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XLIFF and the Translator: Why Does it Matter?

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ABSTRACT

XLIFF has become the main localisation data exchange standard, coming up against competitors only in open source projects with the PO format, and also coexisting with LCX in the Microsoft localisation environment. However, while more and more of the big internet services and translation provider companies offering or requiring machine and human translation realise that they must offer support for this standard, the advantages of XLIFF usage can be limited if integration with their multilingual information and communication processes is not matched with a real understanding of translators' needs. On the other hand, the format is still widely unknown by translators and aspiring localisers, who should be able to contribute to the development and, particularly, the implementation and leverage of XLIFF in their workplace and in the projects they are involved in, thus increasing the chances for XLIFF to evolve into a more and more useful tool. This gap is partly due to a glaring lack of academic articles dealing with the meaning, significance and usage of XLIFF which take into account the main concerns and the average knowledge of the translator as regards translation and localisation tasks. Ignacio García's 2006 "Formatting and the Translator: Why XLIFF Does Matter?" is one of few exceptions, although mostly dealing with just one aspect of the relationship between the standard format and the translation job. This paper aims at providing a comprehensive yet accessible view of the standard to its end users: translators and translation students. We will present, through practical examples, how the standard can have an impact in their daily routine and how they can make the most out of it.

Keywords: standard, ISO, terminology, ontology, quality, exchange formats

RESUM *(XLIFF i el traductor: Per què és important?)*

XLIFF ha esdevingut el principal estàndard d'intercanvi de dades en localització, que només troba competència en el format PO quan es tracta de projectes de codi obert i que coexisteix amb el format LCX de projectes de localització en entorns de Microsoft. Tanmateix, mentre que cada vegada hi ha més grans empreses proveïdores de serveis d'internet i traducció que ofereixen o demanden traducció automàtica i humanan que acaben arribant a la conclusió que han de donar cobertura a aquest estàndard, els avantatges de l'ús de XLIFF es poden veure limitades si la integració amb els processos

d'informació i comunicació multilingües d'aquestes empreses no va acompanyada del coneixement real de les necessitats dels traductors. D'altra banda, el format encara resulta àmpliament desconegut per traductors i aspirants a localitzadors, que són els que haurien de poder contribuir al seu desenvolupament i, especialment, a la implementació i impuls de XLIFF en els seus llocs de treball i en els projectes en què col·laboren. D'aquesta manera contribuirien a augmentar les possibilitats que XLIFF acabi convertint-se en una eina cada vegada més útil. Aquesta mancança es deu en part a l'evident manca d'articles acadèmics que tractin sobre el sentit, el significat i la utilitat de XLIFF, que té en compte els problemes principals i el coneixement mitjà del traductor pel que a tasques de traducció i localització es refereix. L'article d'Ignacio García de 2006 titulat "Formatting and the Translator: Why XLIFF Does Matter?" Suposa una de les poques excepcions, tot i que principalment tracta sobre un únic aspecte de la relació entre el format estàndard i el projecte de traducció. L'article es proposa proporcionar una visió de l'estandar que sigui àmplia i alhora accessible per a l'usuari final: els traductors i els estudiants de traducció. En el present article presentem, a través d'exemples pràctics, com l'estàndard pot resultar d'impacte en la rutina diària dels traductors per obtenir el màxim profit del seu ús.

Paraules clau: estàndard, ISO, terminologia, ontologia, qualitat, formats d'intercanvi

RESUMEN *(XLIFF y el traductor: ¿Por qué es importante?)*

XLIFF se ha convertido en el principal estándard de intercambio de datos en localización, que solo encuentra competencia en el formato PO cuando se trata de proyectos de código abierto, y que coexiste con el formato LCX de proyectos de localización de entorno Microsoft. No obstante, mientras cada vez hay más grandes empresas proveedoras de servicios de internet y traducción de las que ofrecen o demandan traducción automática y humanan que acaban llegando a la conclusión de que deben dar cobertura a este estándar, lo cierto es que las ventajas del uso de XLIFF se pueden ver limitadas si la integración con los procesos de información y comunicación multilingües de estas empresas no va acompañada del entendimiento real de las necesidades de los traductores. Por otro lado, el formato todavía resulta ampliamente desconocido por traductores y aspirantes a localizadores, que son los que deberían poder contribuir a su desarrollo y, especialmente, a la implementación e impulso de XLIFF en sus lugares de trabajo y en los proyectos en los que colaboran. De este modo contribuirían a aumentar las posibilidades de que XLIFF acabe convirtiéndose en una herramienta cada vez más útil. Esta carencia se debe en parte a la flagrante falta de artículos académicos que traten sobre el sentido, el significado y la utilidad de XLIFF, que tiene en cuenta los problemas principales y el conocimiento medio del traductor en lo que a tareas de traducción y localización se refiere. El artículo de Ignacio García de 2006 titulado "Formatting and the Translator: Why XLIFF Does Matter?" supone una de las pocas excepciones, a pesar de que principalmente trata sobre un único aspecto de la relación entre el formato estándar y el proyecto de traducción. El artículo se propone proporcionar una visión del estandar que sea amplia y a la vez accesible para el usuario final: los traductores y los estudiantes de traducción. En el presente artículo presentamos, a través de ejemplos prácticos, cómo el estándar puede resultar de impacto en la rutina diaria de los traductores para obtener el máximo provecho de su uso..

Palabras clave: estándard, ISO, terminología, ontología, calidad, formatos de intercambio

1. Introducción

First and foremost, it is essential to understand that, externally, XLIFF is a file format (the final two Fs in the acronym), that is, a type of document that carries a specific type of data (just like a DOCX file carries rich text, format and document structure; an HTML file carries the structure and content of web pages; or an AVI file carries video data) through certain internal grammar and vocabulary (based on the XML language — the initial X — see section 2.3). That data is a standardised way of representing other multiple types of structured information or file formats that would otherwise have to be used — in their many and varied different formats — in localisation (the L in the acronym) and translation processes. By standardising the file format, it is much easier and less costly to exchange or interchange (the I in the acronym) the data on the elements to be translated, as well as information about the localisation process.

XLIFF can therefore be defined as a container of translatable content that has been organised in a normative form to be able to be understood and manipulated by the tools and agents involved in the localisation process, regardless of their origin and without loss of information between phases. Adopting the standard can represent several advantages for the different agents involved in the translation and localisation process (XLIFF TC 2007: 6-9). Translators can benefit from the use of the standard in two main aspects: by having the freedom to choose the CAT (Computer Assisted Translation) tool of their choice (XLIFF TC 2007: 8) avoiding the so called “vendor lock-in”; and by being freed from other formatting issues as they can just concentrate on the text contained in the XLIFF files (García 2006: 18).

In this paper, we will provide an overview of the standard and how it is used, can be used, and can be influenced by translators (and localisers, which will mostly be used interchangeably here): on section 2, the basic aspects of the XLIFF standard will be outlined; section 3 examines the relationship between translation professionals and the standard and how the standard conditions their work; section 4, on the other hand, explores different ways in which translators can influence the standard; section 5 identifies possible drawbacks but also opportunities in the development and application of XLIFF. The paper finishes with a summary of the main ideas of this overview and some suggestions for further education and research.

2. Understanding XLIFF

2.1 A Standard

In an industrial process such as localisation and, sometimes, translation, standards are key to reaching understanding and cooperation between two or more parties. Among the advantages that standards can provide to society, it is worth mentioning: ensuring safety, reliability and environmental care, a better protection to user and business interests through

the support of government policies and legislation, interoperability, and an improvement in consumer's choice (ETSI 2015).

There are many examples of the successful implementation of standards that have reaped innumerable benefits for both industrial partners and final users and consumers, such as the USB charger (and data interface) for smartphones in the European Union (European Commission 2010). The benefits of this are manifold, from conceptual to ecological to economic: users now understand that all smartphones can be charged with the same connector; there is no need to increase the waste of so many different cables; smartphone producers can choose not to include a charger (or at least not the power adapter) in the package, and so on.

In the language industry field, there have been many efforts to achieve and define standardised methods to exchange different types of data. Such efforts were mainly driven by two organisations: LISA (Localisation Industry Standards Association)1 and OASIS (Organisation for the Advancement of Structured Information Standards). The latter hosts the XLIFF Technical Committee, which has developed and maintained the standard since 2000 (Jewtushenko 2004).

2.2 Extraction-Merging Paradigm

If we want to understand what XLIFF actually is for, let's take a metaphor: imagine that you want to change the colour of your car from white to green. Only some parts of the whole vehicle would need to be painted (bodywork), while others will need to be protected (windows, wheels…). There might be two approaches to undertake this task: a) you can cover the sections that do not need to be painted and paint over; b) you might extract the sections that need to be painted, paint them somewhere else, and put them back on the car once you have finished. The XLIFF paradigm would correspond to the second example: one extraction and conversion tool will inspect the original file format, identify and extract the sections that need to be translated; put them in an XLIFF file with agreed-upon labels; send that file for translation; and merge the content back to the original file format once the translation is completed.

Following the same metaphor, if you want the car to be painted in another garage with different, maybe better, tools or materials, just the pieces to be painted should be sent out. Once painted, those pieces would need to be sent back to the original garage, in order to have the car assembled correctly and ready to be handed back to the client. In the XLIFF paradigm, you can modify or translate the XLIFF file with a tool other than the one used to create the XLIFF file, but the original tool would be needed at the end of the process to reintegrate the translated file into the original file format.

[1]LISA ceased operations in 2011 after defining and promoting (through their special OSCAR group) some of the most used language data exchange standards: TMX (for translation memories), TBX (for terminology), SRX (for segmentation rules) and GMX (for translation metrics). At the time of writing, the ETSI ISG LIS group that inherited LISA's work has announced its dissolution and the former LISA standards are being (or are likely to be) adopted by other organisations: SRX and GMX-V by Unicode, TBX by ISO, and TMX by a sister-committee of OASIS XLIFF (XLIFF TC 2015).

What is more, the same protocol can be used if the vehicle to be painted is a truck, a motorcycle or a bicycle, to name but a few examples. The frame (or "skeleton", as used in XLIFF terminology), including all protected parts, as well as the extraction and conversion machines, will remain in the original environment; the extracted parts will be labelled in a standardised way so that the painting garage can process them appropriately and send them back in an agreed upon way to make them easy to fit back into their skeleton by means of the original extraction/merging machine. This can also be applied to different and varied translation or localisation resources2, such as spreadsheets, web pages, software interface menus, dialogs or strings, Java Properties files, and so on.

2.3 An XML file on the inside

If we look into XLIFF from a more technical perspective, we will find a text-based file written in XML (eXtensible Mark-up Language). Although it may be seen as an obscure language for non XML connoisseurs, the main structure can be quite straightforward, especially if visualised with an XML editor or any other tools that identify and understand its mark-up (or tags).

In simple words an XML vocabulary is a mark-up system made of predefined labels (elements3) that create and introduce the information that they represent (in a similar way as HTML for web pages). If a specific XML vocabulary has been developed publicly and within a standardisation organisation (which is the case of XLIFF), its structure, predefined elements, attributes and values are presented in the form of a public technical specification. This document will help all the agents (interested in using that vocabulary) to understand and implement it in the same way.

Figure 1 shows an XLIFF file in version 1.24 opened in an advanced text editor (Notepad++5). It contains the translatable text of the user interface of the Black Box6 software (figure 3). The new (and current) version of the standard (XLIFF 2.0) has a simplified structure, as can be seen in figure 2. In both cases, the translatable content (included in the <source> element) has already been translated and introduced in the <target> element. An XLIFF file is bilingual by definition, i.e. it can only contain a single language pair per file.

[2] We use "resources" rather than "documents" to mean a series of text and media files that integrate with code and hypertext files to produce applications, websites, games, and so on. Here, it will also include more "traditional" documents.
[3] Each element might also contain specific information by the addition of "attributes" in their opening tag. For example, the <xliff> element must always contain the attribute "version" with a specific value (1.0, 1.1, 1.2 or 2.0), which gives us information about the specific version of that specific xliff file: <xliff version="1.2">. For more information about XML and its relation to localisation, please refer to Savourel 2001.
[4]The standard has been developed since 2000 and several versions have already been approved. The current version is XLIFF 2.0, approved in August 2014. This version represents a breakthrough from previous versions as it separates the important information in a simple structure (named the Core), from the additional information (contained in optional modules).
[5] https://notepad-plus-plus.org
[6] Black Box is a subtitling analyser developed by David González-Iglesias González as part of his PhD project. It can be downloaded from the following URL: http://sourceforge.net/projects/usalblackbox/

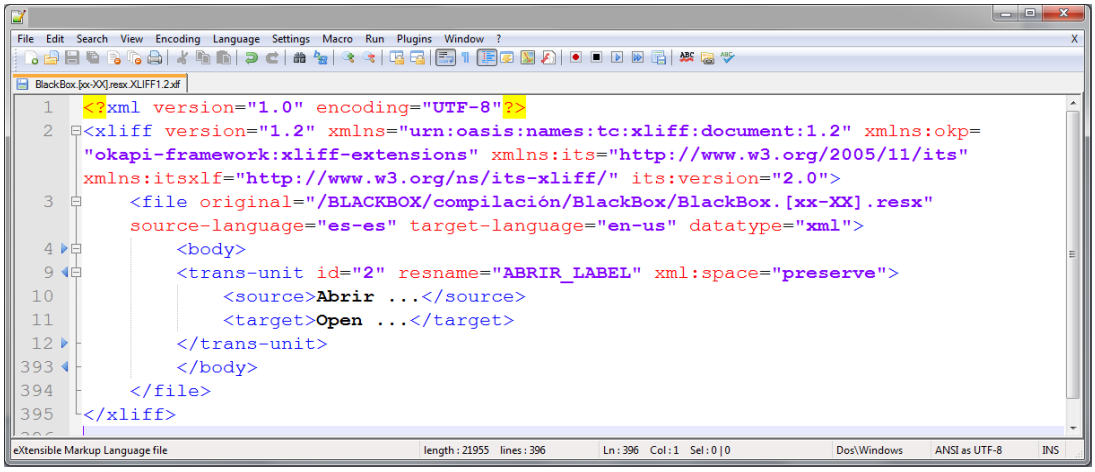


Figure 1. XLIFF 1.2 file displayed in an advanced text editor

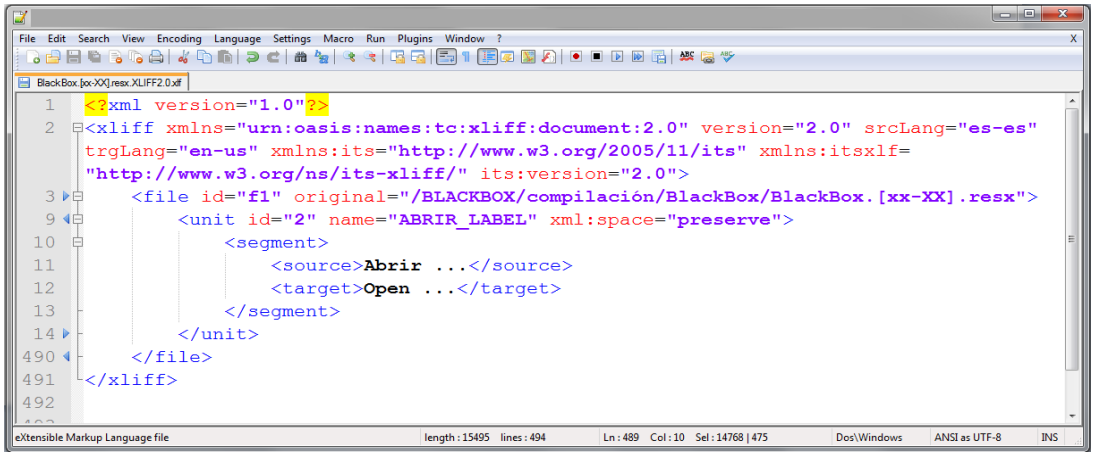

File Edit Search View Encoding Language Settings Macro Run Plugins Window ?
BlackBox.[xx-XX].resx.XLIFF2.0.xlf
1 <?xml version="1.0"?>
2 <xliff xmlns="urn:oasis:names:tc:xliff:document:2.0" version="2.0" srcLang="es-es"
trgLang="en-us" xmlns:its="http://www.w3.org/2005/11/its" xmlns:itsxlf=
"http://www.w3.org/ns/its-xliff/" its:version="2.0">
3 <file id="f1" original="/BLACKBOX/compilación/BlackBox/BlackBox.[xx-XX].resx">
9 <unit id="2" name="ABRIR_LABEL" xml:space="preserve">
10
11 <source>Abrir ...</source>
12 <target>Open ...</target>
13
14 </unit>
490 </file>
491 </xliff>
492
eXtensible Markup Language file
length : 15495 lines : 494
Ln : 489 Col : 10 Sel : 14768 | 475
Dos\Windows
ANSI as UTF-8
INS

Figure 2. XLIFF 2.0 file displayed in an advanced text editor

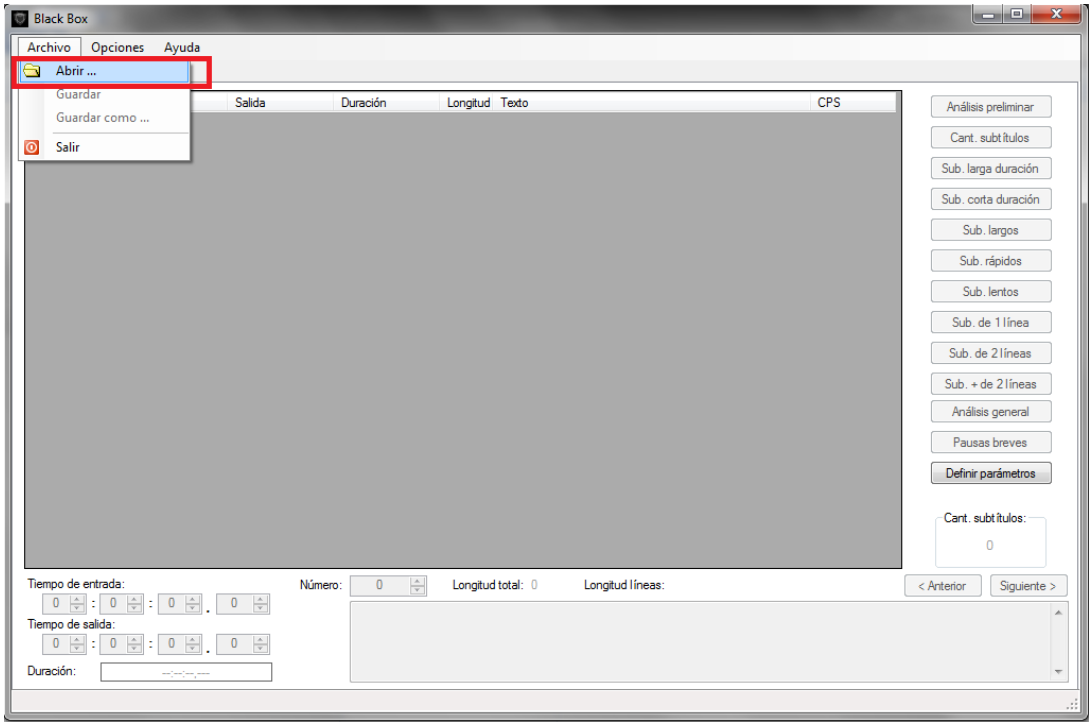


Figure 3. Black Box user interface

In figures 1 and 2 we can easily identify the text that translators need to read and modify: hierarchically organised in translation units (<trans-unit> in 1.2 and <unit> in 2.0), and, further inside, into <source> and <target>.

2.4 Tools and Workflow

CAT tools supporting XLIFF will be able to present the translatable data in their interfaces in a usable form. In figure 4, when the XLIFF file is opened in Virtaal[7] translatable text is displayed in a double row system: the top row contains the source text, whereas the bottom row contains the input mechanism that allows the translator to introduce or manipulate the target text. In figure 5 the same file is opened in another CAT tool: OmegaT[8].

[7] http://virtaal.translatehouse.org/
[8] http://www.omegat.org/

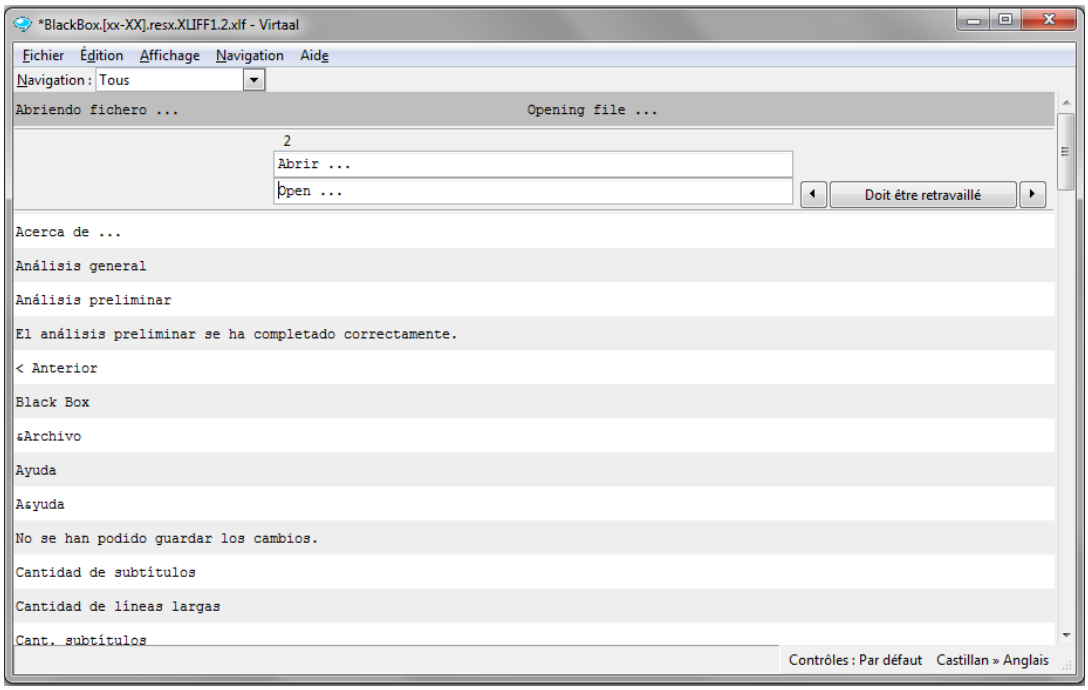


Figure 4. XLIFF 1.2 file (shown in figure 1) opened in Virtaal

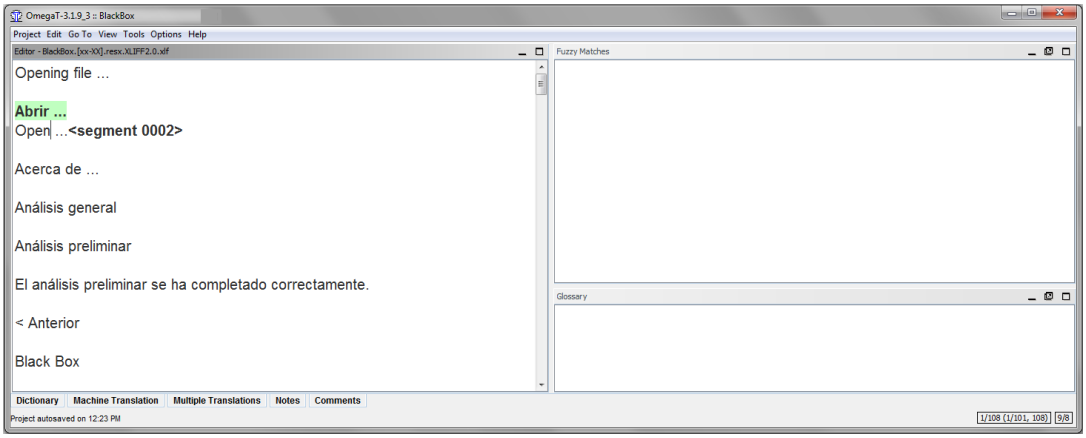

OmegaT-3.1.9_3 :: BlackBox
Project Edit Go To View Tools Options Help
Editor - BlackBox.[xx-XX].resx.XLIFF2.0.xlf
Fuzzy Matches
Opening file ...
Abrir ...
Open ...<segment 0002>
Acerca de ...
Análisis general
Análisis preliminar
El análisis preliminar se ha completado correctamente.
< Anterior
Black Box
Glossary
Dictionary Machine Translation Multiple Translations Notes Comments
Project autosaved on 12:23 PM
1/108 (1/101, 108) 9/8

Figure 5. XLIFF 2.0 file (shown in figure 2) opened in OmegaT(a similar output is obtained after opening the 1.2 file shown in figure 1)

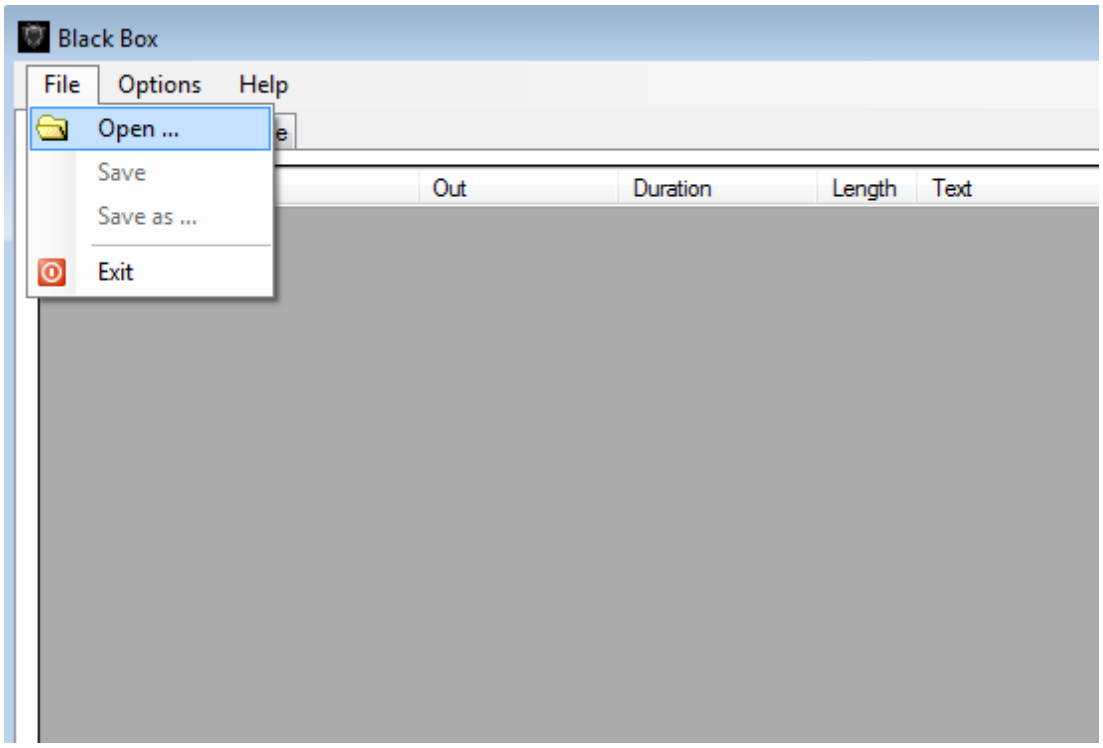


Figure 5. Localised Black Box user interface

In the above example, Black Box has been internationalised by extracting the user interface text into a RESX resource file, which has then been converted into XLIFF (figure 2) by the Okapi Rainbow[9] extractor tool. After being translated, a copy of the same XLIFF file is exported containing the translations in the target nodes (between the opening <target> and closing </target> tags). At this point, Okapi Rainbow would be used again, this time to merge the translations from the XLIFF file back into the original RESX structure. Localisation engineers would then add the target RESX file to the development environment, which had previously been prepared to accommodate new languages (or locales), allowing the new localised version of the software to be compiled (see figure 6). A workflow flowchart describing the process is shown in figure 7. For more information on XLIFF 2.0-supporting tools by type (enricher, extractor, merger, modifier and writer) please refer to Filip and Wasala 2013, and Morado Vázquez and Filip 2014; XLIFF 1.2 support can also be consulted in Filip and Morado Vázquez 2013.

[9] http://www.opentag.com/okapi/wiki/index.php?title=Rainbow

Figure 6. Simple localisation workflow using XLIFF

2.5 Localisation Information

As well as translatable text, included within the translation units, an XLIFF document can contain other complementary information about the elements to be translated, as well as information about the localisation process, between humans, tools and among these, in a way that can help both the translator and localiser in their intellectual task and different tools in automating various phases and processes:

2.5.1. Workflow information

An XLIFF file can contain information about the current state or phase of a translation unit or a group of them, i.e. on whether the translation units have been translated, reviewed, etc. A specific attribute (state) may carry that information; as the values of that state attribute have been predefined, CAT tools might be able to recognise and display them on their user interfaces, as well as apply or show different default, customisable actions or layouts according to the current task or phase. Version 1.2 had 10 predefined values10 (final, needs-adaptation, needs-l10n, needs-review-adaptation, needs-review-l10n, needs-review-translation, needs-translation, new, signed-off and translated). However, such a variety of different values are difficult to implement in real CAT tool environments (Morado Vázquez and Wolff 2011). Consequently version 2.0 has reduced this list to four pre-defined values (initial, translated, reviewed and final) which ultimately can be qualified further within the values of the secondary attribute subState (Comerford et al 2014, Savourel 2014: 43).

[10] Those values can qualify the attribute state that defines the translation unit workflow state. In version 1.2, the state attribute may be included within the <target> element, whereas in version 2.0 it may be included within the element.

```
<trans-unit id="2" resname="ABRIR_LABEL" xml:space="preserve">
   <source>Abrir ...</source>
   <target state="translated">Open ...</target>
</trans-unit>
```

Figure 7. Example of the use of the state attribute in XLIFF 1.2 (emphasis with colour added by the authors)

```
<unit id="2" name="ABRIR_LABEL" xml:space="preserve">
   <segment state="reviewed" subState="JTool:Rejected">
      <source>Abrir ...</source>
      <target>Open ...</target>
   </segment>
</unit>
```

Figure 8. Example of the use of the state and (user-defined) subState attributes in XLIFF 2.0 (emphasis with colour added by the authors)

2.5.2. Provenance information.

That is, information that refers contextually to the origin of the file and/or its sections. Both version 1.2 and 2.0 support it, although by using different methods. It is the (sadly often shunned) responsibility of CAT tools to be able to process and display it through their user interfaces to the final user, i.e. the translator.

```
<file original="/BLACKBOX/compilación/BlackBox/BlackBox.[xx-XX].resx" source-
language="es-es" target-language="en-us" datatype="xml">
   <body>
      <trans-unit id="2" resname="ABRIR_LABEL" xml:space="preserve">
         <source>Abrir ...</source>
         <target state="final">Open ...</target>
      </trans-unit>
</file>
```

Figure 9. Examples of provenance metadata in XLIFF 1.2 (emphasis with colour added by the authors)

```
<file id="f1" original="/BLACKBOX/compilación/BlackBox/BlackBox.[xx-XX].resx">
   <unit id="2" name="ABRIR_LABEL" xml:space="preserve">
      <segment state="final">
         <source>Abrir ...</source>
         <target>Open ...</target>
      </segment>
   </unit>
</file>
```

Figure 10. Examples of provenance metadata in XLIFF 2.0 (emphasis with colour added by the authors)

2.5.3. Translation suggestions.

The possibility of embedding relevant translation memory matches into the bilingual localisation file has been a core feature in all XLIFF versions. Translation units presented to translators can be accompanied by translation suggestions. In version 1.2 the specific element <alt-trans> is used, whereas version 2.0 has been provided with a specific module

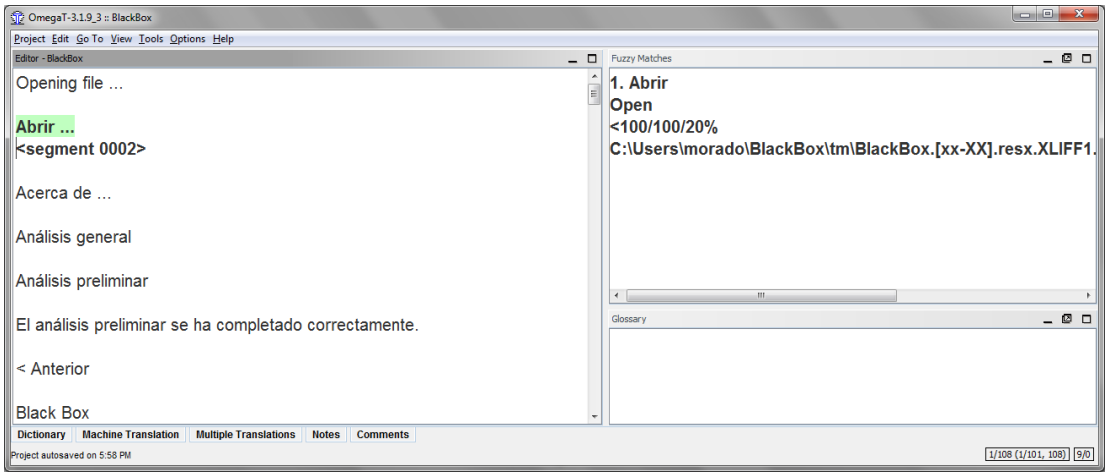
(Translation Candidates) where that information can be inserted (Comerford et al 2014, Savourel 2014: 45). In the examples below (figures 12 and 13), two translation suggestions have been added to the translation unit “Abrir …”. The first match includes an alternative translation unit retrieved from a previous translation. The second match includes an alternative translation from another language (French in the example), as adding translation suggestions from other languages might help translators working with the same family of languages (e.g. Spanish and Portuguese) or with any other known languages. Figures 13 and 14 show how these translation suggestions can be displayed in a CAT tool.

```
<trans-unit id="2" resname="ABRIR_LABEL" xml:space="preserve">
   <source>Abrir ...</source>
   <target ></target>
   <alt-trans>
      <source>Abrir</source>
      <target>Open</target>
   </alt-trans>
   <alt-trans>
      <source>Abrir</source>
      <target xml:lang="fr-fr">Ouvrir</target>
   </alt-trans>
</trans-unit>
```

Figure 11. Example of two translation suggestions in XLIFF 1.2 (emphasis with colour added by the authors)

```
<unit id="2" name="ABRIR_LABEL" xml:space="preserve">
   <mtc:matches>
      <mtc:match ref="#m1">
         <source>Abrir</source>
         <target>Open</target>
      </mtc:match>
      <mtc:match ref="#m1" reference="yes">
         <source>Abrir</source>
         <target xml:lang="fr-fr">Ouvrir</target>
      </mtc:match>
   </mtc:matches>
   <segment >
      <source><mrk id="m1" type="mtc:match">Abrir ...</mrk></source>
      <target></target>
   </segment>
</unit>
```

Figure 12. Example of translations suggestions in XLIFF 2.0 (emphasis with colour added by the authors)


OmegaT-3.1.9_3 :: BlackBox
Project Edit Go To View Tools Options Help
Editor - BlackBox
Opening file ...
Abrir ...
<segment 0002>
Acerca de ...
Análisis general
Análisis preliminar
El análisis preliminar se ha completado correctamente.
< Anterior
Black Box
Fuzzy Matches
1. Abrir
Open
<100/100/20%
C:\Users\morado\BlackBox\tm\BlackBox.[xx-XX].resx.XLIFF1.
Glossary
Dictionary
Machine Translation
Multiple Translations
Notes
Comments
Project autosaved on 5:58 PM
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9/0

Figure 13. Translation suggestion shown in OmegaT (XLIFF 1.2). This tool only accepts one suggestion per translation unit. Our example (figure 12) was modified accordingly to be accepted

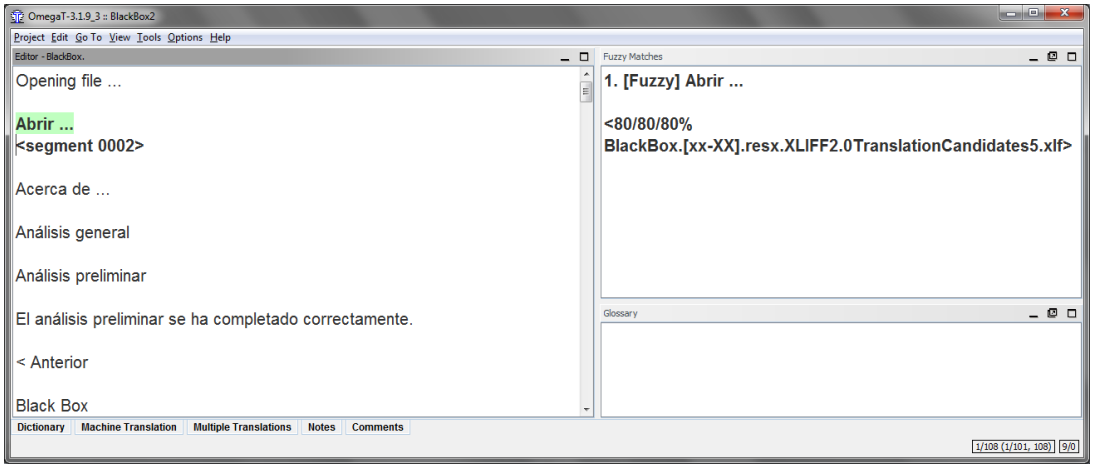
OmegaT-3.1.9_3 :: BlackBox2
Project Edit Go To View Tools Options Help
Editor - BlackBox.
Opening file ...
Abrir ...
<segment 0002>
Acerca de ...
Análisis general
Análisis preliminar
El análisis preliminar se ha completado correctamente.
< Anterior
Black Box
Fuzzy Matches
1. [Fuzzy] Abrir ...
<80/80/80%
BlackBox.[xx-XX].resx.XLIFF2.0TranslationCandidates5.xlf>
Glossary
Dictionary
Machine Translation
Multiple Translations
Notes
Comments
1/108 (1/101, 108)
9/0

Figure 14. Translation suggestion from figure 13 shown in OmegaT, where the match is not correctly displayed by this tool (XLIFF 2.0)

2.5.4. Other information

As well as the aforementioned, in an XLIFF file, information about other aspects of the localisation process can be included, mainly due to the application of the optional modules of the new version 2.0: 1. Translation Candidates; 2. Glossary; 3. Format Style; 4. Metadata; 5. Resource Data; 6. Change Tracking; 7. Size and Length Restriction; and 8. Validation. This will be covered in section 4 more extensively.

3. XLIFF and the translator

Just as CAT tools have had a tremendous influence in the work of translators by automating certain tasks, separating textual content from format, structure and internal codes of documents, "imposing" a kind of visual environment and textual segmentation, integrating quality assurance, and so on, so is a standard such as XLIFF susceptible of facilitating,

complicating or "imposing" a certain way of looking at language and working with it in the process of translating and localising resources.

Standards like XLIFF can be useful both to automate and streamline tasks between non-human agents and to make data regarding products and processes more usable and accessible for humans – so that they can be perceived, understood and operated upon (W3C 2008) in a more effective, efficient and satisfactory way (Bevan 1995). Ultimately, the information and the mechanisms provided by the standard will influence the quality of their work as well as their satisfaction.

In a way, translators do not need to "understand" what an XLIFF file is; they just need to be able to process it in a CAT tool that can recognise the translatable text, and once the tool has displayed it, the translator will be able do their job (translating). However, we believe that an in-depth knowledge of the standard could actually empower translators in a two-fold way: by being in control of the objects that they are manipulating, and by understanding the implications (i.e. advantages and possible disadvantages) of the use of the standard during their work.

These implications can probably be best seen by reflecting on:

- Working scenarios for translators.
- The influence of the extraction-merging paradigm on translation.
- Interoperability.
- XLIFF usability in translator-CAT tool interaction (dealt with in section 4).

3.1 Working scenarios for translators

A translator will have to interact with XLIFF files under three main working scenarios:

Scenario A – Explicit usage of XLIFF as a source file generated by a PM. XLIFF files are generated by the client or the project manager (PM) from other file formats. In this case, translators will have to open the XLIFF file in a CAT tool of their choice and translate its content. The back conversion to the original file format will depend on the client or PM. The translator will only have to deal with translating the content of the source elements. The main disadvantage of this procedure is the lack of the original visual context. In order to better process the file, the translator could inspect the file (with an advanced text editor or XML editor as shown in figures 1-2 and 17, respectively) before translating it and check the following information: XLIFF version, presence of notes (through the <note> element), state attribute values (workflow information), translation suggestions, terminological information, and track changes information. This scenario corresponds to the software localisation example presented in section 2.4.

Scenario B – Implicit usage of XLIFF as the native bilingual format of chosen CAT tool, through its internal XLIFF converter and editor. They receive a file in a different format and translate it in a CAT tool that has XLIFF as a native translation format (e.g. SDL Trados Studio 2014 or Swordfish III). Those tools internally convert original files into XLIFF. The conversion to the original file format (once the translation has been completed) should be

done within the same CAT tool. Translators working on this scenario might not be aware of the conversions and file creation processes that their CAT tool is performing behind the scenes. In fact, the whole roundtrip process is performed by that tool: from the original file to XLIFF and back to the original file format. The XLIFF file created in between might be ignored afterwards, as the most important output would be the translated file in the original format. However, this bilingual XLIFF file can also be exported for further processing: for instance, for terminology and segment verification with a QA (Quality Assurance) tool.

Scenario C – Acting as a PM to manage, deliver and convert XLIFF files. Translators use a specialised tool to create an XLIFF file and send it over to other translators/collaborators; they will also be responsible for receiving the translated XLIFF files once completed and for generating the final files in their original file formats. This scenario presumes a good knowledge of XLIFF and file manipulation in general on translators' side. They will actually be playing the role of the PM in scenario A.

Translators working in scenarios A and B might not always need an in-depth knowledge of the standard. However, being aware of the possibilities and limitations of XLIFF could lead them to better understand, modify and display the files that they need to manipulate during their translation tasks. Translators working in Scenario C — as any PMs working with file conversions — should benefit from a good understanding of XLIFF — including knowledge of the version supported by their tools and the possible compatibilities with the tools used by their collaborators.

3.2 The influence of the extraction-merging paradigm on translation

The vehicle metaphor (presented in section 2.2) for translators represents a view of language and of its containing texts or products which is somewhat problematic: it assumes, first of all, that language segments can be extracted from its context (the material text or product) without any meaningful loss in the process; that the semantic, semiotic or performative relationship between the extractable language and the container text/product/mechanism is not strong enough — i.e, they are not so intertwined — as to be mutually defining; finally, it does not account for cultural differences in the understanding and reception of textual and non-textual materials and actions.

If we stick to the aforementioned metaphor, imagine that in the target garage cars usually have a different underlying material, so that they use a different kind of paint, which will not stay well on the original car part; or that colours in the target environment have different meanings from those intended originally; or they do not have the same resistance to heat, rain or any other climatic conditions which may be different in the original from the target environment. What if car parts do not coincide completely or some parts are not used in one garage or the other, or if different parts look alike or do not have a clear inside or outside (except when built in the car) — how would they know how to paint the parts correctly?

Those insufficiencies have been addressed gradually over the different versions of the standard, although compensating mechanisms (deeper standardisation and internationalisation, more fine-grained description of parts and interconnections, extensibility,

and so on) can easily fail if they are not clearly defined and operationalised for either processing tools, operators or users. Some of those compensating mechanisms will be touched upon in the next few sections and subsections, particularly when dealing with the goals and new modules of XLIFF version 2.0, in section 4; and also in section 5, where new proposals are made. As a further example of one of these mechanisms to compensate for the lack of explicit context and inter-relations, figure 17 shows how XLIFF 2.0 has included clear support for subflows and connections between parts. The source CMS-based web page (figure 16) features a potentially localisable hyperlink with a localisable title attribute in the middle of a sentence.

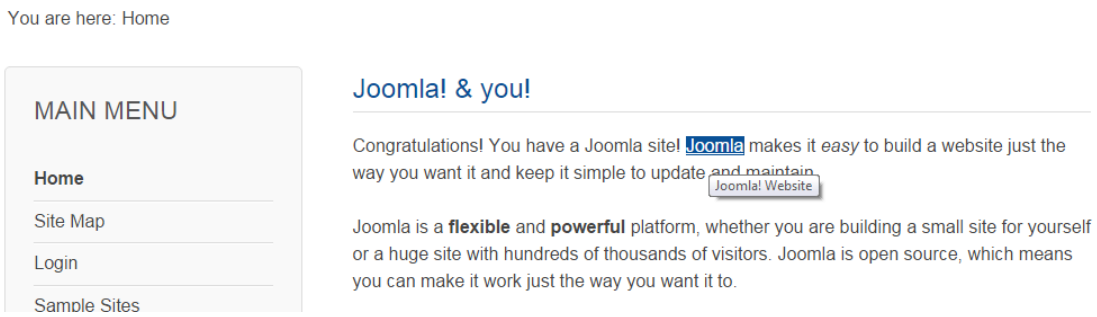

Figure 15. Excerpt from a Joomla! CMS web page, online at: http://www.usal.es/localizacion-grado/joomla303

```
<unit id="14">
 <segment>
  <source>http://www.joomla.org/</source>
 </segment>
</unit>
<unit id="15">
 <segment>
  <source>Joomla! Website</source>
 </segment>
</unit>
<unit id="16">
 <segment>
  <source>Joomla! &amp;amp; you!</source>
 </segment>
</unit>
<unit id="17">
 <originalData>
  <data id="d1">&lt;a href="[#$14]" target="_blank" title="[#$15]"></data>
  <data id="d2">&lt;/a></data>
  <data id="d3">&lt;em></data>
  <data id="d4">&lt;/em></data>
 </originalData>
 <segment>
  <source>Congratulations! You have a Joomla site! <pc id="1" subFlowsStart="14 15" dataRefEnd="d2"
dataRefStart="d1">Joomla</pc> makes it <pc id="2" dataRefEnd="d4" dataRefStart="d3">easy</pc> to build a
website just the way you want it and keep it simple to update and maintain.</source>
 </segment>
</unit>
```

Figure 16. XLIFF 2.0 representation in Exchanger XML Editor[11] of the heading and first paragraph in the central Joomla! article from figure 16. Coloured rectangles identify interconnections between paragraph fragments, HTML inline codes, and localisable values of HTML attributes

[11] http://www.exchangerxml.com/

3.3 Interoperability

Facilitating interoperability between different tools and agents involved in the localisation process is a fundamental property of XLIFF. Interoperability implies that the data contained in an XLIFF file can be understood and processed by two or more tools indistinctly or sequentially. In practical terms, it means that if an XLIFF file is created by tool A, and then sent to tool B, the latter would be able to open it, modify it and save it, and ultimately return it to the former, which would be in charge of converting the XLIFF file to its original format or process it further.

From the translator's side, this interoperability achievement has a positive and clear impact: freedom to use the tool of their choice. As long as a CAT tool is XLIFF compliant, the translator would be able to process that file format and carry out their work.

Another potentially positive impact would be that the translator, through the effective interoperability of their tools, can be more comprehensively integrated in the whole production/reproduction (or globalisation) cycle, thus avoiding being relegated to a "non-technical infra-job", dealing with "only words". The compromise, however, might be having to comply with industry- or computer- motivated ways of presenting, describing or processing translatable resources that may be awkward, usability-unfriendly or disruptive of the creative process of translation.

4. The translator and XLIFF

It is important for translators to be aware of the implications of XLIFF on their work, as discussed in the previous section. However, they could take one step further, to try and influence the development and implementation of XLIFF as much as possible, by suggesting and finding new ways to inscribe their own meanings (Torres del Rey 2005: 121-134), needs, and the rich output of their work into it, in a way that is compatible with the objectives of the localisation industry. After all, both the industry and translators would benefit not only from the interoperability of computer-aided tools, but also from a source XLIFF file that can be made informative enough to improve the chances of a high-quality translation and localisation task, and from a standard file that is so productive as to be able to capture relevant information from the translation process — like comments, bilingual segment alignments, tagged terminology, processing and quality assurance information, and so on — which can be leveraged for future tasks and processing. Some of these aspects need to be implemented in a translator-friendly way by XLIFF-compatible translation tools; the availability of others need to be recognised and made the most of by translators (and translator trainers); and a last group of desirable features must be developed and moulded with the assistance and guidance of translators and localisers.

To influence the development of XLIFF, the most obvious first measure would be to analyse its specification. However, a main obstacle remains: it is coded in technical vocabulary and must conform to general computer language procedures and grammar. More importantly, as an obvious (but not inevitable) consequence of having to think how best to

formalise, categorise, and interconnect parts and wholes of files containing translatable language, the description and conceptualisation of what XLIFF is, can do, and how it does it is lexically and grammatically technical, which is mostly inaccessible for non-technical people. The OASIS XLIFF Technical Committee would surely be happy to get feedback and proposals from the translation and localisation community. Nonetheless, striking a balance between the above technical considerations, formally describing language and files in a way that can reflect translators' and localisers' concerns and advance their work, and providing translation, localisation and development tools with relevant, manageable structured data is not easy.

So what can a translator do to help the standard develop in a way that is useful for their community and does not require them to become computer language experts? First, by starting with the basics of what XLIFF is (its nature), what it is for (its intended uses), and how it works (its current implementations), as seen in this article. Then, by becoming aware and alert about actual and potential uses and implementations of the standard in the light of translators' own routines, typical needs, concerns and aspirations (Denning and Dargan 1996), but also of the new, unforeseen possibilities in translators' work unveiled by understanding and experiencing the nature, features and implementations of XLIFF (Winograd and Flores 1986: 166-170). Finally, by confronting, and synergistically and proactively blending, the concepts, uses and procedures coming from personal translation experience, both with and without XLIFF, and from the promises and intentions of XLIFF. In a nutshell, to help develop XLIFF, its actual users should use it, in its varied implementations, and translate their understanding of it — made possible through using, testing and stretching it, physically and mentally speaking — into new participatory development and implementation proposals (Ehn 1992).

In order to look at this from a more practical and concrete perspective, we will place our focus on the fields of Human-Computer Interaction and Usability. The latter "is an outcome of interaction rather than a property of a product", which must be defined according to its "context of use" – consisting of users, tasks, equipment, and physical and organisational environments, and must account both for intended goals (including avoidance of negative outcomes) and a satisfactory user experience (Bevan 2015, Bevan 1995). The key concepts here are: interaction, context of use, tasks, goals, avoidance of negative outcomes, user experience.

Exposure to XLIFF (implementations) by translators, as mentioned in the previous sections, typically comes in the form of usage of CAT tools for the tasks of translation and revision, so a major area of interest lies in the kind of interaction that such tools can offer the translator considering the core and specialised features that an XLIFF file can provide for. The interaction depends on: 1. the information included in the extraction and enrichment phases prior to being filtered by the CAT tool, which will be overtly displayed by it; 2. the automatic (covert) processing of that information (e.g. matches which are leveraged to the target window in the translation editor, terms that are flagged; format that is applied); 3. the kind of actions a translator can perform on the data during the translation process (e.g. confirm matches, view more information, click on links); and 4. the additional information that the file can be accommodated with for posterior processes, both automatically and manually.

Some localisers and translators, on the other hand, may be involved in other more technically advanced forms of interaction, before and after the translation phase, including tasks such as analysis, preparation, extraction, enrichment, automated quality assurance, and so on.

So, depending on the context of use, translators and localisers could try to identify issues, needs and perceived improvements on their daily work that may be produced due to the use of a standard, and, particularly, this standard, whether those were caused by insufficient or limited support by the processing tools (which may behave awkwardly or inadequately when displaying and processing the file) or by gaps in the XLIFF specification. For this, we need to understand both what kind of interaction it produces (as laid out in the previous paragraph), what the specific goals of the standard are (as mentioned in the next paragraph), what tasks the human agent is performing (translation, revision, quality checks, extraction, etc.), and whether the user experience is satisfactory and there are no negative outcomes.

The specific goals of the standard have been greatly clarified by the new version 2.0, where a division has been made between the Core, which "includes the basic elements needed to store extracted content, add its translation, and merge it back into the original format" (Savourel 2014: 42), and other optional specialised modules. Therefore, a basic concern for translators should be whether the information in the original resource has been adequately represented (both in terms of comprehensiveness and structure) by the XLIFF file, and whether it has been segmented well (or can be re-segmented by our tool) and contains — and can contain — non-textual (e.g. inline codes) or extra-textual (e.g. annotations and comments) information, which may be essential or, at least, useful for any of the different tasks of the translator. All this should be considered in the light of the external nature of the XLIFF as a file format that will display and represent another file and that will have to be processed by another tool or set of tools in order to return something that can help in the next phase of the process, notably merging it back into the original format and, ideally, environment.

The optional modules supported in the new version also point at specific goals for the standard, and their usability and possible improvements and additions can be analysed quite straightforwardly by the translator: how useful is additional information of translation matches of source segments (into the target or other languages) for the translator or their tool, and how well that information is displayed or acted upon? The same goes for terminology information (which, we believe, needs to be held within its context for interchange and post-processing, rather than just in an external glossary file on which a CAT tool performs term recognition); format style (in order to generate a quick HTML view of the resource being localised, i.e. to provide visual context); custom metadata not contemplated in the specification, which may be useful for specific projects; resource data (how can reference or sample resources help in providing textual, generic, conceptual, functional and visual context); version tracking (as traces of different versions are useful in the process); size and length restrictions; and other constraints to the translation. Finally, what other information would be useful to consult or have encapsulated for any of the interactions they will be involved in?

Whether translators are the ones daring to suggest technical improvements to the specification, or whether they can act as informed evaluators and wish makers, the best way towards influencing the development of XLIFF stems from actual users' understanding and using its features and implementations, exploring and exploiting them. Improvements based on actual user participation, in turn, will make new implementations something desirable and more user-friendly, which will also spur the imagination of specification developers, implementers and users about further development.

5. XLIFF drawbacks and opportunities

Despite the obvious advantages of XLIFF, and the generalised adoption of version 1.2 (and, hopefully, 2.0 too) by CAT tool vendors there remains a series of drawbacks that have prevented it from being completely successful in translation and localisation settings.

As mentioned in sections 3.3 and 4, interoperability is one of the main benefits of XLIFF. However, the reality is that there is heterogeneous support and behaviour of CAT and other tools when processing XLIFF. Some CMSs (Content Management Systems), for instance, only support outdated versions of XLIFF. On the other hand, certain features in XLIFF are not supported by mainstream CAT tools, such as showing context or identity information (what kind of structural element the text being translated is embedded in — a paragraph, a title, an image, etc.). Finally, the largest study (Wasala et al 2015) carried out on a corpus made of XLIFF files showed that not all the elements and functionalities presented in the previous version (1.2) are used widely, or even regularly, when creating XLIFF files and that the majority of the files collected for that study (ibid.) were not valid XLIFF files, thus compromising interoperability.

Other potential constraints are comprehensiveness and finding a balance between innovation and tradition (Ehn 1992: 124-125). As with any standards, it is by definition difficult for extraction tools to fit new, ground-breaking features or objects into existing elements or attributes. That is why XLIFF must be constantly evolving while, at the same time, ensuring its backward compatibility. The latter, however, has not been achieved in version 2.0, in order to be able to fix many structural and conceptual problems of previous versions, while adopting a more modular approach.

> *In order to serve this complex ecosystem, the development of XLIFF has been impeded by a bevy of competing design objectives. As with any standard, there is an inherent tension between a simple standard, which is easy to understand and implement, and a complex standard, which can provide additional features. The fluid nature of the localization industry also creates a tension between the need for rigid standards, which provide strong guarantees of interoperability, and flexible standards, which allow for extension and customization.* (Tingley 2015: 19-20)

Although, it will take some time before widespread support for this latest version is gained, this will help interoperability: its adoption and support is envisaged to be easier accomplished by tool developers due to the clarity and simplicity that the Core represents (Savourel 2014: 47). If a tool wants to be declared XLIFF 2.0 compliant, only the Core needs to be supported.

The adoption of the specialised modules, on the other hand, is optional and tool developers might decide whether to implement them or not depending on the needs, requirements and opportunities identified by their tools.

As for particular issues typically encountered when working with XLIFF, there is the question of re-segmentation. Mark-up or functional codes inside translatable segments can produce undesirably short, long or, simply, wrong segmentation if XLIFF extractors are not fine-tuned or if relevant ITS rules are not used or processed. If no further re-segmentation mechanisms or tools (which comply with XLIFF's processing requirements) are provided, we may end up with exchange files which are not very usable or reusable (through translation memory or terminology management) in CAT tool (see, for instance, Torres del Rey and Rodríguez V. de Aldana 2013: 7, 9, 10).

One of the advantages that the XLIFF standard represents is that translators could concentrate again on the text and forget about formatting issues (García 2006). However, it is also important to bear in mind the possible consequences of working with a text extraction paradigm like the one that XLIFF proposes. As mentioned in section 3.2, textual information, especially in a digital environment, is not conceived of as an isolated item, but as a part of an object, a series of object, or, even, a whole or a particular act or performance. Extracting the text, without providing adequate contextual information, creates an artificial situation for translators, who are forced to work with isolated text that might be ambiguous or misinterpreted. Again, it should be, first and foremost, the extraction tool's responsibility to capture contextual information, which could also be complemented by enriching tools operated by project managers or localisation engineers; and secondly, it is the CAT tool's responsibility to interpret that information and display it in a comprehensive way to translators.

In this regard, XLIFF could try to champion the arduous cause of "tridimensionality" in the information given to translators and localisers, by providing a new specialised module. Extraction mechanisms and file formats can be considered one-dimensional when only translatable text is extracted from the skeleton. A second dimension is added when there is information about the functional and visual context of the text, as XLIFF 2.0 provides with modules such as format style, resource data, or in the Core itself by pointing at resource names (which, should ideally be meaningfully named). In addition to this, many strings and fragments that localisers have to translate are dynamic in at least two senses: 1) they include variables; 2) they are the result of previous actions, they trigger other actions, or they are meaningfully integrated in a network of related actions and states. Clearly, that workflow is important for the adequate transformation and distribution of meaning.

Taking that into account would mean adding a third dimension, which will require studying ways of referring to actions and conversations between man and machine and machine and machine (navigation movements, causal relationships, variable outputs, asking for confirmation, and so on). Sometimes these are implicitly embedded in the textual discourse, and more or less implicitly embedded in other semiotic structures (type of resource, etc.), but they may only be explicitly encoded in the computer code and/or non-functional comments or metadata. In our view, it would greatly benefit a standard such as XLIFF (and to localisation in

general) to analyse how to provide mechanisms to either capture that information from the code programmatically (in the extraction phase) or to easily enrich it through specialised tools.

Finally, as mentioned in the previous section, the translator and localiser community would find it easier to be involved in the development of XLIFF (at least in what may affect them most) if a white paper was also drafted for the new version, as was done for the previous one (see XLIFF TC 2007), explaining from a broad perspective (that is, unconstrained by the need to spell out elements, requirements and so on in the structure of a technical specification) what XLIFF is for and what it can do and how. This could also be improved substantially if an alternative or complementary version was released that looked at it from the point of view of user localisers and translator, using simple language and/or translation terminology. What is more, providing more practical examples would go a long way towards bringing XLIFF closer and closer to all its beneficiaries, and fostering user participation.

5. Conclusions

Translators and XLIFF are two key links of the localisation chain. They are meant to interact in the central part of the process. That is why a common understanding between them is essential to ensure a fruitful outcome. On the one hand, translators should be aware of the advantages that the standard represents, how to better manipulate it and, ultimately, how to influence its development. To this regard, courses on XLIFF or, if not available, on "general" XML could help translators to better understand the standard and its structure (Morado Vázquez and Torres del Rey 2015a).

The standard, on the other hand, should be able to provide enough qualitative mechanisms to help tool developers to extract and present as much information as the translator would need during their work (especially contextual information) (Morado Vázquez and Torres del Rey 2015b). The latest version 2.0 has represented a breakthrough in this area. For this reason, the future of XLIFF and its new version depends to a large extent on its adoption by tool developers and content producers. In relation to this, there have already been several good signs: from the early adoption by several prototypes and tools (Morado Vázquez and Filip 2014, Savourel 2014: 47) that helped through its approval process, to the recent announcement by Microsoft to open source its XLIFF 2.0 model (O'Donnell 2015).

Finally, in terms of research, there are several paths involving XLIFF and translators that could be worth exploring: for example, studies regarding the role of XLIFF in translators' daily work in general, or in particular aspects such as formatting as suggested by García (2006: 15); or the importance of context and how the lack of it can have a decisive influence in the task of translation (Torres del Rey and Rodríguez V. de Aldana 2013: 11-12).

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