

MAKING SOUND ACCESSIBLE: THE LABELLING OF SOUND-EFFECTS IN SUBTITLING FOR THE DEAF AND HARD-OF-HEARING

Hacer que el sonido sea accesible: el etiquetado de los efectos de sonido en el subtítulado para sordos y personas con dificultades auditivas

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ABSTRACT: While much recent research has focused on the practices of and guidelines for subtitling for the D/deaf and hard-of-hearing (SDH), scant attention has been paid to the different strategies used by subtitlers for sound-effect labelling. Current research into the practice of sound-effect labelling should address two issues: it must (1) shed light on the concept and nature of sound-effects *per se* and also (2) provide further information as to how such sounds are/could be perceived by deaf and hard-of-hearing audiences. This paper aims to give some insight into the labelling of sound-effects, beginning with the nature and particularities of such sounds and moving towards the cru-

¹ This research has been conducted in the *Departament de Traducció i Interpretació* in conjunction with the *Centre d'Accessibilitat i Intel·ligència Ambiental de Catalunya*. It forms part of the research supported by the grant from the Spanish Ministry of Finance and Competiveness no. FFI2012-39056-C02-01 *Subtitling for the deaf and hard of hearing and audio description: New formats*, the Catalan Government funds 2009SGR700 and the European funds for the project HBB4ALL FP7 CIP-ICT-PSP.2013.5.1 # 621014. It is also funded by the Catalan Government scholarship FI-DGR 2014.

cial issue of audience reception in determining the adequacy of SDH renderings. To this end, a three-level model of analysis for the optimal transmission of sound-effects in SDH is proposed.

Key words: media accessibility, subtitling for the D/deaf and hard-of-hearing (SDH), sound-effect labelling.

RESUMEN: Aunque recientemente muchos estudios se han centrado en el subtitulado para sordos (SPS), se ha prestado escasa atención a las estrategias que los subtituladores usan para etiquetar los efectos sonoros. La investigación relevante al etiquetaje de sonido debería abordar dos cuestiones básicas: (1) aclarar el concepto y la naturaleza de los efectos sonoros *per se*, y (2) proporcionar más información en cuanto a la posible recepción de esta clase de sonidos por parte de la audiencia sorda y con dificultades auditivas. El presente artículo tiene como objetivo contribuir en el estudio de la práctica de etiquetaje de efectos sonoros, empezando desde la base, es decir, la naturaleza y las particularidades de dichos sonidos hasta el asunto crucial de la adecuación de los subtítulos a nivel de recepción en el SPS. Con este fin, se propone un modelo de análisis para la óptima transmisión de los efectos sonoros en el SPS, dividido en tres niveles.

Palabras clave: accesibilidad a los medios, subtitulado para sordos (SPS), etiquetaje de sonido.

1. SOUND-EFFECTS AS PART OF THE ACOUSTIC NON-VERBAL COMPONENT: SOME PRELIMINARY CONSIDERATIONS

Some early accounts within the field of Film Studies (FS) tend to support the “hegemony of the visuals” (Altman 1985: 44) as a primary resource in the construction of meaning. At the same time, sound is often perceived as being subordinate, not only in historical terms due to its later addition in films, but also when it comes to its perception by viewers (Belton 1985: 64). These accounts have changed over the years and sufficient attention has already been paid to the role of sound in the audiovisual ‘meaning-creation’ process through the consideration of multi-modality in the audiovisual context, not only in the field of FS but also in that of Audiovisual Translation (AVT). Film sound analysis has gained further significance in the recently developed Media Accessibility modalities (as noted by Remael 2012) for both audio description (AD) and subtitling for the d/Deaf and hard-of-hearing (SDH) (as stated by Neves 2008).

The ‘zero’ or marginal reliance on the soundtrack by the SDH addressees makes the need to isolate each sound and to interpret its specific relevance for the comprehension of the programme in question even more obvious; this being in order to minimise ambiguity in the reception of meaning and/or to avoid any loss of possible nuances and thus maximise accessibility to the original product. This inherent concern for sound in SDH is evident in the existing definitions. For instance, Pereira (2005: 162) offers a highly representative definition when approaching SDH as a practice which:

offers a semantic account of what is transmitted in the programme in question, but not only of what is said, how it is said (emphasis, voice tone, accents and foreign languages, voice noises) and who says it, but also of what is heard (music and ambient noise) and of the discursive elements that appear on screen (letters, titles, labels) (my translation).²

The above definition reflects the need for an in-depth analysis of the soundtrack in SDH, providing a complete account of the compositional parts for the target audience. More specifically, the part of the definition that refers to what is said in an audiovisual text includes all the recognisable verbal acoustic content – a topic which has been the focus of several recent studies related to issues such as the reading skills of the prospective heterogeneous group of addressees (cf. Neves 2005; Pereira & Lorenzo 2005). The linguistic code in films, either through the use of dialogue or monologue, is by no means a less complex phenomenon than the implementation of non-verbal elements. However, the verbal mode is easier to define compared to its non-verbal counterpart. Non-verbal sounds are less clear-cut and consequently sound-effects have frequently been classified under the same category as suprasegmental elements, not only in theoretical terms but also in the actual SDH practice (as evidenced by the various conventions established in different countries). For example, the guidelines issued by AENOR³ (2012: 5) define sound-effects as any “non-vocal or vocal sound [...] that contributes information which is rele-

² “[el subtítulado para los sordos y las personas con déficit auditivo] ofrece un recuento semántico de lo que se emite en el programa en cuestión, pero no solo de lo que se dice, cómo se dice (énfasis, tono de voz, acentos e idiomas extranjeros, ruidos de la voz) y quién lo dice sino también de lo que se oye (música y ruidos ambientales) y de los elementos discursivos que aparecen en la imagen (cartas, leyendas, carteles)” (Pereira 2005: 162).

³ Abbreviation for the *Asociación Española de Normalización y Certificación*, i.e. the institution that issues the UNE norm for SDH in Spain. UNE 153010 was issued in 2003 and has been regularly updated ever since. The latest version, issued in 2012, has been used for the purposes of the present paper.

vant to the understanding of the plot of an audiovisual programme”⁴ (my translation). Still, the definition provided by Pereira (2005: 162) makes a clear distinction between what are generally known as sound-effects (i.e. *what* is heard) and suprasegmental elements, which, although not verbal *per se*, are dependent upon other verbal elements (i.e. indicating *how* something is said).⁵

In order to avoid any misunderstanding concerning to what the term ‘sound-effects’ refers in the present discussion, it is important to mention that a sound-effect may encompass not only noises or the so-called ‘natural sounds’ (see also section 2 of this paper), but can be virtually any kind of sound that is neither explicitly nor implicitly attached to the verbal component. Furthermore, no differentiation is made here between a sound and a sound event,⁶ since the segmentation of a sound event into smaller, largely insignificant units is highly technical and is not of interest to the subtitler, at least at the level of basic analysis. Therefore, the present definition narrows the category of sound-effects by excluding suprasegmental elements, since these are inherently related to the verbal component. Furthermore, although music and noise have been included in the same category in the definition taken from Pereira (2005: 162), music should also be excluded from the sound-effects category, in the sense that it forms a code in its own right and is thus governed by different rules (see Neves 2009 & 2010). This is evidenced in the actual film-making practice if we take into account the fact that sound editors are subdivided in dialogue editors, music editors and sound-effect editors (Chion 1998: 214). Extending this to the practice of subtitling, music is subtitled differently from other non-verbal elements in SDH, even for instances involving music scores without lyrics that serve a purely emotive function. In the same vein, Arnáiz-Uzquiza (2012) has included sound-effects, music and paralinguistic elements as three separate categories under the “extralinguistic sound parameter” in SDH. Figure 1 summarises what is included under each mode with specific emphasis on the middle ground where the two modes overlap and share properties.

⁴ “Sonido no vocal y vocal [...] que aporta información relevante para el seguimiento de la obra audiovisual” (AENOR 2012: 5).

⁵ Suprasegmental elements are defined by the UNE (2012: 6) as “what refers to the rhythm, pauses, fluency, accent, intonation etc. that modulate spoken language” (my translation) [aquel que refiere al ritmo, las pausas, la fluidez, el acento, la entonación etc. que modulan el habla].

⁶ ‘Sound’ is a subordinate term to ‘sound event’, since technically speaking each sound event includes more than one sound (see Altman 1992; Remael 2012). However, viewers are not expected to distinguish each sound in a sound event. For this reason, what interests the subtitler is the overall effect or what the viewer/hearer would label as a sound.

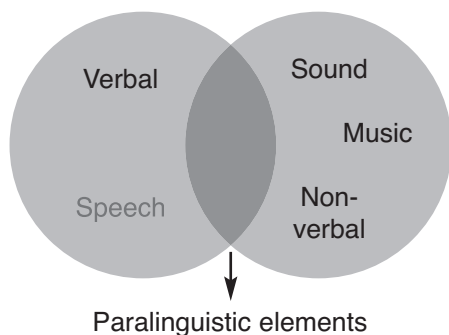


Figure 1. Distribution of verbal and non-verbal elements across the acoustic component

Paralinguistic elements (including suprasegmental elements) consequently lie somewhere between the verbal and non-verbal modes of delivery and are therefore positioned in the overlapping area between the two. This essentially means that tone, mood and mode may not belong to speech proper or carry a propositional content, but they are however necessarily communicated acoustically only if verbalised. Applying this to SDH:

[s]ound-effect information sets itself apart from tone/mood labels through the fact that it has no relation whatsoever to dialogue text. A tone of voice label, however, is inherently inseparable from proper speech whereas information of the mood of a character is often, though not necessarily, connected with the dialogue (Weber 2010: 48).

The dual nature of paralinguistic elements explains the hesitation by subtitlers in handling these differently to sound-effects. Yet there is still a fine line between the two, and a paralinguistic element may acquire the status of a sound-effect if the verbal content to which it is attached is indiscernible or of little importance. This should be made evident in the respective subtitles, as shown in Figure 2.

In the first instance in Figure 2, the verbal content needs to be rendered and therefore the sound to which it is attached becomes subordinated into a mode of delivery with a mode descriptor used for its conveyance in SDH. In contrast, a sound-effect label has been used in the second example, and this is sufficient assuming that it refers to something which is either inaudible or of little importance for transmission. From the above examples, the field denoted by the term 'sound-effects' is clearly delimited and a further step can be taken to assess these sound-effects' particularities and their specific importance in SDH.

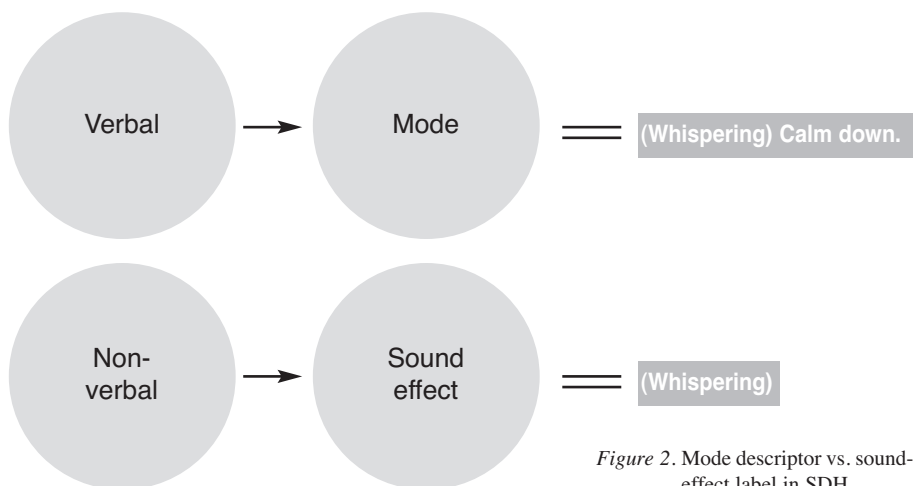


Figure 2. Mode descriptor vs. sound-effect label in SDH

2. SOUND-EFFECTS IN FILM STUDIES

As mentioned previously, Film Studies was the first academic field to highlight the importance of the different channels within the audiovisual text. Therefore, some of the concepts defined within this discipline have been adopted in this paper for the basic sound analysis proposed for SDH (see section 3). More specifically, Bordwell and Thompson (1990: 248) recognized three sound forms: (1) speech, (2) music and (3) noise. Noise is often encountered as a synonym of natural sound (Cavalcanti 1985: 107) and thus this category has also been substituted with the term ‘sound-effects’ (see Belton 1985: 70). Furthermore, noise is a rather problematic synonym, since the term implies a lack of meaning, something that is not generally true of sound-effects (see also section 3.2.). As Chion (1994: 144) argues, noise has been “the repressed part of films” since the concept implies a lack of any culturally aesthetic value. The ‘naturalness’ of the sounds belonging to this category has also been disputed by distinguishing direct sounds (i.e. sounds recorded during production) from other manipulated sound-effects added during postproduction (Belton 1985: 70). In most cases, sounds in cinema have a completely different origin to that assigned by the audiovisual relationship to which they belong (Chion 1998: 155). Evidently, the manipulation of sound at the postproduction stage explains why non-verbal sound is more elaborate and meaningful in cinema than it is in television, with sound in the latter tending to be dialogue-centred and compris-

ing mostly direct sounds (see also Chion 1994). Furthermore, nowadays many television programmes are live subtitled using respiking (see Romero-Fresco 2011) and other techniques, implying that even if the sound is indeed meaningful, there is no time to assess its relevance and render it accordingly.

Another applicable distinction offered by FS is the line drawn between identifiable and unidentifiable sounds (cf. Kracauer 1960: 124; Calvacanti 1985: 108). This property of sound has found its place in AVT by dividing non-speech information into the meaningful and non-meaningful (de Linde & Kay 1999: 12). However, the most important contribution to SDH of this dichotomy is the fact that it highlights the source of the sound⁷ which, as we shall see in section 3.1., may inform the subtitler's decisions concerning the rendering of sound-effects. As Kracauer (1960: 124) explains, "any familiar noise calls forth inner images of its *source*, as well as images of activities, mode of behaviour etc." (my emphasis). However, the identification of the source still belongs to the first of the three levels of analysis proposed herein, the other two being rooted in concepts borrowed largely from Translation Studies (TS).

3. SOUND-EFFECTS IN SUBTITLING FOR THE DEAF AND HARD-OF-HEARING

The interest of SDH in the complexity of sound has arisen due to the fact that it is the only form of translation that has to account for non-verbal acoustic elements in a visual verbal form, thus conforming to the needs of the audience being addressed.⁸ As Neves (2008: 177) points out: "in the case of SDH, and because such subtitles are all about conveying visually the messages that cannot be perceived by d/Deaf viewers, special emphasis needs to be given to the analysis of sound". The importance of the analysis of the sound track in SDH cannot therefore be overstated. Consequently, the aspect that remains still to be addressed is that of the particularities of each part of the compositional whole. This analysis is the first step towards providing the information missing due to the absence of the aural channel (i.e. information that cannot be retrieved

⁷ For a more detailed account in FS of the typology of sound depending on its source see Barsam (2004: 356-362).

⁸ This statement reflects the current practices employed, since AVT is a rapidly developing field. Therefore, the addition of similar future practices is to be expected. A recent example of this is audio description, wherein non-verbal sounds can be verbally transmitted in an aural form in order to cater for the needs of blind and partially sighted people (cf. Remael 2012).

from the visual channel in any other way than in the form of subtitles), while ensuring that the added content of the subtitles “does not imply excessive cognitive demands on the viewer” (Gambier 2008: 24).

In particular, the importance of sound-effects in the filmic context can be analysed using two basic parameters: (1) the source of the sound and (2) the sound’s function. The source indicates the place where the sound-effect is produced in the context of the audiovisual text to which it belongs. Conversely, the place from which a sound originates in a specific context indicates the function of the sound-effect in terms of the plot. As such, assessing these two parameters permits informed decisions about which sound-effects need to be subtitled (or ‘labelled’ using SDH terminology), taking full advantage of the visual clues with which they are associated. The three levels of analysis presented in the following sections shall follow this direction.

4. FIRST LEVEL OF ANALYSIS: THE SOURCE

The dependence of sound on the image is made still more evident when trying to trace the source of a sound-effect. Particularly in narrative cinema, a cause is almost always assigned to the sound by the image and narrative context (Chion 1998: 152). Sounds do not “inevitably suggest what made them” (Cavalcanti 1985: 108), and this is why we need the visuals in order to disambiguate the source. This corresponds to the “causal” type of listening” (Chion 1994: 25) that listeners employ in order to interpret the source when this is unknown. A further distinction has been made by Pereira and Lorenzo (2005: 24) based on whether or not the source of the sound is to be found in film characters or in ambient background noises. However, a greater number of sound originators are covered by the broader distinction between diegetic sounds (i.e. sounds belonging to the story space) and extra-diegetic sounds (i.e. sounds not belonging to the story space). Furthermore, diegetic and extra-diegetic sounds are subdivided into those that are on-screen and those off-screen, depending on the location of their respective source (see Bordwell & Thompson 1985: 192; Chion 1994: 73-75).

⁹ The causal type of listening corresponds to what hearers do in real life in order to determine the origin of a sound, however as stressed by Chion (1998: 158), this practice, although simulated in cinema, should not be confused with “figurative listening”. This second listening type relates to what is represented by the sound and is more applicable to sounds that are not “real”, as is the case for the majority of sounds in cinema (see also section 2).

Although the dichotomies in FS mentioned above and the sources provided by Pereira and Lorenzo (2005: 24) for SDH may account for a basic analysis of sound-effects, not all the parameters have been put together, and nor has there been any attempt to trace more sound sources in the audiovisual text. Table 1 has been created to move the analysis of sound forward. Yet this taxonomy does still not pretend to be exhaustive and, although it may cover the majority of sound-effects in audiovisual texts, it should be noted that in exceptional cases other sounds may acquire the status of sound-effects. An example of such an exception is the presence of multilingualism as an aesthetic feature in films. This may be functionally considered to be a sound-effect, despite the fact that the content in question is purely verbal.¹⁰

Table 1. Possible sound-effect sources

Type	Origin	Labels
Diegetic/Extra-diegetic (ON/OFF-screen)	Human agent Animal Devices Environment Non-recognisable None	(Snoring) (Barks)/(Woof woof) (Mobile rings) (Wind blows) (Unknowable crackling) (Silence)

Table 1 encompasses both diegetic and extra-diegetic sounds. The ‘Human agent’, ‘Animal’, ‘Devices’, ‘Environment’ and ‘Non-recognisable’ categories of the ‘Source’ column have been deduced from observing various sound-effects, while the zero or ‘none’ source conveys the abrupt absence of any kind of sound. The absence of sound is as important as its presence and also requires analysis in the light of its specific visual context. Indeed, Balázs (1985: 117) has characterized the absence of sound as being “one of the most dramatic effects of the sound film”. Finally, the column entitled ‘Label’ has been added to offer examples to help in understanding and clarifying the source and which also represent possible renderings of the respective sounds in SDH. Clearly, the format used is plain and only illustrative, since the conventions established across different countries and media dictate the use of various formats.

¹⁰ The transmission of multilingualism in SDH as either a sound-effect or a mode conveyor has been analysed by Tsaousi (2012).

The inclusion of source information in the rendering of a sound-effect is an established practice in SDH through the use of descriptive labels (see section 4), i.e. subtitles that describe sound in an explicit way. While there is a significant lack of data concerning the comprehension of descriptive labels, one hypothesis is that these are probably easier to read when the agent is included in the label. As Robson (2004: 26) affirms, “it is important for the description of a sound-effect to state what is making the noise, as long as it does not involve any guesswork on the part of the captioner”. Some initial data by Arnáiz-Uzquiza (2012: 84) concerning audience preferences indicate that the inclusion of sound location in labels is quite popular amongst hard-of-hearing viewers and an acceptable option for the deaf group. Indeed, AENOR (2012) suggests that the label should primarily refer to the point of origin of the sound, rather than focusing on its reception. As a result, the content of the label should be more objective. Detecting the source of a sound may well prove a challenging task, but it is an essential step towards identifying the specific function of the sound in the multimodal context. This function, based on the source text, will then be assessed by the subtitler in order to determine how it can be adequately transmitted in the respective target text.

5. SECOND LEVEL ANALYSIS: FUNCTION

Once a sound-effect has been identified and its nature defined in terms of its source, a further step can be taken in the form of analyzing its function in the audiovisual text. However, this process should not be overgeneralized, since “locating the source of a sound does not guarantee access to the function the sound fulfills in the narrative” (Remael 2012: 262). Each instance of sound should be assessed in isolation, taking into account its specific context. Two important decisions can be taken through conducting this assessment: firstly, what is relevant to the viewer in order that it needs to be visually transmitted through subtitling (i.e. *what* should be labeled) and secondly, the quantity and type of information that needs to be transmitted (i.e. *how* a sound should be labeled) in order to avoid intersemiotic redundancy (see Bogucki 2004: 99). Redundancy in SDH is assessed largely, if not exclusively, in the visual channel, since aural signs are only marginally perceived by some of its addressees. Still, when applied to AVT, redundancy becomes problematic in the sense that the relationship between sound and image is so purposefully constructed that redundancy is doubtful when examined from the point of view of FS. Chion

(1998: 279) argues that for this reason, audiovisual communication research has been obstructed by focusing on those cases in which image and sound do not construct a redundant relationship.

Some of the functions of sound have already been mentioned in FS (see Thom 1999; Barsam 2004; ISEC 2010). However, no attempt has been made to put these functions together and observe their respective sub-functions. Table 2 proposes a new taxonomy for the functions of sound-effects. The terminology and grouping of these functions are based on their specific location in the plot. However, it should be noted that some of these functions may work to various degrees and combinations in a single sound-effect, implying that the subtitle will have to assume the task of interpretation as no classification can account for the limitless possibilities of sound functionality in an infinite variety of contexts.

Table 2. Sound-effect functions

Exegetic	Narrative	Contextual	Emotive/Aesthetic
Reinforces the meaning of the dialogue —	Provides cohesion and coherence in the narrative —	Provides contextual information —	Generates/ reinforces emotions —
Reinforces the meaning of the image —	Expands the narrative space —	Contributes to the realism of the contextual whole —	
Creates new meanings —	Assists plot development —		
Generates contrasts —	Guides our attention —		
Provides additional information —			
Guides our interpretation			

The exegetic and narrative functions are usually deemed to be more important for the understanding of the plot in the sense that they are directly connected to its development and to specific events in the audiovisual material. The exegetic or interpretative function permits a first-level analysis of the image and is related to the narrative. However, this is too restrictive since the multimodal text offers a high degree of idiosyncrasy to sound functions that can be assessed only when sound is placed in a specific context. Thus, a sound con-

tributing to the reinforcement of the context or a particular emotion may be equally important in this light. As Balázs (1985: 121) asserts, “subtle associations and interrelations of thought and emotion can be conveyed by means of very low soft sound-effects. Such emotional or intellectual linkages can play a decisive dramaturgical part”. In short, sound functions cannot be assessed without the image, and the specificities of the audiovisual text need to be taken into account (e.g. considerations related to genre). Having assessed the source and function of the sound in context, the subtitler must choose an adequate rendering (i.e. select a particular sound-effect labelling strategy) that will fulfill the same function and create the same effect for the deaf or hard-of-hearing viewer in a visual form.

6. THIRD LEVEL ANALYSIS: ADEQUACY

In the previous sections, the analytical focus has been primarily on the product handled by the SDH practitioner and the subsequent processes involved in carrying out a basic film-sound analysis. However, creating an adequate rendering in SDH is far more complicated. The subtitler needs to possess various competences, as summarised in the following statement:

if subtitlers working on SDH want to produce a truly useful accessibility service they need to have a profound knowledge of the profile and the needs of their specific addressees and audiences (the deaf and hard-of-hearing); a good knowledge of filmic composition, particularly in respect to the place and meaning of sound (in all its forms) in the compositional whole; a clear understanding of redundancy, relevance, adequacy, cohesion and coherence [...]. (Neves 2008: 172)

The element concerning the particularities of film composition and their importance in taking decisions regarding sound-effect labelling has already been covered in the first and the second levels of the analysis model. The third and final level of analysis stems from the needs and expectations of the addressees. It is at this crucial level that audience reception studies acquire significance for the SDH practitioner. Audience reception includes both perceptual issues, related to comprehension and viewer response, and also the “expectancy norms” (Chesterman 1997: 64) that govern all types of translation, as highlighted in TS. However, it is important to bear in mind that the expecta-

tions of the audience (although requiring assessment) are often tied to habit, i.e. to arbitrary practices which have been more or less established in the opinion of the viewers (see Arnáiz-Uzquiza 2010) as being the standard that must be followed by subtitlers. This reinforces the need for measuring perception at all levels (see Gambier 2006), since such data may also contradict these more subjective evaluations.

In terms of practice, what needs to be measured is divided into two parts. On the one hand, and particularly when it comes to sound-effect labelling, it is important to examine how viewers respond to the content of the subtitles. This is related to the optimal comprehension of the acoustic signs. On the other hand, the stylistics of subtitles also need to be assessed in order to elicit those practices that reduce the effort of processing labels and permit maximum enjoyment of the rest of the image. In short, knowledge of the subjective and objective responses of viewers to both aspects of labelling should be the final and most crucial step in determining the adequacy of the subtitler's rendering. This knowledge can only be acquired through examining specific data, since the information the subtitler has regarding the target audience, however extensive this may be, is not sufficient on its own. These data could also inform the guidelines for SDH issued in various countries, raising even more awareness of the subject.

7. THE PRACTICE OF SOUND-EFFECT LABELING

Within the subtitling industry, there are no strict rules concerning how specific sound-effects with different functions should be rendered. This is the case of the Spanish UNE standard (2012), which provides some guidance as to how to differentiate sound-effects from other elements, yet their potential functionality and importance is handled at a quite abstract level. Apart from the lack of specific suggestions for subtitlers, some recurrent strategies may be observed in rendering the content of sound-effect labels. These strategies have originated from conventions used by different subtitlers, both in cinema and in the television industry, and are, therefore, "arbitrary regularities of behaviour" (Chesterman 1997: 55). Furthermore, both of these strategies result in a verbal rendering of sound-effects. This indicates an overreliance on language as the most effective means of communication, even for non-verbal messages. On the other hand, this result is somewhat to be expected, since "every [oral] language

already offers a certain corpus of words that designate different types of sounds” (Chion 1994: 186).

The first most commonly encountered strategy for sound-effect labelling is phonological transcription, which in most cases takes the form of onomatopoeias. The second widely used strategy is that of sound-effect description, which consists of an explicitation of the sound. Onomatopoeias are culturally specific and, most crucially, there are no established onomatopoeias for all kinds of sounds (Pereira 2010: 93). Even though some sounds may be considered to be universal (e.g. barking), listening to them is a culturally-bound activity (Chion 1998: 101). As such, phonological transcriptions may not always be comprehensible. On the other hand, the description of sound-effects involves the decoding of sound, which is later re-encoded in a verbal form. Film sound analysis is an indispensable element for sound description and the detection of the source is also meaningful in this context, since descriptive labels often need to convey parameters that are inseparable from the nature of some sound-effects. For example, the volume of the sound and its increase or decrease may add some specific significance and should therefore also be rendered in the subtitles, again depending on the specific context in which the sound-effect appears.

However, transcription and description are only two forms of verbal transmission. Other forms, such as the use of non-verbal elements, are also available (e.g. the use of icons; see Civera & Orero 2009). Sound-effect labelling norms have followed this path by focusing on the technical issues of verbal transmission with regards to screen positioning, punctuation, fonts, edging, colours etc. This is also the case for the UNE (2012) standard, which dictates a top right positioning of sound-effects in order to further differentiate them from the dialogue, which is usually positioned at the bottom of the screen. Evidently, such considerations are relevant as long as the strategy chosen for the visual transmission of a sound-effect is verbal. Still, it is arguable whether verbal renderings are adequate for audiences who may or may not be familiar (and/or comfortable) with verbal communication. A logical hypothesis is that the pre-locutive deaf will receive the same amount of information regarding sound-effects in less time and at a minimal cognitive cost if icons are used, due to their graphic nature. However, such hypotheses need to be empirically tested in large-scale studies.

The current data on the reception of the aforementioned strategies are quite limited. Illustratively, studies by Prada-González (2004) and Pereira

(2010) have provided contradictory findings with respect to the preferences of pre-locutive and post-locutive deaf viewers between description and onomatopoeia. Onomatopoeias could potentially be more readily accessible to the post-locutive deaf, who have likely previously heard the transcribed sounds, whereas the contrary may be the case for the pre-locutive deaf. What is more, a great percent of pre-locutive deaf users are used to graphical representation as manifested in sign languages. Any graphic representation involves a great degree of iconicity which when put into words, is present in onomatopoeias by representing information relevant to the qualities of the sound (Gutiérrez Sigut & Carreiras Valiña 2009: 23). The first eye-tracking study conducted in this field, carried out by Arnáiz-Uzquiza (2012), also indicates important discrepancies between the deaf and the hard-of-hearing in terms of processing and understanding descriptive labels and icons. Consequently, the need for further research into this field of AVT is obvious. Building a bibliography from experimental data whilst following a bottom-up methodology is necessary in order to construct a more solid scientific basis, beyond simply anecdotic and descriptive analyses. Finally, it is important to assess the perception of all the possible strategies by different groups of hearing-impaired people, since there is no homogeneity in deaf and hard-of-hearing audiences.

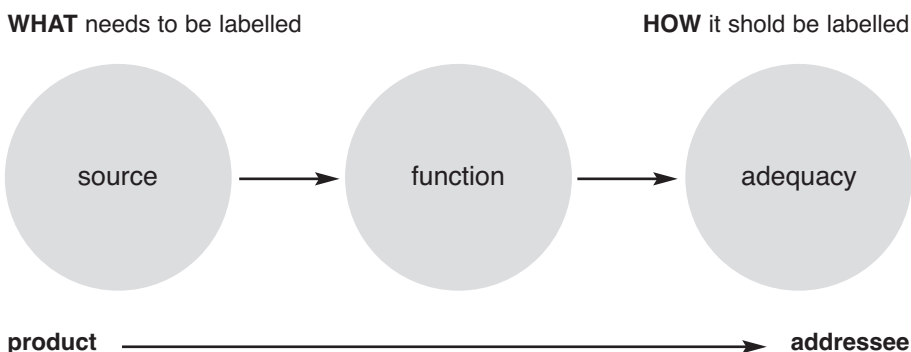
8. CONCLUSIONS

The process of determining the handling of sound-effects in SDH should start with the audiovisual product by carrying out a basic (yet essential) film sound analysis. More specifically, by determining the source of a particular sound-effect, the subtitler takes an initial step towards understanding its function, and consequently its specific relevance to the filmic context to which it belongs. This first step leads to informed decisions about which sound-effects should be subtitled or, conversely, which sound-effects can be efficiently retrieved from the visuals.

The second step consists of gaining a good understanding as to how specific sound-effects should be rendered depending on their function in the film. However, as shown in Figure 3, a definite decision as to how best to render sound-effects cannot be taken by assessing solely the first and second levels of the model. The third level of analysis is the most crucial for determining the adequacy of the potential renderings. However, the subtitler cannot undertake this analysis since it is related to the perception, needs and preferences of

the addressees. This is where experimental data acquire specific importance, and are in fact an indispensable tool for the SDH practitioner, who can either consult the relevant data or follow the guidelines issued by a specific country or institution. In turn, these guidelines should reflect the conclusions reached by experimental studies. Figure 3 schematically presents these levels of analysis and demonstrates how data can pave the way to a more adequate labelling of sound-effects.

Figure 3. Tripartite model of analysis: Schematic overview



Finally, the labelling strategies currently applied in SDH are largely description and transcription. These practices have been established by convention and do not exclude the use of other potential strategies, particularly if we take into account that SDH is a rapidly developing field. Sound-effect labelling is a key practice for SDH, where currently information and guidelines both at academic and professional level are cursory. The tripartite model proposed in this paper aims to shed light on what should be considered a sound-effect in SDH and, most importantly, on the process leading to the adequate handling of sound-effects by the subtitle.

9. FURTHER RESEARCH

Future work on sound-effect labelling in SDH should focus on all the potential labelling strategies and their adequacy at the level of audience reception, as reflected in experimental data. SDH has been created in an attempt to

provide accessibility to people who are still excluded from the information society. However, taking into account the diversity of the addressees –a factor which is dependent on the type and degree of hearing impairment, and also their exposure to oral languages which in turn depends on a variety of factors (e.g. education and family background)– inclusivity has proved challenging in practice. Further research into the nature of representational systems, for example the iconicity of sign languages against the arbitrariness of writing (see Pizzuto, Pietrandrea & Simone 2007) and their potential applications in SDH, could enlighten such viewer-oriented approaches.

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Artículo recibido: 15/1/2013

Artículo aprobado: 21/11/2013