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Enhancing Accessibility for Deaf and Hard-of-Hearing Viewers in the Arab World through Subtitling: Insights from Netflix's Original Saudi Movies

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ABSTRACT

Subtitling for D/deaf and hard-of-hearing audiences (SDH) renders the aural codes of media in a written form. These captions contain more than linguistic transcriptions as paralinguistic and extralinguistic information is also provided. This study aims to shed light on the issue of subtitling as a mode of accessibility by following a qualitative comparative approach of analysis. The study examined how this information was dealt with in different languages, analyzing the frequency and styles of description. The English and Arabic SDH of two Netflix Saudi films represented the dataset, and namely, the different caption versions of *From the Ashes* and *Naga* were compared. The results indicated that both versions contained unique information and provided different levels of detail. The analysis also uncovered substantial discrepancies in the portrayal of paralinguistic and extralinguistic components, which are crucial for facilitating accessibility and inclusivity for the D/deaf and hard-of-hearing individuals. The inconsistencies underscore translation and formatting difficulties, affecting the subtitles' conciseness and efficiency. The analysis showed that Arabic SDH frequently excluded key particulars, hence constraining the accessibility of the subtitles. Moreover, variations in layout and style accentuated the discrepancies. English SDH adheres to explicit norms for the construction and formatting of subtitles, whereas Arabic SDH lacks such uniformity, resulting in deficiencies in information display. The study recommends that guidelines be further developed to improve accessibility, especially for Arabic subtitles, which is an underdeveloped field.

Keywords: Audiovisual Translation (AVT); Arabic; English; Series; Deaf and Hard of Hearing; SDH; Saudi Movie; Netflix

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1. Background of the Study

Translation has the capacity to make media more understandable for different people. Audiovisual translation (AVT) is gaining attraction and is increasingly being provided to cater to the various needs of audiences. AVT is the process of transferring all communicative modes of a piece of audiovisual media (AV), including speech, body language, or silence, into another language or form^[1]. It contains many branches with some prominent types including subtitling, dubbing, and voice-over, to mention a few.

Screen translation now includes accessibility as a crucial area that reflects the growth of the field, which is becoming more inclusive^[2]. The advancement of technology has led to the development of audiovisual materials, easing their distribution and their translation. The importance of inclusivity has been recognized by the European Union, which is attempting to improve accessibility through the creation of laws^[3].

Subtitling for D/deaf and hard-of-hearing audiences (SDH) can be classified as one of these accessibility modes of translation. SDH can help people with sensory or linguistic impairments overcome communication barriers. It achieves this by reflecting spoken language at the bottom of the screen, as is typical in subtitling, while also containing additional information. This representation of additional information, such as speaker identification, paralinguistic and extralinguistic information, and descriptions of sound effects and music, is what sets SDH apart from other forms of subtitling. AV materials are becoming more accessible to audiences as a result of the collaborative efforts of specialists to further improve the quality of these subtitles^[3].

Uzzo and Madonia found that building an inclusive society requires ensuring that media is accessible to hard-of-hearing and D/deaf audiences and described how several Western countries have enforced particular legislation requiring subtitles in films and other types of media^[4]. For instance, the Americans with Disabilities Act (ADA) in the United States requires film theatres to offer auxiliary aids, such as closed captioning, to guarantee effective communication for those with disabilities. The 21st Century Communications and Video Accessibility Act (CVAA) mandates that video programming captioned on TV must also be captioned when disseminated online. The Federal Communications Commission (FCC) enforces similar rules and suggests quality guidelines. Additionally, the Audiovisual Media Services Directive (AVMSD) in

the European Union demands the provision of media accessibility services, which includes providing subtitles for individuals who are deaf or hard of hearing. The Equality Act 2010 of the United Kingdom imposes that cinemas and broadcasters implement adaptations that ensure accessibility. Ofcom, in turn, enforces strict quotas for subtitled content. The Canadian Radio-television and Telecommunications Commission (CRTC) in Canada requires that broadcasters offer closed captioning for the majority of their programs, with hopes to achieve 100% captioning by 2025.

Similarly, the Broadcasting Services Act of 1992 in Australia demands that all prime-time and news or current affairs programs are provided with closed captions by free-to-air broadcasters. This requirement is enforced by the Australian Communications and Media Authority (ACMA). These policies indicate that Western nations are showing increasing effort and dedication to providing those with hearing impairments with appropriate access to media and entertainment.

Accessing AV material is still a challenge for individuals with hearing impairments in the Arab world. This may be a result of the lack of adequate provision of SDH services in the Middle East and North Africa (MENA) region. This, in turn, results in insufficient SDH options for these audiences^[5].

To ensure the accessibility of its content to Deaf and hard-of-hearing (DHH) audiences, Netflix implemented guidelines, regulations, and policies on all Netflix Originals and much of its material available for streaming. These subtitles aim to recreate a well-rounded watching experience by representing spoken dialogue, speaker identification when needed, and relative nonverbal sounds.

As a global platform, Netflix dedicated efforts to expand these accessibility features to include a wide variety of languages. Thus, they have announced that SDH features are to be provided in ten additional languages. Moreover, there are intentions to expand this variety to encapsulate languages from the Asia-Pacific region and local European languages. This objective reflects Netflix's desire to render its content accessible to diverse audiences of varying linguistic and/or hearing capabilities. The platform also undergoes upgrades and enhancements to improve these services according to the feedback of its target audience, the DHH community.

Technological advancements have made screens available in homes and every street, facility, and location, which has increased the need for subtitles^[6]. The prominence of sound

in creating the meaning of the displayed AV media poses a significant disadvantage for the DHH regarding their right to access these materials and properly understand them. While some Western countries passed regulations that mandate the availability of appropriate subtitles customized specifically for the DHH, such regulations are not available in the MENA region as the field is relatively new^[7]. Yet, those who have valid subscriptions to some well-known platforms, such as Netflix, can access AV content when this service is provided in Arabic. SDH is meant to help people with hearing impairments have the same level of information and enjoyment of TV/films as people with normal hearing, regardless of the language of the subtitles, by providing inter-semiotic translation of non-speech information. This study, therefore, investigates the types of information appearing in the SDH of films originally produced in Saudi Arabic and their English versions. It compares and contrasts the two versions' paralinguistic, extralinguistic, and linguistic information.

Only a few studies have examined the quality of SDH and explored the responses of DHH to these subtitles, with even fewer examining these issues in Arabic^[5, 7–11]. Since most studies examining SDH focus on interlingual subtitling, little attention has been given to a crosslinguistic comparative approach for quality analysis. This study aims to fill this gap by comparing the intralingual SDH captions of Saudi films with English versions of SDH provided for the same films. It also examines whether the SDH techniques used in the two films are consistent.

The main objective of this study is to examine subtitling as a means of AVT, with specific references to the intralingual and interlingual SDH in two Saudi films on Netflix's streaming platform. The two films are *From the Ashes* and *Naga*. It investigates the type of information included in the intralingual Arabic version of the DHH. The analysis compares the Arabic captions with their English counterparts. This study also examines if there is a consistent style throughout the investigated films. By investigating this, the study explores if there are clear Netflix guidelines for how SDH subtitles should appear or if the presentation is left up to the individual who creates the subtitles for each film.

This study addresses the following two research questions:

- a. What information is covered in the English and Arabic subtitles for D/deaf and hard-of-hearing audiences (SDH)

in the two Netflix Saudi films?

- b. How is the information presented in terms of layout and style in the Arabic and English versions of the SDH in the two investigated films?

2. Review of Related Literature

This section consists of two sub-sections. The first part reviews the theoretical background pertinent to AVT. It then discusses subtitling as an accessibility tool and explores the techniques used in subtitling for DHH. The second section covers a few empirical studies on the topic under study.

2.1. Theoretical Framework

This section provides some theoretical background information about the topic, including AVT, subtitling, accessibility, and the theoretical framework to be used.

2.1.1. Audiovisual Translation and Subtitling

In today's highly connected world, AVT is crucial for permitting audiences globally to access content from diverse cultural and linguistic backgrounds. Subtitles are an efficient way to transfer speech, narration, and textual elements to viewers in an understandable way. Although AVT encompasses various modes, with subtitling, dubbing, voice-over, and free commentary among the most prominent, subtitling is increasingly prevalent.

The nature of subtitling enables it to render the meanings of the source text in a comprehensive and engaging way without encroaching on its original features. Therefore, viewers of different backgrounds can engage with the significance, cultural nuances, and creative integrity of the source text^[12].

The popularity of subtitling as an AVT form can be attributed to its efficiency in cost, provision, and use^[13]. Subtitles represent the aural codes of a work, such as dialogue or narration, in a written format, visualizing the meaning of the audio on the screen. Thus, subtitles are a vital means of communication. Subtitlers, therefore, strive to provide concise, readable subtitles while overcoming technical and creative challenges and maintaining synchronization with audiovisual cues^[14]. To successfully communicate the intended meaning, subtitlers must use various translation strategies^[15]. Humor, wordplay, and cultural allusions often depend heavily on contextual information or cultural norms, posing significant

challenges for subtitlers^[16]. Translators should choose culturally neutral or explanatory subtitles when suitable to maintain artistic authenticity while ensuring the audience understands.

Converting spoken language into concise, clear text while staying within the given space is difficult. Subtitles typically occupy two lines at the bottom of the screen and have a limit of 35–40 characters per line. Subtitling programs, for instance, assist translators by counting characters, timestamping, and maintaining a consistent style. However, technical limitations of subtitling software restrict the length, timing, and formatting of subtitles.

According to Díaz-Cintas and Remael, subtitles can be classified as intralingual, interlingual, and bilingual^[17]. This classification system categorizes subtitles based on whether they retain the original language or translate it and whether they translate into one or multiple languages. Intralingual subtitles convey verbal and nonverbal information in the same language. Interlingual subtitles translate the verbal and nonverbal elements from one language into another. Bilingual subtitles render the verbal and nonverbal components from one source language into two or more target languages, as illustrated in **Figure 1**.

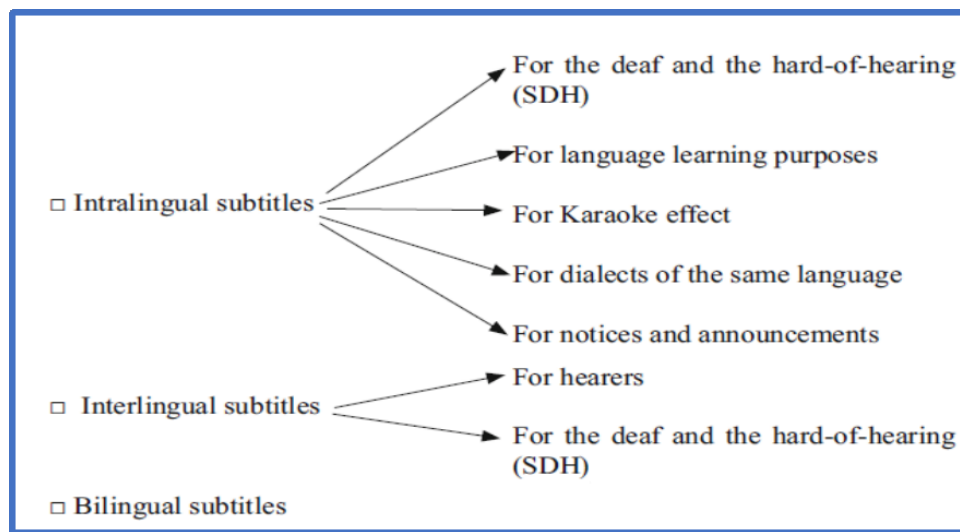


Figure 1. Classification of subtitles based on linguistic aspects^[13].

The first category is ‘intralingual subtitling.’ This type has five primary purposes. First, intralingual subtitles enable people with hearing impairment to view audiovisual content. Second, they facilitate second language learning. Third is the karaoke effect, where viewers can sing along with the lyrics by reading the subtitles. Fourth, viewers may benefit from subtitles to understand various dialects within the same language. Fifth, intralingual subtitles may prove advantageous in public spaces and construction sites, where announcements must be audible amid surrounding disturbances. SDH is set apart from other forms of subtitling through distinctive features^[7]. These features improve the engagement of D/deaf and hard-of-hearing audiences with the work by reflecting various sounds such as tone, sound effects, and music, which are significant pieces of audiovisual work^[11].

This study focuses on subtitling for D/deaf and hard-of-hearing audiences. The analysis examines the features of this

accessibility mode and what types of information are included in these subtitles. Moreover, a comparison between two language versions is made to determine whether this practice is consistent among subtitlers across languages.

2.1.2. Using SDH to Enhance Accessibility

The significance of AV media calls for the need for services that render their content accessible to diverse audiences. Subtitling is a prevalent accessibility tool as it allows people with hearing impairments to navigate and experience media in a manner that parallels the experiences of their hearing peers. This service enables its target audience to enjoy AV and comprehend its cinematic storylines and instructional content without facing barriers due to audio being the main mode of information. According to Szarkowska, this accessibility is achieved by combining linguistic and additional information in the subtitles^[18]. It is similarly argued that SDH translations of

sound are key to proper, enjoyable, and meaningful audience experiences.

Maaß and Rink explained that SDH involves an inter-semiotic form of translation that verbalizes and transcribes heard codes^[19]. Zárate emphasized that the inclusion of additional information, such as paralinguistic and extralinguistic codes, is what characterizes SDH and makes it a useful accessibility tool^[20].

Utilizing SDH as an accessibility tool can allow D/deaf people and those with hearing impairments to participate in cultural events and phenomena without isolating them from their peers. This promotes inclusivity and bridges the gap between diverse social groups and fosters a sense of unity regardless of people's hearing abilities.

Recently, media consumption shifted from traditional outlets such as television to online streaming platforms. These platforms often offer, through subscription, an array of films, series, and documentaries. This content is often supplemented with various translation options. These may include both interlingual and intralingual SDH options as well as audio descriptions. Netflix is a leading platform in both its global reach and its striving to improve accessibility and inclusivity. Gomizelj found that Netflix continuously tries to expand its options regarding translation, including those catered to accessibility^[21]. These efforts involve making a large content library available for diverse audiences.

2.1.3. Types of Information in SDH

Subtitles present aural information in a written form. Generally, this revolves around linguistic information, such as dialogue. SDH, however, aims to provide a more comprehensive and full representation of the sounds of a piece of media. This involves descriptions of paralinguistic and extralinguistic information. Providing a well-rounded depiction of the sounds and preserving the authentic voice is vital, while ensuring the text is clear and easily understandable is of equal importance.

In the **linguistic data** part, specialized rules and symbols transfer spoken discourse, which is crucial for understanding. Linguistic data includes narrations and dialogue^[22]. These codes give individuals with hearing impairments a thorough and convenient watching experience. Some key aspects to be examined thoroughly in the linguistic part of SDH are:

- (1) **Vocabulary:** Words used in colloquial or standard language may differ according to social class or geographical

area.

- (2) **Verbatim** vs. **edited/paraphrased** subtitles^[23].
- (3) **Code-switching** is the practice of switching between two or more languages simultaneously or across utterances during a discussion^[24]. By code-switching, speakers can select the language or dialect that best fits the topic, audience, or social context, improving the effectiveness of their communication.

Paralinguistic data is the speech-related nonverbal components of communication that provide meaning^[25]. These components can enhance the spoken word and provide insights into the speaker's thoughts and feelings. Considering their powerful impact on communication, it is important to have such details in SDH since they may have a role in displaying the required meaning. These include:

- (1) **Tone of voice:** It ranges from sarcastic to confident, draws the audience in, and enhances their comprehension of the characters' emotions by assisting in communicating their moods and feelings.
- (2) **Volume:** It fluctuates between spooky, quiet scenes and louder, more heated discussions. Variations in loudness can build suspense, highlight particular conversation passages, or elicit strong feelings from the viewer.
- (3) **Pace:** Certain conversations flow more quickly than others, and some become more pensive or reflective as they go on. This can heighten suspense, sharpen attention, or indicate scene changes.
- (4) **Fillers and dialogue tags** such as "um," "uh," or "like" are often used in spoken language to organize ideas and sustain conversational flow. These reflect a range of emotions and intentions, such as uncertainty, reluctance, emphasis, or dramatic effect, which gives communication more depth and nuance.
- (5) **Rhythm** and **melody** of the spoken words.

Extralinguistic data refers to nonverbal cues or indicators that go along with spoken communication and heighten the overall significance of the message. These cues include nonverbal cues, eye contact, gestures, expressions, and other visual or context-based cues that support or contradict the stated word^[26]. The different types of extralinguistic information are:

- (1) **Speaker Identification:** Distinguishing between various speakers in a debate promotes character development and

makes it easier for listeners to follow the discussion.

- (2) **Acoustic Nonverbal** (Background Sounds, Music Cues, Sound Source Description)

A: **Background Sounds:** These include footsteps, sneaker squeaks, and approaching cars.

B: **Music:** the different types of music.

C: **Sound source descriptions**, such as radio broadcasts, ticking clocks, or ringing cell phones.

These three types of information can be presented similarly or differently in the Arabic and English SDH^[27]. The **layout** differences include:

- (1) **Font size and style:** Whether the font is clear and big enough with strong background contrast is necessary for readability.
- (2) **Number and Placement of lines:** Subtitles must be positioned so they do not obstruct important visual details or stray from the speaker's voice.
- (3) **Synchronization:** To enhance clarity, the subtitles should be synced properly across the whole video.
- (4) **Color:** The use of different colors.
- (5) **Consistency:** Whether they use the same style throughout the film.
- (6) **Duration:** The temporal span during which subtitles remain displayed on the screen.
- (7) **Ortho-typographical conventions:** Arabic and English have various conventions and considerations because of differences in the script, language structure, and cultural background.

A: **Uppercase:** Arabic script has no uppercase/lowercase division, unlike English. Bold or italic style is rarely used in Arabic subtitles to highlight words or phrases.

B: **Italics:** Italics serve multiple purposes, including emphasizing certain words or phrases, indicating the use of other languages or foreign terms, and highlighting titles and on-screen content. They help to distinguish items from regular talk without being excessively distracting.

C: **Bold:** A bold font can add emphasis and attention to text.

- (8) **Punctuation Marks**

A: **Brackets** are used for nonverbal elements, such as music, sound effects, and voice-over sources. They are also employed to identify the speaker and indicate any modifications made to the discourse, such as

translations or clarifications.

B: **Hyphens** play a crucial role in speaker identification, indicating breaks or disruptions in speech and maintaining uniformity and clarity in Arabic and English SDH subtitles. They have a vital role in facilitating the ability of those who are deaf or have hearing difficulties to access and understand the content of audiovisual goods.

2.2. Empirical Studies

Kalantzi and Somers examined the efficacy and appropriateness of SDH practices by empirically investigating the needs and preferences of individuals with hearing impairments^[28]. After reviewing a library of BBC documentaries, the findings were compared with industry standards. The study found that further research is still needed to meet the varying demands of the diverse community that represents the target audience.

Utray, Pereira, and Orero reviewed the state of audio description and subtitling for DHH individuals in Spain, underscoring the development standards laws, economic implications, and future probability^[29]. The study analyzes existing standards and regulations regarding media accessibility in Spain. Its findings provided insights into the development and adoption within the media and highlighted the importance of laws and the quality of media accessibility. The study also emphasized the need for training and prospects for working in AVT, drawing outlines to support the development and improve accessibility nationwide.

Wieczorek et al. conducted an eye-tracking study to explore how different types of captions, verbatim standard and edited, were read by three categories of participants: DHH individuals^[30]. The viewers' eye movements were tracked using specialized equipment to measure reading patterns while watching a clip. The findings revealed the group differences regarding reading, speed, and comprehension. The results could also offer tangible benefits of enhanced captioning techniques to improve accessibility for the DHH community.

Gürkan found that SDH was still a limited practice in Turkey and hence requires the development of guidelines to ensure that DHH viewers have equal access to media^[31]. Through interviews and questionnaires with 37 Turkish hearing-impaired viewers, the study found that offering subtitles, which include linguistic information, speaker identification, reading speed, sound identification, and more, provides

a sense of inclusivity and accessibility.

Al-Abbas and Haider examined the intralingual Modern Standard Arabic (MSA) subtitles in Egyptian films and their impact on the DHH community^[7]. The inclusion of subtitles garnered a positive response from the majority of the study sample. The study highlighted the relevance and necessity of providing accessibility for under-affected groups regardless of language.

Aminudin and Hidayati assessed the standard of SDH in the film “*The Three Little Pigs*” by students from the English faculty in Surakarta City, Indonesia^[32]. Three evaluators were recruited to assess the quality of the subtitles in terms of accuracy, acceptability, and readability. The results emphasized the significance of enhancing the quality and legibility of subtitles to enhance accessibility for individuals who are deaf or have hearing impairments.

This section provided a background on three main topics: AVT, subtitling, and subtitling for deaf and hard of hearing. The second part of the section included previous research on SDH. Although several studies have examined SDH, little attention has been paid to the types of information and the way of presentation of the SDH in the Arabic and English versions of the same films. This study aims to fill this gap by exam-

ining Saudi films with their English versions by comparing and contrasting the two versions’ paralinguistic, extralinguistic information, and linguistic data.

3. Methodology

This section outlines the study’s methodology, sample, and data collection process. The methods used in the study are described. The section concludes by outlining the study procedures.

3.1. The Corpus of the Study

Two Saudi films were selected as a corpus for this study to provide a diverse and sizable dataset. Various factors played significant roles in determining what to choose. Genre, viewership, and Saudi production were the determining factors in selecting films, as shown in **Table 1**. Selecting multiple genres diversified the dataset, while high viewership indicated the relevancy of the product, which increased the relevancy of their adequate captioning. Saudi productions were chosen due to their emerging and growing status in the fields of Arabic media and AVT.

Table 1. Selected Films’ genre, year of production, and duration.

No.	Arabic Title	English Title (Netflix)	Genre	Year of Production	Duration
1	جرس انذار	From the Ashes	Drama	2024	1:32 Hrs.
2	ناقة	Naga	Thriller	2023	1:53 Hrs.

The genre of the first film, *From The Ashes*, is drama; it is a captivating, thrilling retelling of a horrific real-event fire at an all-girls school that escalated into a catastrophic disaster. The film portrays the terrifying experience of staff and students attempting to escape the fire. The film reflects the conflict between upholding religious customs and adjusting to modern demands, acting as a microcosm of the larger conflicts in Saudi culture. By highlighting these complexities, the film opens the door for critical discussion while encouraging viewers to reconsider how cultural norms are applied, especially in life-or-death circumstances. This film, which aims to expand the cultural landscape and enhance Saudi cinema’s presence internationally, represents yet another significant turning point in developing the Saudi film industry under Vision 2030.

The second film, *Naga*, is of the thriller genre. “*Naga*”

gained traction due to its portrayal of bold themes. The film follows a young Saudi woman, Sarah, after her attempt to secretly go out on a date leads to unexpected consequences. Resulting in a daring representation of the experiences of a Saudi woman.

The films showed success by garnering high viewership in Saudi Arabia and other countries, giving them some relevance as works of media. *From the Ashes* is considered the most globally resonant film produced by Saudi Arabia since the launch of its film industry. The Saudi production *Naga*, which premiered at the Toronto International Film Festival, has excelled noticeably after topping the most-watched films on Netflix and helped serve the Saudi film industry on the global stage.

3.2. Why Netflix?

Netflix was chosen as the primary source for subtitles as it offers a vast and diverse range of films, TV shows, documentaries, and original material, along with a sizable library of regional and international productions. Netflix has a widespread international presence across numerous countries globally.

With features including closed captions, subtitles, and audio descriptions, Netflix ensures everyone can enjoy its content. To reach a wider range of individuals, Netflix is now working on making its services accessible to DHH. The platform has greatly improved accessibility for users with hearing impairments. Thanks to Netflix's features, all sorts of audiovisual content are accessible to those with hearing loss.

3.3. Why Saudi Films?

The Saudi Arabian film industry has grown substantially and advanced in recent years, as demonstrated by increased global recognition, film festivals, and film production. Saudi Arabia's growing film industry has created a diverse selection of films that attract viewers both within the country and from around the world. As Saudi Arabian films and television continue to gain international recognition, Netflix provides a growing selection of Saudi films and shows. The accessibility of Saudi films is very important so they can reach audiences worldwide, including DHH individuals.

3.4. Data Collection and Size

As mentioned, the intralingual Saudi and interlingual English subtitles for DHH were compiled. The Arabic and English subtitles with para- and extralinguistic information were extracted from Netflix as Aegisub files (Figures 2 and 3).

#	Start	End	CPS	Style	Text
1	0:00:17.29	0:00:20.29	5	Default	[موسيقى البداية]
2	0:00:35.62	0:00:37.66	9	Default	[موسيقى تصويرية هادئة]
3	0:00:49.75	0:00:52.41	8	Default	- صباح النور، صباح الخير،
4	0:00:53.83	0:00:57.66	15	Default	بالعضوية غير الدائمة في مجلس الأمن، [مذيع عبر التلفاز] فازت "السعودية"
5	0:00:57.75	0:01:01.45	11	Default	ابتداءً من مطلع العام المقبل، [مذيع عبر التلفاز] تستمر سنتين
6	0:01:01.54	0:01:04.12	12	Default	وفور إعلان الفوز أعلنت "السعودية" عن...
7	0:01:04.20	0:01:07.79	15	Default	إن المرأة تستر جميع بدنها، [رجل 1 عبر التلفاز] من العلماء من يقول
8	0:01:07.87	0:01:12.87	11	Default	ومنهم من يقول إلى نصف العضد، [رجل 2 عبر التلفاز] تستعين بالمنة
9	0:01:12.95	0:01:18.00	12	Default	من مصابنا مو قضاء وقدر، هذا جزء القصير، [رجل 2 عبر التلفاز] تستعين بالمنة
10	0:01:18.08	0:01:20.08	16	Default	[حديث في الخلفية لفتاة عبر الميكروفون]
11	0:01:26.12	0:01:27.45	12	Default	صباح الخير يا حلو،
12	0:01:27.54	0:01:29.29	9	Default	وعليكم السلام طيب!
13	0:01:29.37	0:01:31.87	11	Default	[استمرار حديث الفتاة في الخلفية]
14	0:01:36.08	0:01:39.20	15	Default	مع ارتفاع الموسيقى التصويرية، [استمرار حديث الفتاة
15	0:01:42.41	0:01:43.54	11	Default	[زقزقة عصافير]

Figure 2. Aegisub file for Arabic subtitle with paralinguistic and extralinguistic features.

#	Start	End	CPS	Style	Text
1	0:00:25.87	0:00:28.29	14	Default	WHILE THIS FILM\NIS INSPIRED BY TRUE EVENTS,
2	0:00:28.37	0:00:31.95	16	Default	CERTAIN ASPECTS HAVE BEEN FICTIONALIZED\NFOR STORYTELLING PURPOSES.
3	0:00:32.04	0:00:35.12	16	Default	ANY SIMILARITY TO ACTUAL PERSONS\NOR EVENTS IS NOT INTENDED.
4	0:00:35.62	0:00:37.62	15	Default	[tender piano instrumental playing]
5	0:00:49.75	0:00:50.79	10	Default	Good morning.
6	0:00:51.62	0:00:52.70	10	Default	Good morning.
7	0:00:53.83	0:00:57.50	18	Default	○[man 1] ○Saudi Arabia has been elected to\NSecurity Council non-permanent membership, ○
8	0:00:57.58	0:01:00.95	18	Default	○which will be a two-year membership\Nthat starts at the beginning of next year. ○
9	0:01:01.04	0:01:04.12	13	Default	○As soon as the announcement was made, \NSaudi Arabia... ○
10	0:01:04.20	0:01:08.16	15	Default	○[man 2] ○Some religious scholars say\Nthat a woman must cover up all her arms, ○
11	0:01:08.25	0:01:10.29	12	Default	○while some say only to the wrist, ○
12	0:01:10.37	0:01:12.87	12	Default	○and some say till half of the forearm. ○
13	0:01:12.95	0:01:16.04	14	Default	○[man 3] ○90% of our problems\Nare not just fate and destiny. ○
14	0:01:16.12	0:01:18.00	20	Default	○Instead, they are due\Nto our own shortcomings. ○
15	0:01:18.08	0:01:20.08	13	Default	○[woman 1 speaking indistinctly]

Figure 3. Aegisub file for English subtitles with paralinguistic and extralinguistic features.

The Arabic SDH subtitles and their English counterparts were aligned manually on an Excel sheet.

3.5. Study Procedures

The study began with the selection of two Saudi films, *From the Ashes* and *Naga*. After this, the Arabic and English subtitles were extracted and aligned. The subtitles that contained SDH-specific information, such as para- & extralinguistic elements, were identified and then thematically categorized. The paralinguistic information was divided into three subcategories: volume and tone of voice, fillers and continuers, and rhythm, melody, and pace. The extralinguistic information included four subcategories: speaker identification, background sounds, music, and sound source descriptions. Finally, the Arabic and English subtitles were compared based on what information was covered and how it was presented.

4. Analysis, Findings, and Results

This section categorizes the extralinguistic and paralinguistic details present in the two versions of the captions. Select examples are discussed to provide an encapsulating depiction while minding spatial constraints and avoiding redundancy. This section aims to shed light on the quality of SDH in two languages by following a comparative approach. The analysis focuses both on frequency and style while delving into the implications of these features.

4.1. Frequency and Types of Information (Quantitative Analysis)

Table 2 categorizes the data into two main types of information: paralinguistic and extralinguistic. Each category contains several subcategories. **Table 2** compares the frequency of these subcategories in Arabic and English subtitles for Netflix films.

Table 2. Frequency of the different types of information in the Arabic and English versions of “Naga” and “From the Ashes”.

Category	Subcategories	Naga		From the Ashes	
		Arabic SDH	English SDH	Arabic SDH	English SDH
Paralinguistic Information	Volume and tone of voice	126	209	130	101
	Fillers and continuers	35	72	22	32
	Rhythm, melody, and pace	8	20	14	15
	Total	169	301	166	148
Extralinguistic Information	Speaker Identification	190	428	79	115
	Background Sounds	81	195	84	34
	Music	66	70	71	51
	Sound source descriptions	240	268	37	39
	Total	577	961	271	239

Accessibility to audiovisual content depends on the ability of DHH audiences to understand subtitles. However, the strategies used vary depending on the language and cultural setting. A comparative analysis of the subtitles of the films *Naga* and *From the Ashes* revealed notable differences in how Arabic and English subtitles handled paralinguistic and extralinguistic factors—essential elements for expressing atmosphere, meaning, and emotion. These variations showed how cultural conventions, narrative requirements, and audience expectations influenced the subtitling process and were noticeable in how lexicon, tone of voice, background sounds, and music were treated. This analysis clarified how these elements influenced each film’s immersive quality and viewing experience in its particular subtitling technique.

Table 2 demonstrated that in the thriller film *Naga*, the

English subtitles offered more comprehensive data in various subcategories, particularly in the paralinguistic and extralinguistic aspects. The prioritization of comprehensive audio and contextual information ensured that DHH individuals could completely comprehend the subtleties, resulting in a viewing experience that resembles that of the hearing audiences. In contrast, Arabic subtitles were more detailed when it came to the drama film *From the Ashes*.

Different subtitling techniques were highlighted by the notable differences in how Arabic and English volume and tone of voice in Paralinguistic Information were represented in Netflix SDH. The indication of tone represented a notable difference between the versions. Such paralinguistic information was referenced 126 times in the Arabic SDH for “Naga” compared to 209 descriptions in the English SDH of this film.

This stark difference indicated that the English SDH prioritized an explicit communication of emotional tone, volume, or delivery style. These descriptions can act as a substitute for significant auditory cues that enhance the meaning of an utterance. Some examples of these descriptors were “angrily”, “softly”, and “whispering”. On the other hand, Arabic SDH seemed to employ fewer tone cues, perhaps depending more on contextual and cultural knowledge to deduce subtleties of emotion.

The presence of volume and tone indicators was more consistent among the Arabic and English captions in *From the Ashes*, with one-hundred and one and one-hundred and thirty descriptions, respectively. These similar description frequencies may be a result of the stylistic features of the source material. The context of the film, where emotional responses are more consistently expressed or less linguistically sophisticated, may be reflected in this closer alignment. Although this approach is less common, Arabic SDH may use language choices in standard or colloquial Arabic to subtly convey or emphasize tone. Effectively employing tone markers increases inclusivity and enables DHH audiences to fully interact with the emotional depth of the narrative.

Paralinguistic information is not limited to ascribing an emotional quality to an utterance but could involve the description of other features. One feature often found in SDH is the indication of volume. Such descriptions are essential to delivering the auditory experience to viewers who are dependent on subtitles. Volume indicators convey the intensity, tone, and emphasis of spoken conversation and background sounds, enhancing the audience’s immersive experience.

The use of volume indications in Netflix SDH for DHH viewers demonstrated another significant difference between Arabic and English subtitles, highlighting inconsistencies in the representation of auditory dynamics. In *Naga*, the Arabic SDH referenced volume fifty-one times, whereas such descriptions in the English SDH only appeared thirty-one times. The higher frequency in the Arabic subtitles indicated a greater focus on explicitly denoting variations in level. Terms such as “loudly,” “softly,” or “whispering” facilitate viewers’ comprehension of sound and dialogue intensity. With fewer volume markers, the English SDH may depend solely on context, tone descriptors, or visual clues within the scene to suggest loudness or quietness, thus providing less clarity to the audience.

In *From the Ashes*, the Arabic SDH employed volume

indicators at a higher rate than the English SDH. This pattern may indicate an attempt in Arabic subtitles to avoid ambiguity by providing concrete descriptions instead of relying on assumptions. Thus, this information can be grasped by all viewers regardless of their understanding of the auditory nuances intrinsic to the language or cultural environment or their level of hearing. In contrast, English SDH emphasized tone or other descriptive indicators rather than volume. While tone may carry deeper implications on meaning, increasing its significance over volume, volume is more difficult to grasp based on visual clues such as facial expressions.

The regular indication of loudness in Arabic SDH underscored its significance in improving accessibility by delivering comprehensive auditory signals, enabling DHH audiences to participate fully in the film experience. These differences can be seen as a manifestation of subtitling standards and norms cross-linguistically and cross-culturally, as well as different expectations for audience interpretation.

The incorporation of rhythm and pace markers showed another distinction between the English and Arabic SDH in the film *Naga*. These descriptions provided insight into speed, tempo, rhythm, flow, cadence, and similar features. Such descriptions were present in both versions, yet there was still a significant gap between their numbers. While the English SDH for this film contained twenty examples, the Arabic version contained merely eight. This indicates that the English version placed a higher priority on this type of information that was mostly neglected in Arabic. This drives Arab audiences to rely on other indirect modes of communication, such as context, to infer these features.

The use of pace markers was more consistent between the Arabic and English SDH of *From the Ashes*. Again, such descriptors were minimal, with fourteen and fifteen examples, respectively. This high degree of alignment may be an indication of the significance of this feature in its uses within the film. For instance, emotional pauses could be used to express heightened tensions. The consistency also indicates a collective acknowledgment of the significance of these auditory features in improving the viewing experience for audiences with hearing impairments.

Aside from pacing and pauses, the rhythm of dialogue is also affected by the use of fillers. Fillers are verbal expressions that are not used to create or represent meaning but instead fill up empty spaces to avoid pauses. These terms reflect hesi-

tations, uncertainties, and informal speech patterns in human dialogue and can purposefully be added to scripts to add naturalness or reflect emotions. This gives them relevance to be included in SDH.

The films *Naga* and *From the Ashes* on Netflix exhibited considerable variation in the inclusion of fillers between the Arabic and English SDH. In “*Naga*,” the Arabic SDH incorporated fillers thirty-five times, whereas the English SDH incorporated them seventy-two times. The distinction indicated that the English subtitles prioritized the conversational aspects of the dialogue, providing a more nuanced picture of the speaker’s speech patterns. Conversely, although still using fillers, Arabic subtitles did so with less frequency, suggesting a distinct subtitling methodology or linguistic pattern in the representation of speech in Arabic SDH.

In *From the Ashes*, the difference was less stark, yet the English captions still contained more examples at thirty-two in comparison to twenty-two. Despite the different description frequencies between the two films, what was consistent was the English captions exceeding the Arabic. This implies that English SDH is more inclined to represent the authenticity of the dialogue, improving the viewing experiences of the audience.

In SDH Extralinguistic Information, speaker identification is essential for determining the identity of speakers, particularly in contexts featuring overlapping dialogue, numerous characters, or off-screen voices. This feature enables DHH audiences to comprehend character interactions and the plot more effectively. In “*Naga*,” Netflix English SDH featured four-hundred and twenty-eight instances of speaker identification, whereas Arabic SDH contained one-hundred and ninety, indicating a stronger focus on clarity for English-speaking audiences.

The frequency of speaker identification in *From the Ashes* was lower overall yet displayed a notable contrast between the two versions, with one-hundred and fifteen instances in English SDH and seventy-nine in Arabic SDH. The ongoing discrepancy may indicate differences in the film’s narrative structure or the frequency of dialogue-intensive scenes. Speaker identification is crucial for producing accessible and engaging subtitles, as it allows audiences to understand the relationships and dynamics among characters comprehensively. The variations highlight the necessity of adjusting subtitling strategies to accommodate the diverse needs of audiences, en-

suring that both clarity and inclusivity are preserved.

The description of background sounds enables DHH audiences to better experience a scene and its atmosphere. These descriptors portray significant elements of an audiovisual work, which could be key elements in creating meaning and narrative.

In *Naga*, the English SDH on Netflix contained one-hundred and ninety-five references to background sounds, in contrast to the 81 found in the Arabic SDH. This indicates that the English SDH adopted a more comprehensive method for representing the auditory elements of the film, highlighting sound effects and surrounding sounds to enhance the immersive experience for English-speaking viewers.

In *From the Ashes*, the pattern is reversed, as the Arabic SDH referenced background sounds eighty-four times, while English SDH did so only thirty-four times. This shift likely indicates an increased focus on environmental sounds in the Arabic subtitles, enriching the narrative and emotional depth for Arabic-speaking audiences. The frequency differences between the two languages indicate the necessity of tailoring subtitle strategies to accommodate diverse audience needs. Implementing background sound indicators is essential for fostering an inclusive viewing experience, enabling DHH audiences to engage comprehensively with the auditory components of the narrative, regardless of language.

Music indications in SDH subtitles are crucial when conveying music’s emotional and narrative significance to DHH viewers. The frequency of music subtitles in *Naga* was reasonably balanced, with 66 references in Netflix Arabic SDH and 70 in English SDH. This consistency indicates that the objective of both language variants is to emphasize the effect of music on the emotional tone of scenes and the establishment of an atmosphere. The music genres can be employed to convey the music’s style, atmosphere, or purpose, whether it is upbeat, somber, dramatic, or relaxing, thereby enabling the viewer to experience the emotional movements of the film.

In *From the Ashes*, the Arabic SDH made seventy-one references to music, whereas the English SDH only included fifty-one. The increased frequency of music indicators in the Arabic SDH may imply greater efforts to convey the range and nuances of music in the film, maybe reflecting more precise descriptions of music genres. This can also result from the cultural setting, where music plays a significant role in the narrative, and some genres might elicit more intense emotional responses from Arabic-speaking audiences. The disparities in

the frequency of music genre indicators between Arabic and English SDHs underscore the differences in music perception and representation, indicating that subtitles may modify their approach to music based on linguistic and cultural contexts to provide an immersive experience for the audience.

Sound source descriptions in SDH subtitles are essential for enabling DHH viewers to comprehend the origin of sounds in a scene, indicating whether they arise from a character, an object, or the environment. The frequency of sound source descriptions in *Naga* was comparable between Netflix Arabic SDH (two-hundred and forty instances) and English SDH (two-hundred and sixty-eight instances), indicating that both languages offer comprehensive auditory cues in this area. Such a detailed presentation enhances the viewing experience by enabling viewers to associate sounds visually with their sources, thereby improving narrative comprehension.

In *From the Ashes*, sound source descriptions were notably infrequent, comprising thirty-seven references in Arabic SDH and thirty-nine in English SDH. The distinctive reduction in both versions may indicate a variation in the film's auditory complexity or an alternative subtitling strategy in which fewer sound cues were deemed essential. The low frequency observed in both languages indicates a minimalist approach,

whereby viewers may depend more on context or visual cues to comprehend the origin of sounds. The variations in frequency highlight the adaptability of subtitling strategies concerning the film's narrative style and the intended experience for DHH audiences.

4.2. Qualitative Analysis

This section compares data types detected in Arabic intralingual subtitles (SDH) and corresponding English translations for two films. The approach focuses on two primary aspects: paralinguistic cues and extralinguistic components.

4.2.1. Paralinguistic Information

The speech-related nonverbal elements of communication that convey meanings are known as paralinguistic data. These elements can improve spoken words and reveal the speaker's emotions and thoughts. These kinds of details are crucial to include in SDH because of their significant influence on communication and their involvement in conveying the intended meaning. These consist of the voice tone (**Table 3**), volume (**Table 4**), pace (**Table 5**), conversation tags and fillers (**Table 6**), and the rhythm and melody of the spoken words (**Table 7**).

Table 3. Examples of the paralinguistic information in the two versions of the films, tone of voice.

Paralinguistic Data	No.	Netflix Arabic SDH	SDH Back Translation	Netflix English SDH
Tone of voice	1	[بتهديب] مخيم أبو "فهد".	[in a calm manner] Abu Fahad's camp?	[calmly] Abu Fahad's camp?
	2	[تنتهد] الحمد لله ربنا رزقني.	[sighs] thank god. Allah has given me.	[sighs happily]...God has finally blessed me.
	3	[تصرخ] وش اللي هدي؟ شاييف وجهي أنت؟	[Shouting] What do you mean, calm down!\Look at my face!	[Sarah sighs] Don't tell me to calm down!\Look at my face!
	4	-	-	"[Marzouka sighs]"
	5	بصوت ناعس	[in a drowsy voice]	-
	6	يضحكون	(They are laughing)	"[punks laughing wildly]"

Table 4. Examples of the paralinguistic information in the two versions of the films, volume.

Paralinguistic Data	No.	Netflix Arabic SDH	SDH Back Translation	Netflix English SDH
Volume	7	[الصديقة بصوت خافت] الله!	[Girlfriend in a faint voice] God!	[muffled] Wow
	8	[تهمس بكلام غير واضح]	whispers with unclear words]	[whispers] I'm gonna go have a look

Table 5. Examples of the paralinguistic information in the two versions of the films, pace.

Paralinguistic Data	No.	Netflix Arabic SDH	SDH Back Translation	Netflix English SDH
Pace	9	[أغنية عربية سريعة]	A fast-paced Arabic song.	No equivalence.
	10	- اطلعوا برة يلا بسرعة.- يلا، بسرعة.	Come on!" Hurry up and get out. Come on!	Come on! Get out quickly.\Come on! Quickly, girls!

Table 6. Examples of the paralinguistic information in the two versions of the films, fillers.

Paralinguistic Data	No.	Netflix Arabic SDH	SDH Back Translation	Netflix English SDH
Fillers and continuers	11	أقولك شي. ها؟	I will tell you something \ha?	I'll tell you what. \Huh?
	12	اهدي، هاه؟	Calm down, huh?	Calm down, ok?

Table 7. Examples of the paralinguistic information in the two versions of the films, rhythm and melody.

Paralinguistic Data	No.	Netflix Arabic SDH	SDH Back Translation	Netflix English SDH
Rhythm and melody	13	♪ تفضلني اشربي الشاهي قالت شاهي على الماشي ♪	♪ Here you go, drink some tea, she said let's take "tea" and we won't waste your time ♪	[offkey] ♪ Come drink some tea ♪

Example 1 demonstrates the marking of the tone of voice in Arabic and English SDH. Both versions indicated that the utterance was conveyed with placidity. The Arabic SDH described this with the phrase *بتهديب* (politely/with politeness). The English SDH employed the adverb [calmly]. Both subtitles reflected the speaker's tone, showing that the speaker toned down his voice, indicating that he was untroubled and confident regarding the camp of Abu Fahad. Both languages precisely conveyed the speaker's emotional state, which is crucial for the DHH audience to be engaged with the dialogue and course of action. Yet, the Arabic caption also conveyed a social aspect, representing a meaning related to human interactions and relations by attributing the tone to politeness.

In example 2, both versions described a sigh. Yet, the two captions were not equally informative. The English caption surpassed its Arabic equivalent through the use of the adverb "happily". This addition can be considered informative rather than supplementary, as sighing can express a wide range of emotions. Typically, this can be determined by the tone which is inaccessible without hearing. Moreover, the term generally correlates with negative emotions. In some cases, the tone may be inferred from the following utterance. Yet, as happiness is not the default attribution, this clarification can be of high usefulness.

In example 3, the two versions followed different approaches to convey the character's frustrated tone. The Arabic subtitles took a direct approach with the SDH tag "shouting", a clear indication of tone. The English caption, on the other hand, instead prioritized the description of a non-verbal utterance in the caption "sighs" and implied the tone in the use of punctuation marks. The tone is conveyed through the use of exclamation marks. This resulted in an Arabic caption with a clearer identification of tone but a more rounded caption in English as it captures more sounds. This again showcases how

SDH is a process of prioritization.

For the DHH audience, a subtitle such as "Marzouka sighs" found in example 4 is a tone of voice expression that provides a non-verbal emotional indication. As this subtitle lacked an Arabic equivalent, it can be understood that Arab DHH viewers were left to rely on visual cues or left without access to this sound and its implications. As such examples were plenty in both languages, whether as shortcomings or to prioritize brevity following subtitling norms, a lack of complete accessibility is evident in SDH, perhaps on a universal level. The differences, on the other hand, display how the culture, language, and subtitler all influence the content of SDH. This emphasizes how arbitrary subtitling is and how important it is to balance conciseness, cultural sensitivity, and clarity.

In example 5, the Arabic subtitle *بصوت ناعس* "in a drowsy voice" conveyed the speaker's tone and physical and mental state, which was absent from the English version. Since tone is not easily inferred without sound, this addition shows the subtitler's effort to provide contextual signals that help Arabic-speaking viewers better understand the character's mood or state. In contrast, the English subtitles leave out some specifics and rely on the audience to infer the tone from the visual context.

In another caption, the Arabic subtitles simply transcribed the utterance while its English counterpart employed the modifier "calmly". This provided an extra communicative layer while expressing character dynamics that were only left to interpretation for Arabic viewers. These examples cement the fact that DHH audiences are never provided with a full representation of the audio. This emphasizes the need for improved guidelines on relevance and clarity to ensure that significant meaning is not lost on these audiences.

In example 6, laughter is described in both versions but with only one referencing volume. In this example, the English

subtitle “[punks laughing wildly]” for the (DHH) conveyed both the activity (laughing) and the mode or intensity of the laughter “wildly”, indicating a loud and chaotic volume. This offered extra auditory information that is inaudible to a DHH audience and that reflected the characterization of the subject. On the other hand, the Arabic subtitle *يضحكون* (they are laughing) did not refer to the volume or tone of the laughter, making it a more general description. This disparity reveals a difference in subtitling techniques, which shows different approaches to audience demands and accessibility when subtitling for the two languages.

In example 7, the Arabic SDH *الصديقة بصوت خافت* (Girlfriend in a faint voice) represented volume. The English SDH reads “muffled”. This is another example where the two versions represented a similar tone through different expressions. Both captions indicated a low volume. This is expressed directly in Arabic in the phrase “in a faint voice/volume,” which referenced a low volume in straightforward literal terms. The English term expressed this sentiment in the term “muffled,” which provided an extra level of detail as it implied an external influence that distinguishes the sound from a whisper, for instance.

Example 8 is an example that highlights the relevancy of volume in the consistent approach to its description among versions despite different treatments of the dialogue itself. The difference between *تهمس بكلام غير واضح* in Arabic and “[whispers] I’m gonna go have a look” in English is in how the dialogue was represented to the DHH audience. Additionally, the Arabic subtitles (whispers with unclear words) underlined the speech’s hazy and low-volume nature, highlighting the fact that the words are inaudible or incoherent. In contrast, the English subtitle specified the whisper’s substance, emphasizing clarity over low volume. This means that the Arabic subtitle emphasized the aural feature of the whisper (low volume and unclear). In contrast, the English subtitle conveyed the utterance’s meaning, potentially downplaying the impact of volume or indistinctness but balancing content and style.

In Example 9, the Arabic SDH *أغنية عربية سريعة* “A fast-paced Arabic song,” evoked a sense of speed in displaying the song, whereas the English SDH had no equivalence. “The Arabic subtitle represented the song’s tempo and energetic rhythm, while the situation was left out and not represented in English subtitles.

Pacing can also be sensed in the wording of the subtitle,

as demonstrated in example 10. The briefness and urgency of expression in this example demonstrated the contrast in pace between the Arabic and English subtitles. In Arabic, the repetition of *يلا* (come on) accentuated a sense of urgency and rush, while *برة* (out) and *بسرعة* (quickly) served to reinforce the order. The Arabic subtitles were direct and strong, moving rapidly with minimal language. In contrast, the English subtitles read, “Come on!” “Hurry up and get out. Come on, folks!” The phrase “Quickly, girls!” is slightly more expansive, repeating the exhortation “come on” to emphasize the urgency, yet the rhythm is slower due to the additional words and structure. The Arabic translation communicated urgency more simply, but the English subtitles required repetition to maintain the same degree of tension.

Example 11 illustrates the integration of fillers in Arabic and English SDH subtitles. Both subtitles included filler words and continuers as regular transcriptions of dialogue. Fillers are essential for accurately relaying honest conversations, especially for individuals with hearing impairments.

In example 12, the Arabic subtitle *اهدئي، هادي؟* (calm down, hah?) and the English “Calm down, ok?” included fillers that rhetorically inquire for confirmation. The Arabic word *هادي؟* (hah) served as a filler, adding a conversational tone and a small pause, implying a request for confirmation or comment. It softened the command and made it more informal, expecting the recipient to agree or answer. In the English subtitle, the phrase “ok?” performs a similar purpose by providing a rhetorical or conversational pause. Both languages used fillers to make the discussion more natural and less abrupt. However, the Arabic filler and English filler terms differed based on wording, highlighting how culture influences the smallest details of communication.

In Example 13, the Arabic SDH *شاهي على الماشي ♪ تفضلي اشربي الشاهي \ قالت* conveyed rhythm and melody. The English SDH states, “[offkey] ♪ Come drink some tea ♪.” While there was noticeable singing in both subtitles with the use of the musical note symbol, the English subtitle explicitly acknowledged that the singing is offkey by including this information in square brackets. This specific element indicated the character’s emotional state and the quality of the performance for the DHH audience, an element missing from the Arabic version. This example showcases how different levels of detail may be provided even when the described topics align.

4.2.2. Extralinguistic Information

Extralinguistic data are nonverbal indicators or cues accompanying spoken communication and emphasizing the message's overall significance. These nonverbal clues include eye contact, gestures, facial expressions, and other visual cues dependent on context and support or contradict the stated word.

Extralinguistic information comes in two main forms in SDH: (1) Speaker Identification and (2) Acoustic Non-verbal (Background Sounds, Music Cues, Sound Source Description).

Examples of the extralinguistic information embedded within the captions of the films are discussed in this section (Table 8).

Table 8. Examples of the extralinguistic information in the Arabic versions of the films, speaker identification

Extralinguistic Data	No.	Netflix Arabic SDH	SDH Back Translation	Netflix English SDH
Speaker Identification	1	[معلمة] [التفتيش الصباحي.	[Teacher 1] The morning inspection.	[woman 2] The morning inspection.
	2	[الرجل] ما هنا متأخرين يا بنت الحلال،	[The man] We are not late, my dear	[boyfriend] We won't be late.
	3	تبي [بالإنجليزية] إسبريسو؟ ها؟	You want [in English] espresso? Huh?	[Abu Fahad] Espresso. \[assistant] Huh?

Example 1 shows how the two versions followed different approaches in the identification of an unnamed speaker. In both languages, the speaker was labeled based on information obtained visually in the scene. Yet, the Arabic descriptor was more specific. The English version referred to the speaker as “woman 2,” referencing her gender and age. By contrast, the Arabic captions referred to the speaker by her occupation as “teacher 2”. The gendered Arabic grammar results in a caption that alludes to the fact that the teacher is a woman as well. Since the setting of an all-girls school naturally entails all present characters from staff and students are female, using an occupation label is more distinctive. Thus, even if the English “teacher” had no gender inflection, it would have been more informative, separating the speaker from not just the younger students but from other employees such as the principal and janitors as well. Both descriptors are numbered to distinguish the speaker from others who are described with the same label. Diversifying the labels therefore limits confusion by reducing the number of characters numbered under the same category.

In Example 2, the Arabic SDH and English captions again described an unnamed speaker with different labels. The Arabic caption used a generic description referring to gender and implying age with the term “man”. The English captions took a more specific approach by relating the speaker to another

character. This indicates that the English captions were more informative. However, the Arabic subtitle demonstrated cultural sensitivity and respect for boundaries by using a generic descriptor (الرجل - the man) since explicit references to relationships such as boyfriends are considered inappropriate for the Saudi audience. The specification of the English captions nonetheless may better benefit the DHH audience, as accurate speaker identification increases comprehension and decreases confusion.

In example 3, the English subtitle gave the dialogue's literal translation as “Espresso? Huh?” and identified the speakers as “Abu Fahad” and “assistant”. This made it clear to the listeners who spoke each line. The Arabic subtitles intended for DHH viewers, on the other hand, did not specifically identify the speakers and instead used the in-line remark بالإنجليزية (in English) to highlight that the word “Espresso” is spoken in English during the Arabic dialogue. This reveals a significant distinction in subtitling techniques: the Arabic subtitle incorporated linguistic context into the dialogue itself, suggesting an emphasis on language-switching nuances, whereas the English subtitle placed a higher priority on clarity and attribution, guaranteeing that the viewer is aware of who is speaking.

Table 9 below contains some descriptions of background sounds.

Table 9. Examples of the extralinguistic information in the Arabic versions of the films, background sounds.

Extralinguistic Data	No.	Netflix Arabic SDH	SDH Back Translation	Netflix English SDH
Background Sounds	4	[ارتطام الكتب بالأرض]	[books hitting the ground]	[book thuds]
	5	[اهتزاز بلورات الثريا]	[chandelier crystals shake]	[glass chandeliers tinkling]

Table 9 shows examples of the captioning of background sounds. In example 4, the English description “book thuds” simplifies the description by emphasizing the sound’s primary auditory component. On the other hand, the Arabic subtitles provided more background information, stating that the books fell to the ground, making the incident easier to picture. Though it captured the sound, “book thuds” lacks the spatial detail found in the Arabic description. A more thorough portrayal of the scene and improved comprehension could result from inserting the details about the books striking the ground (e.g., “books thudding to the ground”) in the English subtitles for SDH audiences, particularly those who use subtitles for context. This would guarantee uniformity in accessibility by following the same methodology as the Arabic subtitles.

In example 5, a sound effect was included in the captions of the two languages. The source of the sound was consistent between the two versions as the glass of a chandelier. Yet, the

English caption could be seen as more informative than its Arabic counterpart due to differences in verb choice. The Arabic verb “vibrate” references movement only implying sound, yet the English “tinkling” actually describes the emitted sound.

As **Table 10** shows, the translation of the same piece of music in example 6 as *تصويرية موسيقى* and “[whimsical music playing]” indicated that the Arabic and English subtitles had different interpretive focuses. The Arabic phrase *تصويرية موسيقى* (background or cinematic music) emphasizes the music’s purpose in supporting the scene without defining its tone or style. Conversely, the English subtitle “whimsical music playing” provided a more detailed description, capturing the whimsical and imaginative tone of the song. The English version added emotional and stylistic details, giving the audience a more vivid grasp of the scene. At the same time, the Arabic description guaranteed accessibility by stating the music’s presence and purpose.

Table 10. Examples of the extralinguistic information in the Arabic versions of the films, music

Extralinguistic Data	No.	Netflix Arabic SDH	SDH Back Translation	Netflix English SDH
Music	6	[موسيقى تصويرية]	[cinematic music]	[whimsical music playing]
	7	[موسيقى ترقب تتعاضم]	[anticipatory music increases]	[music grows to a terrifying crescendo]

In example 7, the Arabic SDH was *ترقب تتعاضم موسيقى* [anticipatory music increases]. Similarly, the English SDH defined the music as gradually increasing in volume and intensity to evoke a sense of fear as “music grows to a terrifying crescendo.” While both subtitles express the heightened intensity of the music, the English version explicitly mentions that the purpose is to inspire terror. Viewers of DHH will gain an advantage from this further context as it implies the scene’s emotional tone.

In other cases, the Arabic and English captions provided diverse descriptions of music. Adjectives were used in both versions to blend genre and mood: “whimsical music playing,” audio technique “music fades,” and describe instruments “tender piano instrumental playing.” Also, some captions in both languages mentioned the music’s function in the scene,

including opening and closing themes, and provided descriptions of the genre. Six music genres were described in Arabic and English, but each had a different interpretation in both languages. For example, *موسيقى مشوقة* had six different interpretations: dramatic music playing, tense music playing, whimsical music playing, mysterious music playing, solemn music playing, [pensive music playing].

Music in the Arabic version focused more on conveying the tone, volume, and emotions, whereas in the English version, music primarily focused on reflecting the genre only. For example, in one instance, *موسيقى ترقب خافتة* was paralleled by pensive music playing. The tone and volume were interpreted in the Arabic version, but the genre was only stated in English. *موسيقى افتتاحية حزينة* showed the general emotions in the scene, but it has no equivalent in English.

Arabic and English have different ways of understanding musical genres, which may be caused by linguistic and cultural differences. Historical, social, and musical traditions have shaped how each language and culture classifies and describes music. As a result, a single piece of music may fall under several genres based on the cultural background of the language and the subtleties of its musical vocabulary.

As **Table 11** shows, the descriptions in Example 8, إسعاف [دوي صفارات شرطة و] and “sirens wailing,” demonstrated a difference in descriptive techniques. The Arabic subtitles gave a more explicit description by identifying the source of

the sound as police and ambulance sirens, adding context and improving the viewer’s comprehension of the scene. In contrast, the English subtitle simplified the description to “sirens wailing,” emphasizing the emotional and audible nature of the sound without specifying the source, most likely relying on visual or narrative cues to communicate context. Both approaches are appropriate, but the Arabic version provided more clarity for DHH audiences who rely solely on subtitles for situational context, resulting in a more thorough and accessible experience.

Table 11. Examples of the extralinguistic information in the Arabic versions of the films, sound source descriptions.

Extralinguistic Data	No.	Netflix Arabic SDH	SDH Back Translation	Netflix English SDH
Sound source descriptions	8	[دوي صفارات شرطة وإسعاف]	[Police and ambulance sirens]	[sirens wailing]
	9	[مذيع عبر التلفاز] فازت “السعودية” بالعضوية غير الدائمة في مجلس الأمن	[Reporter through the television] Saudi Arabia has been elected to Security Council non-permanent membership,	[man 1] Saudi Arabia has been elected to Security Council non-permanent membership,

In example 9, both captions employed speaker identification as the source of the dialogue does not appear on screen. Yet, the information provided in English was limited to “man” and thus was inefficient in its clarifying role. The Arabic caption, however, effectively communicates that the dialogue did not come from a character within the scene. This ensures the audience properly understands the content without any confusion.

4.2.3. Layout

Table 12 comprehensively compares several layout aspects in Netflix Arabic and English (SDH) subtitles. These elements include font size and style, line number and placement, synchronization, color, consistency, length, ortho-typographical conventions, and the utilization of punctuation marks.

Table 12 indicates that the SDH subtitles in Arabic and English maintain a consistent font size and design, enhancing

readability and consistency across various scenes. Nevertheless, both languages did not have problems with the number and layout of lines, synchronization, and the application of color. These considerations are essential for ensuring that subtitles are correctly placed and synchronized to prevent blocking critical visual elements and to align with spoken dialogue and audio cues. This will improve the overall quality of the viewing experience.

English SDH subtitles adhere to ortho-typographical conventions by not using bold or italic formatting. Instead, they employ uppercase letters to accentuate specific components, which occurs 21 times. Arabic SDH subtitles, however, deviate from this format since uppercase letters are not available. In addition, there is a distinction in the punctuation employed. Arabic subtitles utilize square brackets 828 times, round brackets twice, and do not use hyphens. On the other hand, English subtitles mainly utilize square brackets (1014 times) to indicate sounds or actions.

Table 12. Differences in the layout in the Arabic and English versions.

Features		Netflix Arabic SDH	Netflix English SDH
Font size and style		-	-
Number and placement of lines		2–3 lines	2–3 lines
Synchronization		No problem with the Synchronization	No problem with the Synchronization
Color		Coloring is not used	Coloring is not used
Consistency		No consistency	No consistency
Duration		Enough duration for viewers to read the subtitles	Fast-paced when previewing subtitles.
Ortho-typographical conventions	<i>Uppercase</i>	Not used	21
	<i>Italics</i>	Not used	Not used
	<i>Bold</i>	Not used	Not used
The use of Punctuation Marks	<i>Round brackets</i>	2	Not used
	<i>Square brackets</i>	828	1014
	<i>Hyphens</i>	Not used	Not used

The analysis reveals that although Arabic and English SDH subtitles abide by specific layout criteria, there is still room for improvement. Incorporating more extensive synchronization data and overall coherence is crucial for enhancing SDH subtitles' legibility and viewer contentment. By prioritizing these elements, DHH individuals can have a more efficient and inclusive viewing experience.

4.2.4. Discussion

The analysis of Arabic and English SDH subtitles for the Netflix productions *Naga* and *From the Ashes* reveals significant discrepancies in the conveyance of paralinguistic and extralinguistic information. The findings indicate variations in the approaches to subtitling, which may affect the accessibility of these films for DHH audiences.

Paralinguistic information refers to the nonverbal elements accompanying speech, such as tone, pitch, volume, and speech rate, which contribute to the interpretation of communication. The documented variations in tone of voice and volume align with the findings of Matamala and Orero, which emphasizes the inconsistent representation of paralinguistic cues in different languages within SDH^[33]. Inconsistencies may reduce the emotional and narrative impact on audiences.

The discrepancies in speaker identification and background sound descriptions indicate a deficiency in current subtitling practices, which corresponds with Neves, who observed that extralinguistic cues are essential for SDH audiences to comprehend narrative structure and ambience^[3]. The findings from *Naga* and *From the Ashes* are similar to those of Jankowska, who identified that inconsistencies in extralinguistic information could generate confusion or disrupt the immersive experience for viewers^[34]. Fels et al. also under-

scored the necessity of consistent sound source descriptions to establish an equitable viewing experience^[35].

The inequivalence in subtitle content between the Arabic and English versions is consistent with the findings of Arnáiz-Uzquiza, who found that subtitling strategies frequently diverge based on cultural and linguistic norms, resulting in information omissions and contradictions^[36]. These discrepancies align with Gottlieb's theory of "translation priorities," which argues that subtitlers make intentional decisions based on their audience's expectations, sometimes at the expense of accessibility and inclusivity^[37].

Previous research has documented the effects of such inconsistencies on audiences. Mazur et al. and De Linde et al. underscore that subtitles are essential for SDH viewers to access auditory, emotional, and atmospheric signals in addition to dialogue^[38, 39]. Their conclusion that these voids can result in fragmented narratives and a diminished viewing experience is consistent with the lack of uniformity in subtitling practices, as demonstrated by this study.

The conclusions of previous research on SDH subtitling are reaffirmed and expanded by the results of the *Naga* and *From the Ashes* analysis. They emphasize the systemic issues in Netflix's subtitling practices, consistent with the broader challenges identified in the field. Adopting the recommendations of studies such as those by Díaz-Cintas and Remael and Matamala and Orero, which promote standardized guidelines, training, and collaboration among subtitling teams, is necessary to address these issues^[33, 40]. This study emphasizes the pressing necessity for reforms in SDH subtitling to guarantee equitable and inclusive access for all audiences by connecting the observed inconsistencies to the existing literature.

5. Conclusions and Recommendations

This concluding section underscores the key points and general findings established in the study. It summarizes the key findings about English and Arabic (SDH) in two Netflix films, *From the Ashes* and *Naga*, emphasizing the disparities in information presentation. The analysis uncovers substantial discrepancies in the portrayal of paralinguistic and extralinguistic components, which are crucial for facilitating accessibility and inclusivity for DHH individuals. The inconsistencies underscore translation and formatting difficulties, affecting the subtitles' conciseness and efficiency.

Extralinguistic factors, such as speaker identification, background sounds, and auditory descriptions, are essential for comprehending the story's contents. Nevertheless, Arabic SDH frequently excludes key particulars, hence constraining the accessibility of the subtitles. Moreover, variations in layout and style accentuate the discrepancies. English SDH adheres to explicit norms for the construction and formatting of subtitles, whereas Arabic SDH lacks such uniformity, resulting in deficiencies in information display. Regardless, the Arabic captions surpassed their English counterparts in several instances. This implies that even with pre-established norms and guidelines, current SDH services may still contain shortcomings that call for further improvement.

Despite the films and subtitles being Netflix products, these differences indicate an absence of uniform subtitling methods between the two languages. This study highlights the necessity of consistent and culturally attuned subtitling to guarantee equitable accessibility and engagement for varied audiences.

Paralinguistic information consists of indicators of tone of voice, volume, pace, fillers, and rhythm or melody. Though they are more fully expressed in English SDH than in Arabic, these components offer extra background on delivering communication.

Speaker identification, background sounds, musical descriptions, and sound source descriptions contain extralinguistic information. While their inclusion differs greatly between languages and films, these signals enable DHH viewers to follow the narrative's progression.

The comparison of this data reveals discrepancies, often indicating shortcomings, more so in the Arabic SDH, which

lowers accessibility and influences the audience's viewing experience. For instance, the quantitative analysis showed some aspects have been removed while the qualitative analysis indicated others were insufficiently described.

The data in the SDH of the English and Arabic versions of the two films is presented uniquely regarding layout and style. English and Arabic SDH use on-screen text to convey dialogue, sound effects, and paralinguistic cues. Nonetheless, the placement and visibility of the subtitles frequently vary across the two languages. English SDH typically offers a more organized format featuring explicit speaker identification and appropriate alignment for dialogues involving multiple characters. On the other hand, Arabic SDH occasionally lacks these distinct differences, which may cause viewers to become confused.

Regarding style, English and Arabic SDH typically followed established norms for expressing tone, volume, and background sounds, frequently using square brackets for non-verbal indicators.

English SDH frequently uses capital fonts to highlight specific words or phrases, indicating screaming or significant sound effects. Nonetheless, Arabic SDH lacks a corresponding typographic standard, resulting in diminished emphasis that may influence audience perception of these cues. Both languages also utilized punctuation to frame the meanings and stylistic features of the dialogue. This quality was more prominent in the English captions, however.

The study affirmed that the provision of SDH involves a great deal of inconsistency, especially in the scope of various languages. While the data was collected from the same source texts with a shared provider, little overlap was found. This calls for the need for clearer guidelines. This is especially the case for Arabic subtitling, as norms and guidelines are still in their infancy stage. However, despite a longer and richer history, the English subtitles showed some gaps and weaknesses. This suggests that the field needs further investigation to improve accessibility and meet the standards and requirements of its target audience. Nevertheless, the size of the dataset represented a significant limitation in the study. Therefore, future research may follow a corpus-based approach to provide more objective and representative insight into subtitling practices. Furthermore, other research may investigate different language pairs to determine the influence of language and culture on SDH practices.

Author Contributions

Conceptualization, A.A., A.S.H., and H.S.; methodology, A.S.H.; validation, A.A., A.S.H., and H.S.; formal analysis, A.S.H.; investigation, A.A. and H.S.; resources, A.A. and H.S.; writing—original draft preparation, A.A. and H.S.; writing—review and editing, A.S.H.; visualization, H.S.; supervision, A.S.H.; project administration, A.S.H.; funding acquisition, A.A. All authors have read and agreed to the published version of the manuscript.

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Data Availability Statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no competing interests.

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