Documentary Discourse, Text Typology Analysis and Orality in Subtitling. *Visions of the Future*: a Case Study

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*Introduction: Visions of the Future by Micho Kaku*

*Visions of the Future* is a scientific documentary produced by BBC4. It was first broadcast in 2007 and was hosted by the Japanese-American theoretical physicist, Micho Kaku.

The programme is a three-hour documentary on future technology and is divided into three parts. The present paper is based on the third episode, *The Quantum Revolution*. This episode is entirely devoted to the Quantum world. It shows how various science fiction ideas are now becoming reality thanks to the latest scientific advances, such as meta-materials “with mind-boggling properties like invisibility”, superconductors having the power to counteract the force of gravity and teleportation machines capable of transferring photons over long distances. The fundamental theme and focus of *Visions of the Future* is that “humankind is at a turning point in history”.

According to Prof. Kaku, in fact, science is on the brink of a “historic transition from the ‘Age of Discovery’ to the ‘Age of Mastery’”.

On the whole, as the theme is developed throughout the documentary, the various concepts of physics are first introduced and then analysed in detail through the use of specific terminology. The documentary, intended for public consumption, is targeted at well-informed viewers, ranging from those possessing merely a basic knowledge of the subject matter to people with background knowledge of physics and a general interest in science, but ultimately not experts. The programme’s futuristic style and the interesting topics that it covers are the main reasons leading to its selection for the subtitling project. It is a captivating programme, which makes use of futuristic images and metaphorical language in order to express complex theories related to time, space and matter. While the style chosen, simple and clear, serves the purpose of simplifying the notions covered in the documentary – which would otherwise be beyond our capacity to understand –, the documentary shows a terminological precision that makes it a valuable, scientifically accurate programme. Following Martínez-Sierra (*in press* 279), documentaries are informative television programmes whose main objective “is to offer to a wide and varied audience a product as
appealing and clear as possible in [their] exposition, at the same time complying with the entertainment component that every television programme should have”. I hold the view that *Visions of the Future* is a perfect example of this audiovisual genre.

The aim of this paper is to investigate the main theoretical approaches related to subtitling scientific documentaries and analyse the main features of this mode of transfer through the use of specific cases taken from the dissertation project submitted for the MSc in Medical and Scientific Translation with Translation Technology at Imperial College London in 2009. It also makes clear how the practice of subtitling in Italy, always regarded as an option as compared to the more widespread practice of dubbing, is evolving and that the younger generations, more proficient in English than their parents, are changing this state of affairs because they are ready to accept this alternative form of audiovisual translation.

1 Subtitling and dubbing: the case of Italy

In Italy subtitling is an option that is only recently available on DVDs and satellite TV channels as an alternative to the traditional practice of dubbing. Italy, in fact stands among those European countries labeled as ‘dubbing countries’, together with Spain, Austria, France and Germany. Geographically, Europe has been ideally divided into two groups: dubbing and subtitling countries. This categorisation may appear oversimplified but it shows how these two modes of transfer have far surpassed other forms of audiovisual translation. Perego (2007) suggests that while subtitling is typical of ‘little’ countries, which are characterised by a small population and the presence of bilingualism, ‘lip-synchronisation’ is associated with ‘big’ countries that are officially monolingual and have a wider population.

The roots of the established dubbing tradition in Italy are to be found at the beginning of the 1930s. As Maria Pavesi and Elisa Perego (2006: 104) explain, “the ‘founding fathers’ of today’s adaptors were navy officers with a wide experience at all levels, who were open-minded and highly proficient in English”. After the Second World War, they were the only people able to master a foreign language and they were also in contact with those powerful families working in the cinema industry who were starting to adapt foreign films into Italian (Paolinelli and Di Fortunato 2005). Yet, this brief historical explanation alone does not account for the many motivations that led to a preference for the relatively expensive practice of dubbing over the more cost-effective alternative represented by subtitling. The reasons at the roots of the Italian dubbing tradition probably lie in the political choices made by
Benito Mussolini’s Fascist government which, during the 1930s, banned the distribution of foreign films with their original soundtrack that was replaced with an Italian version. The intervention of censorship aimed at promoting the Italian cinema industry, a political conduct in tune with the spirit of Fascist dictatorship. The ministerial act published in 1930 stated that: “il ministero dell’interno ha disposto che da oggi non venga accordato il nullaosta alla rappresentazione di pellicole cinematografiche che contengano del parlato in lingua straniera sia pure in misura minima” (Perego 2007: 21). The previous quotation can be translated as follows: “the Interior Ministry has ordered that, from today, no permission will be granted for the screening of films containing speech in a foreign language”. This made it clear that the Italian government was eager to protect the national language from the attacks of American film productions that at that time were dominating the cinema industry.

In time, the Italian dubbing industry achieved a level of absolute excellence despite the many disadvantages involved in the practice, like the enormous expense and the long time needed to adapt the films. Once a tradition has been established, radical changes are very unlikely to happen: “viewers are creatures of habit” (Ivarsson 1992: 66). However, we believe that the younger generations of viewers in Italy, possessing a more proficient level of English than their parents, may herald a future change. I believe that they are ready to make a further step towards the acceptance of subtitling and welcome in a new era, in which the present Italian subtitled version of *Visions of the Future* would be normally broadcast on national TV channels, making it available to a wider audience.

1.1 Dealing with the subtitling of a scientific documentary

In the present era, characterised by various technologically sophisticated media, scientific documentaries represent the possibility of disseminating specialised contents making them available to an ever-growing number of people. Following Martínez-Sierra (*in press*: 277), in these specialised texts, taking the form of scientific documentaries, “the combination of word and image generates a type of text with several characteristics that differentiate it from oral and written texts: the audiovisual text”.

The present paper deals with three relevant topics related to the nature of scientific documentaries. The first section explores documentary discourse and the state of research in the field of audiovisual translation. The second paragraph of the first section is devoted to the analysis of text typology in the attempt to understand the delicate nature of the texts of
scientific documentaries and the implications it has on the subtitling process. The last paragraph is focused on the notion of orality and its role within the field of subtitling.

1.2 Documentary Discourse and research on AVT

Within the field of Film Studies, ‘Documentary Studies’ (Espasa 2004: 183) is a relatively new domain. Translation Studies focusing on Audiovisual Translation (AVT) have been largely uninterested in the development of this topic, partly because Audiovisual Translation is a new field of study itself and partly because, as Delabastita (1989: 193) states, “both popular culture and translation have been traditionally considered as sub products; therefore, research on AVT has had little academic prestige”. He deplores the fact that little attention has been paid so far to translation in mass communication, even if it plays a crucial role in our society.

In an attempt to find the reasons for the underdevelopment of this field of study, Perego (2007) proposed that, in addition to the explanations above-mentioned, it is also caused by the complex methodology involved in this kind of research. The main challenges it poses derive from a wide range of variables, some of which are of a practical nature: for instance, it may be difficult to retrieve the audiovisual material or the original scripts required for the analysis. In fact, the absence of specific linguistic corpora on AVT has always represented an overwhelming obstacle to researchers in this field.

The academic interest surrounding AVT started at the end of the 1990s, a period during which many universities began to offer specific courses on this subject matter, which in turn, led to a tidal wave of academic research on audiovisual translation (Perego 2007). Following Díaz Cintas and Anderman (2009), during this period the field of audiovisual translation witnessed the publication of numerous books on the topic, a fact which completely revolutionized the academic scenario, thanks to “the efforts of many young, novel scholars who decided to direct their academic interests to the analysis of audiovisual programmes” (Díaz Cintas and Anderman 2009: 3).

From a theoretical point of view, the most adequate approach for investigating documentary discourse is Discourse Analysis. Research on documentary translation has shown that the theoretical discussion on this topic has shifted “towards why and how facts of the ‘real world’ are presented in documentaries” (Franco 1998: 287). Discourse Analysis, in fact, focuses on the representation of reality and the perspective from which it is presented in documentaries: the term ‘discourse’ here is used in Foucault’s
sense as “a social construction of reality, a form of knowledge” (Fairclough 1992: 18). Hence, according to Franco (1998: 288), documentary discourse seems to be “an expression of interests which has place in a given culture at a given moment”.

Documentaries, always considered as a non-fictional genre, present both fictitious and fictive features. Following Renov’s theories (1993), fictive features are related to the construction of images in their structuring of narrativity, a characteristic shared both by documentaries and films: they aim at documenting “some reality, without evaluating the truth of such reality” (Espasa 2004: 186). The reality shown in documentaries and films in general is the result of the synergy between image and sound, a relevant feature that translators should take into account when it comes to AVT in general and subtitling in particular. The strategies involved in AVT are “complicated by the peculiar semiotic nature of the film sign” (Delabastita 1989: 196). Audiovisual communication, in fact, is mediated by two fundamental channels working simultaneously: the visual channel and the acoustic channel. The visual channel can also convey verbal signs, represented by on-screen text, titles and so on; and the acoustic channel, apart from the verbal signs, can also transmit music or background noises. As a result, AVT involves far more than the mere mastering of a language pair required by the conventional translation process. It also entails the ability to interpret images and sounds as part of the film’s text. In order better to understand the nature of film texts, the following paragraph is devoted to the crucial role of text analysis in the early stages of the subtitling process.

1.3 Text typology analysis

The first decision translators have to make is related to the classification of the source text. Text analysis is of vital importance, as it acts as guidance in the first phases as well as throughout the whole translation process. Hervey (1992: 199) defines the term ‘genre’ as “a type of communicative event”, a special category to which a text belongs.

According to the framework of reference proposed by Hervey et al. (2000: 116), the documentary script under analysis falls into the category of ‘empirical genres’. This category is generally represented by scientific and technical texts that are usually informative, have as their subject matter the real world, and are characterised by the description of objective phenomena. Gommlich (1993) proposed a ‘translation-oriented classification’, distinguishing between two main categories: ‘transfactual texts’, which aim
at increasing the target readers’ knowledge, and ‘transbehavioral texts’, written in order to produce a reaction in the target readers “by stimulating their behavior towards persons, facts and situations” (Gommlich 1993: 177). Within the first type, he also differentiated between two subtypes: ‘transfactual I’, represented by scientific literature addressed to experts, and ‘transfactual II’, exemplified by scientific education, intended to convey “new knowledgebase or expand existing ones” (Gommlich 1993: 177).

Following from this, Espasa (2004: 192) affirms that “prototypical documentaries may fall into the category ‘transfactual texts II’, assuming an information-based communication from expert to non-expert”. Thus, we can suppose that on the whole scientific documentary scripts belong to the ‘transfactual II’ text type. The categorisation mentioned above is crucial for determining the audience to be addressed, the register to be used, and the various stylistic measures that the translators will employ in the production of the target text. As a result, the decisions made on the selection of vocabulary and syntax will be utterly influenced by the preliminary text analysis. Yet, classifying the script of *Visions of the Future* as a scientific text *tout court* seems to be a rather superficial and non-exhaustive analysis. In fact, when it comes to Audiovisual Translation, a critical issue is the distinction between written and oral texts. The next paragraph investigates and discusses the fundamental role played by spontaneous speech in subtitling.

### 1.4 Oral discourse in subtitling

“Creating fictional dialogues that sound natural and believable is one of the main challenges of both screenwriting and audiovisual translation. The challenge doesn’t lie in trying to imitate spontaneous conversations, but in selecting specific features of this mode of discourse” (Baños-Piñero and Chaume 2009: 1). Following from this, in an attempt to analyse the above-mentioned challenges, in this section I analyse the fundamental features of oral discourse in subtitling.

A documentary script is usually intended to be performed orally. According to Martínez-Sierra (*in press*: 287), subtitling “reflects the peculiarities of oral language, since it is a mode of discourse written to be read”. Following Hurtado (1996), subtitling falls into the category of ‘complex subordinated translation modality’, where the term ‘complex’ refers to the change of medium (from the oral source text to the written target text), and the term ‘subordinated’ is related to the constraints imposed on the translation by the different media involved. Audiovisual translation, in fact, is a mode of linguistic transfer composed of multiple
semiotic codes, in which the combination of soundtrack and visual elements generates a complex text that presents the translator with numerous challenges. Perego (2003) refers to this particular type of transfer as ‘diamesic shift’. The diamesic dimension of language deals with the channel used to mediate the communicative act that can be either oral or written. This shift from “the oral code, a language written to be spoken and different to the natural spoken language” (Perego 2003: 63) to another medium, the written code, “entails the loss of many prosodic features inherent in the spoken code” (Perego 2003: 65). Hence, certain features of oral communication, like false starts, redundancy and pauses will have to disappear in the subtitled version, due to the time and space constraints, the urge for condensation that governs this practice and, above all, simply because their presence is irrelevant for achieving the purposes of comprehension. It is important to note that the source text, as previously mentioned, is a scripted speech, a text written to be performed. Apart from a few moments in the documentary, when the script slightly resembles impromptu oral speech (when the monologue of Micho Kaku becomes a dialogue with various specialists who make use of a more spontaneous style and register), the fundamental mode of discourse employed is close to narration.

Ultimately, the Italian subtitled version of *Visions of the Future* is the result of a complex process at work: the source text, which is a scripted speech written to be performed, is converted into a target text that attempts to retain the peculiarities of oral texts, and is intended for silent reading. As Hervey *et al.* (2000: 117) explains, “an oral text is always quite different in nature and impact from even the most closely corresponding written version: [it] is not only an utterance, but also a dramatic performance”. When Guillot (2008: 131) discussed multimodality and orality in written texts, he asserted that “orality is experienced in the mind”. His theory of mode focused on the issue of “producing the illusion of speech” (Guillot 2008: 132) in written texts.

According to Fowler, multimodality is ultimately achieved by the presence of oral instances within a written text. Even if the channels employed by speech and writing are different, yet they can be seen as ‘categories of experience’, in the sense that the communicative competence of language users makes them able to distinguish between the modes used in real communication and the register employed in written texts. Both modes of communication are triggered by special ‘cues’ that are able to convey the “experience of a particular mode” (Guillot 2008: 132). In other words, “a printed text can contain a few cues typical of the oral [model] and
the reader will experience [it] as if [it is] present in the written text” (Guillot 2008: 132).

According to Guillot, oral discourse is usually expressed by ‘speech acts’, represented by dialogic structures characterised by short clauses or verbless sentences, by the use of present and future tenses preeminently and by emotive and judgmental lexical choices. On the one hand, spoken utterances are characterised by fragmentation, ellipsis and repetition, due to the rapid process involved in speech performance. On the other hand, subtitling, due to its hybrid nature, poses a variety of difficulties for subtitlers, presenting them with a great number of constraints, such as the limited number of characters per line and the short period of time for which they are allowed to appear on screen. I hold the view that these features of subtitling “liken them to speech [and] act as cues for orality” (Guillot 2008: 132). Hence, we can deduce that “subtitles have a *de facto* capacity to promote the experience of orality” (Guillot 2008: 134).

2 The subtitling process: technical and linguistic constraints

Interlingual subtitling is such a peculiar mode of transfer that many scholars consider it to be closer to ‘adaptation’ (Delabastita 1989: 214) than to translation *tout court*. The process of subtitling is characterised by peculiar communicative purposes and by the use of specific translation strategies that are aimed at simplifying and reducing the source text in order to interpret the original message (Perego 2007). In interlingual subtitling, the target text produced does not replace the source text. Both the source and target texts are present in the subtitled version simultaneously: the viewer hears the soundtrack and reads the subtitles at the same time. Hence, following Georgakopoulou (2009: 21), good subtitles are supposed to pass unnoticed “in order not to distract the viewer's attention from the programme”.

A complex series of constraints are involved in subtitling. Technical constraints, represented by space and time, affect the way in which subtitles are presented on screen. Subtitles can be composed of one or two lines (39 characters per line are allowed for the English-Italian language pair). The exposure time of the subtitles ranges from between two and six seconds, the ideal span of time required to allow the viewer to read at an appropriate speed. Leaving subtitles longer than the maximum exposure time, in fact, could lead the viewer to re-reading them (Díaz Cintas and Remael 2007). On the other hand, leaving them for less than two seconds could challenge the capacity of viewers to read them. Moreover, any subtitle should be
“semantically and syntactically self-contained” in order to allow readability (Díaz Cintas and Remael 2007: 172). Appropriate line-breaks are of paramount importance as they “can facilitate comprehension and increase reading speed if segmentation is done into noun or verb phrases” (Georgakopoulou 2009: 24). Ideally, in the case of two-line subtitles, the first line should be shorter than the second. Needless to say, this is not always feasible, as segmentation is a rather difficult art. Priority should always be given to the completeness of meaning within each line of the subtitle, while the above-mentioned aesthetic norm is only secondary. Linguistic constraints due to the limited time and space available for the subtitles can be dealt with by employing the strategy of reduction. Following Kovačić’s categorisation (1991: 409), we can distinguish between three levels of discourse elements: the indispensable, the partly dispensable and the dispensable. While the indispensable elements are essential and must be translated in order for the audience to follow the plot of a film, the partly dispensable can be condensed, and the dispensable elements can be simply omitted. In fact, subtitlers leave out some words that are internationally known (‘yes’ and ‘no’, for instance), repetitions, words and phrases conveying a phatic function (‘well’ and ‘you know’, for example), false starts and exclamations that do not need a translation as they are easily understandable by viewers all around the world.

Relevance theory, as proposed by Sperber and Wilson (1986), could be an interesting approach to dealing with the strategy of reduction in subtitling. Following this theory, “an assumption is relevant in a context if and only if it has some contextual effect in the context” (Sperber and Wilson 1986: 122). As a result, subtitlers should aim at expressing similar “contextual effects of an utterance in a given context” (Kovačić 1994: 247). Although it is true that the subtitled version of a programme is always a condensed form of the oral source text, “it is too limited to view subtitling as a mere ‘condensation’ of a so-called ‘original’” (Gambier 1994: 278). As Gambier explains, when we analyse a subtitled version, it is quite natural to perceive a variety of omissions and deletions and a difference in the number of words transferred from one language to another, but what really matters are not these losses or additions, the focal point is “what is transformed and why” (Gambier 1994: 278). Hence, in the creation of interlingual subtitles, condensation and relevance theory should always be balanced with the notion of equivalence. Kruger (2001) attempted to investigate this relationship by using the semiotic approach as a starting point. In Pierce’s opinion (1958), semiotics, or “the study of signs and sign-using behavior”, and Interpretative Semiotics in particular, seem to explain this delicate balance. The latter theoretical approach identifies three categories of
equivalence: qualitative, referential and significational (Gorlée 1994). Qualitative equivalence refers to the external features of the sign (e.g. rhyme structure). Referential equivalence refers both to the ‘immediate object’ of a sign, or “the idea called up directly by a particular sign use” (Kruger 2001: 184) and the ‘dynamical object’, that is “the hypothetical sum of all instances of the sign-bound immediate object” (Kruger 2001: 184). Significational equivalence refers to the relationship between the object and the interpretant, considered as “that which the sign produces in the quasi-mind which is the interpreter” (Eco 1976: 68). In Kruger’s opinion, the latter seems the only type of equivalence to ensure that the effect produced by the text in the source language viewers is similar to the perception of the translated text in the target language viewers. Following her view, subtitlers can ‘deviate’ from the source text by producing “a new target text which is nevertheless significationally equivalent to the original” (Kruger 2001: 185).

2.1 Linguistic challenges in the process of subtitling: analysis of specific cases

The analysis of the following examples taken from the Italian subtitled version of *Visions of the Future*, attempts to describe the various translation strategies adopted in order to overcome the linguistic problems related to the subtitling process. On the one hand, the need to condense and reduce the source text, typical of this mode of transfer, led to the use of different techniques, among which omission, reformulation and substitution. On the other hand, at times, it was also necessary to add extra information in order to explicitate some of the concepts and also to conform to the target text register. When translating within the English-Italian language pair and within the field of scientific texts, the target text is better rendered using a more formal tone that is characterised by the use of impersonal forms, the selection of more formal terms in the target language and nominalisation, by substituting the source text verb with a noun in the target language.

Example 1 is a lucid exemplification of condensation. The source text was condensed into Italian as displayed in the following table:
Original dialogue

Years ago I remember my schoolteacher announcing one day that there was an object

<table>
<thead>
<tr>
<th>Italian subtitles</th>
<th>Back translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quando ancora ero a scuola, un giorno ci parlarono di un oggetto</td>
<td>When I was at school, one day they talked about an object</td>
</tr>
</tbody>
</table>

so small, so tiny, we'd never be able to see it.

0002 00:00:09:00 00:00:13:20
talmente piccolo da essere invisibile all’occhio.

so small to be invisible to the eye.

In subtitle 0001, the source text verb ‘remember’ is omitted from the Italian version, as its emotive function can be left out without altering the sense of the utterance. The term ‘schoolteacher’ disappears in the Italian subtitle and is replaced by the impersonal form ‘ci parlarono’ [they talked], which is a more suitable and appropriate choice for the Italian register, as it serves to highlight the distance between the speaker and the audience. When translating within the English-Italian language pair, and particularly within the scientific domain, the target language register is usually rendered using a more formal tone that is characterised by impersonal constructions (Hervey et al. 2000).

In subtitle 0002 (ex. 1), the repetition of the adjectives ‘small’ and ‘tiny’ can be condensed and rendered simply as ‘piccolo’, and the idea that ‘we’d never be able to see it’ is translated by the Italian expression ‘invisibile all’occhio’ [invisible to the eye], which conveys the same effect as the source text while maintaining a sense of fluency, this being a fixed expression in the target language.

Example 2 is focused on the need to merge separate sentences in the subtitled version. In fact, in order to produce a fluent flow of discourse in Italian, I believe that it was sometimes necessary to reformulate the source text joining some sentences. This technique was employed both to achieve condensation and to avoid repetition by connecting subtitles 3 and 4:
Ex. 2

<table>
<thead>
<tr>
<th>Original dialogue</th>
<th>Italian subtitles</th>
<th>Back translation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Well, fortunately that didn’t put me off.</strong></td>
<td>Tuttavia, questo non mi ha impedito</td>
<td>Anyway, this did not prevent me from</td>
</tr>
<tr>
<td>In fact I’ve spent my entire career</td>
<td>di dedicare tutta la mia carriera</td>
<td>devoting my entire career</td>
</tr>
<tr>
<td>studying this amazing object without ever setting eyes on it.</td>
<td>allo studio di quell'oggetto invisibile e meraviglioso.</td>
<td>to the study of that object invisible and amazing</td>
</tr>
</tbody>
</table>

As shown by the back translation, the Italian version reads fluently, therefore appearing closer to the original script in terms of naturalness, although it is rephrased “in a form more appropriate to the written medium” (Perego 2003: 65). The strategy of merging separate sentences when translating into Italian is usually achieved by an extensive use of connectors that helps to create a sense of logic in the flow of the discourse. The Italian style, quite differently from the English style, which is characterised by a series of short, unlinked sentences, makes use of a great number of connectors that serve to make the discourse more fluent. Adding connectors is a widely employed technique in more traditional modes of transfer, a strategy that does not always apply to subtitling because of the well-known constraints of time and space. Nonetheless, we can achieve a similar effect of fluency as well as a speech-like impression by simply merging these two sentences, as previously shown in example 2.

Example 3 below demonstrates how a long string like ‘will ultimately give us the power’ can be easily rendered into Italian by the expression ‘avrà come obiettivo’ that conveys the idea of the ultimate goal of a journey. This choice helps to avoid the use of a long construction without altering the meaning of the sentence.

Ex. 3

<table>
<thead>
<tr>
<th>Original dialogue</th>
<th>Italian subtitles</th>
<th>Back translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A journey which will ultimately give us the power to manipulate the very stuff</td>
<td>Un viaggio che avrà come obiettivo la manipolazione degli elementi</td>
<td>A journey which has as aim the manipulation of the elements</td>
</tr>
</tbody>
</table>
Subtitle 0019 (ex. 3) also presents a case of nominalisation: the source text verb ‘to manipulate’ becomes ‘la manipolazione’ [the manipulation], a solution that better conforms to the Italian style used in the scientific domain.

Subtitle 0049 (ex. 4) shows an example of mediation between condensation and the use of a more formal register:

<table>
<thead>
<tr>
<th>Original dialogue</th>
<th>Italian subtitles</th>
</tr>
</thead>
<tbody>
<tr>
<td>but it has one tiny thing going for it, and that is it works.</td>
<td>ma è sostenuta da un fatto innegabile: funziona.</td>
</tr>
<tr>
<td>Back translation</td>
<td>but it is supported by an undeniable fact: it works.</td>
</tr>
</tbody>
</table>

The back translation makes clear that the words chosen in Italian convey a more formal tone. The use of the Italian adjective ‘innegabile’ [undeniable] seems a good solution in order to express the meaning implied in the source text. The option adopted reflects the original script while, at the same time, adding a more formal tone and a slightly higher register, which is a more suitable solution for a scientific text.

In subtitle 0075 (ex. 5) an example of omission is shown. Part of the source text, ‘at room temperature’, was deleted because of the time constraint. The previous subtitles (0073-0074) explain that the scientists’ aim is to raise the temperature of the Meissner effect to avoid having to cool superconductors. Hence, leaving out this part of the script does not alter the meaning of the source text.

<table>
<thead>
<tr>
<th>Original dialogue</th>
<th>Italian subtitles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imagine roads made out of superconductors at room temperature.</td>
<td>Immaginate delle strade fatte di superconduttori:</td>
</tr>
</tbody>
</table>

Sometimes, the translation required a certain amount of explicitation by adding extra information. Given the time and space constraints this is not always feasible in subtitling, but in some cases this strategy was also adopted. The following example shows evidence of explicitation and demonstrates how this technique was employed.
In the example above, the use of explicitation by adding ‘che compongono’ [which compose] in the Italian version makes the subtitle both clearer and more formal. The same subtitle in Italian, without the addition made, may in fact appear incomplete and unnatural.

**Conclusion**

The present paper opened with a brief presentation of the scientific documentary under analysis, *Visions of the Future* by Micho Kaku.

The first section, divided into five paragraphs, explored some relevant issues related to the subject matter under analysis. The first part of this section deals with the state of the art of subtitling in Italy in the attempt to explain the context in which the subtitled version of *Visions of the Future* would be ideally broadcast. It also introduces the political driving forces at the roots of the preference given to the expensive dubbing practice as opposed to the more cost-effective subtitling technique. The analysis of Documentary Discourse and the state of the art of audiovisual translation related to this domain demonstrated how the theoretical research in the field remains underdeveloped within the field of Translation Studies. The fourth paragraph attempted to classify the text under analysis and, following the categorisation proposed by Gommlich (1993), defined the script of *Visions of the Future* as belonging to the ‘transfactual texts II’ type. The final part of this section described the various challenges presented by the change of medium involved in the practice of subtitling, a mode of transfer that, following Perego (2007), implies a shift from the oral to the written code.

The second section of this paper was devoted to the analysis of interlingual subtitling and its main features. This brief overview served the purpose of introducing the main technical constraints related to subtitling before analysing the specific examples taken from the subtitling project. Hence, a series of tables taken from the subtitled version, together with their back translation, shows how particular passages of the script were

<table>
<thead>
<tr>
<th>Original dialogue of our universe – matter itself.</th>
<th>Back translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>che compongono l’universo: la materia stessa.</td>
<td>which compose our universe: matter itself.</td>
</tr>
</tbody>
</table>
condensed, omitted or explicitated. Every solution adopted in the subtitles was justified on the basis of the theoretical approaches described in the first section of this paper. Some of the examples proposed also illustrate the different registers used in the source and target texts when translating within the English-Italian language pair.

Overall, this paper is an attempt to explain the great complexity of the task of subtitling. It puts into perspective the long, painstaking work that subtitling a scientific documentary implies. Not only must subtitlers be proficient in a foreign language, but they may also be asked to transcribe the original dialogues, research a specific field, access a variety of resources and produce a terminology list. Then, when the background work has been completed, they have to work like acrobats with words, always fighting against time, space and meaning. They must deal with technical issues, be able to use specific software to originate the subtitles, and also become technical specialists of a relatively unknown and fascinating practice.
Notes

4 This work is based on my dissertation “Visions of the Future: The Quantum Revolution. Transcribing, captioning and subtitling a BBC 4 documentary into Italian”. This project was part of the module C4 of the MSc in Medical and Scientific Translation with Translation Technology at Imperial College London. The dissertation project is composed of a VLC file containing the Italian subtitles engraved in the video clip, and a commentary describing the relevant theoretical approaches followed, the most important features of subtitling along with the main technical and linguistic constraints. It also analysed the background process related to the transcribing phase, the research on Quantum Physics necessary in order to familiarise with the subject matter and produce a glossary that acted as a frame of reference for the translation process. Furthermore, it attempted to explain the technical procedures related to the spotting phase along with the technical issues presented by the use of highly sophisticated softwares.
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