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Deaf Translators/Interpreters rendering processes – the translation of oral languages
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Abstract. The rendering of English to BSL within television settings provides us an opportunity to identify ways in which written languages are translated into oral languages (Ong 1982, Furniss 2004), using Kade's definition (cited in Pöchhacker, 2004) as a starting point. The distribution of blinks is compared in Deaf and hearing Translator/Interpreters to illuminate the role of preparation and rehearsal. Think-aloud-protocols are used to explore whether differences between the two groups point to a contrast between translation and interpretation processes.

Keywords: think-aloud-protocols, prosody, segmentation, translation

Introduction

This research explores the process that Deaf and hearing translators/ interpreters (T/Is) follow when rendering English television broadcast news into British Sign Language (BSL). The exploration of similarities and differences between Deaf and hearing T/Is enables the identification of a Deaf translation norm, which in turn can provide guidance to hearing T/Is in approaches to translation tasks.

Sign languages are oral languages (Ong 1982, Furniss 2004) in that they are unwritten languages following an oral tradition. Until the advent of film and its use for recording sign language as early as 1910 (Gannon 2004) we have been unable to record it and transmit it across geographical location and historical time. Now, however, technological advances mean that BSL, a visual language, can be recorded both personally for posterity, publicly for public record and within television studios for public broadcast (Ladd 2003).

BSL and Television

The first programme in the UK to have BSL as the language of the programme was in the 1950s called *For Deaf Children* succeeded by *Vision On* through the mid-70s (Ladd in press). The first news programme was *News Review*, which began in the 1960s and comprised 30 minutes of weekly news and current affairs. *News Review* also regularly included a news story of relevance to Deaf viewers (Ladd in press).

In the UK Deaf T/Is as well as hearing interpreters have been working in television

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performing 'in-vision'[2] presenting and translation since 1979 in *Signs of Life* and succeeded by *See Hear* in 1981[3] and interpreting in 1993 for *Sign On* (Duncan 1997). With the introduction of the Broadcasting Act 1996 (chapter 55 section 20) mainstream broadcasters are legally obliged to include BSL in their programmes[4] either by means of presentation in BSL or translation into BSL. There are limited reasons for a programme to be exempt, and interpreted/translated programmes include current affairs, soap operas, sports, etc. with Deaf and hearing T/Is undertaking this work. A daily news webcast, *Deafstation*[5], is now also available.

Television news programmes with BSL included use a variety of different presentation styles. One example is a news review programme (anchor/presenter style), which sometimes has Deaf T/Is sitting behind the desk alongside the hearing anchor/newsreader. The Deaf T/Is and hearing anchor/newsreader share the same English autocue and in this situation the Deaf T/Is are described as "presenters".

The other presentation style (reporter style) generally has the Deaf or hearing T/Is superimposed on the broadcast footage (where the television companies describe the T/Is as the "signer"). This second style of presentation always occurs in presentation of headline news for Deaf T/Is and a separate autocue is feed with the script of the spoken English for them. It is also the common format for hearing T/Is when rendering either headlines or news review programmes.

The Study

This research explored differences in the process of rendering the English news into signed BSL. Deaf T/Is were interviewed (Spradley 1979, Carmel and Monaghan 1991, Cook and Crang 1995) to create a framework (Strauss and Corbin 1990, Goodley 1999) for a Deaf-centred analysis. Deaf and hearing T/Is were then asked to render pre-recorded broadcast television news in a simulated setting following the same processes they described undertaking in the real world. This enabled the author to explore the notion of the norms (Toury 1978/revised 1995) of Deaf translation and

[2] In-vision translators/interpreters are those that appear on part of the television screen and are not part of the original image but superimposed so that the interpreter takes up part of the screen.
[3] http://www.bbc.co.uk/seehear/about/history2.shtml
[4] From 1% increasing 5% after 10 years of the commencement of the service (Ofcom 2004)
[5] http://www.deafstation.org/deafstationDev/showUserHomePage.do

the translation of a written language to an oral language.

The Deaf translation norm within broadcast television news involves a process containing a specific series of steps distinctive from those undertaken by hearing interpreters. The process includes: reading the script of the anchor/newsreader/ reporter, watching related video footage that accompanies the script, then rehearsing and presenting a signed BSL translation of the spoken English script using the newsreader's English autocue as a prompt. The process allows the Deaf T/Is to construct a performed BSL translation rather than rendering the BSL as an interpretation (as their hearing interpreter colleagues do).

To explore the Deaf translation norm, the difference between translation and interpreting within sign language will be addressed, and the notion of prepared language and how this can be identified as different from spontaneous language will be explored.

Translation versus Interpreting

Whilst translation and interpreting are both concerned with the rendering of one language into another, there are differences, arising from the form of the source and target language and time constraints. Frishberg (1990:18) identifies the difference between translation and interpreting by saying that translation refers to written texts and interpretation refers to the "live and immediate transmission" of discourse, either spoken or signed". In both cases there is a source or original language or text (SL) and this is translated or interpreted into a target language or text (TL).

Deaf T/Is translating news broadcasts work from an autocue displaying written English, which they render into signed BSL. This process is not described in the Frishberg distinctions, in that the SL is written but the TL is not, since the T/Is receive the SL script beforehand, they are able to see the information that will be rendered into the TL before live transmission. Because of this, there is time to at least partly prepare the TL (BSL) version, and therefore the TL is not rendered/translated live, although when the rehearsed BSL rendition is presented to camera during a 'live' broadcast it is transmitted immediately (or pre-recorded with no time for editing or re-recording of the rendition).

An alternative distinction is one of time: the decision making process in translation is usually subject to review, revision and a longer time frame, while the decision making process for interpreting is instantaneous. Kade (cited and translated in Pöchhacker 2004:11) defines interpreting as:

> … a form of Translation in which a **first and final rendition in another language** is produced on the basis of a **one-time presentation** of an utterance in a source language. (emphasis in Pöchhacker)

In the context of news broadcasts, scripts are often given to both Deaf and hearing T/Is the day before broadcasting. The SL script is given to the T/Is so there is the opportunity to read and re-read the SL, before it is rendered into BSL. The Deaf and hearing T/Is can read the whole text like a translator can, enabling a lengthier and more considered process than that of interpreting.

However, translation is normally concerned with written languages; BSL has no written form and cannot be edited in the way that written languages can be, so there is still a performance element in the output process very similar to interpreting. By exploring the process of the Deaf T/Is this can enable us to extend the definition of translation to include oral languages.

Prepared language

For the BSL rendering to be considered a translation, there needs to be evidence of some kind of preparation of the TL. Part of this preparation should be evidenced by the time taken to construct the TL as argued above. Shlesinger (1995) has shown how spoken language interpretation is marked by short rendered chunks, which are marked prosodically with a characteristic intonation of interpretation (Shlesinger 1994, Ahrens 2005). So there should also be evidence of interpretation in the BSL renditions from the length of chunks as well.

Prosody in signed languages is shown by non-manual features as well as rhythm and duration (Boyes-Braem 1999, Sandler 1999, Wilbur 2000). One of these features is

blinking and this is useful in assessing whether a signed rendition has been prepared or not.

Wilbur (1994, 2000) described two different categories of 'linguistic' blinks that occur when signers produced prepared American Sign Language (ASL) sentences. Sze (2004) found that Wilbur's two categories (lexical blinks, which are voluntary blinks; and boundary blinks, which are involuntary) failed to explain all of the blinks that appeared in recordings of spontaneous Hong-Kong Sign Language (HKSL). Sze gives a tentative classification of five different blink types (see Table 1); Wilbur's categories only cover types 2 and 4:

Type 1: Physiological	physiologically induced by the contact of the hand(s) near the eyes, or movement of the forearm at the elbow joint which triggers a corresponding head position change
Type 2: Boundary sensitive	produced towards the end of the movement or after the sign at phrasal/clausal boundaries
Type 3: Co-occurring with head movement	co-occur with head turns and gaze change but cannot be accounted for by syntactic reasons
Type 4: Voluntary	produced during the movement of the sign and are lexically or semantically motivated
Type 5: Hesitations and false starts	produced during hesitations and long pauses

Table 1 Sze's classification of blink types

Clearly, type 1 is not linguistically motivated in the same way that, for example, a cough in the middle of speech due to swallowing a fly is not linguistically motivated. Type 5 should not occur if the language is prepared. Thus if signed language only contains types 2 and 4 this implies prepared language, whereas if it contains types 2-5 then it is spontaneous.

Type 4 (voluntary blinks), are either a semantically or lexically motivated and are not involved in sentence and discourse structure. The boundary sensitive blinks (type 2) occur between a variety of grammatical structures including subject-predicate, noun, verb and sentence (Sze 2004). By measuring the blink rate (the number of blinks that occur within a rendition divided by the time) and the type of blinks, the length of

chunk can be determined. The higher the blink rate, the shorter the chunks are (i.e. interpretation); the lower the blink rate, the longer the chunks are (i.e. translation). Type 5 blinks (hesitations and false starts) are also be a strong indication of whether the renditions are translations or interpretations. Prepared language would have minimal hesitations or false starts.

Using this framework the level of preparation or unprepared-ness of the TL produced by the T/Is was analysed. If the rendition shows the features of prepared language (no type 5 blinks and long chunks) then it can be classified as a translation, whereas if the rendition exhibits unprepared language features (type 5 blinks and short chunks) then it can be identified as an interpretation.

Methods

Think-aloud-protocols (TAPs) were used to enable an analysis of the decisions that the participants had taken (Danks, 1997, Jääskeläinen and Tirkkonen-Condit, 2000) when creating their BSL TL text including the processes attached to rendering the English script into BSL. The TAPs comprised four stages as described below. As the translation was from written English to BSL (an oral visual language), the TAPs were video-recorded using a DV camera. The video footage of the completed TAPs was then imported into iMovie and segmented using iDVD for the analysis.

SignStream™ was used to code the blinking. As Wilbur (1994) and Sze (2004) categorise blinks according to their occurrence in relation to the whole or part of a manually articulated sign, it was important to specify when manual signs have been determined to start and to finish and when blinks are determined to start and to finish in this study.

The start of a sign is taken to be when the target handshape starts to be formed while moving towards the target location. The sign is not taken as finished until either the target hand shape of the next sign is starting to be formed or the orientation of the palm starts to move towards the target of the next sign. The start of the blink is taken to be the first video frame when the eyes are closed. The end of the blink is taken to be the first video frame when the eyes open.

Reliability of the coding was established by using a Deaf native BSL research assistant to code 25%. She was given the descriptions above and asked to follow those descriptions when coding. The number of glosses for signs were counted and compared. Similarly, the number of blinks and their positions were compared. In each case there was a high score of 80% or more.

Participants

Five T/Is undertook the TAPs: three Deaf T/Is (Georgina, Kim and Rebecca)[6] and two hearing T/Is (Arthur and David)[7]. The three Deaf T/Is were all from Deaf families, with BSL as their first and preferred language, and written English as their second language. Their age range is between 40 – 50 and they have between 4-10 years of experience with presenting/translating television news programmes. All of the Deaf T/Is also had some experience working as Deaf interpreters either as facilitators/relays/intermediaries (Boudreault 2005:331) or between BSL and International Sign.

One of the hearing T/Is is from a Deaf family (Arthur) and grew up with BSL as a home language. Convention has arisen that a person who has a Deaf cultural identity (whether hearing or deaf) is called 'Deaf' (Senghas and Monaghan 2002). It is useful in this research to use the term 'Deaf (hearing)' to denote someone with a Deaf cultural identity who is audiologically hearing[8]; and 'hearing' to denote those who have come to the community in later life without having exposure to sign language and Deaf culture in the home, as a school language or as the principal language for social interaction.

'Deaf' denotes the cultural identity and '(hearing)' denotes audiological status as this places greater emphasis on their cultural identity whilst acknowledging the mixed

[6] These are the pseudonyms chosen by the Deaf T/Is
[7] pseudonyms chosen by the hearing T/Is
[8] Whilst the word CODA (Children of Deaf Adults) is often used, this conflates many variables such as whether a Deaf parent(s) actually used a signed language with their hearing child, whether the child is fluent in the language, whether they identify as a member of the Deaf community and whether membership is conferred by the community. For these reasons I have chosen to use Deaf (hearing) as this makes these factors explicit.

heritage of hearing children of Deaf families. This clearly focuses the debate from a Deaf centred perspective rather than using other notions that are in the field such as h/Hearing[9] (Napier 2002).

The other hearing T/I is an adult learner of BSL with English as his first language (David). He learnt BSL in his 30s and he had learnt other languages before this was his first signed language. Both hearing T/Is are between 40 – 50 years old. Arthur has 10 years experience working as interpreter and 7 years working on television news programmes. David has 13 years experience working as an interpreter and 2 years working on television news programmes. So whilst one of the hearing T/Is has less experience working in television they have more experience working as an interpreter.

Material

The script for the TAPs was taken from a regional news broadcast (Reporting Scotland 2004). None of the participants were from that region and they had no previous knowledge of the content. The news footage included two different ways in which information is commonly presented in news broadcasts rendered into BSL: with an anchor introducing and/or presenting news stories from behind a news desk to camera, and a reporter voicing-over pre-recorded video footage and interviewing people (either pre-recorded or live). The news broadcast contained three short items and one long item. The short items were narrated by the newsreader and the long item was introduced by a newsreader and then had sections by a reporter and two interviewees. The first short item concerned a former soldier who had gone on hunger strike; the second concerned three anti-nuclear protesters; the third short item concerned a public enquiry into the sinking of a fishing vessel. The long item concerned a non-native species of seaweed invading Scottish waters. The scripts can be found in Appendix A.

The spoken English read by the newsreader was transcribed from the videotape and

[9] A further category could be added of hearing (deaf) for those audiologically deaf people that are involved to some extent in the community, who come to the community in later life and do not use sign language as a principal language in social interaction

produced as a script for the participants; this is what is usually provided to T/Is. The Deaf and hearing T/Is were required to render both these types of presentation styles from English into BSL as if for broadcast television news.

The TAP process

The TAP process was adapted for the rendering of English into signed BSL and is described below. There were four stages that mirrored the process described by the participants as being undertaken in the television studios.

The first stage was to give the participants the scripts, ask them to verbalise[10] all of their thoughts regarding the scripts, and to make a first attempt at rendering the written English into BSL.

The second stage of the TAP involved showing the participants the associated video footage from the news clip. This was the video footage that was shown alongside the news when broadcast locally. The news footage includes visual information about the news stories. As BSL can visually encode information (in polycomponential signs, SASS, space, etc.) that may be omitted in many registers of English, the T/Is were asked if any of the visual information available would change their original renditions of the stories.

The third stage of the TAP was for the T/Is to render the script into BSL incorporating the changes that were made in light of the videotape footage. The Deaf T/Is were shown the script via a laptop to simulate an autocue; the script was in large white font on a black background. T/Is were asked to render one story at a time. They were also told that they could take as much time as they wanted to render the scripts.

The Deaf T/Is were shown the full script for each item on the autocue. The video footage was not played at the same time. By showing the video footage in advance and requesting them to reflect upon any changes in their renderings of the English, the pressure on the T/Is from the speed of the video footage was reduced.

[10] Here verbalise means to sign or say their thoughts and does not just apply to spoken language

The hearing T/Is were given the opportunity to either follow the auto-cue or to listen to the spoken English soundtrack on the video footage. Both of the hearing T/Is chose to interpret from the spoken English soundtrack rather than translate/interpret from the autocue, as this process was what they were both familiar with. Both hearing T/Is were told that they could take as long as they needed for each item and the items were played one at a time. This meant that they had a few seconds lead into each one. The item was then played and stopped as soon as the complete had been read by the newsreader. The interpreters were allowed to finish their interpretation before the next item was played.

The fourth stage of the TAP involved retrospection. The T/Is were shown their translations/interpretations for each item. They were then asked to comment on their rendition, whether upon reflection they would change anything and if so why this would be changed. The T/Is also commented on what would have supported them in the first instance to improve their rendition.

It has been suggested that participants/informants should be familiar with the process before using TAP to collect data (Li, 2004). This is not something that I was able to address in my research due to time constraints. However, the lack of training in the technique was countered by the four-stage process which included retrospective analyses of the translation or interpretation process and product. This is an indirect way of gathering information about the translating process, but TAPs are also indirect; the process followed (using both TAP and retrospection) allowed for a rich description of the participants' accounts.

Results

The results are reported in the following three sections: reading the script, preparedness of the BSL TL and differences in the process.

Reading the script

This section describes how the scripts were read and the accounts that the T/Is gave as

they were reading the scripts. The process follows a clear path along which there are certain options. The T/Is read the script in a variety of different ways. One of the Deaf T/Is (Kim) signed the script while reading it, creating a 'literal' translation to serve as a guide in disambiguating polysemic words (Finkbeiner et al., 2004). By creating this literal, word-for-word translation, Kim appeared to make greater sense of the English script.

The other Deaf T/Is only used this strategy for sections they found difficult.

> I'm thinking how to sign it, what is it and how to sign it … commercial, what is that, it means publicity … oh ok, business, that makes sense now … the business of the area is affected … yeah … (Georgina in BSL)

This production of BSL occurred after a pause, with the misunderstood section being revisited. This strategy also helped the Deaf T/Is to make sense of the English script.

The hearing T/Is tended to read the scripts silently until a difficult section was encountered and then this would be partially read aloud.

> Final story thinking it could be complicated because of seaweed and seaweed spreading and words like the environmentalists, I do not want to fingerspell that, people who are experts in the environment … (is this live) … so maybe I would say the environmentalist is worried as they cannot stop this and I would use some facial expression and then I would indicate WJ, he gives it different names that I would fingerspell … don't know if it is algae or kelp seaweed, so that would be different whether it spreads out or is floaty, I wouldn't want to guess … (David in English)

This mirrors the example from the Deaf T/I above, the difference being that the hearing T/Is read aloud in English, whereas the Deaf T/I makes sense of the information using BSL. The hearing T/Is did externalise their understanding of the script as they read through it, explaining in English what they understood the text to mean, as in the example above, while the Deaf T/Is explained what they understood in BSL. So whereas the Deaf T/Is try to make sense of the information in BSL, the hearing T/Is make sense of the information in English. The hearing T/Is, however, might speak because of my presence (akin to Labov's (1973) observer's paradox).

This very process grounds all the Deaf and hearing T/Is in their first language and culture, albeit that for the Deaf T/Is this is BSL and for the hearing T/I this is English. The Deaf (hearing) T/I does not use his first language, which suggests that either his dominant language has become English or that the presence of the researcher has influenced his process. This observation indicates that the translation of the English into BSL starts further along in the process for both the hearing T/Is.

After the initial reading of the script, the T/Is were asked if they would provide a first rendering of the information. The Deaf T/Is were happy to do this, although they reported that they would usually wait to see the visual information before starting to rehearse the BSL TL product. The hearing T/I produced some indexing and some signs whilst talking in English about how they would create the BSL TL. The Deaf (hearing) T/I spoke in English about the strategies he would use without showing any BSL at all.

Having been previously involved in television news translation, the researcher has observed hearing newsreaders rehearse what they are going to say before live broadcasts. They practise not only the pronunciation of words, but also the intonation that they will be using for the news story. The Deaf T/Is appear to do something analogous to this whilst the hearing and Deaf (hearing) do not. They practise the BSL TL text, but also use this to make sense of the information and edit the way they will be rendering the English text.

Preparedness of the BSL TL

This section examines the TL in terms of whether it exhibits features expected of a prepared signed language. Since the same scripts are rendered by Deaf and hearing T/Is into BSL, a comparison can be made of the numbers and frequencies of blinking for the same scripts, with the T/Is approaching the task under the same conditions. In the TAP data there are a total of 692 seconds of three Deaf T/Is' renditions (Kim 200 seconds, Georgina 245 seconds, and Rebecca 247 seconds), 239 seconds of one Deaf (hearing) T/I's's rendition and 210 seconds of one hearing T/I's rendition. Table 2 presents the frequency of blink type for the subjects. Firstly let us look at all the T/Is' data in Table 2:

	Kim (D)		Georgina (D)		Rebecca (D)		Arthur (Dh)		David (h)	
Blink Type	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Type 2	**48**	100	**74**	93	**65**	94	**109**	91	**104**	94
Type 3										0
Type 4			**4**	5	**4**	6	**11**	9	**7**	6
Type 5			**2**	2						0
Total	**48**	100	**80**	100	**69**	100	**120**	100	**111**	100
Blink rate (s^{-1})	0.24		0.33		0.28		0.50		0.53	

Table 2 Deaf, Deaf(hearing) and hearing T/Is blinking activity in TAPs

Looking at the data, there are no differences between the distribution of blink types for the Deaf, hearing and Deaf (hearing) T/Is. The hearing T/Is only have blink types 2 and 4 suggesting a prepared piece of BSL. The Deaf T/Is have blink types 2 and 4 and with only two instances of type 5. These occurred when there were problems with the speed of the autocue. This also suggests that the BSL produced is prepared.

The blink rate range for the Deaf T/Is is 0.24 – 0.30 s^{-1} (blinks per second), for Deaf (hearing) T/I 0.5 s^{-1} and for the hearing T/I 0.53 s^{-1}. If we also consider that the hearing T/Is also have a higher incidence of type 2 this indicates that the hearing T/Is have shorter chunks than the Deaf T/Is. There are several possible contributory factors. One of these may be that, for the Deaf T/Is, reading the autocue demands a higher level of visual attention than listening. The need to read the scrolling autocue may, reducing the frequency of blinks creating longer chunks. Listening has no visual attention demands, and therefore does not inhibit a higher blink rate

Another possible contributing factor is interference intonation from spoken English: the hearing T/Is may be influenced by hearing the prosody of spoken English, which may in turn influence the production of the TL. Under either interpretation, lower blink rates are associated with longer segments than higher blink rates.

The process that the Deaf T/Is follow means the Deaf T/Is create much longer segments than hearing T/Is. The shorter segments of the hearing T/Is are indicative of interpreted language (Shlesinger 1995) and the longer segments of the Deaf T/Is are that of a translation in an oral language.

Differences in the process

This section describes similarities and differences between Deaf and hearing T/Is when rendering the news into BSL. There are a variety of stages that occur during the TAPs. Although the T/Is were asked to approach the task as if they were undertaking the job in the real world, the TAPs differed from a real world scenario because there was additional time for the T/Is to approach the task. Only the hearing T/Is commented on this additional time.

The Deaf T/Is in the study have greater experience rendering news review programmes. The Deaf T/Is also said that they approached the TAPs in the same way that they approached the news review format and so the TAPs paralleled the news review translation/interpretation. The hearing T/Is however, commented that they had not taken advantage of the greater length of time to prepare the rendering. This indicates the contrast between the preparation and translational approach taken by the Deaf T/Is and the interpretational approach taken by the hearing T/Is.

One of the differences was that the hearing T/Is read the script before seeing the video and then proceeded with the final rendering of the TL whilst listening to the English SL. Of course this option was not available to the Deaf T/Is, but this does marry with different approaches identified by the Deaf T/Is. Hearing T/Is work on a daily basis with the spoken word in a range of interpreting settings and rarely have time to prepare a TL. Unsurprisingly, the hearing T/Is approach this task with the skills that they have honed for their work.

The Deaf T/Is in the study do most of their interpreting/translating work within television and much of that is for news programmes in both news headline and news review formats. The Deaf T/Is approach this task with different skills, which include greater rehearsal and externalised editing of the TL product before the final rendering of the TL. The Deaf T/Is sign the translation that they are planning, observe that with their eyes, feel it motorically, and adjust the BSL TL if it does not feel right or if they can adopt another translation strategy to express the information in the SL.

We may consider Kade's definition (Pöchhacker 2004:11) of interpreting as a subset

of translation (repeated here for convenience):

> … a form of Translation in which a **first and final rendition in another language** is produced on the basis of a **one-time presentation** of an utterance in a source language (emphasis in Pöchhacker).

This implies that other forms of translation allow more than one rendition of the TL so that the first and final renditions are not one and the same thing. This series of renditions would then be part of the translation process. Similarly, the SL can be presented to the translator more than once. The Deaf T/Is approach BSL as a TL, although it is an oral language, in a similar way.

In broadcast news programmes, both the newsreader and the Deaf T/Is are given the same script and then they present that rehearsed performance in English and BSL respectively. In the case of news reports the reporters present unscripted reports, but the Deaf T/Is only have access to the written English script without any of the prosody that is present in the news report. The hearing T/Is can read the written script and hear the intonation of the newsreader and reporter. The hearing T/Is use this intonation as additional information to understand and interpret the SL (Ahrens, 2005). The Deaf and hearing T/Is, therefore, have at least one difference in their approach to the task due to the working environment within broadcast television.

Kade's definition does not account fully for the translation activity from English into BSL. This activity differs in two ways. Although the SL is only presented once, it does have a script that the T/Is can review and re-read more than once. The video also has a soundtrack and so the hearing T/Is can listen to the SL. As such, the SL is continuously present for the T/I within the news broadcast domain, although the TL is presented as a 'live' performance.

If an interpretation is a first and final rendition of the language from a one time presentation of that language then clearly some of the T/Is in this study are not interpreting but translating. The length of time taken to process the meaning of the sentences, accompanied with the explanation of understanding by the T/Is, is taken to mean that the rendition of the translation/interpretation is mentally rehearsed more

than once. But the Deaf T/Is also physically rehearse the rendition, going through several iterations until arriving at the final rendition. This suggests that it would be more appropriate to think of a continuum with 'pure' translation at one end and 'pure' interpretation at the other (see Figure 1).

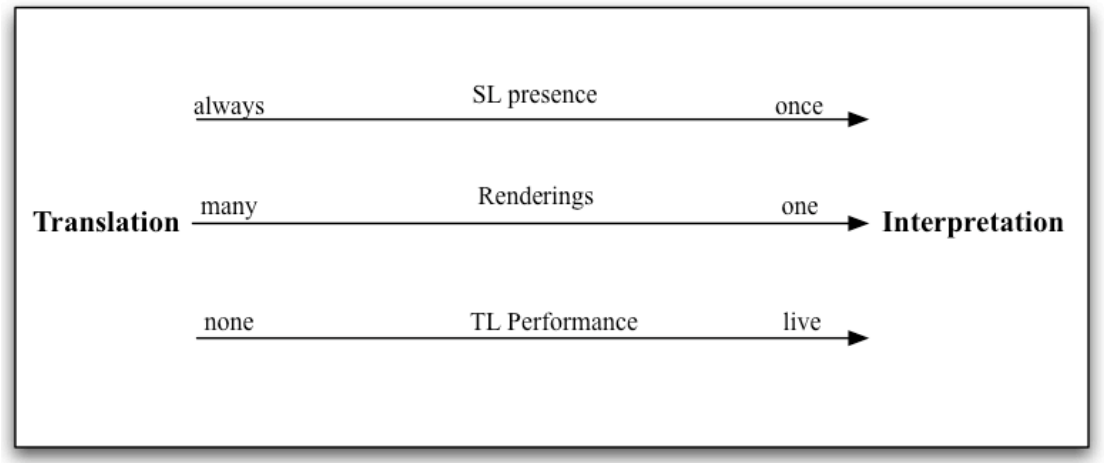

Figure 1 Translation to Interpretation continuum

From Kade, we know that in interpreting there is a single presentation of the SL and that the TL is a first and final rendering. In translation, the SL is always present as a text to be referred to and the process of translation facilitates many renderings of the TL text until the final product is arrived at. The final presentation of the TL in translation is a fully edited TL text, whereas in interpreting the TL is performed live and is unedited as a product. (Although it should be noted that interpreters monitor their TL output to ensure that it makes grammatical sense and conveys equivalence of information from the SL to the TL).

In the case of the TAPs, we see that both the Deaf and hearing T/Is have access to the English script all the time. Therefore the SL is ever-present before they present the TL to camera. When reading and re-reading the script, the Deaf T/Is manually rehearsed the TL and change this where they discover a better way of translating the SL. These multiple manual renderings parallel the many renderings we see in written translation.

The hearing T/Is did not produce multiple manual renderings of the TL and as such did not externally 'edit' their TL. The time that the hearing T/Is took to think about the TL indicates that some level of translation activity was going on. These are called here 'internal renderings' and this marks a difference between Deaf and hearing T/Is.

Finally, both the Deaf and hearing T/Is have to present a live performance of the TL. This cannot be edited as it is broadcast.

Within the continuum as described above we see that the Deaf T/Is are closer to the translation end and hearing T/Is are closer to the interpretation end. There are several factors that separate the Deaf and hearing T/Is on this continuum. The Deaf T/Is rehearse until they are satisfied with the TL. There is, however, the possibility of performance errors occurring when the SL is finally rendered into BSL, as this is done live to camera. As mentioned previously the working conditions are such that even if the rendition is pre-recorded it is only recorded once and is not edited. Once the rendition has been rehearsed it is immediately performed to the camera.

Unlike the translation of two written languages, with the translation of a written language into an oral language there is a limit to the extent to which the TL can be edited. The longer the news story, the less the Deaf T/Is are able to construct a fully edited TL. And even with short news stories, if it is a live broadcast, once the broadcast has started any performance errors need to be corrected 'online'.

This data provide the starting point for an analysis, from a Deaf centred perspective (Young 1995, West 2002, Ladd 2003), of the differences between Deaf and hearing T/Is. A larger data set would be needed to examine the statistical significance of the data. Further TAPs would preferably use a full autocue and ChromaKey[11] facilities. This would create an atmosphere that is closer to the studio environment, or alternatively actually happen in a studio. The use of autocue and ChromaKey also allows the T/Is to see their translation on a monitor with the video footage that is being shown whilst the rendering is happening. This would also allow the T/Is to fully reference the information that is on the screen and possibly inform their translation decisions in light of the multimedia environment.

Conclusion: The Process of a Deaf translation norm

We have seen from the TAPs that there are similarities and differences in the

[11] This is commonly known as blue screen where presenters are filmed on a blue or green background and then superimposed onto a different image.

approach to translation/interpreting by Deaf, and hearing T/Is. Generally, in terms of the process itself, the Deaf T/Is render the SL into signed BSL straight away and then re-render the information in signed BSL many times until it makes sense. This process enables the Deaf T/Is to gain greater ownership of the information (Vuorinen, 1995) and create greater presence in their translations (Stolze, 2004) by rehearsing the information much like newsreaders.

The hearing T/Is explain the process in English, thinking and reformulating in English before rendering the information in BSL one time only. The TL is not rehearsed.

Generally, the Deaf T/Is are quite consistent in their production of a BSL TL with respect to the percentage of boundary sensitive blinks and voluntary blinks. Most of their blinking occurs at boundaries (above 90%), with most of the other blinking phenomena being voluntary blinks (circa 5%). While hearing T/Is are able to achieve a similar distribution of blinks they blink more frequently than the Deaf T/Is.

The less frequent blinks of the Deaf T/Is create longer segments leaving the BSL TL less marked as an interpretation than the shorter segments of the hearing T/Is. This is seems to be achieved, at least in part, by the process the Deaf T/Is undertake. If hearing T/Is wish to produce a signed BSL translation for recorded medium then they need to consider following the process of their Deaf colleagues.

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Appendix A - Reporting Scotland TAPs news scripts

Story One

A former soldier has gone on hunger strike to force a public enquiry into Gulf War Syndrome. Alexander Iset a former Lance Corporal from Cumbernauld says he's ready to die to force the military to come clean. Mr Iset became ill after being given vaccines in the run up to the 1990 Gulf War Earlier this year he took his case to the Scottish parliament and he says he's become frustrated with the slow progress.

Story Two

3 protesters who took part in anti-nuclear demonstrations at the Faslane naval base on the Clyde and in the Scottish Parliament have failed to have their breach of the peace convictions over turned. They'd argued the law and the way it's been interpreted by courts over the centuries is too vague. But in a landmark ruling 5 judges at the court of appeal in Edinburgh decided that the convictions should be upheld.

Story three

The families of 7 fishermen killed in a fishing disaster 30 years ago meet tonight in Peterhead. They want to know when a public enquiry will be held into the sinking of the trident, which went down in the Pentland Firth in 1974. The wreck of the vessel was discovered 3 years ago. The government has promised a full inquiry but the families are saying that they are growing impatient that a date is still to be set.

Longer Story

An alien species is lurking in the seas off Scotland it's a fast spreading seaweed that's made an unwelcome first appearance in our waters. Environmentalist say that once established there will be no stopping it and they fear the consequences. Here's Willy Johnson.

WJ: Sargasum Nuticum, or Japweed or Wireweed, call it what you will but by any name it shouldn't be here.

This stuff is native to waters in Japan but gradually it's spreading round the world. And now it's arrive in Scotland here in Loch Ryan in Gallaway.

It's not a welcome discovery

Andrew: It doesn't look terribly impressive at the moment or even threatening but later on in the year this stuff is gonna be possibly up to 8 metres in length. Erm and the problem is that it could shade out a lot f the species that are here the native seaweeds that make this place such an important area

WJ: The weed can cause commercial as well as environmental damage and that's a worry. Loch Ryan has Scotland most important commercial oyster beds. The whole West Coast shellfish industry is on the doorstep.

Andrew: It could get an impact on the shellfisheries in the Loch especially the oysters beds if it was to get really stuck in there it could shade out species. But also it has a nuisance value in that it could get tangled up in fishing gear generally and if it was to get out of Loch Ryan into the Clyde and maybe further up the West Coast it could have a wider impact on fisheries there as well.

Robert: It seems that it grows to quite a considerable length about 26 to 30 feet. This obviously can damage commercial shipping pleasure shipping getting caught in propellers and such like. And we're also looking at the development of Loch Ryan so anything that's a threat has obviously got to be dealt with seriously.

WJ: The alien seaweed is spread on the hulls of ship and almost certainly came in on the ferries from Northern Ireland where it was found some time ago. It's probably here to stay.

Wherever Wireweed has taken hold so far it's proved impossible to shift. Further spread within Scotland is now felt to be almost inevitable. If you see some on a shore near you SNH would like to hear about it Willy Johnson reporting Scotland Loch Ryan.