International Variables: Translation Problems for the Localization of Web Apps

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In localization, *international variables* refer to source cultural elements that require a certain degree of adaptation in a target culture, such as date, time and number formats, currencies, colours, images, humor elements, etc. Although localization involves the adaptation of a digital product to a specific market, certain aspects of localization projects (i.e., source file formats, translation tools or project specifications) could become an obstacle to achieving the ultimate goal of localization, and may even give rise to errors or culturally inappropriate translations. This qualitative, interpretative study analyzes a corpus compiled from the online help pages of web applications to identify and describe potential translation problems caused by the adaptation of international variables in localization projects.

Keywords: localization; translation problem; international variables; cultural references; web applications

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Variables internacionales: problemas de traducción para la localización de aplicaciones web

En localización, las *variables internacionales* hacen referencia a elementos culturales que requieren cierta adaptación a una cultura meta dada, como son el formato de fecha, hora y número, la divisa, el color, la imagen, el humor, etc. Si bien la localización implica la adaptación de un producto digital a un mercado específico, algunos aspectos de los proyectos de localización (como el formato de archivo origen, las herramientas de traducción o los requisitos del proyecto) pueden llegar a convertirse en un obstáculo para alcanzar el objetivo

último de la localización, incluso causar errores o generar traducciones poco adecuadas culturalmente. El presente estudio, de naturaleza cualitativa e interpretativa analiza un corpus (compilado por páginas de ayuda online de aplicaciones web) para identificar y describir problemas de traducción potenciales causados por la adaptación de variables internacionales en proyectos de localización.

Palabras clave: localización; problema de traducción; variables internacionales; referentes culturales; aplicación web

1. Introduction: International Variables

This article is based on a qualitative study of the translation problems that the localization of international variables, or cultural elements, can cause when localizing web content, in particular the online help pages of web apps. The discipline now known as *localization* first emerged in the 1980s in response to the need to translate the new technologies that were then becoming accessible to the mass public into other languages (generally English; Esselink 2003). According to the Localization Industry Standards Association (LISA 1998, 3), "localization involves taking a product and making it linguistically and culturally appropriate to the target locale (country/region and language) where it will be used and sold." This means that certain elements specific to the source culture (SC) have to be adjusted so that their impact in the target culture (TC) will be what is required by the customer selling the product in question, or so that they have the same effect on users in the target market as they do on users in the source market. In this regard, the definition of localization proposed by Dunne (2006a, 4) is of particular interest:

> The processes by which digital content and products developed in one locale (defined in terms of geographical area, language and culture) are adapted for sale and use in another locale. Localization involves: (a) translation of textual content into the language and textual conventions of the target locale; and (b) adaptation of non-textual content (from colours, icons and bitmaps, to packaging, form factors, etc.) as well as input, output and delivery mechanisms to take into account the cultural, technical and regulatory requirements of that locale.

Dunne (2006a) differentiates between *textual content*, which is essentially the text of a digital product's interface but also includes things like hyperlinks, system messages and graphics captions, and the *extratextual content*, which refers to icons, colors, graphics, etc., which must also be adapted to the target market. He also draws attention to other factors in the localization process which may, to a greater or lesser extent, pose problems for localizers or translators, such as the way in which source files are prepared for translation. Dunne's definition also alludes to a concept of great importance in the localization context:

that of *convention*, a term used by Kussmaul (1997, 68) to refer to those shared elements or forms of expression that allow members of a particular community to understand each other when communicating. It is vital for localizers to be able to adapt such conventions to the TC when necessary (Jiménez-Crespo 2013, 83-84).

In the present study, the term *international variable* is used as defined by Hoft, namely, those localizable elements that "identify superficial and deep cultural differences" (1995, 19). For Hoft, then, international variables are the localizable elements specific to a given culture, and they mainly refer to cultural differences with respect to politics, the economy, society, religion, education, language and technology. We chose to use this term rather than others, such as *realia* (Kade 1964) or *specific cultural referents* (Cartagena 1998), because it is the one habitually employed in the fields of technical writing, communication and the localization of digital products. However, given their importance in translation studies, section 1.1 offers a brief overview of the different concepts and terms associated with cultural elements.

In the field of localization, lists of international variables have been proposed and described by several authors, including Esselink (2000), Arevalillo (2001), Schäler (2002), Kamerer (2003) and Dunne (2015), to name just a few. In marketing, too, researchers like Singh and Pereira (2005) have studied the cultural aspects of web design. International variables usually include date, time and number formats (for example, how telephone numbers and percentages are written), currency, units of measurement, postal addresses, colors, images, symbols, gestures, sounds and humoristic or colloquial (slang) elements, among other things. Many of them can often be found in the product manufacturers' translation style manuals that are frequently used in the digital product localization sector. Section 1.2 looks at the guidelines for dealing with the international variables found in the style manuals of some leading products.

Pyae (2018, 107-109) studied cultural aspects of videogame localization, exploring the concept of *culture* and its most common attributes: language, norms and values, sex and gender, music, fashion, religion, art, cultural heritage, cultural conventions and technology. These attributes, which are broader and wider-ranging than those mentioned in the previous paragraph, are very important when identifying a society and differentiating it from others.

A translator undertaking a localization project has to identify the cultural connections and connotations produced by such elements in the source text (ST) and establish which of them are adaptable to the target market, taking into account the skopos of the project, the customer's needs and other factors. As Méndez González (2015, 746) says, "es prácticamente imposible que una producción de cualquier tipo carezca de referentes culturales, ya que el creador de la obra, aunque sea de forma inconsciente, siempre da vida a su creación a partir de la forma concreta de ver el mundo que posea."[1]

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[1] It is practically impossible for a creation of any kind to lack cultural references, since the creator of the work, albeit unconsciously, will always influence their creation with their own view of the world (translated by the author).

1.1. Cultural Elements

Before analyzing some of the different terms that have been put forward in translation studies to refer to cultural elements, and merely as an initial means of identifying the key features of what constitutes the central theme of this study, it might be useful briefly to clarify what we understand by culture.

One of the first people to explore the concept was Tylor, who, as early as the nineteenth century, stated that "culture, or civilization, taken in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law, custom and any other capabilities and habits acquired by man [*sic*] as a member of society" (1871, 1). It could therefore be said that culture shapes all the attributes which come to characterize the members of a society. In the same vein, Kroeber and Kluckhohn (1952; quoted in Singh and Pereira 2005, 22) placed the emphasis on symbols as the vehicle of transmission for such cultural attributes and on the attached values associated with the specific ideas that make up a particular community's culture:

> Culture consists in patterned ways of thinking, feeling and reacting, acquired and transmitted mainly by symbols, constituting the distinctive achievements of human groups, including their embodiment in artifacts; the essential core of culture consists of traditional (i.e., historically derived and selected) ideas and especially their attached values.

One notion of special interest when addressing the concept of culture is that of *cultural computing*, which Rauterberg (2006, 14) introduced as a new paradigm in human-computer interaction (HCI)[2] and which defines culture thus:

> It is about allowing the user to experience an interaction that is closely related to the core aspects of his/her culture. In a way that [*sic*] let him/her engage with an augmented reality using the values and [*sic*] of his/her own culture. As such it is important to understand one's cultural determinants and how to render them during the interaction.

Digital product designers and developers adhering to this paradigm would ideally take into account the cultural attributes of a culture when designing a product. Unfortunately, however, this does not always happen and very often designers unwittingly incorporate their own cultural systems into their product designs, making products difficult to use for those with cultural values that may be very different. In recent years, HCI researchers have therefore been including this notion of cultural paradigm in the design and, particularly, the internationalization and localization of products (Pyae 2018).

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  [2] Human Computer Interaction (HCI) "defines design, evaluation and implementation parameters for interactive systems intended for use by people, focussing on the user as the main entity in a computerized environment" (Torres-Carrion 2017).

Both Kroeber and Kluckhohn (1952) and Rauterberg (2006) make special reference to the values inherent to a particular culture. Those values are, essentially, the cultural attributes the translator must be able to identify and adapt to a different culture. In this regard, for Méndez González (2015, 743), "el traductor [*sic*] se convierte en la herramienta clave que realiza ese transvase cultural de una cultura a otra y, por tanto, debe ser capaz de ir más allá de los meros elementos textuales y llegar a comprender todos los matices culturales que puede presentar un texto, para así poder transmitirlos adecuadamente y hacerlos comprensibles para el público receptor."[3]

As mentioned earlier, various terms have been proposed for cultural elements or attributes. They include *realia* (Kade 1964; Vlahov and Florin 1969; Vlahoy and Florin 1986, quoted in Osimo 2004; Robinson 1997; Schäffner and Wiesemann 2001), *specific cultural references* (Cartagena 1998), *cultural references* (Mayoral 1999), *culturally marked (textual) references* (Mayoral and Muñoz 1997), *culturemes* (Vermeer 1983; Nord 2001) and *extralinguistic cultural references* (ECRs; Pedersen 2005, 2007; De la Cova 2017, 61-63). Although subtle differences do exist between these terms, in general nearly all of them highlight the fact that cultural elements are the objects or attitudes that characterize a culture and differentiate it from other cultures.

One of the most frequently used of these terms is realia, which Vlahov and Florin (1969, quoted in Osimo 2004, 221) define as common language words (and compound utterances) that designate objects, concepts or phenomena typical of a particular geographic area or culture that are inherent to the material life and historical-social peculiarities of people, a nation, country, community, tribe, etc. and that have no clear equivalent in the target language.

Likewise, Cartagena defines cultural references as "objetos y fenómenos naturales y culturales específicos de una comunidad concreta y codificados en el léxico de su lengua" (1998, 7),[4] which for translators may constitute "realidades desconocidas en el marco cultural de la lengua de recepción o contraste" (1998, 7).[5] Similarly, and picking up on the idea that these elements may not be known in different cultural contexts, Pedersen (2007, 30) proposed the term ECRs, which are "expressions that refer to entities outside language, such as names of people, places, institutions, food, customs etc., which a person may not know, even if s/he knows the language in question."

Finally, special mention should be made of the notion of cultureme, a term of apparently uncertain origin but which some authors attribute to either Vermeer (1983), Oskaar (1988) or Nord (2001). Nord's (2001, 34) definition of cultureme, i.e., "a social

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[3] The translator becomes the key tool that makes this cultural transfer from one culture to another and, therefore, must be able to go beyond the mere textual elements and understand all the cultural nuances that a text may present, in order to be able to convey them adequately and make them comprehensible to the target audience (translated by the author).

[4] Cultural and natural objects and phenomena specific to a particular community which are encoded in the lexicon of their language (translated by the author).

[5] Unknown realities in the cultural framework of the target or contrastive language (translated by the author).

phenomenon of a culture X that is regarded as relevant by the members of this culture and, when compared with a corresponding social phenomenon in a culture Y, is found to be specific of culture X," emphasizes the fact that such elements only take on their own entity when they are differentiated from those in another cultural system.

From a functional, dynamic perspective, and taking Franco Aixelá (1996), Nord (2001) and Molina (2011) as a starting point, Mendoza (2014, 216) defines cultureme as "cualquier concepto, expresión o situación comunicativa culturalmente marcados que, en su trasvase al TT [texto de traducción], requiera la intervención del traductor."[6] The same author also argues that cultural elements cannot be understood as isolated items, but are in fact dynamic phenomena which are only meaningful within a specific context. Such items, according to Mendoza, only acquire their raison d'être when the concept is transferred from one culture to another, and it also, therefore, follows that the dynamic component of culturemes depends on both intratextual and extratextual factors such as the working languages, text function, situational environment or the purpose of the translation (Mendoza 2014, 214).

1.2. International Variables in Digital Products: Style Guides

Translation (or localization) style guides play a crucial role in localization for a number of reasons. In terms of usability, they are useful when adapting a text to make it readable on screen. In terms of linguistic coherence, they establish a common way for the different actors involved in the localization process to translate style and terminology (Jiménez-Crespo 2010, 1-2). This second reason is pertinent in this study because, as explained earlier, culture or so-called cultural computing has a great impact on how a product is received in a given market: a company seeking localization services needs to be able to convey the cultural features that characterize its products efficiently and coherently in the different markets where they are to be sold. Having clear localization guidelines also avoids potential problems that might arise from undesired expenses, as is mentioned in Microsoft's globalization guide (2022a): "high localization costs are incurred if the localization process is not run effectively. Establishing localization guidelines can increase the quality, accuracy and user-friendliness of the international product version. Moreover, it can significantly reduce the cost of localizing your application into different languages" (section on "Establishing Localization Guidelines"). Finally, the localization process for a digital product involves numerous actors (text editors, engineers, translators, revisors, testers, etc.), so it is vital to have some kind of repository of clear guidelines for drafting and translating texts.

As stated earlier, the localization of international variables is often addressed in one way or another in the style guides issued by manufacturers. To illustrate the importance

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[6]   Any culturally marked concept, expression or communicative situation which may require the translator's intervention when transferred to the translated text (translated by the author).

of these cultural elements when localizing digital products, there now follows a brief overview of how some well-known manufacturers deal with them:

a) Microsoft's Spanish localization style guide includes guidelines on how to handle colloquial terms, idioms and metaphors (2023a, section 4.1.9). It also emphasizes the importance of understanding the cultural connotations of certain terms and phrases in the target market. The guide also refers the user to information on how to localize units of measurement and formats for expressing numbers, addresses and other items. Microsoft (2022b) points out that localized products should produce the same feelings in the target language user as they do in the source language user:

   The language in Microsoft products should have the "feel" of a product originally written in Spanish, with idiomatic syntax, while keeping a high level of terminology consistency for the best possible user experience. To achieve a fluent translation, word-for-word or literal translations should be avoided (section 1 Microsoft, 2022b).

b) Mozilla's (online) localization style guide includes a section specifically dedicated to cultural references ("Translating Culture-Specific References") and encourages translators to adapt typically American cultural references to the TC.

c) Google developer documentation style guide provides information about how to write for a global audience. In its section "Be inclusive" (2023), it explains how to be inclusive and avoid elements such as colloquialisms, slang or references to specific holidays, as well as humor, since it is a culturally specific element that could be difficult to translate.

d) Apple's style guide is aimed mainly at technical copywriters and includes a series of guidelines on how to write content that will not subsequently give rise to localization problems. Regarding humorous content, for example, the guide states the following: "be careful that your humour is in good taste—one reader's joke can be another reader's insult—and keep in mind that humour may not translate well in localized text" (Apple 2020, 141).

e) Facebook's (European) Spanish language style guide contains guidelines not only on how to deal with currencies and date/time formats, but also with regard to the product's tone and voice, the main priority being that the message should be conveyed as if it had originally been written in Spanish. Unlike other products, however, Facebook favors a neutral style of writing which can be adapted to the company's widely varied public and is suitable for all types of user profile, i.e., "…our audience is truly everyone" (Facebook 2019, 7).

f) The general style guide and the Spanish language style guide issued by Wordpress.com (n.d, online) both contain specific guidelines on how to handle cultural references and jokes and encourage translators to omit references to songs and expressions typical of American culture that are not suitable in the

TC. They also favor reformulation as a means of ensuring a natural-sounding text (wordpress.com n.d, online).

g) Finally, W3C's (2016) internationalization instructions include advice on how to adapt content for different markets, offering suggestions about what to do with symbols, color, formats (numbers, addresses, currencies), etc.

In general, most of the style guides analyzed seek to adapt cultural references to the markets where the product or service in question is going to be distributed or sold. This is not surprising, considering that linguistic and cultural adaptation is, after all, the ultimate aim of localization.

2. Methodology

The present study, carried out during the pre-translation phase using a qualitative approach, conducted a descriptive, interpretative analysis of the translation problems posed by international variables found in a corpus of online help texts (monolingual English corpus). Although the analysis was essentially qualitative, the instances of international variables identified in the corpus were subjected to basic statistical processing in order to better illustrate the case study. There was, however, no intention of obtaining any generalizable statistical inferences. The online help corpus used was a previously compiled *specialized*, monolingual, English language corpus (De la Cova 2017) called the ONHELP corpus, which contains 229,492 words. It was created from representative extracts taken from the help centres of two leading cloud storage products, Dropbox and Google Drive.

The aim of the work was to explore, in greater depth, one of the specific aspects which had already been touched on in an earlier, broader analysis of the *localization problem* concept. That first study divided the translation problems identified in the ONHELP corpus into eleven different types (De la Cova 2017). To do so, a qualitative analysis of the corpus was carried out adhering to the inductive precepts of grounded theory (Glaser and Strauss 1967). The objective was to identify the problems a translator might come across in the pre-translation phase of a localization process and classify them. Although, with the exception of certain authors like Hubscher-Davidson (2011) and Wehrmeyer (2014), grounded theory is not widely used in translation studies, it is a very common method in other fields, such as sociology, in which corpora are processed qualitatively. According to Strauss and Corbin (1990, 23), "a grounded theory is one that is inductively derived from the study of the phenomenon it represents. That is, it is discovered, developed and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon." The cyclical method of coding data typical of grounded theory implies "a constant comparative analysis, hence this approach is referred to as the constant comparative method" (Glaser and Strauss 1967, 7).

As found out in this study and stated by other authors, international variables are elements that often pose translation problems. Indeed, Pederson (2005) describes

cultural elements as "translation crisis points," because they usually pose problems which force translators to adopt a specific strategy. The adaptation of a given cultural element may also be hindered by other factors, such as the ST file type or extratextual elements that subordinate the text itself. In this work, therefore, it is necessary to further specify what we understand by localization problem. De la Cova (2017, 149) defines a localization problem as

> […] any element which, in the specific context of localization and despite its subjective, interpretable nature, manifestly overlaps with the (textual or extratextual) context and displays a degree of complexity in its translatability which constitutes or may potentially constitute an obstacle to the translator, regardless of their experience and ability to solve problems automatically, the types of resources available, etc.

According to this definition, which was mainly inspired by Nord (2001) and Toury (2010), there are two attributes which may turn an element, or a series of elements, into a localization problem: translatability, meaning the lack of a clear, unequivocal translation for the element in question (perhaps because there are several possible translation options, or perhaps because no ideal equivalent exists) and contextualization, meaning both the textual context of the element in the ST and also aspects of functional contextualization affecting the translation process, such as the customer's expectations (De la Cova 2017). In this regard, it should be mentioned that the functionalistic approach takes on great importance in localization (Nord 2001; Jiménez-Crespo 2013; Alonso and Calvo 2015), where a text's purpose (usually the distribution and marketing of a product in a given market) plays a key role both in the localization process itself and in the decisions taken concerning the product's localization.

In this project, a problem associated with international variables is understood as "an obstacle to localization caused by an identifiable element typical of the source culture context which must be transferred to the target culture context and for which equivalence is either unclear or non-existent" (De la Cova 2017, 311).

3. ANALYSIS AND RESULTS

In the ONHELP corpus, 89 problems associated specifically with the translation of international variables were identified in the section corresponding to the Dropbox help centre (out of a total of 1,596 instances of translation problems in general) and 64 in the section corresponding to the Google Drive help centre (out of a total of 963). Most of these international variable translation problems were related to the translation of culture-specific elements or elements referencing some particular aspect of the SC, such as number formats and units of measurement, examples of how an action or instruction is used, electronic mail addresses, URLs and instances of informal language (De la Cova 2017). However, in the present study, to provide a more comprehensive and accurate

view of the international variables that may be found in this type of product, two additional types of elements which had only been identified as unconnected items in the earlier work by De la Cova (2017) were included and analyzed: a) visual referents; and b) hyperlinks. These elements are, in fact, directly linked to the TC in that they usually require some kind of adaptation to the culture where the product is going to be marketed. Analyzed using this new, extended criteria, the ONHELP corpus was found to contain 319 cases of international variables in its Dropbox section (out of a total of 1,596) and 211 in its Google Drive section (out of a total of 963). The international variables category was therefore the second most common category in the corpus, in both the Dropbox and Google Drive sections.

Five of the problems with international variables identified in the ONHELP corpus are presented and analyzed below. In each case, the section of the corpus where the problem was found and the source segment (with the problem in italics) are provided, together with an image or screenshot when applicable. Although the corpus is monolingual (English), references to different translation options into Spanish are included here to illustrate the pre-translation phase, where the translator analyzes a text with the aim of translating it into a specific language (in this case, Spanish has been used).

(1)   Dropbox online help: "For example, if you create a folder called "*Taxes*", then uncheck "*Taxes*" in your Selective Sync preferences, this will stop "*Taxes*" from syncing to the Dropbox folder on your computer." (De la Cova 2017; italics added)

FIGURE 1. Example, case 1

If you re-check the original "Taxes" (in your Selective Sync preferences) to resume syncing to your computer along with the new "Taxes," the name of the "Taxes" folder with the minus sign will be appended with "(Selective Sync Conflict)." Both folders will sync to your account online.

Taxes (Selective Sync Conflict)
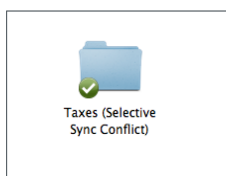
This first case from the corpus shows a problem with the localization of an example of how the Dropbox application is used. Here, the specific constraints are the (visual) context of the segment itself—the screenshot of the folder—and the potential implications of working with a translation memory (TM) system, which is the most common practice in the localization industry. This is therefore a complex problem involving both the textual (visual) and functional contextualization of the project.

As can be seen in the source segment, the name of a folder (*Taxes*) is used to illustrate how Dropbox's *Selective Sync* function works. The usual thing, in any context, would

be to translate the name of this folder so that the example would make sense to the users of this content, for example, as "impuestos" in Spanish. In this case, however, we find ourselves with the problematic presence of a screenshot (see figure 1), which may or may not be localized (Mata Pastor 2009a, 2009b) for the Spanish version of the product. Moreover, if the translator is working exclusively with a TM tool and does not have access to the original (HTML) file, they may not even be able to see the image. Regardless of whether the translator has access to the image, the presence of the screenshot represents an obstacle to functional contextualization, which may even lead to an error in content coherence. The processing of the source file by the TM system may result in the translation tool filtering out non-textual elements and not displaying them in the TM interface and instead signalling their presence with some kind of indicator, such as the <img> tag for images (HTML language). If this occurs, the translator will know that there is an image there thanks to the tag, but this will not be of any use if they have no access to the ST images. If the translator decides to translate *taxes* as "impuestos" but the image is not localized (i.e., it remains in English), there will be a lack of coherence between the textual and non-textual content (image), as well as a poor user experience. If the translator does have access to the image, they will then face the problem of what to do with this element: adapt it to the TC and thus commit an error of coherence or leave it in English to maintain coherence with the screenshot but fail to provide the target user with adapted content.

> (2)   Dropbox online help: "If there is other information about you that you believe Dropbox has, please contact us at *privacy@dropbox.com* with the words *Data Access Request* in the subject or body for faster processing" (De la Cova 2017; italics added).

This second case from the corpus presents a problem with the localization of two elements related to how the service or product is operated in the SC (customer sales communication): a) an email address; and b) some instructions. Here, the specific constraint would be the specifications, if any, provided by the customer.

Email address localization usually causes translation difficulties if there are no clear translation guidelines from the client. In this case in point, there is a problem concerning the functional contextualization of the product in question which arises precisely as a result of such an absence of guidelines. If the translator has been given a list of localized addresses, the email address would not, in theory, pose any problem whatsoever and would merely need replacing. If, however, no such list has been provided, the translator will have to decide whether to change the address or leave it as it is in the ST. Even though the translator may know that the client has the localized address *privacidad@dropbox.com*, they should always confirm with the client whether they should use that address or (for example) another, updated, address.

A second obstacle found in this sentence is "Data Access Request." As the example reads, that text should be written in the subject of the email "for faster processing,"

which could indicate that there is an automated system that filters emails with this as their subject. Here the translator would have to decide whether leaving the text in English is an option or whether it should be translated. If this type of privacy issues is managed by a team in the U.S., for example, then the text should stay in English. But if the service is provided by a team in the target (Spanish-speaking) country or by a Spanish-speaking team in the U.S., how should that specific text be translated? In the latter case, the translator would need to know how to translate the text into Spanish so that the automation works. If there is no such system, then the translator could translate the text more or less freely. In this example, therefore, the project specifications and the need to comply with how a service is operated in the target country can potentially become an obstacle to the adaptation of such texts to the TC.

(3) Google Drive online help (De la Cova 2017)

FIGURE 2. Units, case 3

Total storage	15 GB	100 GB	1 TB	10 TB	20 TB
Monthly rate	Free	$1.99	$9.99	$99.99	$199.99

The third case from the corpus poses a problem concerning the localization of units of measurement and currencies. The main constraints here, subject to the client's specifications, are cultural conventions.

In the top row of the screenshot in figure 2 we can see the storage capacity given in *gigabytes* (*GB*) and *terabytes* (*TB*), both of which are represented in a specific manner in the target language. Firstly, the translator must take great care not to confuse *GB* (*gigabyte*) with *Gb* (*gigabit*), because these are two different units. Secondly, the translator must be sure of how the client wants to handle the spaces between the numbers and the units. For example, Google developer documentation style guide, like the RAE (Royal Spanish Academy) guide, prescribes that there should be one space between a value and its symbol or unit (2023), but that other procedures may be established in other contexts.

This case also illustrates a problem involving the localization of currencies (here shown as prices in dollars). The example is particularly interesting because in most lists of international variables, such as Esselink (2000), currencies are included as localizable elements. When the currency forms part of a product's price, however, it should not, as a rule, be modified because by changing it the translator would be taking a decision beyond their authority: the price a product will have in a given market. If the translator is given no guidelines regarding how to handle these elements, the price in the ST should therefore be left unaltered. For the name of the currency in question, however, the translator will use the abbreviation approved by the client, which in this

case is *USD* for *United States Dollars*. The Microsoft and Apple guides both provide instructions on how to write each country's currency.

   (4) Dropbox online help: "You can track the status of your referrals from the bonus space *tab* of your account settings" (italics added).

The fourth case presents a problem with how to localize visual referents (non-textual elements). Here, cultural constraint linked to coherence with semiotic expressions plays a key role since the way graphics or icons are represented and designated in different cultures can vary considerably. This case is also of particular interest for its multimodal complexity.

   Tab is a recurrent element in any app or web, and it usually refers to "a clickable UI [user interface] element designed to look like a tab on a file folder. It allows you to navigate between multiple applications, files, pages, or websites, all available within a single window" (Microsoft Terminology 2023b). Usually, "tab" is translated as *ficha* or *pestaña* in the Spanish Microsoft Terminology. "Tab" is also used in computing to refer to the TAB key of a keyboard, but that meaning does not apply in this context.

   Searches for "tab" carried out in Google Images show many different visual referents. However, when searching for "tab+Dropbox" in Images or just for "tab" in the Dropbox Help Center itself, "tab" mainly corresponds to something like these elements:
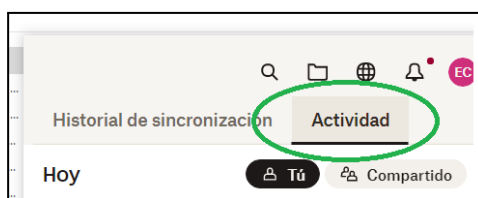
FIGURE 3. Visual, case 4

FIGURE 4. Visual, case 4

The complexity involved in the translatability of "tab" lies in the fact that the different options to translate it (referential element expressed by text) depend on what kind of semiotic referent it is (image, icon, etc.) and how that is translated into another language. As De la Cova and Torres-del-Rey (2024) propose, in the case of the representation from text to non-textual elements, consistency needs to be maintained with the function or use of the non-textual element, not only with its denotative meaning.

Considering the information provided above, one would think that *pestaña* (in Spanish) would be a good solution and, in theory, not a translation obstacle at all. However, since a professional localizer knows that coherence in general (both intertextual or intersemiotic) is essential in localization (De la Cova and Torres-del-Rey 2024), in a case like this one, the translator should ideally find out which semiotic expression "tab" actually refers to. Basically, it would be necessary to identify what the "bonus space tab" looks like in the Dropbox account in order to translate the string consistently and appropriately into the target language.

In fact, after doing some research in the Dropbox account and content, we found out that in this particular case, there is not a tab called "bonus space," as one would expect taking into consideration what is generally understood by "tab" (meanings above). However, in this case "tab" refers to some kind of section, area or part of the account settings of an older version of the Dropbox account (where the user can check if the people they have recommended Dropbox to have accepted the invitation and installed the program), as can be seen below:

FIGURE 5. Visual, case 4

As a result, one translation of the string involved in this case into Spanish might be *Consulta el estado de tus recomendaciones en el área de bonificaciones de tu cuenta personal* (or *en la relación de bonificaciones…*).

> (5) Dropbox online help: "If you like to be on the cutting edge, *strap on a helmet* and visit the forums for the very latest in-development version of Dropbox" (italics added).

This last case from the ONHELP corpus illustrates a localization problem related to humor and colloquial expressions, both of which are international variables that often cause translation problems due to their highly cultural content or to the potential conventional inadequacy of a given expression in the TC. De la Cova and Torres-del-Rey (2024) explain that these types of cases are obstacles related to register, usually caused by the need to determine the level of formality/tone of the user/product interaction, which in turn depends on functional factors such as the product philosophy, client requirements and coherence with similar products. The source segment above contains an analogy based on the idea of putting a helmet on prior to testing a beta version of the new Dropbox application, the idea being that it could be a risky experience (beta versions are not stable) and there is therefore a need to protect oneself (as if on a building site). As indicated in many of the style guides analysed in this study, the translation of this type of colloquial language does not always work in certain TCs, or cannot be easily adapted. Here, therefore, it would be necessary to consider what image would be the most appropriate or the most natural for the target market in question. If this string was translated into Spanish, the translator could use a literal translation that maintains the same meaning, for example *ponte un casco*. The image of the helmet would work in French too, although the option *retrousse tes manches* ("roll up your sleeves") is probably a more natural translation in this context. However, in Arabic, which contains a great deal of vocabulary and many expressions from warfare (due to its cultural and historic heritage), a very different image would be more natural to translate "strap on a helmet" in this context: سلاح نفسك (*salleh nafsak*, literally "put on your armor"). Therefore, it can be seen that the complexity of the translation is clearly related to the functionality of the text and to the adequacy of the register in the TC: the translator needs to consider that such colloquial expressions might not be appropriate in the TC or in that specific kind of content.

Many examples of informal language were found in the analyzed corpus. These can potentially pose a translation problem if the source language expressions do not correspond to the expressions conventionally used in the TC or if they are not appropriate in that given culture (register). These included (6) to (8):

> (6)   We've never seen anyone make a drawing that was too big (*but that's not a dare*) (Google Drive; italics added).

This could be translated in many different ways into Spanish, from the more conventional, or less culturally marked, option of *aunque esto no es un reto*, to the more cultural or informal alternative of *pero no te vayas a picar*. The adequacy would depend on the register in a given language.

(7)   If you don't see your language yet, *don't fret* (Dropbox; italics added).

Again, in this case, there are multiple options for translation, the choice depending on the functional context of the project: *Si aún no aparece tu idioma*, *tranquilidad en las masas*, or *Si aún no aparece tu idioma*, *no te preocupes*.

(8)   We've got your back (Dropbox).

Potential translations could be *Aquí estamos*, *Nos hacemos cargo*, *Cuenta con nosotros*, etc. The translatability of the string would be influenced by the context and by the register that is appropriate in a given culture.

In all these cases, the translator ideally should go beyond a literal translation, which would fail to transmit the same idea and tone, and adapt the language from a functional perspective, if possible.

4. Conclusions

The ONHELP corpus was found to contain a considerable number of translation problems associated with international variables, that is to say, with cultural references of one of the subtypes illustrated. Although localization means adapting a product linguistically and culturally, there seems to exist a series of factors which may hinder that ultimate objective. These constraints or conditioning factors include: a) the segmentation of content in TM systems—as seen in case 1 of our analysis; b) issues related to localization guidelines—as seen in cases 2 and 3; and c) problems deriving from the cultural conventions prevalent in the localization sector—as in cases 4 and 5.

In general, it can be said that translation constraints (Mayoral et al. 1988) are one of the principal potential causes of localization problems involving international variables. Cultural issues tend to be a constraining element in the translation process, and yet, in localization, the adaptation of content to a TC or market is crucial to commercial success. Cases involving constraining elements are common in localization projects. This can be seen, for example, in terms of both visual references and informal language, the localization of which must take into account the particular characteristics of the TC. As Calvo and De la Cova (2017) point out, translation constraints are present both explicitly (in the translation brief itself)

and implicitly, as a result of, among other things, translation system segmentation, industry standards and hypertextual elements.

Another contradiction can also be seen as regards the adaptation of cultural elements. Authors like Schäler (2002) and Jiménez-Crespo (2013), for example, have previously drawn attention to how the localization industry promotes cultural adaptation and expects a localized product to reflect its TC as if it had originally been created in that market, and yet at the same time, and possibly in order to cut costs, every effort is made in the design and internationalization phases to neutralize any cultural or linguistic conventions in order to obviate the need to adapt or redesign the product (LISA 1998, 3). In this regard, a good, problem-focused understanding of the ST makes it easier for more complex localization processes to be anticipated during the generation of the source content.

In the corpus analyzed, functional contextualization, one of the attributes of the localization problem concept considered in De la Cova (2017), could be understood as a type of constraint that is specific to localization processes. A localization project encompasses and is conditioned by its context, the peculiarities of the TC and the real conditions governing its execution, to which the translators themselves have to adapt. When localizing applications, it is crucial that cultural references should not be processed in isolation, without taking into account the context in which they are rooted or the particular factors which characterize the translation of this type of content or project.

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