied samples, including, for instance, learner corpora of interpreting.

Acknowledgement

I wish to thank my colleagues Koen Plevoets, for helping me with the statistics, and Joost Buysschaert. I am also indebted to the anonymous reviewers for a critical review of the manuscript submitted, and the following students for providing the transcriptions that were used for this study: Natasja Declerck, Oya Keskin, Henri Renard, and Annelies Vander Beken.

References

- Adamowicz, A. (1989). The role of anticipation in discourse: Text processing in simultaneous interpreting. *Polish Psychological Bulletin* 20, 153–160.
- Anderson, L. (1979). Simultaneous interpretation: Contextual and translation aspects. Master's thesis, Concordia University, Montreal. <http://spectrum.library.concordia.ca/5/1/MK43196.pdf> (accessed 7 October 2013).
- Anderson, L. (1994). Simultaneous interpreting: Contextual and translation aspects. In S. Lambert & B. Moser-Mercer (Eds.), *Bridging the gap: Empirical research in simultaneous interpretation*. Amsterdam: John Benjamins, 101–120. DOI: 10.1075/btl.3.11and

- Bachy, S., Dister, A., Francard, M., Geron, G., Giroul, V., Hambye, P., Simon, A.-C. & Wilmet, R. (2007). *Conventions de transcription régissant les corpus de la banque de données Valibel*. Online: http://www.uclouvain.be/cps/ucl/doc/valibel/documents/conventions_valibel_2004.PDF (accessed 5 November 2013).
- Baker, M. (1993). Corpus linguistics and translation studies: Implications and applications. In M. Baker, G. Francis & E. Tognini-Bonelli (Eds.), *Text and technology: In honour of John Sinclair*. Amsterdam: John Benjamins, 233–250. DOI: 10.1075/z.64.15bak
- Barik, H. C. (1973). Simultaneous interpretation: Temporal and quantitative data. *Language and Speech* 16 (3), 237–270.
- Barik, H. C. (1975). Simultaneous interpretation: Qualitative and linguistic data. *Language and Speech* 18 (2), 272–298.
- Bendazzoli, C. & Sandrelli, A. (2005). An approach to corpus-based interpreting studies: Developing EPIC (European Parliament Interpreting Corpus). *Proceedings of the EU-High-Level Scientific Conference Series MuTra 2005 — Challenges of Multidimensional Translation*. http://www.euroconferences.info/proceedings/2005_Proceedings/2005_Bendazzoli_Sandrelli.pdf (accessed 9 November 2013).
- Christoffels, I. K. (2004). *Simultaneous interpreting: A cognitive perspective*. PhD dissertation, University of Amsterdam. <http://dare.uva.nl/document/196293> (accessed 7 October 2013).
- Díaz Galaz, S. (2011). The effect of previous preparation in simultaneous interpreting: Preliminary results. *Across Languages and Cultures* 12 (2), 173–191. DOI: 10.1556/Acr.12.2011.2.3
- Donato, V. (2003). Strategies adopted by student interpreters in SI: A comparison between the English-Italian and the German-Italian language-pairs. *The Interpreters' Newsletter* 12, 101–134.
- Gerver, D. (1969). The effects of source language presentation rate on the performance of simultaneous conference interpreters. In E. Foulke (Ed.), *Proceedings of the Second Louisville Conference on Rate and/or Frequency Controlled Speech*. Louisville: University of Louisville, 162–184.
- Gerver, D. (1974). The effects of noise on the performance of simultaneous interpreters: Accuracy of performance. *Acta Psychologica* 38 (3), 159–167. DOI: 10.1016/0001-6918(74)90031-6
- Gile, D. (1995). *Regards sur la recherche en interprétation de conférence*. Lille: Presses Universitaires de Lille.
- Goldman-Eisler, F. (1972). Segmentation of input in simultaneous translation. *Journal of Psycholinguistic Research* 1 (2), 127–140. DOI: 10.1007/BF01068102
- Lederer, M. (1981). *La traduction simultanée*. Paris: Minard.
- Lee, T. H. (2002). Ear voice span in English into Korean simultaneous interpretation. *Meta* 47 (4), 596–606. DOI: 10.7202/008039ar
- Levelt, W. (1983). Monitoring and self-repair in speech. *Cognition* 14, 41–104. DOI: 10.1016/0010-0277(83)90026-4
- Paneth, E. (1957). *An investigation into conference interpreting*. MA dissertation, London University.
- Oléron, P. & Nanpon, H. (1965/2002). Research into simultaneous translation. In F. Pöchhacker & M. Shlesinger (Eds.), *The interpreting studies reader*. London: Routledge, 69–76.
- Ono, T., Tohyama, H. & Matsubara, S. (2008). Construction and analysis of word-level time-aligned simultaneous interpretation corpus. In N. Calzolari, K. Choukri, B. Maegaard, J. Mariani, J. Odijk, S. Piperidis & D. Tapias (Eds.), *Proceedings of the Sixth International Conference on Language Resources and Evaluation (LREC'08)*. Paris: ELRA.

- Setton, R. (1999). *Simultaneous interpretation: A cognitive-pragmatic analysis*. Amsterdam: John Benjamins. DOI: 10.1075/btl.28
- Shlesinger, M. (1998). Corpus-based interpreting studies as an offshoot of corpus-based translation studies. *Meta* 43 (4), 486–493. DOI: 10.7202/004136ar
- Straniero Sergio, F. & Falbo, C. (Eds.). (2012). *Breaking ground in corpus-based interpreting studies*. Bern: Peter Lang.
- Thompson, P. (2005). Spoken language corpora. In M. Wynne (Ed.), *Developing linguistic corpora: A guide to good practice*. Oxford: Oxbow Books, 59–70.
- Treisman, A. (1965). The effects of redundancy and familiarity on translating and repeating back a foreign and a native language. *British Journal of Psychology* 56, 369–379. DOI: 10.1111/j.2044-8295.1965.tb00979.x

Appendix

EP session	Topic	Speaker
01.09.08	Evaluation du système de Dublin	Jacques Barrot
01.09.08	Evaluation du système de Dublin	Martine Roure
01.09.08	Situation en Géorgie	Daniel Cohn-Bendit
01.09.08	Situation en Géorgie	Francis Wurtz
01.09.08	Situation en Géorgie	Joseph Daul
01.09.08	Cadre commun de référence pour le droit européen des contrats	Jacques Toubon
01.09.08	Stratégie coordonnée en vue d'améliorer la lutte contre la fraude fiscale	Benoît Hamon
02.09.08	Explications de vote	Astrid Lulling
02.09.08	Paquet social	Harlem Désir
03.09.08	Evaluation des sanctions communautaires	Jean-Pierre Jouyet
03.09.08	Evaluation des sanctions communautaires 2	Jean-Pierre Jouyet
03.09.08	Evaluation des sanctions communautaires	Hélène Flautre
03.09.08	Heure des questions	Jacques Barrot
03.09.08	Heure des questions 2	Jacques Barrot
03.09.08	Classification, étiquetage et emballage des substances et des mélanges	Anne Laperrouze
03.09.08	Commerce des services	François Castex
04.09.08	Evaluation à mi-parcours du plan d'action européen en matière d'environnement et de santé	Nathalie Kosciusco-Morizet
04.09.08	Protection des sols	Françoise Grossetête

Appendix (*continued*)

EP session	Topic	Speaker
22.09.08	Fonds alternatifs et fonds de capital-investissement	Pierre Jonckheer
22.09.08	Fonds alternatifs et fonds de capital-investissement	Jean-Paul Gauzès
22.09.08	Fonds alternatifs et fonds de capital-investissement	Pervenche Berès
24.09.08	Maîtrise des prix de l'énergie	Robert Goebbels
24.09.08	Maîtrise des prix de l'énergie	Jean-Louis Borloo
24.09.08	Situation du système financier mondial	Francis Wurtz
25.09.08	Etat des lieux de la réforme des écoles européennes	Erna Hennicot-Schoepges
25.09.08	Paquet social	Roselyne Bachelot-Narquin
08.10.08	Préparation du Conseil européen	Jean_Pierre Jouyet
08.10.08	Préparation du Conseil européen 2	Jean_Pierre Jouyet
08.10.08	Préparation du Conseil européen	Pervenche Berès
08.10.08	Situation au Bélarus	Jean_Pierre Jouyet
08.10.08	Gouvernance de l'Arctique dans un environnement mondialisé	Michel Rocard
08.10.08	Suspension du cycle de Doha de l'OMC	Jean-Claude Martinez

Author's address

Bart Defrancq
 Ghent University
 Groot-Brittanniëlaan 45
 B 9000 Gent
 Belgium
 bart.defrancq@ugent.be

About the author

Bart Defrancq is an Assistant Professor of interpreting at Ghent University (Belgium) and a Visiting Professor at the College of Europe (Belgium). He specializes in corpus-based contrastive linguistics, translation and interpreting studies and supervises several projects based on the interpreting corpus being compiled at Ghent University, including work on disfluencies and gender effects in simultaneous interpreting. He is a founding member of the editorial board of the journal *Languages in Contrast*.