TERMINOLOGY IN TELEVISION

AN ANALYSIS OF THE DUTCH SUBTITLES OF *THE BIG BANG THEORY*

Word count: 29.912

Brecht Van Hove
Studentennummer: 01402920

Promotor: Prof. dr. Bernard De Clerck

Masterproef voorgelegd tot het behalen van de graad van Master in het Vertalen (Nederlands, Engels, Frans)

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ABSTRACT

The present study aims to identify the way in which scientific terms in a season of *The Big Bang Theory* are rendered in the Dutch subtitles. The baseline of this thesis is a 26,000-word corpus of an entire season of *TBBT* and its corresponding subtitles. The subsequent step was to extract the terms from the corpus. The translation strategies taxonomy employed was based on Tomaszkiewicz (2006, as cited in Vandenberghe, 2013), Díaz Cintas and Remael (2007) and Pedersen (2010) and included strategies from Lozano and Matamala (2009) and Badia and Brumme (2014). Subsequently, the taxonomy was applied and Literal Translation, Loan Translation and Transposition were found to be used most often. This paper has also revealed a fair share of Underspecifications, Term-to-Non-Terms and Inadequate Equivalents. The domain of Physics contained the highest degree of Inadequate Equivalents. These results were likened to those found in Bianchi (s.d.), but the results were found not to be conclusive. Then, to shed light on the possibly impeding factors in effect, the length of ST terms was contrasted with that of TT ones. It was found that for Underspecification, the length of characters was important. Lastly, the results were compared with Skopos theory and it was found that it cannot be applied to the present study. The results tentatively indicate that subtitling constraints are in effect for terminology translation. (224 words)

Keywords: subtitling, scientific terminology, translation strategies, sitcom, Skopos theory

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From the bottom of my heart: thank you.

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LIST OF ABBREVIATIONS

AbsFreq	absolute frequency
ATE	automatic terminology extraction
AVT	audiovisual translation
CL	character length
ECR	extra-linguistic cultural reference
EpNum	episode number
GTT	General Terminology Theory
EN	English
LPS	language for special purposes
MTE	manual terminology extraction
NL	Dutch
POS	part-of-speech
RelFreq	relative frequency
RQ	research question
SL	source language
ST	source text
TBBT	The Big Bang Theory
TL	target language
TT	target text

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1 INTRODUCTION

I especially liked your paper on grand unification using string-network condensates
and was wondering how you determined
that three-dimensional string-nets provided a unified picture of fermions and gauge bosons?

Ik heb genoten van uw artikel / over snaarnetwerk-condensaten...
en vroeg me af hoe u bepaalde...
dat snaarnetwerken een verenigd beeld / van fermions en bosonen bieden.

The Big Bang Theory, S2E6: The Cooper-Nowitzki Theorem

In our increasingly multicultural world, subtitling has become an important method to transfer information from one culture into another and from one language into another. Across the world, films and TV series are on the rise, which goes hand in hand with the need to provide access to these works in several languages. (Díaz Cintas & Anderman, 2009).

Despite subtitling being an increasingly popular and effective translation practice, it is subject to a wide array of challenges. Not only should the subtitler take the temporal and spatial constraints into consideration, but several other difficulties may arise depending on the source material, too. The subtitler may be faced with such obstacles as characters speaking at a fast pace (Pérez-González, 2014), with a particular accent or dialect (Ellender, 2015) or in specialised forms of language (Gambier, 2003), the presence of humour (Seghers, 2017) or culture-bound differences (Helon, 2004) in the source material or the ST containing mistakes (Matamala, 2010). These are but some of the extra hurdles that a subtitler needs to take.

Another challenge is that of terminology. It has been shown that, in modern times, scientific phenomena and new discoveries need to be translated both interculturally and interlingually (Byrne, 2012). Scientific and technical translation is said to account for as much as 90% of all translations. With the increase in scientific translation, it would seem a logical deduction that scientific terminology is on the rise, too, as corroborated by Sageder (2010) and Rogers (2015).

By implication, one could expect a fair share of scientific terminology in *screen media* (e.g. TV series and films), as the world we see on-screen is a reflection of our own world. Nevertheless, very few studies have been carried out on the subject of scientific terminology translation in contexts that are not primarily scientific text types. Indeed, those studies that have been carried out, mostly concerned terminology subtitling in non-fiction as the primary locus of high-

frequency attestations (Matamala, 2009a, 2009b, 2010). However, a number of researchers have raised awareness of the existence of terminology in non-academic and non-scientific programmes, such as medical terms in *E.R.* (Lozano & Matamala, 2009) and *House, M. D.* (Vandenberghe, 2013) and legal terms in *Suits* (Haeck, 2017).

Consequently, the present study will aim to pick up on this trend and will provide insight as to the way in which scientific terminology is translated in the Dutch subtitles of the second season of the American sitcom *The Big Bang Theory* (TBBT), which was compiled by Seghers (2017) in a 26,000-word corpus containing both the original dialogue and the corresponding subtitles. More specifically, a taxonomy of translation strategies will be used in order to determine which translation shifts occur in the translation process. This situational comedy proves to be a valuable source, not only because it features a wide array of terms in different fields and subfields of science, but also because of its inherent intricacy. Indeed, aside from the complex terminology employed in the series, the sitcom features characters that speak very quickly and formally, which may prove to be an additional hindrance for the subtitler.

In the next chapter of this thesis, a comprehensive literature review of current research will be discussed. Light will be shed on terminology (Section 2.1), terminology translation (Section 2.2), audiovisual translation, specifically subtitling (Section 2.3) and the challenges of combining these three elements (Section 2.4). In Chapter 3, the research questions and subsequent hypotheses will be outlined. Chapter 4 will explore the subject under study, providing brief character descriptions, as well as a list of all the episodes that this thesis will cover. Then, in Chapter 5, the terminology extraction methodology will be explained. In addition, the selection criteria for the terminology extraction will be discussed, as well as the taxonomy employed in this thesis and the terminological resources consulted. Chapter 6 will, then, inquire into the results that came to light by examining the translation strategies. The results for each translation strategy will be discussed (Section 6.2) and linked with the domain of science in which the term occurs (Section 6.3). Furthermore, this chapter will discuss to which extent the sitcom context allows for different translations than non-fictional material (Section 6.4). Then, the possibility of character length impeding the translation process will be elaborated upon (Section 6.5) and lastly, the results will be contrasted with Skopos theory (Section 6.6). Chapters 7 to 8 will provide a conclusion and discussion of the results and will touch upon possible future research avenues.

2   THEORETICAL BACKGROUND

This chapter will provide an overview of the three most salient aspects of this thesis, i.e. terminology, terminology translation and subtitling.

In Section 2.1, the notion of terminology will be explained. Firstly, in Sub-section 2.1.1, the concept of the triangle of reference will be elaborated upon, as it constitutes an important device in construing the identity of terminology. Secondly, Sub-section 2.1.2 will consider some preliminaries of terminology, highlighting work by Wüster, but also summarising the main points of criticism levelled at it. In addition, the paradoxical knots relating to terminology and terms will be disentangled in Sub-sections 2.1.3 and 2.1.4. In order to separate terms from non-terms, several distinguishing factors will be discussed in Sub-section 2.1.5, with some more general characteristics of terms, as well as some factors that are specific to scientific terms. Sub-section 2.1.6 will consider the ways in which terms and neologisms are composed and Sub-section 2.1.7 will, then, provide a summary of the distinguishing characteristics of terms.

2.1   Terminology

2.1.1   The Triangle of Reference

Before discussing to which extent it is difficult to define the concept of terminology, it seems fitting to first discuss Ogden and Richards's (1923) Triangle of Reference (see Image 1)[1]. The triangle supposes a relationship between three areas, i.e. the cognitive and linguistic aspect of a term and the real-world unit. A *symbol* (or term) is the linguistic expression of a cognitive concept and denotes something in the real world, be it abstract or concrete. That latter aspect is what Ogden and Richard refer to with *referent*, i.e. the real-world object. The *thought* or *reference* can be considered as the *concept*, i.e. the cognitive image of the term. The following example explains the way in which these three areas are close-knitted. If the *symbol* (term) was *atom*, the *concept* would be what an individual perceives atoms are (a small particle that is found in all matter) and the *referent* would be the real-world object.

---

[1] Wüster (Sub-section 2.1.2) employed the Triangle of Reference later on, but his classification consists of four fields, i.e. Begriffe (*langue*), Zeichen (*sign*), Bedeutung (*meaning*) and Individuen (*parole*). For further research, see Trojar (2017).

THOUGHT OR REFERENCE

CORRECT *
Symbolises
(a causal relation)

ADEQUATE *
Refers to
(other causal relations)

SYMBOL   *Stands for*   REFERENT
(an imputed relation)
* TRUE
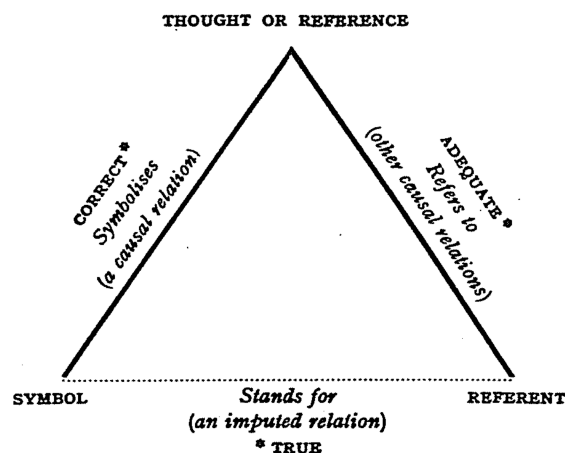
Image 1: The Triangle of Reference by Ogden & Richard (1923)

The above example of the term *atom* highlights the importance of considering that different people may have different *concepts*. Indeed, as *concepts* refer to cognitive units, what one person perceives as the definition of a term may not correspond to that of another. Cognitively, for instance, a particle physicist is likely to have a more elaborate picture of what an atom entails than a lay-person. This aspect will be further elaborated upon in 2.1.5.1 with Picht and Draskau's (1985) notion of *precision*, i.e. the knowledge required to comprehend a term.

The notion of the Triangle of Reference also pinpoints several difficulties with regards to terminology, which will be explained in Sub-section 2.2.2. One such difficulty, for instance, is when a lacuna exists in one language to denote a referent[2].

2.1.2   History of terminology

Terminology is not a new field of study (Sageder, 2010). Indeed, researchers and scientists in the areas of chemistry, mathematics, anatomy and zoology started grouping field-specific lexicon as far back as the 15th century (Schmitz, 2009; Rogers, 2015). In the 18th and 19th century, terminology management was still a discipline predominantly controlled by scientists (Sageder, 2010). Due to the burgeoning science and technology in those centuries (Rogers, 2015), clear and unambiguous terminology had to be established in order to minimise the overlapping between concepts (Sageder, 2010).

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[2] A well-known example is the concept *an individual's brother(s) and/or sister(s)*, which is *sibling(s)* in English. In Dutch, however, no such word exists to denote that same concept.

In the first half of the 20th century, it was mostly technicians and engineers who started taking an interest in terminology (Sageder, 2010). One of the principal precursors was Eugen Wüster (1898-1977), an Austrian engineer who strove for unambiguous communication (Cabré, 2003). With *The Machine Tool. An interlingual Dictionary of Basic Concepts* (1968), a multilingual, systematically and alphabetically structured French and English dictionary containing standardised terms, Wüster laid the groundwork for our modern notion of terminology.

In an attempt to render terminology unambiguous and standardised, Wüster laid out three objectives (Cabré, 2003, p. 165):

1. To eliminate ambiguity from technical languages by means of standardisation of terminology in order to make them efficient tools of communication.

2. To convince all users of technical languages of the benefits of standardized terminology.

3. To establish terminology as a discipline for all practical purposes and to give it the status of a science.

Wüster paved the way for the study of terminology with his posthumously published work *Einführung in die allgemeine Terminologielehre und terminologische Lexikographie* (1979), which was later translated into English as *the General Terminology Theory* (GTT). The GTT asserts that terminology differs from *general* words in that each concept is linked to one term. As was Wüster's wish, this theory centres on terminology standardisation and is the foundation of the Vienna School, Soviet School and Prague School (Budin, 2001 in Cabré, 2003).

In order for terminology to be clear and unambiguous, five principles had to be adhered to, which would later become the groundwork for the Vienna school for Terminology. According to Felber (as cited in Gollin-Kies, Hall & Moore, 2015, p. 13), an adherent of the Vienna school, these principles include:

1. A definition of the concept precedes the allocation of a term;
2. Concepts can be clearly defined in relation to other concepts;
3. Concept definition uses specific definition-types: intensional (i.e. a listing of characteristics differentiating the concept from similar concepts), extensional (a listing of all the objects belonging to the concept) and part-whole (a definition relating the part to a superordinate concept);
4. There is a one-to-one correspondence between term and concept (the principle of *univocity*);
5. Terminology studies are synchronic – terms are assigned permanently and there is no room for language development.

These principles can be summarised as follows. According to the Vienna school for Terminology, terms had to be monosemic (i.e. the term has only one meaning) and mononymic (i.e. only one term exists for a particular concept; uncontrolled synonyms ought to be avoided). This means that plurivalence is to be avoided, i.e. one term is assigned to multiple concepts. It is that notion that the Vienna school considers to be primordial, fostering the onomasiological approach (i.e. terms are created based on the concept; this is the terminographic approach).

In recent years, there has been a shift from the traditional standardisation theory of Wüster and the Vienna school to socio-cognitive, linguistic and communicative terminology theories (Sager 1990; Gaudin 1993; Cabré 1995; Boulanger 1995; Temmerman, 1998; Cabré, 2003; Benítez, 2012). The main point of criticism that is levelled at the traditional theory of terminology is that the theory is too old-fashioned (Temmerman, 1998) or too utopic (Cabré, 2003; Benítez, 2012). A perhaps paradoxical notion is that the Vienna school is adamant about terminography and assigning terms to different concepts, but while doing so, it relegates language to the background (Temmerman, 2000). Furthermore, its focus on clearly demarcated concepts is unnecessary, as plurivalence and polysemy are omnipresent (Temmerman, 2000).

According to Cabré (2003), three different fields have expressed their disagreement with the traditional theory, i.e. cognitive psychology, language sciences and communication sciences. On the one hand, it is too difficult to make a distinction between "general and specialised lexicon" (p. 171) from a cognitive point of view or between "general and specialised language" (p. 171) from a linguistic one. In addition, communication sciences did not treat specialised communication "as a different type of communication" (p. 172), in contrast to the GTT.

Temmerman (2000) unites all points of criticism against the traditional theory (amongst others by Cabré and Sager) and concludes that all five principles (see 2.1.2) are questioned. The general consensus is that (1) terminography work with concepts on the foreground is inadequate; that (2) concepts are not clear-cut; that (3) intensional definitions are only relevant to those people who are already knowledgeable on the particular subject; that (4) striving for monosemy is too utopic and that (5) the world is dynamic and ever-evolving, and so is terminology work.

Throughout the 20th century, science and technology and the inherent need for efficient terminology continued to grow rapidly, with the period between 1975 and 1985 being considered the "boom of terminology" (Sageder, 2010, p. 125). The number of specialised dictionaries rose (Rogers, 2015), language planning became more prevalent (Sageder, 2010), seminars and colloquiums were organised on the matter (Cabré, 2003) and the number of terms in natural sciences were increasing "at an annual rate of 10 per cent in the 1980s" for biology and at a rate of "100 new terms per month" for chemistry (Rogers, 2015, p. 36). In addition, the 20th century saw the first appearance of termbases (Rogers, 2015). With the increase in terminology and terminology planning, interest in the nature of terminology rose, too, with a large number of academic studies focussing on the subject (Cabré, 2003).

2.1.3 Definition of terminology

As mentioned earlier, Wüster was a pioneer in the field of terminology. As can be seen in his primary objectives, Wüster strove for terminology that is clear and unambiguous (see 2.1.2). Paradoxically, however, the very subject of his study is ambiguous in nature, as numerous researchers have different opinions as to what constitutes a term (Hanoulle, 2017; Lauwaet, 2016; Rogers, 2015; Sageder, 2010; Schindler, 2005; Walker et al., 2002; Walsh, 2005).

Indeed Cabré (as cited in Somers, 1996) mentions three approaches to define terminology. First, terminology can be defined as the science or theory thereof. Second, terminology can constitute the lexical items in a specific field and lastly, it can mean the process of gathering, describing, presenting and coining lexical items for a particular field, in other words, the practice. It should be noted that the coinage of new terms has increasingly more been deemed a different field, i.e. the field of *terminography*, which is defined as "the practice of writing up termbases" (Buysschaert, 2014, p.1 in Lauwaet, 2016). That latter aspect is also sometimes called *terminology work* or *terminology management* (Hanoulle, 2017).

2.1.4 Definition of terms

It has been shown in Sub-section 2.1.3 that the definition of terminology is not a straightforward one. The same predicament can be found when defining what constitutes a term, as numerous researchers have suggested different definitions, but a consensus has thus far not been reached (Lauwaet, 2016).

According to Picht and Draskau (1985), a term is "any conventional symbol for a concept which consists of articulated sounds or of their written representation" (p. 96). This definition is arguably quite vague and may be too all-encompassing. Rogers (2015) mentions that a rudimentary definition of terms could be that it is "an item of specialist vocabulary from a special subject field" (p. 49), thus including the *specialised* aspect of terminology. Nevertheless, Rogers asserts that such a definition is far from clear-cut.

2.1.5   Characteristics of terms

2.1.5.1   General characteristics

As noted in Sub-section 2.1.4, it is a challenging task to define what constitutes a term. Nevertheless, a comprehensive explanation of the characteristics of terms is necessary in this paper, as it will facilitate the terminology extraction process highlighted in Chapter 5. The following characteristics are general guidelines to terminology, but it has been found that some characteristics only pertain to scientific terms. Those aspects will be discussed in 2.1.5.2.

The first characteristic of terms can be explained through the notion of *termhood*. According to Kageura and Omino (as cited in Hanoulle, 2017), termhood means that "the relative frequency of the extracted linguistic unit in the given domain will be higher than in other domains or general speech" (p. 42). This means, for instance, that *laboratory* could be a term in the field of science, as it occurs more often in the domain of science than in everyday language. Such terms (e.g. *science* and *physics*) may well be accessible to a general audience, they are argued to be terms, for they occur more often in specialised fields than in general language. This will be further elaborated upon with Shelov's notion of *termability* further on.

Another distinguishing factor of terms is that they are said to be context-independent (Raad, 1989; Rogers, 2015), which means that context need not be present for someone to comprehend a term, and therefore ambiguity is thought to be ruled out. Whereas context is necessary in the general language to understand which concept one refers to with the word *condition*, two doctors are likely not to need any context to know that *ailment* is meant. In *TBBT*, for instance, two physicists engage in a conversation, and one of them says: "But the idea that you might be able to incorporate gravity, I have to tell you, I found it physically exhilarating." (Annex A, p. 149). The term *gravity* is understood without context, and the person speaking is unlikely to mean *seriousness* or *dignity* (cf. Merriam-Webster).

Picht and Draskau (1985) state another characteristic of terms, i.e. *precision*. According to them, "the extent to which a sign (word or phrase) is 'terminological' is greater in proportion to the amount of information required to understand it" (p. 97). Thus, terms are said to require greater knowledge than general words in order to understand them. This can be linked with the triangle of reference as seen in Sub-section 2.1.1 in that concepts are cognitive interpretations of a linguistic unit and may thus differ depending on the level of knowledge of that person.

Another characteristic of terms is a somewhat logical deduction of the term definition proposed in Section 2.1.4 by Rogers (2015), i.e. the fact that terms belong to a particular field. Shelov has argued that it is difficult to establish whether a concept belongs to a special field or not, but it should be noted that recent years have seen the rise of numerous initiatives to facilitate that. One example is the Universal Decimation Classification (http://udcdata.info/), which assigns concepts to a wide array of categories, which therefore explains the degree of speciality.

A final characteristic of terminology has been put forward by Shelov (as cited in Czap & Galinski, 1987). In his work, Shelov established a short list of inconclusive particularities of terminology. He corroborates, for instance, that unambiguity and precision[3] are impossible and that terms display a "nominative character" (p. 108). Nevertheless, he asserts an interesting factor of terminology with his retort on the examples of Picht and Draskau (1985), i.e. the difference between *point, line* and *segment* and *median, altitude* and *bisector*. Shelov considers both groups of nouns terms, with the former being "less *termable*" (p. 109) than the latter, while Picht and Draskau argue that only the latter group is composed of terms, as the former group is too general. The notion that varying degrees of *termability* exist, is interesting and it can be linked with the concepts of *termhood* (Hanoulle, 2017) and *precision* (Picht & Draskau, 1985) in that some terms are more termable and therefore less accessible to a lay audience. This is of particular relevance to the present thesis, as arguably all sorts of people watch *TBBT* and not all of them may have access to the same presupposed knowledge of the terms employed.

It needs to be stressed that ambiguity is highly prevalent in terminology, despite what the GTT asserts. Indeed, Temmerman (2000) and Daille (2017) assert that synonyms are far too common in terminology. As a consequence, the principle of univocity is disregarded as a characteristic of terminology.

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[3] "[N]ot all terms have precise meaning" (Shelov, as cited in Czap & Galinski, p. 108).

2.1.5.2   Scientific terminology

In the present sub-section, several characteristics of scientific terminology will be highlighted. First, it has been found that Latin and Greek roots often form the basis for scientific terminology, at least as far as English scientific terminology is concerned (Jesperson, 1931 in Van Dyke, 1992; Raad, 1989; Brown, 2014). German terminology, for instance, is said to rely less heavily on loan words (Johnson, 1944). It is not a coincidence that Greco-Latin roots constitute the basis for scientific terms, as the English wilfully decided to only employ those terms and not the vernacular alternatives (Johnson, 1944). According to Guyton de Mourveau (1781, as cited in Brown, 2014), the Greco-Latin terminography is beneficial in that it allows for the "internally-referential nature" (p. 3) of terminology. Furthermore, Brown (2014) asserts that the virtue of Greco-Latin coinages is that the meaning of the concept is already incorporated in the term, which as a consequence eliminates ambiguity. The word *photosynthesis*, for instance, is self-explanatory because it is composed of the Greek roots *photós* and *synthesis*, which, when compounded, means *put together with light* (Brown, 2014, p. 3).

Even though many present-day scientific terms still display the Greco-Latin link, numerous researchers note that there is a shift in effect where fewer and fewer neologisms are being coined based on Latin or Greek roots (Brown, 2014; Raad, 1989). Brown (2014) attributes that change to the lack of knowledge of Latin and Greek in today's generation. Currently, several methods exist that one can resort to when coining new scientific terminology, such as "acronyms, blends, analogies, metaphors and, most typically, compounds" (Raad, 1989, p. 128).

Another characteristic of scientific terminology is arguably less of lexical interest, as it concerns syntaxis more. Indeed, scientific writing is said to be typically prone to using nominalisations (Olohan, 2007; Olohan, 2016; Rogers, 2015; Taylor, 2006), which results in greater lexical density. This is, according to Rogers (2015), in part the virtue of scientific writing: a large number of lexical units contribute to denser references, which allows for quicker distribution of knowledge. This makes for an incredibly high level of condensed information both on a lexical[4] and syntactic level.

In sum, those characteristics that specifically pertain to scientific terminology are the Greco-Latin roots and the high level of nominalisations found in scientific writing.

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[4] That high level of lexical information is, according to Brown (2014), the virtue of Greco-Latin terms.

2.1.6 Composition of terms

Terms are most often composed of one or more morphemes (Picht & Draskau, 1985) or noun phrases (Cenac, 2012; Hanoulle, 2017; Rogers, 2015). Cenac (2012) notes that proper nouns can also be used to create terms. This practice does not only pertain to existing terms, but is often resorted to in creating neologisms, too. She lists four methods, i.e. (1) names of institutions or organisations (*NORAD*); (2) names of scientific phenomena (*Big Dipper*); (3) names of prizes (*Nobel prize*); (4) names of trademarks (*Baldwin lock*). This list is by no means exhaustive, as it fails to include other types of proper nouns, such names of people (*Planck's constant*) or names of places (*Arctic expedition*).

Aside from nouns or noun phrases, terms can also constitute adjectives, adverbs and verbs (Cenac, 2012; Hanoulle, 2017; Rogers, 2015). Terms are restricted to the aforementioned open classes, in contrast with the closed classes, such as pronouns, determiners, etc. Furthermore, Rogers (2015) adds that "terms may include punctuation marks and numbers" (p. 57).

According to Hanoulle (2017) terms can "occur as single-word units or multi-word units, depending on language-specific conventions" (p. 36). Daille (2017) draws a distinction between terms in Romance languages and in Germanic languages, with the former constituting more multi-word units separated by hyphens or white spaces than the latter. However, it should be noted that differences exist between Germanic languages, too. Dutch and German, for instance, tend to knit words and terms together, whereas the English language is more prone to using white spaces.[5]

Moreover, compound terms make up for 85% of all terms, according to Nakagawa & Mori (as cited in Hanoulle, 2017) and multi-word units are "highly prevalent in technical domains", as well (p. 42). This is in line with findings by Royauté (as cited in Daille, 2017), who found that compound terms accounted for 83% of the terms in a corpus, with most terms (i.e. 9%) being N N-terms (such as *plasma lab* and *valence electron*). In her own study, Daille (2017) reported a 78% frequency of multi-word terms not only in English, but also in French and Spanish, thus corroborating the statement that compounding is often resorted to, but that it can give way to ambiguity. She evokes the example of *animal flour*, which can mean flour from or for animals.

---

[5] The difference between language conventions is noticeable with the word *plasma lab* (found in *TBBT*), which translates into Dutch as *plasmalab*, thereby omitting the white space.

According to Džuganová (2013), the current most prevailing method in creating medical terminology is "the forming of multi-word phrases" (p. 58) and the subsequent abbreviation, thus creating acronyms. An example from *TBBT* is *an upper GI*, which is an acronym for *gastrointestinal (exam)*. Nevertheless, Džuganová asserts that coining neologisms via multi-word phrases is not the most effective method. She affirms that the practices of derivation and compounding are more efficient. Derivation is the process of adding affixes (i.e. prefixes, suffixes and infixes) to already existing words (Fang, 2006, as cited in Brown, 2014), which Daille (2017) found to be an advantageous method, too.

Furthermore, terms can also be coined by adopting them. In that case, the term exists in another language and is taken and, albeit modified, incorporated in another language. Cenac (2012) draws a distinction to the difference between *loaning proper* and *loan translation*, with the former meaning a transfer of the term into another language with or without slight changes (i.e. dropped hyphens or white spaces). The latter implies a literal translation of the term. This theory applies to the taxonomy of translation strategies proposed in Section 5.4. *Loaning proper* will be considered to be *loan translation*, while Cenac's *loan translation* will be *literal translation*.

2.1.7   Summary

This chapter has highlighted several aspects of scientific terminology that will be used in order to separate the wheat from the chaff in this thesis, i.e. the scientific terminology from the non-terms.

The key characteristics of terminology that will be focussed on are the following:
1. Terms are mostly nouns, sometimes adjectives, adverbs or verbs.
2. Terms used to be formed based on Greco-Latin roots, but that is no longer the case, thus terminology that is not etymologically based on Greek or Latin will also be included.
3. Terms can also comprise numbers, punctuation or they can constitute acronyms.
4. Terms can be composed of proper nouns.
5. Terms are likely to be composed of multi-word units.
6. The relative frequency with which terms occur, is higher in specialised forms of communication than in general speech.
7. Terms require a higher degree of knowledge of the field.
8. Terms are subject to degrees of termability.
9. Terms are context-independent.

2.2 The translation of terminology

The present section will zero in on terminology translation. An overview of terminology translation over time will be given (2.2.1), and more specifically scientific translation. Sub-section 2.2.2 will pinpoint several terminological difficulties that may impede a translator's work. Some translation strategies for scientific texts will be evoked (2.2.3) and Sub-section 2.2.4 will touch upon the raft of terminological resources that may render the task of terminology translation less difficult. Sub-section 2.5.5 will touch upon additional challenges.

2.2.1 Preliminaries

The translation of terminology is often called *specialised translation* or *LSP (Language for Specific Purposes) translation* (Garzone, Heaney & Riboni, 2017; Rogers, 2015). In other words, LSP refers to the translation of forms of communication in a particular field. Taylor (2006) states that it is mostly the fields of science, technology, medicine, law and economics that have been the most influential. As our world is increasingly becoming more globalised and multicultural, the need for translation boomed, not only for general encounters, but also in a specialised context (Garzone et al., 2017). Technical translation, for instance, is said to amount to "80-90% of the professional demand for translators" (Franco Aixelá, as cited in Rogers, 2015). Good business translation is said to be crucial, as "language and culture are critical issues in companies' internationalization process" (Albuquerque, Costa & Esperança, 2015 p. 224).

In the field of science, translation has also played a crucial role (Olohan, in Saldanha & Baker, 2009), as Montgomery (2010) notes that the "translation of science is as old as science itself" (p. 299). Indeed, the translation of scientific matter has since long been a significant activity (Fischbach, 1986) and it started as early as in the 7th century B.C. (Montgomery, 2010).[6]

Not only has it been shown that translating scientific forms of communication is a crucial activity, it has also been argued that science has gained more ground due to the position of the translator as mediator and messenger, as scientific discoveries and findings had to be translated from one language into another (Byrne, 2012; Fischbach, 1986). Furthermore, scientific translation has helped disseminate knowledge across cultures and languages (Xiangtao, 2007) and has helped construct societies (Montgomery, 2000).

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[6] Montgomery (2000) discussing science in translation offers an extensive overview of scientific translation throughout history.

Despite scientific translation being a principal activity, its importance was only brought to light around the turn of the 20th century (Fischbach, 1986). Indeed, Olohan (2007) pinpoints several issues in the focus on subtypes in Translation Studies (TS). It was found, for instance, that few academic journals homed in on scientific or technical translation, while literary translation was discussed more extensively. Furthermore, a primordial work in the field of TS, i.e. Baker's 1998 compilation of Translation Studies research subjects in the *Routledge Encyclopedia of Translation Studies*, did not make mention of scientific or technical translation (Olohan, 2007).

New discoveries or recent scientific phenomena (e.g. the 2012 discovery of the Higgs boson) need of course to be translated into many languages and cultures. Indeed, Byrne (2012) reports findings by Kingscott in favour of "scientific and technical translation (accounting) for some 90% of global translation output" (Byrne, 2012, p. 6). She does add that this figure is not likely to be completely correct, as the main problem is the diverging definitions of scientific translation. With regards to the troublesome definition of scientific translation, the present corpus cannot be regarded a scientific text. This will be further elaborated upon in 2.4.4.

2.2.2   Terminological difficulties

Terminology translation can pose several difficulties. Matamala (2010) proposes a list of the problems a translator encountered during the translation of four documentaries and provides some translation strategies that the translator can employ. As will be discussed in Sub-section 2.3.3.1, audiovisual translation can impose several other constraints on the translation process, but the nature of terminology, too, may prove to be a hindrance.

First, terms may be polysemic, i.e. the term is spelt and pronounced in the same manner as a word in the *general* language. This occurs when multiple concepts are expressed in one term (see 2.1.1). *Condition*, for instance, can be synonymous to *state* or *requirement*, but in the field of medical terminology, *condition* means *ailment*. Especially in general texts – where a translator would not assume that they contain terms – it can be challenging to translate such words, as one would have to be aware of the terminological level of the word and its meaning.

Secondly, the opposite can occur, which Matamala (2010) calls "denominative variation" (p. 256), i.e. there are two or more synonymic TL equivalents for one SL term. This happens when one concept is expressed in multiple terms (see Sub-section 2.1.1). Translators thus have a decision to make as to which equivalent they wish to use. They can either opt for one of

several possibilities, or they can employ two or more interchangeably, provided that the terms are strict synonyms. Matamala (2010) argues that, sometimes, multiple terms exist for one concept, with one term being the *in vivo* term (i.e. terms used by experts and specialists) and the other one being the *in vitro* term (i.e. terms that are advised in lexicographic works). She states that the choice between two or more TL terms depends of the TL audience, the Skopos.

Thirdly, SL terminological gaps may emerge, which means that there is no readymade TL equivalent for a SL term (see Sub-section 2.1.1). Matamala (2010) evokes the example of *fern spike*, which proves difficult for the translator, for there is no equivalent in the TL. In that case, however, the translator can employ several strategies, i.e. neologisms (Matamala, 2010; Talebinejad, 2012; Rogers, 2015), paraphrasing (Matamala, 2010), a more general word (Matamala, 2010), loanwords (Matamala, 2010; Talebinejad, 2012; Rogers, 2015), deletion (Matamala, 2010) or circumlocution (Rogers, 2015).

Pritchard (2016) studied the hurdles translators encounter when translating an English specialised text (a maritime text) into Croatian. The aforementioned issue of plurivalence was evoked, in addition to some other difficulties. As far as single-word units are concerned, the translators had difficulty translating names and abbreviations. Some multi-word units also posed problems, such as compounds and collocations. In addition, borrowings and loan translations were reported to present problems, too.

The aforementioned issues are specific linguistic problems that a translator can encounter. Cabré (2010) lists several other issues with respect to the translator. For instance, the translator might not know the term, because he or she may not be familiar with the field of expertise. In the same fashion, the translator may be unaware of the TL equivalent and might thus not know how to translate a particular term. When he or she finds multiple TL alternatives, he or she may be unsure of which one he or she should pick.

2.2.3   Translation strategies

Taylor (2006) has established a four-category list that he calls *the translator's creativity cline*. It is an endeavour to summarise the strategies a translator can employ based on the type of ST, ranging from *maximal creativity required* to *minimal creativity required*, and essentially, ranging from non-specialised to highly specialised. In the second to last category (i.e. some degree of creativity is allowed, but only to a certain extent), Taylor cites the following

examples: "articles in specialised academic journals; business letters; legal decisions; policy documents" (p. 40). In the last category of the four (i.e. minimal creativity required), Taylor mentions the following types of text as examples: "technical manuals; instructions; medical abstracts; rules and regulations" (p. 40).

Arguably, scientific texts belong somewhere in-between the third and fourth category, as they bear similarities with articles in academic journals, but also with medical abstracts. Taylor mentions that the types of text in the third category can be subject to "heavy localisation" (p. 40), whereas the last category is subject to standardisation. Deciding on whether a scientific text falls in which category or somewhere in-between is therefore challenging task.

Byrne (2012) evokes a range of translation strategies that a translator can employ in his or her translation process. Her taxonomy is mostly based on Vinay and Darbelnet's work (i.e. *literal translation, borrowing, calque, equivalence, transposition, modulation and adaptation*). Furthermore, she mentions that one has to be vigilant to select terms with "the same connotations and denotational meaning as the SL term unless there is a valid reason for doing otherwise". In other words, she warns for incorrect generalisations and explicitations in the TT.

2.2.4 Terminological resources

One of the most important instruments that a translator can employ in terminology translation are bilingual dictionaries and glossaries, the first of which are shown to have been created as early as in 2600 BCE (Delisle & Woodsworth, 1995; Collison, 1982 as cited in Rogers, 2015). The efficiency of specialised dictionaries sits comfortably within Cabré's (2010) idea, who evokes other suitable tools, such as terminology standards. It should be noted that recent years have seen a shift of the format of these resources. Indeed, Rogers (2006) and Cabré (2010) affirm that technology constitutes a considerable advantage in terminology research and translation, as it has helped to profoundly change the translation landscape. The plethora of online specialised databases (such as IATE), corpora (parallel and multilingual) and termbases (such as Termcat and Cercaterm) can provide a significant advantage. It is especially termbases that Cabré (2010) finds highly efficient, as they are continuously updated.

Additionally, Hanoulle (2017) lists automatically extracted bilingual glossaries (Gold Standards) as a resource, for they are found to be quicker and more efficient. However, it should be noted that automatic terminology extraction (ATE) is not error-free.

Thus, a myriad of terminological resources exist that can help the translator adequately translating specialised lexicon.[7] To assess which of these tools are the most coveted ones, Rogers (2006) conducted a study with five translators, who had to fill in a Likert scale-survey, ranking the possible resources from most to least used. She found that electronic glossaries, archived documentation, expert consulting, bilingual specialised dictionaries and reference works were the top five used resources. Other possible tools included fellow translators, monolingual specialised dictionaries, client glossaries, multilingual specialised dictionaries and monolingual general dictionaries. Perhaps surprisingly, she noted that in-house termbases were not often used, as they ranked only third to last. She asserted that they constitute an excellent resource in the translation process of specialised texts, but found that translators do not tend to update them themselves, because they may not deem these tools cost- and time-effective. This is in line with Matamala's (2010) statement that translators "need to carry out *ad hoc* searches" (p.6). With respect to the strict deadlines that are all too common in the field of translation, a translator may simply not find the time to draw up termbases.

The aforementioned tools are said to be highly accessible, but Matamala (2010) advises the translator to be wary of possible mistakes in both the SL resources (i.e. the text a translator has to translate) as well as in the TL tool (such as online databases).

In sum, an overview of the terminological resources is given in the following list:
1. Dictionaries (monolingual, bilingual, multilingual)
2. Glossaries (monolingual, bilingual, multilingual)
3. Automatically extracted terminology lists
4. Terminology standards
5. Specialised databases and corpora
6. Termbases
7. Archived documentation
8. Reference works
9. Third party consulting (experts, fellow translators)

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[7] For the present study, whenever doubt arose as to the correctness of the translation proposed in the corpus, several of the aforementioned resources needed to be consulted. An overview will be given in Sub-section 5.4.

2.3   Audiovisual Translation Studies

This section will discuss Audiovisual Translation Studies and terminology in subtitling. Firstly, a brief overview of AVT will be given in Sub-section 2.3.1, while Sub-section 2.3.2 will draw attention to AVT as an umbrella term for multiple subtypes. In Sub-section 2.3.3, subtitling will be discussed in greater detail, notably shedding light on the problems that occur in the subtitling process and on the range of translation strategies that can be used to solve those issues.

2.3.1   History

In this day and age, the need for the audio-visual translation (AVT) of various media has become pressing due to the burgeoning number of television channels, programmes and films (Díaz Cintas & Anderman, 2009). Even though the practice of translating audio-visual material has been around for eighty years (Perego, 2016), it has only quite recently become a field of study (Gambier, 2003; Díaz-Cintas & Remael, 2007).

There seems to be some degree of disagreement as to when AVT became a field of study. Perego (2016) argues that the 1980s saw the dawn of AVT as a scientific area of expertise with such studies as Feilitzen et al. (1979), d'Ydewalle et al. (1985), Grillo & Kawin (1981), Peli et al. (1996). She even goes as far as to say that records show that AVT as a field of study goes back as far as the 1930s. Gambier (2003), on the other hand, marks 1995 as the start of AVT as a sub-discipline of TS, due to the sudden emergence of colloquia, seminars and forums on AVT on the one hand and of technological material and equipment on the other hand.

2.3.2   Types of AVT practices

In actuality, AVT is an umbrella term for multiple subtypes. According to Gambier (2003, p. 172), these types include:

1.   Interlingual subtitling;
2.   Dubbing;
3.   Consecutive interpreting;
4.   Simultaneous interpreting;
5.   Voice-over;
6.   Free commentary;
7.   Simultaneous (or sight) translation;
8.   And multilingual production.

It should be noted that this list does not include *intralingual subtitling*, i.e. a method of subtitling where the SL equals the TL. Interlingual subtitling and dubbing are the most favoured methods according to Koolstra, Peeters & Spinhof (2002). Díaz Cintas and Remael (2007) argue that there are three key subtypes in audio-visual translation, i.e. dubbing, subtitling and voice-over.

Whether or not a particular movie or TV show is either dubbed or subtitled depends on some factors. Some countries in Europe are argued to be more open to subtitling, whereas other countries tend to resort to dubbing more often (Gambier, 2003; Koolstra, Peeters & Spinhof, 2002; Talebinejad, 2012). That difference is said to be due to economic factors (Danan, 2004; Koolstra & Beentjes, 1999, as cited in Almeida & Costa, 2014; Dries, 1995, as cited in González, 2009). Nevertheless, Gambier (2003) finds that strict division to be quite simplistic. Furthermore, the choice often depends on the target audience. A children's movie or TV programme is often dubbed as children might not be able to read yet (Georgakopoulou, 2009; Tveit, 2009). Indeed, Díaz-Cintas (1999) states that subtitling "presupposes a certain degree of literacy on the part of the viewer" (p. 35). Furthermore, subtitles are more favourable for the hearing impaired, while dubbing and audio description is arguably a more adequate option for the blind and visually impaired (Koolstra, Peeters & Spinhof, 2002).

2.3.3 Subtitling

Díaz Cintas and Remael (2007) define subtitling as follows (p. 8):

> (The) translation practice that consists of presenting a written text, generally on the lower part of the screen, that endeavours to recount the original dialogue of the speakers, as well as the discursive elements that appear in the image (letters, inserts, graffiti, inscriptions, placards, and the like) and the information that is contained on the soundtrack (songs, voices off).

An important notion inherent to subtitling that is left out in the definition offered by Díaz Cintas and Remael, is that subtitles ought to be projected in sync with the original dialogue (Gottlieb, 2012; Luyken et al., 1991 as cited in Georgakopoulou, 2009). In addition, Gottlieb (2012) argues that subtitling takes place in a polysemiotic and multimodal environment.

It is that speech-to-text transfer that renders subtitling difficult, especially with regards to the several constraints that are imposed. The subtitler has to evoke spoken language through the medium of text, which is often a cause of criticism. Indeed, in his 1982 paper, Marleau described the practice of subtitling as a *"mal necessaire"* (p. 271). He invokes several problems that arise when a translator makes subtitles, i.e. of technical, physiological, psychological, aesthetic and linguistic nature. His main issues with subtitles is that they obstruct the screen, they are unnecessary for people who have command of the SL, they require too much mental energy, they undermine the film's style, quality, clarity, etc. and their appearing and disappearing are mini-shocks for the spectator's eyes. Furthermore, as noted by Ivarsson and Crofts (1992), viewers with a command of the SL can be quite displeased with the (often necessary) shifts and strategies the subtitler employs.

In spite of the several downsides to subtitling, ample advantages exist, too. On a cognitive level, spectators are said to process subtitles well (d'Ydewalle & De Bruycker, 2007; Koolstra, Peeters & Spinhof, 2002; Perego, Del Missier, Porta & Mosconi, 2010), despite the occurrence of bad line segmentation (Perego et al., 2010), creative and unusual spellings (Secară, 2011) or non-professional subtitles (Orrego-Carmona, 2016), even though the quality of the latter is found to be much inferior to that of professional subtitles (Bogucki, 2009). In addition, subtitles are found to bolster L2 acquisition in children, adolescents and adults (d'Ydewalle & Pavakanun, 1995; 1997; Koolstra & Beentjes, 1999; Koolstra, Peeters & Spinhof, 2002; Pavakanun & d'Ydewalle, 1992). Furthermore, unlike dubbing, subtitling preserves the actors' voices (Koolstra, Peeters & Spinhof, 2002), as the absence of synchronised lip movement in dubbed films or TV shows is said to be quite bothersome, which is not the case in subtitled versions.

In sum, due to the widespread nature of subtitling, the extent to which one perceives subtitles as obstructive may depend on the conventions in his or her country. In Belgium, subtitles are common to such a degree that the majority of the population is not hindered by their appearance on-screen. Numerous complaints, however, are levelled by Belgians at the alleged absence of accuracy of the subtitles, as people with little knowledge of the technical side of subtitling are unaware of the several imposing constraints. The present thesis therefore hopes to shed light on the problematic nature of subtitling, which will be discussed in the following sub-section.

2.3.3.1   Subtitling as constrained translation

According to Bartrina and Espasa (2005), constrained translation "refers to situations in which the text to be translated is part of a more complex communicative event" (p. 83). The practice of subtitling can thus be considered constrained translation because a large number of rules and constraints exist, which render the translation task more difficult. Díaz Cintas & Remael (2007) assert that these constraints may differ depending on which style guide is used or for which type of media the subtitles are created (e.g. subtitling for the cinema or for TV). Consequently, this sub-section will solely focus on the subtitling for TV in Flanders and the Netherlands.

First, Díaz Cintas and Remael (2007) assert that subtitles and dialogue must be synchronised. Otherwise, the audience could possibly "feel uncomfortable" (Gambier, 2003) when subtitles are projected when no on-screen source language information is conveyed (such as newspaper headlines or voices, both of characters or in voice-overs) and vice versa.

Second, subtitles are subject to spatial constraints. Díaz Cintas and Remael (2007) state that it is common not to include more than two lines per subtitle and that the number of characters per line in TV subtitles is restricted to thirty-seven, including white spaces and punctuation. Díaz Cintas and Remael, however, argue that the exact number depends on the client, as some prefer a lower or higher number. In addition, subtitlers should endeavour to centre the subtitles and place them in one line whenever possible, but yet again, this depends on the wishes of the client, as some prefer two equal-length shorter subtitles over one long one or over two separate subtitles (Díaz Cintas & Remael, 2007). Furthermore, two-line subtitles should be separated on places where it is grammatically correct and appropriate. Consider the following example from *TBBT*. Here, the Dutch sentence is, as with the English one, composed of a main clause and a subclause. The subtitler decided to commence the second line with the subordinate clause, even though the first line allowed for more characters. It would, however, seem odd to end the first line with the subordinate conjunction *als* and continue the subordinate clause on the second line.

(1)   H   He was a lot more fun when he had no hope.
                 Ik vind hem een stuk leuker / als hij geen hoop heeft.

Aside from the spatial aspect, several temporal constraints are in effect as well. According to Díaz Cintas and Remael (2007), the projection time of subtitles is limited. Not only should the subtitles "keep temporal synchrony with the utterances" (p. 88), they should also be displayed between one second and six seconds. The one-second limit is purely for cognitive reasons, for a lower display time would not allow for information processing. The maximum limit is imposed, because it has been shown that viewers tend to reread subtitles that are projected for more than six seconds (Díaz Cintas & Remael, 2007). Viewers are generally said to be able to process seventy-four characters in six seconds (Díaz Cintas & Remael, 2007) and thus, subtitle duration is directly proportional to the number of characters used. If a person speaks for three seconds, the subtitle should last three seconds and the number of characters allowed is thirty-seven. Quite often, however, a deviation percentage of around ten percent exists, which allows the subtitler more room. Indeed, it has been found that the audience is more likely to skip subtitles if they cannot catch up with the projection speed, and therefore, a pause in-between subtitles is beneficial (Orrego-Carmona, 2016).

The SL information can be quite dense due to a number of reasons, such as rapid speech (Ghaemi & Benyamin, 2011; Pérez-González, 2014), specialised knowledge (Gambier, 2003), on-screen pictures with source language text, etc. This makes that a subtitler has to water that information down to its essence. Indeed, Gottlieb (1994) affirms that between 20 and 50% of information is lost when transferring spoken ST to written TT. This is in line with findings by De Linde and Kay, who have reported "that subtitles can deliver 43 per cent less text than the spoken dialogue they derive from" (as cited in Saldanha & Baker, 2009, p. 15). When comparing English speech to Dutch subtitles, around 30% of speech is omitted (Koolstra, Peeters & Spinhof, 2002).

Additionally, subtitles have to correspond in meaning to the original dialogue (Díaz Cintas & Remael, 2007) and have to evoke spoken language, despite it being a written form of communication (Badia & Brumme, 2014; Díaz Cintas & Remael, 2007).

Ultimately – as is the case with translation in general – the best subtitles are those of which the viewer is not aware (Georgakopoulou, 2009). To accomplish that, the subtitler will need to employ a set of translations strategies, which will be discussed in the following sub-section.

2.3.3.2   Translation strategies

As is common in transferring a text from one language to another, several strategies are used by the translator. Many authors have debated on the subject of translation strategies, such as Jääskeläinen (1993), Chesterman (2000) and Gambier (2008). As seen in 2.3.3.1, however, subtitling could be considered a different niche of translation, for unlike *normal* translation, it is subject to numerous additional constraints.

As far as subtitling is concerned, several authors have proposed lists and taxonomies of translation strategies. For instance, Delabastita (1993, 1996) establishes a categorisation of subtitles based on puns and Veisberg (1997) proposes a classification of subtitling strategies for the translation of idioms. As this thesis is concerned with the subtitling of terminology, Delabistita's and Veisberg's classifications will be disregarded.

Moreover, the subject of explicitation has been researched by Klaudy (1998), who proposes four different types of explicitation in translation. Even though several researchers have adopted his model in order to identify subtitling strategies (Bagheri & Nemati, 2014; Dastjerdi & Rahekhoda, 2010; Perego, 2003), his model will be disregarded in this paper. Indeed, Klaudy's theory is centred on explicitation, which is not likely to be a strategy used in the Dutch subtitling of *TBBT* due to the restrictive nature of subtitling and the inherent length of terms.

Furthermore, Gottlieb proposes a taxonomy of ten strategies used in the translation of films and TV series (2004), which has been adopted by numerous researchers. Vazifehkhah (2017), for instance, found that for the Persian subtitles of four English films, *deletion* was more resorted to than *condensation* and *adaptation*. Other studies, such as Marashi & Poursoltani (2009) for the English translation of twelve Iranian films and Ghaemi & Benyamin (2011) and Hosseinnia (2014) for the Persian subtitles of English films, concluded that it was *transfer* that subtitlers most resorted to. As far as Dutch subtitling is concerned, there is data in favour of *transfer* as the most used strategy (Gribomont, 2013), but *deletion* is also said to be prevalent.

Gottlieb's strategies, albeit quite complete, are mostly centred on the subtitling process as a whole. As the present paper is concerned with terminology translation in subtitles and not with entire subtitles, other taxonomies that consider subtitles on a more lexical level may need to be considered.

In terms of terminology translation, a comprehensive taxonomy of strategies has yet to be established. Nevertheless, three (groups of) researchers have suggested three different typologies of translation strategies, i.e. Tomaszkiewicz (2006, as cited in Vandenberghe, 2013), Díaz Cintas and Remael (2007) and Pedersen (2011). Their research focuses on the translation of cultural items, which arguably is more oriented towards lexicon than Gottlieb's (2004) strategies. As a result, their taxonomies will be used in the present study. Those strategies that solely pertain to the translation of cultural items will, be disregarded, but I find that many of these categories are relevant with regards to specific language and subtitling difficulties, and thus, terminology, too. As a consequence, for the sake of this thesis, the definitions will be adjusted slightly towards terminology translation instead of the translation of cultural items.

First, Vandenberghe (2013) employed a taxonomy by Tomaszkiewicz in her research on the way in which medical terms are translated in the Dutch subtitles of the American TV series *House*. Despite Tomaszkiewicz' taxonomy being centred on the translation of cultural items, it was employed Vandenberghe's paper and may thus be useful. The examples employed in the below table to clarify the strategies were found by Vandenberghe (2013) in the Dutch subtitles.

Omission	The ST term is omitted in the TT. **EN** *white counts* → **NL** Ø
Literal translation	The TT term represents the ST term closely. **EN** *blood pressure problems* → **NL** *bloeddrukproblemen*
Borrowing	The TT term is used in the subtitle. **EN** *NICU team* → **NL** *NICU team*
Equivalence	The TT term retains the same function and meaning as the ST term. **EN** *labour* → **NL** *weeën*
Adaptation	As with *equivalence,* the TT term retains the same function and meaning as the ST term, but is translated more freely. **EN** *universal donor* → **NL** *altijd goed*
Replacement of cultural term with deictics	The ST term is omitted in the subtitle and replaced with deictic references. **EN** *cancer* → **NL** *ene*
Generalisation	The ST term is translated with a broader and more general TT term. **EN** *liver and kidney functions* → **NL** *orgaanfuncties*
Explicitation	The TT term is more explicit than the ST term. **EN** *clods* → **NL** *bloedstolsels*

Table 1: Tomaszkiewicz' strategies (as cited in Vandenberghe, 2013)

It could be argued that the line between *equivalence* and *adaptation* is somewhat blurry. It proves to be a difficult task to define what constitutes a free translation. For the purpose of this study, both strategies will be used in the taxonomy, but the definition will be altered in order for the strategies to be more transparent (see Section 5.5).

In their 2007 book, Díaz Cintas and Remael suggest a classification of subtitling strategies of cultural references, which will be discussed in the below table. As mentioned earlier, Gottlieb's *transfer* and *deletion* are used most frequently. As far as the subtitling of cultural items are concerned, *omission* has been found to be a frequently employed method (Bogucki, 2004; Díaz Cintas & Remael, 2007; Gottlieb, 1994; Haeck, 2011; Szarkowska, 2010), as well as *substitution* (Díaz Cintas & Remael, 2007).

Loan	The ST word is incorporated into the TT. **EN** *cognac* → **NL** *cognac*
Calque	The ST word is translated literally into the TT. **NL** *Staten-Generaal* → **EN** *States-General*
Explicitation	The ST word is translated through specification or generalisation. This can either result in longer or shorter phrasing in the TT in comparison with the ST. **EN** *sold on E-Bay* → **NL** *verkocht op het internet*
Substitution	The ST word is translated with a shorter TT hypernym or hyponym. **FR** *sauce hollandaise* → **NL** *botersaus* (instead of *hollandaisesaus*)
Transposition	The ST cultural concept is translated with a different TT cultural concept. **EN** *Marks & Spencer's* → **NL** *HEMA*
Lexical recreation	The ST word is translated with a neologism in the TT, often in combination with quotation marks. **EN** *weird shit-o-meter* → **ES** *"rarezametro"* (*oddity-meter*)
Compensation	The ST word is *overtranslated* in the TT to compensate for translational loss in a previous subtitle.
Omission	The ST word is omitted in the TT. **EN** *My name is Frost, Superintendent* → **NL** *Mijn naam is Frost Ø*
Addition	Information is added. **EN** *the chair* → **NL** *la silla eléctrica* (*the electric chair*)

Table 2: Díaz Cintas and Remael (2007)

Third, Pedersen (2011) has established a list of strategies a translator can employ when translating what he calls ECRs, i.e. "Extralinguistic Cultural References" (p. 43). Those strategies can be linked to the aforementioned taxonomies proposed by Tomaszkiewicz (2006, as cited in Vandenberghe, 2013) and Díaz Cintas and Remael (2007) as both works homed in on the translation of cultural references. In the figure below, Pedersen's taxonomy is summarised according to the figure used in his book (2011, p. 75). Pedersen draws a distinction between source-oriented and target-oriented translation. In the table below, his strategies are reprised along with their respective definitions and with examples offered by Pedersen, which were oriented towards Danish and Swedish translation. This is why it was chosen to include the English back translation as suggested by Pedersen in this thesis for the majority of the examples.

Retention	The ST term is kept in the subtitle.
Complete	The ST term is transferred completely, with or without markings. — *Cadillac Fleetwood → Cadillac Fleetwood*
TL-adjusted	The ST term is adjusted slightly, for instance by "adjusting the spelling or dropping an article" (p. 77).
Specification	Information is added.
Addition	A meronymic/polysemic/hyponymic ST term is specified in the TL. — *Ian Botham → the cricket player Ian Botham*
Completion	A ST ellipse/acronym is completed in the subtitle. — *Sophomore year at Brown → We met at Brown University.*
Direct translation	The ST term is translated.
Calque	Literal translation. — *Captain of police → Politi-kaptajn* (opposed to *komissær*)
Shifted	Loan translation. — *Tea dance twenties → Twenties tea dances*
Generalization	The ST term is translated with a broader and more general TT term.
Superordinate term	A hyponymic TT term is used. — *The Three Stooges → Entertainment*
Paraphrase	The ST term is explained with a paraphrase. — *I bet he did a Casey Jones. → I'm sure he didn't leave the engine.*
Substitution	The ST term is replaced with a different TT term.
Cultural	— *The Three Stooges → Gøg og Gokke (Laurel and Hardy)*
Situational	— *With Giligan → With his wife*
Omission	The ST term is omitted. — *Sears Tower → Ø*
Official equivalent	The ST term has an official TT equivalent. — *E.R. → Cityakuten* (E.R.)

Table 3: Pedersen (2011)

Some of Pedersen's strategies may not pertain to the translation of terminology in subtitles. *Cultural substitution*, for instance, would only seem a valuable strategy in the translation of cultural entities. Furthermore, *official equivalent* may seem redundant, as it seems to be a translation that is solely relevant with regards to the translation of cultural terms[8]. However, even in the context of scientific terminology, *official equivalents* might be present, for instance in the translation of institutions (e.g. *ISS*). It was decided that *official equivalents* do not include terms based on people's names, as those eponymic terms may have become too established to call them *official equivalents* (e.g. *Lyme disease, Morse code*) and because they can be combined into other terms (e.g. *Morse alphabet*). These term translations are also arguably not official. It will be discussed further on which strategies seem relevant and for which reasons.

In addition, Lozano and Matamala (2009) propose several *techniques* (p. 76) that a translator can employ when translating terminology. The subject of their research was the Spanish dubbing of the fictional medical TV series *E.R.*. They compiled a categorisation, but failed to provide complete and clear definitions of these categories, which is why the present study will not employ their categorisation. Interestingly, however, they added "the concept of *inadequate equivalent* (…) in order to indicate an unsuccessful match" (Lozano & Matamala, 2009, p. 76). As this concept was given a definition, it will be introduced in the present taxonomy. Indeed, it may be the case that the subtitler used a different and incorrect TT term to translate a given ST term. With regards to the specialised nature of the ST material in the present thesis, such a strategy may indeed prove to be relevant.

Last, Badia and Brumme (2014) mention three *procedures* for subtitlers, i.e. *equivalence, modulation* and *underspecification*. It is *underspecification* that is an interesting concept, for it presumes that the subtitle does not do away with the entire term, but rather retains part of it. This may arguably be a frequently employed strategy in terminology translation due to the inherent characteristics of both terminology and subtitling (see respectively 2.1.5.1 and 2.3.3.1). Therefore, this notion will be introduced in the taxonomy of strategies.

In the below table, the three major taxonomies of Tomaszkiewicz (2006, as cited in Vandenberghe, 2013), Díaz Cintas & Remael (2007), and Pedersen (2011) are summarised, as well as the two strategies as conceptualised by Lozano & Matamala (2009) and Badia & Brumme (2014). Strategies that shared ground were juxtaposed.

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[8] Compare, for instance, the French official equivalent *La Joconde* to the English *The Mona Lisa*.

Tomaszkiewicz (2006)	Díaz Cintas & Remael (2007)	Pedersen (2011)	Lozano & Matamala (2009)	Badia & Brumme (2014)
		retention		
borrowing	loan			
		shifted		
literal translation	calque	calque		
explicitation	explicitation	addition		
generalisation	substitution/ explicitation	superordinate term		
	addition	paraphrase		
equivalence	transposition	substitution		
	lexical recreation			
	compensation			
omission	omission	omission		
		completion		
adaptation				
replacement with deictics				
		official equivalent		
			inadequate equivalent	
				underspecification

Table 4: Combination of taxonomies

Some problems do, however, arise when juxtaposing translation strategies. This was the case with the strategies *substitution* and *addition*. According to Díaz Cintas and Remael (2007), *substitution* means that the ST word is translated with a shorter TT hypernym or hyponym, but Pedersen (2011) asserts that *substitution* can be defined as the ST term being replaced with a different but equal TT term. In other words, Pedersen's *substitution* is much more TT-oriented than that of Díaz Cintas and Remael. As for *addition*, Díaz Cintas and Remael (2007) assert that more information is added, while Pedersen's *addition* essentially equals Díaz Cintas and Remael's *explicitation* more or less.

Furthermore, Pedersen's (2011) *retention* might at first seem redundant, as retaining the ST term may imply a loan translation, but it has been shown that subtitlers may not be aware of an existing TL equivalent. Therefore, this thesis will define *retention* as a ST term that was transferred to the TL without it being correct to do so. It is not the same as *lexical recreation*, as that implies a conscious move by the translator[9]; or as *inadequate equivalent*, as that concerns an incorrect translation.

As Pedersen (2011) argues, *literal translation* and *loan translation* have intersecting meanings. The distinction is especially difficult to draw as this thesis only considers words or word groups. For the present thesis, a distinction will thus be made. *Loan translation* implies that the ST term is used in the TT or a cognate thereof, whereas *literal translation* could be a freer version. It could thus be posited that *loan translations* are those that are even recognisable by a person with no command of the TL. Translating *arachnids* into *arachniden*, for instance, would seem more of a *loan translation* than a literal one. Translating *black box* with *zwarte doos*, on the other hand, is unmistakably a literal translation. Thus, *loan translation* is defined as a translation that closely resembles the ST term, while *literal translation* would be a word-for-word translation[10]. In this respect, this thesis differs from Vandenberghe (2013) who considered *loan translation* as the transfer of a ST term in the TT. The rest was deemed a *literal translation*.

It should also be noted that *underspecification* and *generalisation* do both in some respect imply a shortened TT term, but *generalisation* makes use of a different term than does *underspecification*. The term *untested hypotheses*, for instance, was translated as *hypotheses*, which is a loan translation and an underspecification, while generalisation would imply a translation such as *theorieën*. In the latter case, an entirely different TT term was used, instead of omitting part of the ST term.

The below table offers a summary of the translation strategies taxonomies of the aforementioned researchers as well as two additional strategies. It was not the case that the names given to the strategies were chosen in function of the researchers. A name was thus selected arbitrarily whenever two strategies were juxtaposed.

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[9] *Lexical recreation* is a conscious strategy in that the subtitler adds markings (e.g. quotation marks, italics), which would not be the case for *retention*.
[10] This will be elaborated upon in Section 5.5.

Official equivalent	The TT term is the official equivalent of the ST term. **EN** *NORAD* → **NL** *NORAD*
Retention	The ST term is kept in the subtitle, but does not exist in the TL. **EN** *fermions* → **NL** *fermions*
Loan translation	The ST word is incorporated into the TT, for they are cognates. **EN** *genetic* → **NL** *genetisch*
Literal translation	The ST word is translated literally into the TT, but slight changes may occur (e.g. plural to singular, noun to adjective). **EN** *black box* → **NL** *zwarte doos*
Explicitation	The TT term is more explicit than the ST term (e.g. hyponym). **EN** *sexual encounters* → **NL** *seksuele relaties*
Generalisation	The ST term is translated with a broader and more general TT term. **EN** *particle physicists* → **NL** *wetenschappers*
Completion	An ST ellipse/acronym is completed in the subtitle. **EN** *x-ray* → **NL** *röntgenfoto*
Paraphrase	The ST term is explained with a paraphrase. **EN** *lactose intolerant* → **NL** *kan geen lactose verdragen*
Compensation	A TT term is used where none was used in the ST. **EN** *sex life* → **NL** *geslachtsverkeer*
Lexical recreation	The ST word is translated with a neologism in the TT. **EN** *mercury* → **NL** *'mercury'*
Transposition	The ST term is translated with a different TT term, retaining the same function and meaning. **EN** *spider veins* → **NL** *spataderen*
Adaptation	The ST term is freely translated and the context of the TT is needed. **EN** *science* → **NL** *heel wat*
Deictics	Deictic methods are used to translate the ST term. **EN** *lysine* → **NL** *dat*
Underspecification	The ST term is only partially translated. **EN** *live acidophilus cultures* → **NL** *acidofiele culturen*
Inadequate equivalent	An unsuccessful version of *transposition*. **EN** *loop quantum gravity* → **NL** *luszwaartekracht*
Omission	The ST term is omitted in the subtitle. **EN** *genetically* → **NL** ∅
Abbreviation	The ST term is translated with an abbreviation or acronym. **EN** *electromyogram* → **NL** *EMG*
Term-to-non-term	The ST term is translated with a TT non-term. **EN** *traumatized* → **NL** *schokt me niet*

Table 5: Translation strategies taxonomy

Aside from the strategies suggested by the aforementioned researchers, two additional strategies were added by the author of this paper. As discussed in Sub-section 2.1.6, abbreviating new coinages is a method that is frequently resorted to. Furthermore, subtitling is said to be a type of constrained translation due to the numerous spatio-temporal restrictions. It may thus arguably be the case that the subtitler does not omit the entire term, but rather abbreviates it. This would result in a shorter TT term, which may be beneficial when highly

condensed information is present in the ST. Nevertheless, it needs to be stressed that the TT abbreviation cannot be too obscure or the TT audience is not likely to comprehend the subtitle. This strategy will be called Abbreviation.

Second, a strategy was added with regards to Skopos theory (Sub-section 2.4.2). As the subtitler may deem the comedic purpose of the TV series more important than the terminological presence and accuracy, it could be posited that the subtitler may opt to search for non-terminological equivalents in the TL[11]. This strategy may arguably share some ground with Explicitation, but the two strategies do differ to some degree. Explicitation can also be used to translate a term into a term, but more explicitly.

(2)   S   , but given enough start-up capital and an adequate **research facility**
                 *Als ik genoeg startkapitaal / zou hebben en een goed **lab**...*
.

In example 2, *research facility* was translated as *lab*, which is an Explicitation, for not all research facilities can be considered to be laboratories. It does not exemplify a Term-to-Non-Term, as *lab* would still be regarded as a term.

(3)   S   She's right. As long as you're vomiting, coitus is **contra-indicated**.
                 *Dat klopt. Zolang je braakt, / wordt coïtus sterk **afgeraden**.*

In example 3, the medical term *contra-indicated* was translated with *afgeraden*, which is less termable than the loan translation *gecontra-indiceerd*. Therefore, this is a Term-to-Non-Term.

2.4   Challenges of subtitling terminology

Thus far, academic research has mostly homed in on the translation of terminology in the subtitling or dubbing of non-fiction, and more particularly documentaries (Bianchi, 2015; Espasa, 2004; Hanoulle, 2017; Lozano & Matamala, 2009; Matamala, 2009a, 2009b, 2010; Mir, 1999). The subtitling or dubbing of scientific terminology in a non-scientific or non-academic context has not received much attention (Lozano & Matamala, 2009). As discussed in 2.2.2 and 2.3.3.2, both terminology translation and subtitling are subject to numerous restrictions. When combining the two, a subtitler is likely to be faced with several difficulties and challenges, which will be explained in this section.

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[11] It will be discussed in Chapter 3 to which extent Skopos theory may be relevant in the present thesis.

2.4.1 Length of terms

As discussed in Sub-section 2.1.4, scientific writing is subject to greater lexical density (Rogers, 2015). Indeed, scientific texts are typically prone to using many nominalisations. In addition, it was found that terms are mostly composed of multi-word units (see Sub-section 2.1.6), which are longer than single-word ones. As a consequence, it could be argued that a subtitler will be faced with more translation problems when trying to convey that density and the length of terminology in the TL. Indeed, the length of terms in the ST has been found to be the cause of omissions and elisions in the TT (Lozano & Matamala, 2009; Vandenberghe, 2013). This forms the baseline for the fourth research question (Chapter 3).

2.4.2 Skopos theory

A second challenge in subtitling terminology is the *skopos*. It has been posited by Byrne (2012) that Skopos theory is important in scientific translation. According to that theory, the audience for whom a text is written and the ensuing effect it produces, are more salient aspects in the translation process than solely focussing on the linguistic aspect.

As far as terminology subtitling is concerned, it could be argued that some audiences may have different expectations about the content in subtitles. People watching a documentary about medical procedures are likely to expect a faithful translation of the ST[12], whereas the audience of a medical TV programme may not necessarily benefit of a faithful rendition of the ST. Santamaria (2002, as cited in Lozano & Matamala, 2009) posits that "[i]t is not the communication of specialised information that is the principal function in such discourse, but to characterize the dramatic scene where the protagonists interact, and to portray them conveniently" (p. 75). Espasa (2004) corroborates that statement and argues that the translation of "terminology (…) is relative to the audience for which the translation is designed" (p. 193)[13].

It could be argued that *TBBT* presents the same predicament, as the scientific terminology might serve as the characterisation of the interlocutors. In this respect, this TV series differs from documentaries in that the latter type addresses the audience rather directly. Those people watching a documentary are arguably watching it to gain insight. In *TBBT*, however, the audience is not the receiver of the information and solely sees communication between

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[12] Non-fiction does not always aim for the most faithful translation, as there still needs to be a degree of entertainment to keep the audience's attention (Matamala, 2010).
[13] Some experts in the field may, however, be taken aback by the unfaithful translations of fictional ST material that depicts their specialisation (Lozano & Matamala, 2009).

specialists or between specialists and lay people (e.g. Penny). Moreover, it may be the case that the terminology employed by the protagonists in this TV series mainly serves a comedic effect.

Nevertheless, there are reasons to believe that the specialised communication in *TBBT* does not only serve a humorous purpose. Indeed, it has been shown that *TBBT* is co-written by an expert in the field of physics, so as to provide an accurate depiction of scientific communication (Mahdalíková, 2014). Taking into account the level of accuracy and expertise in the source material, a subtitler will arguably be faced with difficulties.

2.4.3 Paraphrasing of terminology

Badia and Brumme (2014) studied to which extent specialised terminology poses a problem for the subtitler of the crime TV series *Dexter* and *Castle*. The researchers argue that the subtitler has to evoke spoken language, even though subtitles are a written rendition of speech. In addition, they mention that in many scripts, the specialised terminology is already paraphrased so as to explain the term not only to the lay people in the scene, but also indirectly to the series' audience. This means that the subtitler has to translate both the term and the explanation. This can be challenging, as the subtitle would have to convey the same level of specialism as the ST, because if a well-known alternative was chosen to translate the term, the subsequent explanation would not make sense, as the layperson would already know what is meant.

As for *TBBT*, paraphrasing is often resorted to, especially when lay people such as Penny are in the scene. In the scene below, for instance, Penny asks for clarification as she clearly does not know what *mitosis* means.

(4)   H   I'm an advocate of **mitosis**.
             *Ik denk door **kerndeling**.*

       P   I'm sorry?
             Pardon?

       H   I believe one day Sheldon wille at an enormous amount of Thai food
             Ik denk dat hij op een dag / zo veel Thais eet…

             and split into two Sheldons
             dat hij zich in twee Sheldons splitst.

2.4.4 Difficulties in *the Big Bang Theory*

There are some difficulties that are specific to the subtitling of *TBBT*. First, *TBBT* arguably is a concoction of different types of communication: non-specialised communication is interspersed with specialised lexicon, characters alternate between formal and informal language, wordy syntax precedes shorter, chunky sentences and vice versa, alleged *geeky* phraseology coincides with more general communication, etc.[14] This makes that the present corpus is incredibly diversified and that it can simply not be considered as a specialised text. The subtitler thus has to mediate between these types of speech and communication, all the while retaining the authenticity of the ST. Further, this constitutes a considerable limitation of this thesis (Chapter 8).

As far as the formal speech is concerned, it has already been established that the length of a subtitle is determined by the time of a person speaking (see 2.3.3.1). Not only do some characters in *TBBT* employ wordy and formal phraseology, they speak rather quickly, too. (Balirano, 2013). This is likely to constitute a greater challenge in combination with the length of the terminology employed. This forms the baseline for research question 3 (Chapter 3).

Another difficulty that arises in the subtitling of *TBBT*, is the level of humour. The terminology employed is often a cause of humour in *TBBT*, and as a consequence, this has to be rendered in the TT, too[15]. The topic of humour in *TBBT* has already been researched in Seghers (2017), who found that the ST humour is adequately translated in most cases.

2.4.5 Additional challenges

A number of other challenges exist that can impede the subtitling process. These, however, are not only specific to the subtitling of scientific terminology. Matamala (2009b), for instance, evokes harsh working conditions and incorrect or absent source material. In addition, a subtitler is often faced with rigorous deadlines.

Furthermore, the subtitler must display a level of expertise depending on the source material. Financial documentaries are more likely to be subtitled by someone with a fair knowledge in the field, rather than by a lay-person.

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[14] Mahdalíková (2014) provides a more thorough summary of these aspects.
[15] This may possibly be linked with Skopos theory (Section 6.6).

3   RESEARCH QUESTIONS AND HYPOTHESES

The present study aims to identify by means of a quantative and qualitative analysis how the scientific terminology of a season of *TBBT* was rendered in the Dutch subtitles. Further, it wants to identify to which respect the spatio-temporal constraints that are inherent to subtitling or the inherent characteristics of terms constitute a hindrance in the translator's work.

The baseline for this study was the assumption that the corpus, i.e. the transcription of an entire season of *TBBT* and its corresponding Dutch subtitles, would seem to offer a variety of scientific terms, as Seghers (2017) notes that many characters, in particular Sheldon (see Sub-section 4.2.1), are characterised by their scientific phraseology. Furthermore, findings by Groenen (2011), Balirano (2013) and Mahdalíková (2014) also indicate the high level of scientific terminology employed in *TBBT*.

Therefore, this thesis aims to provide an answer to the following research questions:

1. What are the translation strategies used to render the scientific terms
    in the second season of *TBBT* in the Dutch subtitles?

Findings in previous research have shown that *omissions* are often be resorted to in subtitling (Bogucki, 2004; Díaz Cintas & Remael, 2007; Gottlieb, 1994; Haeck, 2011; Szarkowska, 2010). In addition, Vandenberghe (2013) researched medical terminology subtitling and found that her corpus featured a rate of 21.7% of omissions, which leads to believe that the Dutch subtitles of *TBBT* will feature a large number of omissions.

Nevertheless, while researching the translation of humour in *TBBT*, Seghers (2017) noted that the "scientific phraseology […] appeared to have hindered the translator to a lesser extent than was predicted" (p. 65). It should be noted that his paper has not provided in-depth research as to the way in which terminology is translated, for the focal point of his study was not terminology. Furthermore, the taxonomy employed in Vandenberghe (2013) was limited to that of Tomaszkiewicz. In light of the complex terminology used in *TBBT* and of the more elaborate taxonomy of translation strategies employed in the present thesis, it could be hypothesised that the strategies will indicate translations that are less accurate than elsewhere. This is likely to result in an elevated number of Omissions, but I argue that the corpus will present a fair share of Underspecifications, Inadequate Equivalents and Term-to-Non-Terms, too.

As *scientific terminology* is a rather broad concept, the translation strategies may differ depending on the fields and sub-fields of science that are represented. This results in the following research question:

2. Do the translation strategies for the scientific terminology differ depending on the field to which the term belongs?

As the subtitler is not likely to be incredibly more experienced in one field of science than the other and as the constraints inherent to subtitling and terminology are possibly the same across different fields, it could be hypothesised that the translation strategies will not vary in relation with the domain of science that is featured.

In order to assay to which extent the sitcom context imposes different (and perhaps less accurate) translation strategies than ST material that is academically or scientifically oriented, the results obtained from the first research question will be compared with those in other studies that centred on terminology translation in documentaries. In particular, the results found in Bianchi (s.d.) will be likened to the results obtained in the present thesis. This results in the following research question:

3. What is the impact of the sitcom context on the accuracy of the translation of scientific terminology?

The results are likely to differ due to a number of reasons. First, the sitcom context will arguably allow for a freer translation, in spite of Skopos theory (see further). Second, the taxonomy employed in the present thesis is more elaborate, as it features classifications from several authors. This is likely to result in different percentages. Third, as mentioned in Sub-section 2.4.4, the corpus employed in this study is more of a mixed bag, with varying fields of science represented, while terminology in documentaries is more likely to be related to the same field. This can perhaps impede the translation process, as the subtitler would have to be knowledgeable about different sorts of scientific fields. Lastly, the language pair used in the present study is English-Dutch, while Bianchi (s.d.) examined results for the English-Italian language pair. Therefore, it could be hypothesised that the results of the number and frequency of translation strategies in a sitcom interspersed with scientific terms differ from those obtained in the analysis of documentaries.

The fourth research question is the following:

> 4. Are there reasons pointing to the spatio-temporal constraints inherent to subtitling or the characteristics of terminology impeding the translator's work?

It could be hypothesised that the characteristics of terminology (i.e. the length of terms and the condensed information), those of subtitling (i.e. the limited number of characters allowed) and those inherent to the TV series (i.e. the pace of the series' characters' speech) may pose a problem for the translator. This is likely to be linked with the results concerning the translation strategies in the first research question, thus resulting in a high number of strategies that indicate loss of information and accuracy.

In light of the previous research questions, the subtitling of the scientific terminology in *TBBT* is thought to be somewhat problematic due to the several applying restrictions. Nevertheless, it has been shown that the show's writers "are particular about the scientific accuracy of all dialogues" (Mahdalíková, 2014, p. 25). As a consequence, an experienced scientist was hired to render the dialogues authentic and accurate. This was the baseline for this research question:

> 5. What are the implications of the findings in this paper for Skopos theory?

According to Skopos theory, the audience takes on a more important role than the text itself. A translator thus has a clear overview of the target audience at all times. As *TBBT* is said to be written with scientific accuracy, it could be hypothesised that the target text will serve the main purpose in those cases where the translation was not hindered by the terminology and subtitling constraints. For this reason, it could be hypothesised that the subtitler will do the utmost to provide complete translations of the scientific terms. Nevertheless, it should also be noted that the subtitler may simply not be aware of the level of scientific accuracy that is present in the ST material, which would then lead to different results. Further, it needs to be stressed that the subtitler may find that the comedic purpose of the sitcom is more salient, arguably resulting in less specific terminology translations. For this reason, the strategy Term-to-Non-Term (2.3.3.2) was added, the purpose of which is twofold. First, this subtitling strategy may shed light on the way in which the subtitler adapts the ST to the audience, thus enhancing the comedic effect. Second, the subtitler may not find adequate translations for a given ST term, resulting in a Term-to-Non-Term. This will be discussed in Section 6.6.

4 DATA

The present chapter will discuss the data employed in this thesis. Section 4.1 will discuss the two corpora that were used, i.e. the English dialogue list with its corresponding subtitles and the terminology corpus extracted as shown in Section 5.1. Then, Section 4.2 will provide an overview of the TV series under study and will examine the series' characters. In Sub-section 4.2.2, an outline of the season's episodes will be given.

4.1   Corpus

The corpus under study in this paper was established by Seghers (2017). For his paper on the translation of humour in the Dutch subtitles of *TBBT*, he compiled a corpus with the transcription of the second season of *TBBT* and its corresponding "Dutch subtitles as provided on the official DVD issued by Warner Home Video" (Seghers, 2017, p. 37). The corpus can be consulted in Annex A as an electronic attachment to the present thesis. As Segher's paper was concerned with the translation of humour, the second season was consciously chosen as the characters were said to be more familiar with one another, allowing more humour to be expressed. The 623-page corpus comprises rougly 120,000 words, i.e. the transcription and respective subtitling of the entire second season of *TBBT*. The corpus features twenty-three episodes, with each episode lasting for around twenty minutes. This makes that the entire corpus provides over 460 minutes of data.

Despite the focal point of Seghers (2017) being humour, there are reasons to believe that the corpus is equally applicable to the current study. Seghers (2017) notes that the characters employ a wide array of scientific terms. In addition, the second season of *TBBT* introduces many interesting characters, such as Leonard's love interest and doctor Stephanie, Leonard's mother, a neuropsychologist, Ramona Nowitzki, a fellow physicist and admirer of Sheldon and Leslie Winkle, Leonard's other love interest and fellow physicist. The plethora of different scientific fields in this season could thus prove to be interesting. Consequently, aside from the areas of physics, astrophysics and engineering (Section 4.2.1), the scientific areas of neuroscience, psychology and medicine may also be featured in the terminology corpus.

All characters were assigned an initial, or in those cases where two characters have the same initials and ambiguity may be present, an initial and the ensuing letter(s) were used. In example 5, for instance, the interlocutors are Leonard (L) and Sheldon (S).

(5)   L/S   Sheldon, we both agreed to do this. / It's a waste of time.
              Sheldon, we zouden dit doen. / -Het is tijdverspilling.

       S   I might as well explain the laws of thermodynamics to a bunch of labradoodles.
              Ik kan net zo goed thermodynamica / aan een stel labradorpoedels uitleggen.

As ST dialogue is sometimes broken down over two or more subtitles, the ST sentences were split in accordance with the Dutch subtitles, meaning that each chunk of ST dialogue corresponds to the Dutch subtitle. Whenever the Dutch subtitle was spread over two subtitles, a forward slash indicates the spot where the subtitle is split (see example 5). A forward slash in the ST, on the other hand, is an indicator of when a second person starts speaking, which is expressed in the subtitle with a forward slash and a hyphen, as the latter symbol is conventionally used in Dutch subtitling to indicate a new interlocutor. In those cases, a subtitler is advised to always separate the subtitles over two lines, allowing the audience to process the information more efficiently.

Moreover, as noted in 2.3.3.2, subtitling is subject to several constraints. Therefore, it is possible that some ST segments were not translated. In those cases, the ST segments were marked with brackets. It should be noted, however, that it is not necessary to provide subtitles for all utterances, as those might include audible sighs, markers of surprise, singing, shushes, etc. In addition, subtitles need not be provided if the original soundtrack is comprehensible to the non-native audience. In example 6, for instance, Sheldon repeatedly asks for Penny in a hushed voice whilst knocking on her door. There are, however, no additional English words to be heard and the audience would arguably be familiar with Penny's name. In those cases, the subtitler may possibly best choose not to employ a subtitle.

(6)   (S)   (Penny, Penny, Penny)[120]

Example 6 also shows that the corpus provides additional information, for instance as to the way in which a person speaks or which extra-linguistic factors are present. This information is expressed with a footnote. Furthermore, the corpus also contains time stamps, which were added "in increments of fifteen seconds" (Seghers, 2017, p. 37) to render the task less difficult of identifying the length of a given person's utterance or of an action. These stamps are, however, not always accurate, as the time mark may take place in-between a single subtitle. In those instances, the time stamp was added afterwards.

Whenever mistakes were made in the original subtitles, the adverb [sic] was added before the mistake. This could prove useful with regards to terminology translation to establish whether the subtitler committed an error. It should be noted, however, that mistakes may be made in the corpus, too. Consider the following example:

(7)   Kr   Heard about your **watest pwoton decy expewiment**.
             [sic]Ik hoorde over je protonexperiment

Here, Kripke, a rival physicist, is speaking, but he suffers from a speech impediment that makes that he cannot pronounce l's or r's correctly. This was successfully rendered in Segher's corpus, but the *a* in *decay* was omitted by accident. Other example mistakes in the corpus include, for instance, the word *mitosis*, which is spelt erroneously with a *y* in the corpus; *quanti space*-time, which ought to have been *quantized space-time*; and *icosahedral dye* instead of *die*. It was decided to include such terms, in spite of their incorrect spelling.

From the corpus of Seghers (2017), a second corpus was distilled containing the scientific terms found in the second season along with their corresponding subtitled translation. Additional aspects can be observed, such as the field of science in which the term belongs, as well as the translation strategy employed to render the ST term in Dutch.[16]

4.2   The Big Bang Theory

The Big Bang Theory is an American TV series, created by Chuck Lorre and Bill Prady and written by both Lorre and Prady and Steven Molaro. The show is taped in front of a live studio audience and is broadcast on the network CBS. The first episode was released in September 2007 and is still running as of 2018.

The show revolves around a group of friends, most of whom hold PhDs in a scientific field, except Howard. The show's main characters are physicists Leonard Hofstadter (Johnny Galecki) and Sheldon Cooper (Jim Parsons), who live next-doors to Penny (Kaley Cuoco), an aspiring actress. The two physicists are regularly joined by Howard Wolowitz (Simon Helberg), an engineer, and Rajesh Koothrappali (Kunal Nayyar), an astrophysicist. *TBBT* has been proven to be very successful, as the show has been renewed multiple times (Mahdalíková, 2014)

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[16] Section 5.1 will discuss the way in which the terms were retrieved and Section 5.3 will provide a more in-depth overview of the way in which the corpus was organised.

4.2.1 Main characters

Sheldon Cooper, played by Jim Parsons, is a theoretical physicist sharing an apartment with Leonard Hofstadter, an experimental physicist. Sheldon is an extremely logical and intelligent person and fully understands the intricacies of science, but finds it difficult to engage in conversations with his peers, who do not showcase the same level of comprehension. Due to his academic background and to his University enrolment at the age of fourteen, he speaks in a very formal fashion and employs a wide range of terminology with all interlocutors. He does not master sarcasm and is unaware of the signs when a conversation turns awkward. He also seems to find it difficult to lie and displays some OCD behaviour. He often does not understand the nuances of emotions, relationships or feelings and does not seem to comprehend the particularities and etiquettes of social interactions. Consider the following example. When talking with Penny, who has recently broken up with her boyfriend, he says the following: "Apparently I'm in some kind of relationship, and you seem to be an expert at ending them." (Annex A, p. 158). His lack of social skills and his high degree of self-esteem and complacency often make him highly unpopular with his peers, especially with Howard and Penny, whom he tends to belittle as neither of them hold a PhD and are therefore not deemed sufficiently intelligent. In addition, Sheldon often establishes rigorous rules or puts forward ridiculous demands. For instance, his list of prerequisites for Chinese food to be tasty often annoys his friends, as can be seen in the following conversation: "Did you remember to ask for the chicken with broccoli to be diced, not shredded? Even though the menu description specifies shredded? (…) Brown rice, not white? (…) Did you stop at the Korean grocery and get the good hot mustard? (…) Did you pick up the low-sodium soy sauce from the market?" (Annex A, p. 512).

Leonard is Sheldon's roommate and friend. Unlike Sheldon, Leonard is quite able to grasp sarcasm and can quickly feel when he should remove himself from a conversation or situation. He is much more light-hearted and is, despite his academic achievements, more down-to-earth and less condescending. He often effaces himself as his neuropsychologist mother was never content with Leonard's accomplishments. Although he has had other relationships, his main love interest is Penny, the literal girl next door. Throughout the seasons, their on-and-off relationship is the subject of numerous discussions and humorous moments. The difference between him and Penny in terms of scientific background results in frequent discussions, as Leonard tends to use scientific terminology with Penny, too, to which Penny often retorts that she does not nourish the same scientific aspirations as him.

Howard Wolowitz is a Jewish aerospace engineer and is the only one amongst the four men who does not hold a PhD, resulting in his being a target of mockery for Sheldon. In contrast with Leonard, Howard is overly confident, especially when it comes to the other gender. He often exhibits flirtatious and moderately misogynistic behaviour towards women and considers himself to be a true women magnet, even though he has no success. In addition, Howard is the only one who still lives with his mother, who has yet to appear on-screen. She often treats him as though he were still a child, telling him he needs to go to school and asking him what he wants in his lunch box.

Rajesh Koothrappali is an astrophysicist of Indian decent, employed at the Physics Department of the California Institute of Technology. He is a close friend of Howard's, as the two are often seen hanging out with one another, which sometimes gives the impression that they are more than friends. Indeed, Leonard's mother, a neuropsychologist, asserts that they "have created an ersatz homosexual marriage to satisfy (their) need for intimacy" (Annex A, p. 400). Rajesh suffers indeed from a pathological issue hindering him in conversations with women, as he is only able to talk with women when he drinks – or when he thinks he is drinking – alcohol. At other times, Howard could be considered Rajesh' ventriloquist whenever the latter wants to say something to a woman, as Rajesh resorts to whispering in Howard's ear.

Finally, Penny lives across the hall from Leonard and Sheldon and serves as the show's antipode. She is a self-declared "waitress slash actress" (Annex A, p. 11), originally from Omaha, Nebraska, who moved to California to pursue her acting career. Unlike the four men, she has no scientific background whatsoever. Her lack of comprehension of science often makes for humorous instances. Evidently, Penny speaks in an informal fashion and does not use any terminology. She understands social interactions and customs perfectly, in contrast with the four men. Her interests include contemporary music and gossip magazines, which is in sharp contrast with the four men's avid scientific knowledge (see example 8). She is on friendly terms with Leonard and Rajesh, but her interactions with Sheldon and Howard are quite different. Sheldon tends to belittle Penny by emphasising that she does not have an educational background, to which she often responds that Sheldon does not know *basic* things (see example 8). Furthermore, she is often creeped out by Howard's constant romantic advances.

(8)   S   I have a working knowledge of the entire universe and everything it contains.
                Ik weet alles over het hele universum / en alles wat zich erin begeeft.

P   Who's Radiohead?[204]
          Wie is Radiohead?

S   I have a working knowledge about the important things in the universe.
          Ik weet alles over / de belangrijke dingen in het universum.

4.2.2   Episodes in Season 2

EpNum	Title	Page[17]
S2E1	The Bad Fish Paradigm	3
S2E2	The Codpiece Topology	30
S2E3	The Barabarian Sublimation	59
S2E4	The Griffin Equivalency	86
S2E5	The Euclid Alternative	114
S2E6	The Cooper–Nowitzki Theorem	140
S2E7	The Panty Piñata Polarization	166
S2E8	The Lizard–Spock Expansion	196
S2E9	The White Asparagus Triangulation	221
S2E10	The Vartabedian Conundrum	246
S2E11	The Bath Item Gift Hypothesis	274
S2E12	The Killer Robot Instability	299
S2E13	The Friendship Algorithm	328
S2E14	The Financial Permeability	358
S2E15	The Maternal Capacitance	387
S2E16	The Cushion Saturation	412
S2E17	The Terminator Decoupling	440
S2E18	The Work Song Nanocluster	469
S2E19	The Dead Hooker Juxtaposition	493
S2E20	The Hofstadter Isotope	519
S2E21	The Vegas Renormalization	545
S2E22	The Classified Materials Turbulence	573
S2E23	The Monopolar Expedition	596

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[17] The page number refers to that in Annex A, the electronic attachment to this paper.

5 METHODOLOGY

The present chapter will discuss the way in which the corpus was compiled. First, the terms had to be extracted from Seghers' (2017) corpus, which was done both automatically (Sub-section 5.1.1) and manually (Sub-section 5.1.2). To filter out the terms from the non-terms, selection criteria needed to be applied, which will be discussed in Section 5.2. In Section 5.3, the way in which the corpus was organised will be illustrated. Then, the terminological resources employed in the application of the translation strategies will be explained in Section 5.4 and Section 5.5 will highlight the taxonomy of those strategies. Section 5.6 will examine the way in which the number of characters per term was achieved in light of the fourth research question (Chapter 3).

5.1 Terminology extraction

5.1.1 Automatic terminology extraction

The corpus compiled by Seghers (2017) was filtered through automatic term-extraction (ATE) software called *TExSIS*, a system developed at the University of Ghent (Hanoulle, 2017). The programme compares each word in a given corpus with a large non-specialised corpus and consequently assigns a termhood number to each term candidate, as can be seen in column H of Image 2. The higher the number, the less frequently the term- candidate occurred in the non-specialised corpus and consequently, the more likely the term candidate is actually a term. In addition to termhood, the terminology list also provides supplementary information, such as POS-tagging, composition, the number of words and syllables in the term candidate and the frequency with which the candidate occurs in the corpus. *TExSIS* was able to extract 5674 term candidates, which can be found in Annex B[18].

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	words	POS	mapped	Lemma	nrWords	nrSyl	avgSyl	Termhood	CValue	Freq	LLR	isOveruse	named e	Mutual Ex	ctation
1															
2	multi-loop n	JJ NN	ADJ N	multi-loop n	2	3	0.00	2.566.303	100.072	1	0.00000	false	0 0	0.0000000	
3	Kwipke Kwippler	NNP NNP	N N	Kwipke Kwip	2	3	1.41	2.546.030	100.072	1	0.00000	false	1 1	0.0000000	
4	Non-alcoholic bee-ee-eer	JJ NN	ADJ N	non-alcoholi	2	8	3.87	2.546.030	100.072	1	0.00000	false	0 0	0.0000000	
5	Alicia's	NNP	N	Alicia's	1	2	2.00	2.511.372	0.00144	1	3.180.677	true		1	0.0000000
6	Anythingforagreencard.c	NNP	N	Anythingfora	1	7	7.00	2.511.372	0.00144	1	3.180.677	true		0	0.0000000
7	Bawwy	NNP	N	Bawwy	1	2	2.00	2.511.372	0.00144	1	3.180.677	true		1	0.0000000

Image 2: Termhood figures in the corpus

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[18] Annex B was supplied as an electronic attachment to this thesis.

As discussed in 2.1.5.1, specialised terminology is likely to occur more frequently in a specialised corpus than in a non-specialised one. This sheds light on the first limitation of using ATE software in the present thesis. Arguably, the corpus of *TBBT* cannot be deemed specialised, as it features different sorts of discourse (formal and informal language, humour, specialised and non-specialised discourse, geeky phraseology, etc.[19]). The present corpus is, in other words, hybrid in nature. Therefore, it comes as no surprise that the automatically generated terminology corpus contains general high-frequency words along with possible terms. Moreover, termhood compares the frequency with which a term candidate occurs in its own corpus, thus resulting in high results for general words such as *you* and *my* (see Image 3).

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	words	POS	mapped	Lemma	nrWords	nrSyl	avgSyl	Termhood	CValue	Freq	LLR	isOveruse	named ei	Mutual Ex
2	You	NNP	N	You	1	1	1.00	8.577.137	325.454	2258	437.819.520	true	1	0.0000000
3	Do	NNP	N	Do	1	1	1.00	4.353.521	0.93584	650	115.556.128	true	1	0.0000000
4	My	NNP	N	My	1	1	1.00	2.839.019	0.67052	480	54.671.979	true	1	0.0000000
5	Not	NNP	N	Not	1	1	1.00	345.912	0.55804	389	1.129.560	true	1	0.0000000
6	Oh	NNP	N	Oh	1	0	0.00	7.105.820	0.54603	382	203.378.197	true	1	0.0000000

Image 3: General words in the corpus

Several problems arose with regards the automatically extracted corpus. First, it contained, as mentioned above, multiple term candidates that were not scientific terms. For instance, from the six term candidates in Image 2, only one is actually a scientific term. The rest is noise[20]. Additionally, ATE sometimes fused term candidates erroneously. By way of illustration, the term *science* was incorrectly combined with other words, which resulted in such term candidates as *big science lab*. Despite the latter term candidate not being a term, it would be incorrect to eliminate such a faulty combination as a whole, as *science lab* can be considered a term. Furthermore, the term *non-equilibrium Green's function approach*, for instance, was not found in the ATE corpus. Even though *non-equilibrium* was extracted successfully, *Green's function* and *approach* were not. Thus, ATE may either combine too many words into a single term candidate or leave out too many words in one.

Second, the software was found to only indicate the frequency with which the term occurs in the corpus, but as this thesis is concerned with the way in which these terms are translated individually, multiple translation strategies might occur for one term. Indeed, the inherent nature of subtitling as constrained translation might have imposed several diverging translation

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[19] See Sub-section 2.4.4.
[20] "[N]oise refers to the ratio between discarded TCs and the accepted ones" (Ha, Mitkov & Corpas Pastor, 2008)

strategies on a term, as the subtitler arguably does not work in a vacuum. Such an instance was the term *equipment*, which was translated twice as *apparaat*, twice as *apparatuur*, once as *spullen* and was once omitted. With the ATE corpus, several columns would have to be added to display each instance in which the term was translated, which would not have been well-ordered, for some terms occur up to twenty times.

In sum, it was found that ATE was not the most suitable method for the present corpus, as ATE is more efficient in corpora that are highly specialised and are only tailored to a single topic. The present corpus would seem more of a concoction, as it includes both specialised lexicon and general language and as it often juxtaposes oral (informal) and written (formal) discourse. Furthermore, the corpus sees different sorts of specialised fields mixed together, which would not be the case in a specialised article for a given sub-field of science. Consequently, it was found to be imperative to manually verify the ATE corpus.

5.1.2 Manual terminology extraction

A first step taken in the manual terminology extraction (MTE) process was to filter out the terms from the non-terms in the corpus distilled by using *TExSIS* (see Sub-section 5.1.1), in light of the aforementioned drawbacks to ATE (i.e. ATE not considering individual terms or fusing words erroneously into a term candidate). Of the 5674 term candidates that TExSIS extracted (see the electronic attachment Annex B), a total of 375 terms remained, which can be consulted in Appendix A. Nevertheless, the manual verification was not optimal, either. First, it may have been the case that not all possible terms were extracted by the ATE approach, to which manual verification would not offer a solution. Additionally, it did not allow for the translations to be orderly included, as several columns would still have to be added.

In light of the above remarks concerning manual verification, it was ultimately decided to distil the terms manually from the corpus. That approach allowed for terms to be grouped correctly, in accordance with the episode in which they were featured.[21] Furthermore, MTE made it possible to add rows for each occurrence of a term in the corpus, which would not have been possible with ATE.

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[21] It was decided in the process that it the extent to which an episode contains scientific terms may be an interesting factor to take into consideration.

The MTE approach allowed for 1103 terms to be distilled from the corpus compiled by Seghers (2017). The terminology corpus can be consulted in Appendix B. Since the latter corpus was ultimately employed for the results discussed in this thesis, Annex B and Appendix A were discarded.

5.2   Selection criteria

In the present section, the selection criteria employed in the terminology extraction will be described. In the first sub-section, an overview will be given of the extraction with regards to the summary of terminology characteristics mentioned in Sub-section 2.1.7. Sub-section 5.2.2 will, then, reveal the main issues in selecting the scientific terminology.

5.2.1   Theoretical selection criteria

In Sub-section 2.1.7, the following summary was given of the salient characteristics of scientific terminology, which helped in the process of creating the corpus.

1. Terms are mostly nouns, sometimes adjectives, adverbs or verbs. Closed-class units will therefore be discarded.
2. Terms used to be formed based on Greco-Latin roots, but that is no longer the case, thus terminology that is not etymologically based on Greek or Latin will also be included.
3. Terms can also comprise numbers, punctuation or they can constitute acronyms.
4. Terms can be composed of proper nouns.
5. Terms are likely to be composed of multi-word units.
6. The relative frequency with which terms occur, is higher in specialised forms of communication than in general speech.
7. Terms require a higher degree of knowledge of the field.
8. Terms are subject to degrees of termability.
9. Terms are context-independent.

In accordance with the first characteristic, the first step was to solely include terms that were nouns, adjectives or verbs. As is evident, pronouns (as well as other closed class items) and non-lexical utterances, such as 'uhh', were excluded, as well as proper nouns referring to characters in the series, e.g. Leonard, Penny, Sheldon, etc.

Further, according to the second trait of terms, many scientific terms originate from Latin and Greek. These terms were included, but it was revealed that ample words exist in the general language that share those roots, but those could not always be considered terms. Such cases include *synchronise* and *actor*, which arguably do not really pertain to a scientific domain. Nevertheless, leaving these alleged non-terms out reveals an important limitation of this thesis, as my understanding of a term may, in spite of the aforementioned characteristics of terminology, ultimately differ from that of someone else.

Moreover, it was also decided to include words emulating scientific terminology. Such a word would be *adamantium*, which is a fictitious steel alloy used in the Marvel comic book series to denote indestructible steel. The suffix –ium is characteristic of chemical elements, such as *helium* and *aluminium*. Another example is *the Wolowitz Zero-Gravity Waste Disposal System,* which is the name that Howard gives to an invention of his.

The episode titles summarise the plot by means of scientific terms or words emulating scientific phraseology, such as *The Vartabedian Conundrum* (S2E10) or *The Friendship Algorithm* (S2E13). It needs to be stressed that these titles could not be included in the corpus, despite their value as scientific terminology. Not only are they not translated into Dutch, but they are, unlike the show's terminology, not subject to the constraints inherent to subtitling. It should be noted, nevertheless, that some words in the titles occur in the episode itself, and are therefore subtitled. Those instances were recorded in the terminology corpus.

As noted in the key characteristics, the relative frequency with which terms occur in a specialised corpus is said to be higher than in general corpora. This remark taken into account, it was decided to include terms that are highly prevalent in the *TBBT* corpus (e.g. *physics* or *science*), even though they may be well-known in everyday language. This is in accordance with the notion of *termability* (i.e. the eighth characteristic).

Additionally, despite one of the key characteristics of terminology being their context-independence, it was found that context was sometimes necessary in order to determine whether the term candidate was actually a term or not. In example 9, ATE is unlikely to have noticed that *matter* in this context does not equal the scientific term *matter* (e.g. *dark matter*). Indeed, the verb *matter* in the above example occurs in Segher's (2017) corpus, as well as both the non-terminological noun *matter* (e.g. *what's the matter*) and the terminological one (e.g. *matter*

consists of strings). The above remarks taken into account, it was decided that context was necessary to determine the *termability* of a term candidate.

(9)　　S　　It doesn't **matter**, right now you're looking for treasure.
　　　　　　Maakt niet uit, je zoekt een schat.

Moreover, the use of terminology is said to occur in exchanges between two or more people who have a fair knowledge of the matter. However, in *TBBT*, it has been shown that that maxim is not always met. Sheldon, for instance, regularly resorts to terminology in conversations with obvious lay-people, such as Penny. At most times, it is because he does not comprehend that other people do not share his knowledge of physics. This means that the conversation does not necessarily take place in a specialised environment and therefore, the argument put forward in Sub-section 2.1.7 was argued not to be relevant in this thesis.

5.2.2　Main issues

In spite of the characteristics of terminology explained in the previous sub-section, the line between what constitutes a term and what not proved to be somewhat blurry at times. A myriad of term candidates were found that are not prototypical scientific terms. It could be the case that those examples are *less-termable* terms, but also that they are non-terms. Much of the distinction relies on whether or not a term candidate occurs in the general language or whether or not lay-people are familiar with its meaning. Nevertheless, this is in contrast with the notion of termhood, according to which *science* (a well-known word) is a term.

As it can be difficult to draw the line between terms and non-terms, some term candidates of which it was unsure whether they could pass as terms, were included, but also highlighted in grey (Appendix B). These could prove useful for further research avenues, as my interpretation of a term may differ from that of someone else.

As noted in 2.1.5.1, terms often constitute multi-word units. As a result, a word by itself may arguably sometimes not be considered a term, despite it becoming a term in combination with other words. This was the case with *sexual*. This word has become so well established in the general language that it would no longer constitute a term. In combination with another word, however, it may become a term, such as the term *sexual intercourse*. This is another possible

term that belongs in the grey area between terms and non-terms. Nevertheless, there is reason to believe that it is a term, as the layman equivalent is likely to be the word *sex*.

Another difficulty in extracting the terminology, was the particular form of speech, which may have interfered in the terminology selection process. As discussed in Sub-section 4.2.1, *TBBT* depicts a group of four scientists who, aside from various terms, use fairly formal speech in their interpersonal communication. As a result, some words may appear to be terms, when they are in fact formal words. Consider example 10.

(10)　P/S　Hide you? / I formally request sanctuary.
　　　　　Wat? / -Ik vraag formeel asiel aan.

Sheldon's four-word sentence appears formal and perhaps exotic to Penny. In simpler terms, he is asking Penny to hide him, but his phrasing is arguably quite stiff and formal, and as a result, it would be incorrect to highlight either *request* or *sanctuary* as a scientific term.

On the one hand, the vocabulary employed in *TBBT* cannot always be considered terminological, but on the other hand, some terms are so field-specific that finding a correct translation is an elaborate and difficult task. An example would be the term *string-network condensate*, which occurs three times in the corpus. Nonetheless, when researching this term on websites (Google, Google Scholar) and in physics handbooks (Clason, 1997), very few hits were found. Google Scholar only makes three mentions of *string-network condensates*, two of which were papers concerning *TBBT*. Therefore, it could be concluded that *string-network condensate* is either an incredibly specialised term, or it is a combination of two, more frequent physical terms, i.e. *string network* and *condensates*. It should be noted that *string-net condensate* occurred in the corpus, too. This seems to have a higher chance of being a term, considering its number of hits in Google Scholar.

An issue that is linked with the above remark, is that *TBBT* aims to closely depict the lives of scientific researchers. Consequently, the characters use terms that are relatively recent in the field of scientific research. Much of the research published by native speakers of Dutch is in English, as the latter language is deemed the *lingua franca* of science. Therefore, readymade Dutch equivalents are not always at hand. It should be noted, too, that the subtitler tried to evoke the scientific concepts and phenomena in Dutch, but seeing that Dutch scientific researchers

employ many English-borrowed terms, that would be an incorrect reflection of the characters and would thus result in an *inadequate equivalent*. Indeed, the term *string*-nets, for example, is not translated as *snaarnetwerken*, and therefore often used as *string-nets* in Dutch, too.

Ultimately, whenever it was unsure whether or not a term candidate was actually a term, additional sources were consulted, such as Google, Google Scholar, Kanon (1999) and Clason (1997). This is once more a salient limitation in this thesis, as terms that were deemed non-terms by the author of this thesis were not checked. In the same fashion, not all terms that are mentioned in the corpus (see Appendix C) were verified.[22]

In sum, the criteria employed in the present thesis are the following:

1. Terms are mostly nouns, sometimes adjectives, adverbs or verbs.
2. Terms can also comprise numbers, punctuation or they can constitute acronyms.
3. Terms can be composed of proper nouns.
4. Terms are likely be multi-word units.
5. The relative frequency with which terms occur, is higher in specialised forms of communication than in general speech.
6. Terms do not necessarily require a higher degree of knowledge of the field, as some terms are less termable, but still terms.
7. If the term candidate appears to be a term according to the context, it is included.
8. Terms of which their terminological level is unsure, are included and marked in grey.
9. The formal register may have interfered in the terminology selection process

5.3 Spreadsheet organisation

The scientific terms from the second season of *TBBT* were extracted manually from the corpus with their corresponding translation and were transferred into a spreadsheet, which can be consulted in Appendix B. In Image 4, an excerpt is provided of the terminology corpus.

Column A provides information as to which episode the term was featured in, abbreviated as follows 'S2E(episode number)' (see Sub-section 4.2.2). In columns B and D, the term and its corresponding translation are mentioned, while in column C, the particular scientific field to which the term applies, is noted. An explanation of the abbreviations is provided further on. Columns E and F mention the translation strategies employed.[23]

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[22] See Section 5.4 for a more thorough description as to the tools consulted to verify the translation of the terms.
[23] Two columns were added for the sole and simple reason that some terms may be translated via multiple translation strategies (Section 5.5).

	A	B	C	D	E	F
1	Episod	Terms EN	Field	Translation NL	Translation strategy 1	Translation strategy 2
2	S2E1	live acidophilus cultures	BIO	acidofiele culturen	underspecification	
3	S2E1	carragenin	CHEM	carrageen	literal translation	
4	S2E1	lactose intolerant	MED	kan geen lactose verdragen	paraphrase	term-to-non-term
5	S2E1	rate of speed equals distance over time	PHY	snelheid gelijk aan afstand gedeeld door tijd	literal translation	
6	S2E1	Solve for R	PHY	Is gelijk aan oplossing	literal translation	
7	S2E1	black box	ENG	zwarte doos	literal translation	
8	S2E1	hypothesis	UNSP	hypothese	loan translation	
9	S2E1	hyperventilate	MED	hyperventileert	literal translation	
10	S2E1	change in respiration	MED	snellere ademhaling	explicitation	

Image 4: Excerpt from the terminology list

With regards to the second research question (see Chapter 4), which endeavours to narrow down the fields of science that are represented in *TBBT*, all terms were labelled with an abbreviation that specifies the field of science in which the term occurs. Indeed, several fields of science converge in this series. This means that the areas of physics (Leonard, Sheldon, Leslie), engineering (Howard), astrophysics (Rajesh), medicine (Stephanie) and psychology (Leonard's mother) were, amongst others, included. Aside from the aforementioned domains, it was decided to also include a domain pertaining to scientific research, as most of the series' protagonists are bearers of a PhD. In Table 6, the abbreviations are explained.

Nevertheless, whenever the field was not clear or the context not specific enough in order for the term to be assigned a particular field, the abbreviation *UNSP* was used (*unspecified*). Terms that belonged to a broader field (e.g. science) were also labelled with *UNSP*.

ASTR	Astrophysics
BIO	Biology
CHEM	Chemistry
COMP	Computational science
ENG	Engineering
GEOL	Geology
GEOM	Geometry
LING	Linguistics
MATH	Mathematics
MED	Medicine
NEU	Neuroscience
PHA	Pharmaceutics
PHY	Physics
PSY	Psychology
RES	Research
TECH	Technical science
UNSP	Unspecified

Table 6: Abbreviations of fields of science

5.4   Terminological resources

The purpose of using terminological resources was two-fold. First, whenever doubt arose as to whether or not a term candidate was actually a term, unilingual ST resources were employed (Sub-section 5.2.2). Second, whenever it was unsure whether the translation offered by the subtitler was the most apt one, bilingual material or TT parallel resources were consulted. Peer-reviewed specialised articles both in Dutch and English (e.g. Karsten, 2009) were amongst the tools that were resorted to. Additionally, SL specialised course materials on the online platform of Ghent University were turned to, as well as exchanges with Dutch specialists (Appendix D) and online search engines (Google, Google Scholar).

5.5   Taxonomy of translation strategies

With regards to 2.3.3.2, in which an in-depth analysis of different translation strategies taxonomies used in subtitling studies was provided, the following list of strategies (Table 7) could be distilled. The overlapping concepts were not included, and in those cases where two or more strategies pointed to the same concept, only one name was chosen, regardless of the author who established the strategy.

Official equivalent	The TT term is the official equivalent of the ST term. **EN** *NORAD* → **NL** *NORAD*
Retention	The ST term is kept in the subtitle, but does not exist in the TL. **EN** *fermions* → **NL** *fermions*
Loan translation	The ST word is incorporated into the TT, for they are cognates. **EN** *genetic* → **NL** *genetisch*
Literal translation	The ST word is translated literally into the TT, but slight changes may occur (e.g. plural to singular, noun to adjective). **EN** *black box* → **NL** *zwarte doos*
Explicitation	The TT term is more explicit than the ST term (e.g. hyponym). **EN** *sexual encounters* → **NL** *seksuele relaties*
Generalisation	The ST term is translated with a broader and more general TT term. **EN** *particle physicists* → **NL** *wetenschappers*
Completion	An ST ellipse/acronym is completed in the subtitle. **EN** *x-ray* → **NL** *röntgenfoto*
Paraphrase	The ST term is explained with a paraphrase. **EN** *lactose intolerant* → **NL** *kan geen lactose verdragen*
Compensation	A TT term is used where none was used in the ST. **EN** *sex life* → **NL** *geslachtsverkeer*
Lexical recreation	The ST word is translated with a neologism in the TT. **EN** *mercury* → **NL** *'mercury'*
Transposition	The ST term is translated with a different TT term, retaining the same function and meaning. **EN** *spider veins* → **NL** *spataderen*
Adaptation	The ST term is freely translated and the context of the TT is needed. **EN** *science* → **NL** *heel wat*
Deictics	Deictic methods are used to translate the ST term. **EN** *lysine* → **NL** *dat*
Underspecification	The ST term is only partially translated. **EN** *live acidophilus cultures* → **NL** *acidofiele culturen*
Inadequate equivalent	An unsuccessful version of *transposition*. **EN** *loop quantum gravity* → **NL** *luszwaartekracht*
Omission	The ST term is omitted in the subtitle. **EN** *genetically* → **NL** ∅
Abbreviation	The ST term is translated with an abbreviation. **EN** *electromyogram* → **NL** *EMG*
Term-to-non-term	The ST term is translated with a TT non-term. **EN** *traumatized* → **NL** *schokt me niet*

Table 7: Translation strategies taxonomy

As highlighted in 2.3.3.1, Pedersen affirms that *literal translation* and *loan translation* have overlapping meanings. Consequently, it is difficult to draw the line between what is a literal translation and what is a loan translation, especially as this thesis deals with the translation of single-word or multi-word units, not entire sentences. The distinction will be made as follows. Loan Translation is a type of translation where the TT term is a cognate of the ST term. Transferring the English *estrogen* to *oestrogeen* in Dutch is a Loan Translation. It is important

to note that the ST term need not be kept in the TT. Translating *thermal* into *thermisch* would still be considered a Loan Translation, as the TT term is a cognate of the ST one. Literal Translation is the translation of a word or group of words in the same way a dictionary would mention it. *Science* becomes *wetenschap*. The link with the SL is, in other words, less preserved.

In some instances, multiple translation strategies were used to render the term in Dutch. These instances mostly concern incorrect translations (Inadequate Equivalent) or non-terminological ones (Term-to-Non-Term). In example 11, Leonard offers some insight as to the way Penny should manufacture her flower barrette. The term *mounting surface* was translated with *plakt*, which is an Adaptation. Moreover, the English term is lost, as no Dutch equivalent is provided. Therefore, the translation of *mounting surface* into *plakt* is both an Adaptation and a Term-to-Non-Term translation.

(11)   S/L   It won't work, the flower's too porous. / What if we infused the bottom
             Nee, de bloem is poreus. / -Wat als we de onderste laag...

       L   layer with silicone-RTV to provide a better **mounting surface**?
             *met siliconen bewerken / zodat het beter **plakt**?*

5.6   Number of characters per term

As noted in 2.3.3.1 and 2.4.1, the number of characters per term may play an important role for two reasons. First, it was argued that subtitling, as a form of constrained translation, imposes several restrictions that the subtitler must face. The length of a word in the subtitle is significant, as longer words are generally shortened or omitted, for there are spatio-temporal constraints in effect. Second, as terms are said to most often be composed of longer multi-word units (see 2.1.5.1), it may be argued that subtitling terminology constitute a double-edged sword with these two constraints in mind.

The fourth research questions in the present thesis (Chapter 3) aims to identify whether the translation of terminology in *TBBT* is subject to the restrictions in both subtitling and terminology. To that end, one restriction in particular was chosen, i.e. the length of a term. In order to identify whether the length of a term plays an important role in the subtitling process and whether this has an effect on the translation strategy employed, the relevant terms (in accordance with their translation strategy) were filtered with a formula with which the absolute number of characters of a given term could be counted. As will be discussed in Section 6.5, not

all terms were integrated in this step. Additionally, both ST and TT terminology lists were transferred into a Word document to verify whether accidental extra white spaces were included by toggling the show/hide formatting marks button.

The formula was used to count both the characters of the ST term as well as those of the TT term. Subsequently, the relative frequency of the TT term characters compared with the ST term was established by dividing the TT term characters by their the ST term characters. Then, the list was ranged on the basis of the relative frequency of characters.[24]

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[24] The list can be consulted in Appendix C.

6 RESULTS

The present chapter will set forth the results obtained from analysing the scientific terminology used in season two of *TBBT* and the corresponding translation. Section 6.1 will deal with general results, such as the frequency of the translation strategies, the number of terms per episode and the fields of science that are represented. Section 6.2 will explore a more in-depth analysis of each translation strategy employed and will provide some examples as well. In Section 6.3, the translation strategies are compared with the field of science of each term and Section 6.4 will discuss in which respect the sitcom context imposes different translation strategies. In Section 6.5, one of the possibly salient limitations of subtitling and terminology (i.e. the number of characters per term) is discussed, and Section 6.6 will, then, deal with the implications of the present study on Skopos theory.

6.1 General results
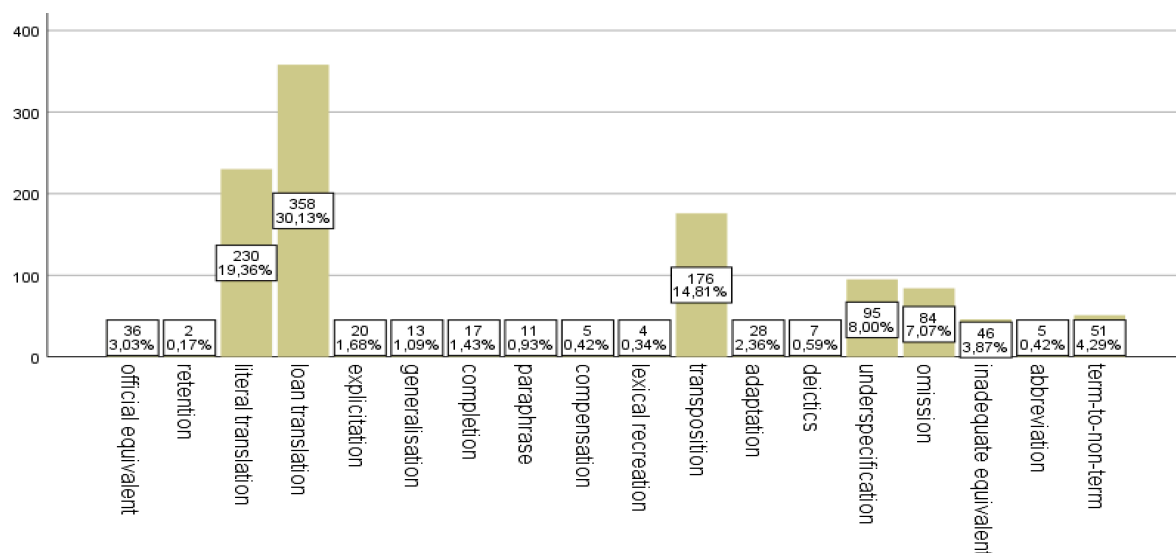
Chart 1: Frequency of translation strategies

Chart 1 reveals the absolute frequency of the translation strategies. The three strategies most often resorted to are Loan Translation (30.13%), Literal Translation (19.36%) and Transposition (14.81%). Underspecification, Omission and Term-to-Non-Term are featured for respectively 8.00%, 7.08% and 4.30%. The strategy least employed was *retention*, which occurred only twice in the corpus. As mentioned in Section 5.1.2, the entire corpus comprises 1103 terms. Nevertheless, it should be noted that some terms were translated via two different strategies, and as a result, the chart does not comprise 1103 translation strategies. The total number of translation strategies amounts to 1187. The findings reported in Chart 1 are summarised in the Table 8.

Translation strategy	AbsFreq	RelFreq
Official Equivalent	36	3.03%
Retention	2	0.17%
Literal Translation	230	19.36%
Loan Translation	358	30.13%
Explicitation	20	1.68%
Generalisation	13	1.09%
Completion	17	1.43%
Paraphrase	11	0.93%
Compensation	5	0.42%
Lexical Recreation	4	0.34%
Transposition	176	14.81%
Adaptation	28	2.36%
Deictics	7	0.59%
Underspecification	95	8.00%
Omission	84	7.07%
Inadequate Equivalent	46	3.87%
Abbreviation	5	0.42%
Term-to-non-term	51	4.29%

Table 8: Frequency of translation strategies

Chart 2 comprises the results for terms per episode. The absolute frequency of a term is noted inside the bar graph for each episode. It is shown that the last episode of the season (i.e. S2E23) contains the largest number of terms, with as many as seventy-six terms, two more than S2E15. Episodes seven, fourteen and twenty-one contain the lowest number of terms. On average, each episode comprises some forty-eight terms, i.e. 2.4 terms per minute. Episode four could thus be argued to be the most representative of a regular episode of *TBBT*. It may be interesting to research in which respect terms are translated in a different manner depending on the frequency of terms in that episode. Indeed, the density of terminology may have an impact on translation strategies.[25]

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[25] This may be a possible future research avenue to take into consideration.
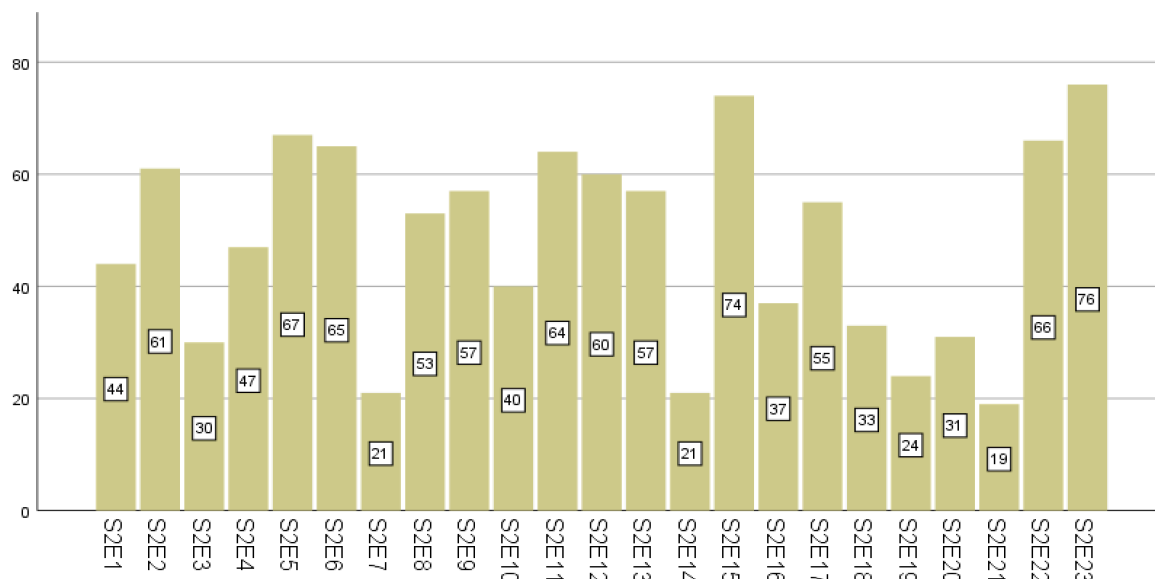
Chart 2: Term-episode ratio

In order to provide an answer to the second research question (see Chapter 3), all terms were labelled with an abbreviation indicating the field of science in which they are feature, since the concept of science is a rather broad one. As noted in Sub-section 4.2.1, two characters in particular are researchers in the field of physics (i.e. Leonard and Sheldon), as well as several other recurring characters (e.g. Kripke and Leslie). The other fields of science are represented by only one character, be it a main or recurring role. Section 6.3 will shed light on the way in which the strategies to translate a scientific term may differ in accordance with the field of science that they correspond to.
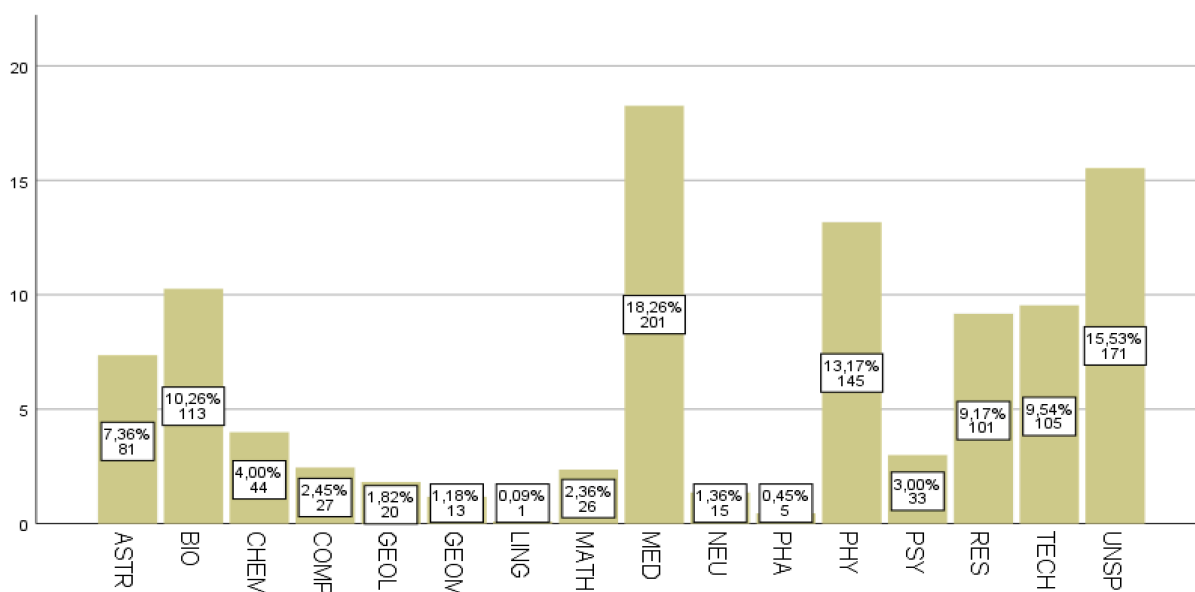
Chart 3: Number of fields of science

6.2 Results per translation strategy

In the following sub-sections, each translation strategy will be discussed in greater detail.

6.2.1 Official Equivalent

The strategy Official Equivalent was proposed by Pedersen (2011) to refer to cultural concepts of which the TT translation was an officially established equivalent. As noted in 2.1.6, proper nouns do occur in terminology. For the purpose of this thesis, the translations of institutions, planets, constellations and software (e.g. *Bluetooth*) were considered, but not people. The Dutch translation of *Planck's constant* was thus not considered an Official Equivalent, as it is not official and as other combinations may exist for the term (e.g. *Morse code, Morse alphabet*, etc.) In total, 36 *official equivalents* were distinguished (see Chart 4).
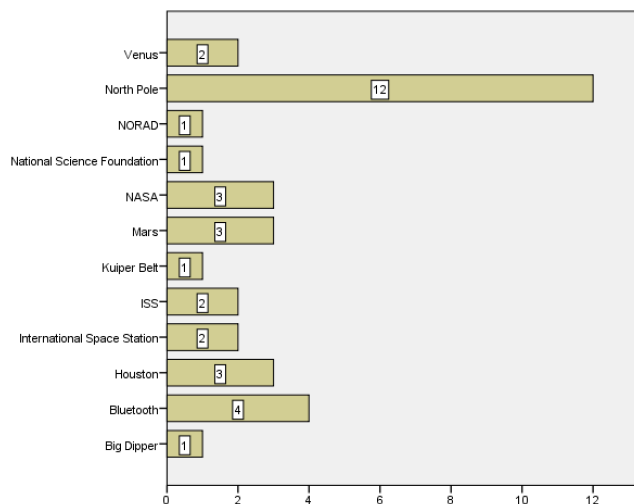
Chart 4: Official Equivalent

Chart 4 shows twelve different terms that were translated with official equivalents. It should be noted that this chart does not provide the absolute frequency with which the term occurred and only considers the instances in which the term was translated with an official equivalent. *International Space Station* was, for example, sometimes translated as *ruimtestation*, which results in an *underspecification*. Therefore, the latter instance was not incorporated in the corpus and subsequently, in the graph.

6.2.2   Retention

As noted in 2.3.3.3.8, the definition of Pedersen's Retention in this thesis differs to some extent. In his 2011 book, *retention* was defined as the retaining of a ST cultural concept, whether or not justified. For the present thesis, Retention means that the translator transferred a ST term into the TT, even though the ST term does not exist in the TL.

Retention was found on two occasions, and it concerned the translation of *fermions* twice. The subtitler used *fermions* in the TT, even though the conventional plural of this term in Dutch is *fermionen*.

It should be noted that a partial Retention was found as well. In example 12, the subtitler managed to translate the term *free-electron laser* literally into *vrije-elektronlaser*, but disregarded that it should have been *vrije-elektronenlaser*. Seeing that *free* had correctly been translated into *vrije* and that *laser* is an existing term in Dutch, it would be incorrect to classify this example as a Retention.

(12)   L   Sheldon, I was up all night using the new **free-electron laser**
                 *Ik ben de hele nacht met / de **vrije-elektronlaser** bezig geweest...*

6.2.3   Loan Translation

The largest share of scientific terms in this season of *TBBT* was translated with a Loan Translation, i.e. the translation of a ST term into a TT cognate. This strategy was found to occur 358 times, i.e. 30.13% in comparison with the rest of the corpus. The high level of loan translations can be attributed to the fact that many scientific terms in different languages share an etymological base or root. This was the case for a myriad of Greco-Latin based terms, such as *simulator*, *radiation*, *ectoplasmic* and *linear.* In addition, English is argued to have become the *lingua franca* of science, which explains why many of the English terms have entered in the Dutch language. Such examples include *Mars rover*, *laser* and *scan*.

It was also found that sometimes, the TT term had to comply with constraints in the ST.

(13)   H   Behold the Mobile Omnidirectional Neutralisation and Termination Eradicator.
                 De Mobiele Omnidirectionele / Neutraliseer en Termineer Eliminator.

                 Or... / MONTE. / MONTE. / MONTE. / MONTE.
                 *Alias... / -**Monte**.*

In the above example, Howard, Leonard, Rajesh and Sheldon assemble a killer robot, called MONTE, an abbreviation of *Mobile Omnidirectional Neutralisation and Termination Eradicator*. As the abbreviation is audibly mentioned, the subtitler had to find a way to keep the abbreviation intact and thus had to have a translation with the same initials. The TT term represents the ST term closely and can thus be considered a Loan Translation.

Furthermore, not all Loan Translation were equally successful, as is obvious from example 14. In this example, Rajesh is saying that constellations are named differently in India, clearly referring to the abundance of curry in India. In the subtitle, however, the play on words was lost, as the reference to the Dutch equivalent of the Big Dipper (i.e. Grote Beer) was no longer apparent. The Dutch translation could arguably not classify as a Retention, as the English source material only emulates scientific terminology. *Big Curry Pot* is, in other words, not an established English constellation. Nevertheless, this translation was not very successful, as the subtitler may have opted for *Grote Currypot* (as a reference to *Grote Beer*) instead. In that case, it would have been a Literal Translation.

(14)   R   Where you have the Big Dipper, we have the **Big Curry Pot**.
                     *De Grote Beer heet bij ons / de **Big Curry Pot**.*

6.2.4   Literal Translation

Literal Translation, i.e. a word-for-word translation was the second strategy that was most often resorted to. As this thesis is oriented towards terminology translation and not whole sentences, literal translation is an effective method, provided that the TT term exists in the TL. Should that not have been the case, the term would have been an Inadequate Equivalent.

Due to the lexical level of this thesis, it proved to be a tough task to draw the line between Literal Translation and Transposition. Especially single-word units were difficult, as the TT cognate term is often (one of) the only TT terms at hand. For instance, the literal translation of *sunburn* would be *zonbrand*, when the Dutch alternative is *zonnebrand*. In those cases, the strategy used would arguably still be considered a Literal Translation.

6.2.5 Explicitation

Explicitation, i.e. the use of a hyponym, was found in twenty cases, which represents almost 2% of all strategies. A classic example found in the corpus was *vliegtuig* as a translation of *aircraft*, the latter implying much more than just aeroplanes. Helicopters could also be reckoned as a type of aircraft, thus the translation is more explicit than the ST term.

It is not surprising that Explicitation is not often resorted to. Not only would it imply a more thorough interpretation of the ST, but it would also have to be a correct one at that. Indeed, an incorrect Explicitation would be deemed an Inadequate Equivalent.

Other examples include *feces* for *excrement*, *meten* for *explore*, *gewapend staal* for *steel* and *spataderen* for *veins*.

6.2.6 Generalisation

The strategy Generalisation is the opposite of Explicitation, in that a hypernym is used. This strategy was found to occur twelve times.

Attention has been drawn to the overlapping meanings of Underspecification and Generalisation. The definition used is that Generalisation implies the use of a different hypernym. Translating *lumbar support*, for instance, into *ondersteuning* is not a Generalisation but an Underspecification, in that the TT term does not specify which kind of support is meant. Using *voortplanten* as an alternative for *mating*, however, is indeed a Generalisation, as it implies reproduction both in humans as in animals, whereas the ST term only points to intercourse between animals.

6.2.7 Completion

The strategy Completion is an interesting one. It implies that a shortened ST term was lengthened in the TT. Of course, with the terminology and subtitling constraints in mind, it is not surprising that this strategy is not often resorted to. Completion was found seventeen times, at a rate of 1.43%.

In example 15, the TT term was considerably lengthened, as the ST term was an abbreviation. The translator might have gone with a type of explicitation as the Dutch term *rpm* is not as widespread as *toeren per minuut*. However, the term ought to be common in specialised discourse, which would allow for *rpm* to be used. It could be posited that the translator mediated between the scientific discourse taking place and the audience.

(15)   Kr   Yep, at 3400 **RPM**.
                  Ja, 3400 ***toeren per minuut****.*

It should be noted that the aforementioned constraints in subtitling only really apply when a person is speaking at a (somewhat) lively pace. If the person speaks exaggeratedly slow, the subtitle would need to be considerably lengthened, as audiences tend to reread a short subtitle that appears on screen for a long time. This may have been the case in example 15, for which the subtitler may not have been limited by the imposed length of a subtitle.

6.2.8   Paraphrase

Paraphrase describes the use of an explanation for the ST term in the TL. As it supposes a certain level of lengthening in the TT, Paraphrase is not thought to occur too often, as with Addition and Completion. Indeed, Paraphrase was found to appear on eleven occasions (less than 1%). In the below example, the Dutch subtitle provides an explanation of the ST term *pinkeye*.

(16)   L   Or, in this case, the bar mitzvah boy with **pinkeye**.
                  Of in dit geval de joodse jongen / met ***een ontstoken oog****.*

6.2.9   Compensation

On some occasions, it was found that the subtitler introduced a Dutch term where the English soundtrack did not make mention of one. This is the case in the following example:

(17)   S   It was **rife** with historical inaccuracies.
                  Er waren ***legio*** *historische onnauwkeurigheden.*

Rife is a fairly common word expressing *abundance*, while the Dutch word *legio* is much more field-specific to academics and science. It could be presumed that the Dutch subtitler saw the opportunity to introduce a term to make up for translational loss in another segment, but this sentence is said at around twenty seconds into the episode.

Another example is the following:

(18)   S   Well, Stephanie, since Leonard seems to be dropping the conversational ball,
              Aangezien Leonard de conversatie / laat doodbloeden...

              I guess I'll just have to pick it up.
              *zal ik die maar moeten **reanimeren**.*

This translation is particularly successful for a number of reasons. First, the subtitler managed not to do away with the pun of dropping a ball and picking it up, but introduced the highly idiomatic Dutch phrase *de conversatie laten doodbloeden* as an equivalent. Not only has the translator managed to introduce a Dutch term where none was present in the ST, but inasmuch as Sheldon's interlocutor is Stephanie, a doctor, the context especially allows for such a terminological pun.

Other examples include *libido* for *sex drive*, *geslachtsverkeer* for *sex life*.

6.2.10 Lexical Recreation

The strategy Lexical Recreation shares some ground with Retention in that the ST term is actively used in the TT. Nevertheless, with Lexical Recreation, the TT term is said to be often placed in between quotation marks, which implies that this strategy is a conscious move by the translator, which is not the case for Retention.

The subtitler resorted to Lexical Recreation four times (0.34%). In the example below, the subtitler was in some respect forced to employ this strategy. Indeed, Sheldon says that he wants to play a game in which he and Penny in turns have to come up with a chemical element that starts with the letter 'm'. As the Dutch translation for *mercury* does not share that initial, part of the context would be lost. Here, the subtitler chose to retain the English term, all the while adding the real Dutch equivalent, which is *kwik*, which is a Transposition.

(19)   S   Helium.
              Helium.

              Now, you could say **mercury**.
              *Nu kun jij **'mercury'** zeggen, kwik.*

The three other times when this strategy was used, was while translating the fictitious *Homo Novus*. Sheldon emulates the classic scientific formulation of primates (e.g. Homo sapiens) while affirming that he represents a newer, more advanced species, i.e. the Homo novus. The English concept was transferred into Dutch, but the term was written in italics.

(20)   S   , you know, a Homo novus, if you will.
              Weet je, een ***Homo novus***.

6.2.11 Transposition

Transposition was the third strategy that the subtitler used most in rendering the English ST into Dutch. This strategy implies that the ST term is not translated literally, but rather an established equivalent with the same denotational meaning and connotation was used. It needs to be stressed that the difference between Literal Translation and Transposition is somewhat blurry, especially on word level. For the present thesis, terms were deemed translated with a Transposition if a literal translation would have yielded a different result. Translating *spider veins* with *spataderen* is a Transposition, for the literal translation would have been *spinaderen*.

Graph 1 reveals that Transposition occurred 176 times with a relative frequency of 16%. This is not to say that only Transposition provides idiomatic equivalents. As mentioned in Sub-section 6.2.3, scientific terminology in Dutch often shares etymological roots with English terms, as both languages contain terms that originate from Latin or Greek.

Transposition does, however, not necessarily imply adequate or terminological equivalents. To cite an example, the word *perturbative amplitudes* was translated with *afwijkende trillingen*. This may at first seem as an equivalent, as it represents the ST to a lesser extent than with Literal Translation or Loan Translation. Nevertheless, it was found that the Dutch term is not used in Dutch scientific discourse (Appendix D), and that the English term is preferred.

Other examples include *besmetten* for *compromising the integrity*, *röntgendiffractie* for *X-ray diffraction* and *maat* for *unit of measure*.

6.2.12 Adaptation

Adaptations are translations that imply a wider divergence of the ST material. The TT term is translated more freely and a link between the ST term and the TT term is harder to notice. In contrast with previous strategies, Adaptation implies a change on a syntactic level rather than on a lexical one.

(21)   L   Oh, Penny, you don't want to get into it with Sheldon.
                    Je wilt geen ruzie met Sheldon.

                    The guy is one **lab accident** away from being a supervillain.
                    Je bent geen partij voor hem.

In example 21, Leonard discourages Penny to start a fight with Sheldon. Considering that Leonard is both a scientist and a geek, the English phrasing was appropriate. Nevertheless, the ST term was adapted into an entire sentence, as translating the term literally would not have been idiomatic in Dutch. The link between the ST and TT is therefore less preserved, as only the meaning and connotation is kept.

6.2.13 Deictics

In the field of subtitling, the use of Deictics might prove to be a valuable asset. Deictics are usually much shorter than the concept that they refer to and it provides a coherent and cohesive link with other sentences, by eliminating repetition.

Perhaps surprisingly, the use of Deictics only occurred on eight occasions. Consider example 22. Sheldon had set up an elaborate multiple-choice test to verify who should remain his friend. To the question "Which is my favourite amino acid?", Leonard and Howard responded with *lysine*. Rajesh quickly adds, to his discontent, that he first chose that, too, but that he changed it last-minute. By using a deictic reference, the subtitler managed to preserve the link with the preceding sentence, all the while avoiding unnecessary repetition.

(22)   L/H   Lysine. / Lysine.
                    Lysine. / -Lysine.

         R   Damn it, I had **lysine** and changed it.
                    *Verdorie, **dat** had ik eerst ook.*

Despite the use of deictics being an apt one, it should be noted that repetitions are characteristic of spoken discourse. As subtitles ought to emulate speech (Sub-section 2.3.3), it might be better to preserve repetitions.

6.2.14 Underspecification

Considering that the terminology used in *TBBT* is at times highly specialised, adding Underspecification to the taxonomy of translation strategies proved to be useful to survey whether the subtitler managed to transfer the denotational meaning of the terms into the TT. To a certain extent, this strategy does imply a shortening of the ST term, which may be an explanation as to why the subtitler used this strategy[26]. Indeed, Underspecification may be defined as the translator deciding to keep certain aspects of the ST term in the TT, all the while omitting some aspects of the ST term.

This strategy was found 94 times, i.e. 8.5% of all strategies. Examples of Underspecification in the present corpus include *ondersteuning* for *lumbar support*, *waarden* for *fractional values* and *rechterkwab* for *right frontal lobe*.

An instance of Underspecification being used can be found in example 23, where the translator used the Dutch term *atoomdeeltjes* as a translation for *subtomic particles*. This is an Underspecification, since *subatomic particles* are smaller than the atomic ones.

(23) P Call me a geek, but I am just nuts for the whole **subatomic particle** thing.
*Noem me maar een sul, / er gaat niets boven **atoomdeeltjes**.*

Whether or not underspecifying a term is problematic largely depends on the context provided. *Rechterkwab* (see example 24) could arguably be highly ambiguous, as that term is used to denote a part that is found in livers, when in actuality, the right frontal side of a brain is meant. Nevertheless, not all *underspecifications* are problematic. *Scan* as a translation for *scan data* (*scangegevens*, *scandata*) is argued to be less problematic[27].

(24) S Although I've always hated how my **right frontal lobe** looks in pictures.
*Hoewel ik vind dat m'n **rechterkwab** / altijd zo raar op de foto staat.*

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[26] Whether or not Underspecification is a conscious move will be elaborated upon in Section 6.6.
[27] Additionnally, *een scan* is the Word that lay people tend to use, so it might be an instance of Term-to-Non-Term, too.

6.2.15 Inadequate Equivalent

The concept of Inadequate Equivalent indicates that the subtitler was aware of the terminological level in the ST material, but went with an incorrect Dutch equivalent that does not express the same meaning as the ST term. Inadequate Equivalents differ from Underspecification in that they constitute an entirely different term and the link with the ST term is less preserved than with Underspecification.

Instances of Inadequate Equivalent were found on 46 occasions, representing around 4% of translation strategies. Using this strategy could either be a signal of the level of specialised lexicon in the ST material being relatively elevated or of the spatio-temporal constraints of subtitling proving to be a hindrance for the actual term to be used.

In the below example, the subtitler translated the medical term *mattress suture* with *matrassteek*, but that is an Inadequate Equivalent, as it is the translation of *mattress stitch*, a knitting term. The correct Dutch equivalent would be *matrashechting*.

(24)   S   I might have gone with a **mattress suture** instead of a blanket stitch, but you can't argue with her results.
*Ik had een **matrassteek** gebruikt, / maar haar resultaten zijn ernaar.*

Another passage proved difficult for the translator. In example 25, Leonard is trying to impress his mother with the research he has been conducting. Of the three terms that are present in the ST, only one term was given a translation, and an incorrect one at that. Not only does *zwarte materie* not exist in Dutch, as the correct translation of *dark matter* is its cognate *donkere materie*, but orthographically, the translator committed an error as well. Phrased like this, the pseudo-term *zwarte materie-flitsen* means that the flashes are black, while it is the *matter* that is dark. A correct phrasing would be *donkerematerieflitsen*, but that is not a conventional term in Dutch. The prepositional phrasing *bewijs van donkere materie* or *aanwijzingen van donkere materie* would be more widespread.

(25)   L   I'm attempting to **replicate**
Ik ben op zoek...

the **dark matter signal** found in **sodium iodide crystals** by the Italians.
*naar **zwarte materie-flitsen**, / net als die Italianen.*

Another instance of an Inadequate Equivalent can be found in the following example, where the subtitler translated the scientific term *arachnid* into the non-scientific term *spin* (see example 26), while there are two existing Dutch scientific terms at hand (i.e. the nomenclature *Arachnida* or the less termable equivalent *spinachtigen*). Not only does that translation make more sense in this context, but it would also be a more faithful translation.

(26)   S   It relies on the homonymic relation between tick, the blood-sucking **arachnid**
             *Het gaat om de homonimiteit tussen / het woord teek, de bloedzuigende **spin**...*

In the above translation, the subtitler committed an error by saying that ticks are spiders, while in reality, ticks are arachnids.

6.2.16 Omission

Omissions, i.e. the non-transferring of a ST term into the TT, was argued to be a frequent strategy (see 2.3.3.2). As subtitling naturally implies condensing information, some terms might not be transposed into the TT. Chart 1 reveals that 84 terms were omitted in the TT (7.7%). It should be noted that these include entire terms that were omitted from the ST. Parts of a term that were not translated, resulted in an Underspecification rather than an Omission.

(27)   L   Are you thinking about adding a **desiccant** like calcium sulphate?
             Denk je aan het toevoegen / van calciumsulfaat?

In the above example, the word *desiccant* (droogmiddel) was not translated in the subtitle.

6.2.17 Abbreviation

It was decided to add Abbreviation to the taxonomy for two reasons. First, in neologisms (and also existing terms), the practice of abbreviation and *acronymisation* was found to be frequently resorted to. Second, in light of the inherent constraints of subtitling and terminology, abbreviating might be beneficial to save time and space, all the while retaining information. Indeed, next to Omissions, Abbreviation may be the second most drastic way of cutting information. Using them arguably presupposes an even higher level of knowledge from the audience in comparison with unabbreviated terms, provided that the abbreviated form has not become sufficiently established[28].

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[28] To cite an example, the abbreviation *AIDS* has become so mainstream that most people are argued not to know its full form.

Only five cases of Abbreviation were found. *Horsepower* was translated into *pk*, *laboratory* twice into *lab*, *non-equilibrium Green's function* into *NEGF* and *electromyogram* into *EMG*. Quite evidently, not every term can be abbreviated. Furthermore, as abbreviations are widespread, the ST would possibly be inclined to using them whenever possible, too.

6.2.18 Term-to-Non-Term

The strategy Term-to-Non-Term was added to the taxonomy as well for a number of reasons. As *TBBT* is co-written by an expert in the field of physics, it was first thought that the TT would contain the same level of accuracy as the ST. Nevertheless, as noted in Section 2.4.3, the comedic effect may be more important than the terminology employed[29]. Furthermore, as discussed in Section 2.1.6, terms are said to be longer than general words. Taking into consideration the restrictive nature of subtitling, general words in the TT may be more often resorted to than terms.

Cases of Term-to-Non-Terms were found 51 times, representing 4.6%. Examples include adaptations such as *digestive distress* into *naar het toilet moeten* and *loop counter* into *oplossing*, as well as underspecifications such as *high concentration* into *hoeveelheid*.

6.2.19 To translate or not to translate?

Despite terms generally being adequately translated into Dutch in this season of *TBBT,* it should be noted that translating a term may not necessarily be the best strategy. In example 27, the term *science* was not translated in the subtitle, resulting in an Omission. However, should the translator have chosen to translate the term, the Dutch sentence would contain a personification, which would seem odd to many native speakers. Therefore, a faithful term translation may arguably not always the best route.

(27)　S　　and if science ever discovers a second member of your species
　　　　　　　Als er ooit een soortgenoot / van je wordt ontdekt...

---

[29] This will be discussed in Section 6.6.

6.3   Field of science

The present section aims to provide an answer to the second research question, i.e. to which extent translation strategies may differ depending on the field to which they belong. To that end, the terms in the corpus were labelled (Section 5.3).

The results are grouped in the table below. For the purpose of not overcrowding the table, those strategies that were not employed in a particular field of science, are not incorporated. Additionally, the results for the strategy *unspecified* are left out, as those results would not prove very helpful. It should be noted that some terms were translated via two strategies, hence the overall number of strategies not necessarily corresponding to that of the terms in the corpus.

		RelFreq	AbsFreq
Astronomy	Official equivalent	18.82%	16
	Loan translation	29.41%	25
	Literal translation	17.65%	15
	Transposition	15.29%	13
	Adaptation	1.18%	1
	Deictics	1.18%	1
	Underspecification	7.06%	6
	Inadequate equivalent	2.35%	2
	Omission	4.71%	4
	Term-to-non-term	2.35%	2
Biology	Loan translation	25%	32
	Literal translation	21.09%	27
	Explicitation	1.56%	2
	Generalisation	3.13%	4
	Compensation	0.78%	1
	Lexical recreation	2.34%	3
	Transposition	21.09%	27
	Adaptation	0.78%	1
	Underspecification	6.25%	8
	Inadequate equivalent	4.69%	6
	Omission	3.91%	5
	Term-to-non-term	9.38%	12
Chemistry	Loan translation	54.35%	25
	Literal translation	10.87%	5
	Explicitation	2.17%	1
	Paraphrase	2.17%	1
	Lexical recreation	2.17%	1
	Transposition	10.87%	5
	Deictics	2.17%	1
	Underspecification	4.35%	2
	Inadequate equivalent	4.35%	2
	Omission	6.52%	3

Computational science	Loan translation	11.54%	3
	Literal translation	19.23%	5
	Explicitation	3.85%	1
	Generalisation	3.85%	1
	Transposition	23.08%	6
	Adaptation	7.69%	2
	Deictics	3.85%	1
	Underspecification	7.69%	2
	Omission	15.38%	4
	Term-to-non-term	3.85%	1
Geology	Official equivalent	60%	12
	Loan translation	15%	3
	Completion	5%	1
	Underspecification	20%	4
Geometry	Loan translation	33.33%	5
	Literal translation	20%	3
	Completion	6.67%	1
	Transposition	6.67%	1
	Underspecification	13.33%	2
	Inadequate equivalent	13.33%	2
	Omission	6.67%	1
Linguistics	Transposition	100%	1
Mathematics	Loan translation	26.67%	8
	Literal translation	20%	6
	Explicitation	3.33%	1
	Transposition	13.33%	4
	Adaptation	3.33%	1
	Underspecification	3.33%	1
	Inadequate equivalent	10%	3
	Omission	6.67%	2
	Abbreviation	3.33%	1
	Term-to-non-term	10%	3
Medicine	Loan translation	26.24%	58
	Literal translation	18.10%	40
	Explicitation	1.81%	4
	Generalisation	1.36%	3
	Completion	3.17%	7
	Paraphrase	4.52%	10
	Compensation	0.90%	2
	Transposition	19%	42
	Adaptation	4.52%	10
	Underspecification	5.43%	12
	Inadequate equivalent	2.71%	6
	Omission	6.33%	14
	Abbreviation	0.45%	1
	Term-to-non-term	5.43%	12
Neuroscience	Loan translation	20%	3
	Literal translation	33.33%	5
	Transposition	6.67%	1
	Underspecification	13.33%	2
	Inadequate equivalent	13.33%	2
	Omission	13.33%	2

Pharmaceutics	Loan translation	40%	2
	Transposition	40%	2
	Underspecification	20%	1
Physics	Retention	1.23%	2
	Loan translation	33.95%	55
	Literal translation	20.99%	34
	Explicitation	0.62%	1
	Generalisation	0.62%	1
	Completion	0.62%	1
	Transposition	9.26%	15
	Underspecification	16.05%	26
	Inadequate equivalent	12.35%	20
	Omission	3.70%	6
	Term-to-non-term	0.62%	1
Psychology	Loan translation	28.57%	10
	Literal translation	17.14%	6
	Generalisation	5.71%	2
	Completion	2.86%	1
	Transposition	22.86%	8
	Adaptation	2.86%	1
	Underspecification	2.86%	1
	Omission	5.71%	2
	Term-to-non-term	11.43%	4
Research	Loan translation	30.19%	32
	Literal translation	19.81%	21
	Explicitation	2.83%	3
	Completion	0.94%	1
	Compensation	1.89%	2
	Transposition	10.81%	21
	Adaptation	2.83%	3
	Deictics	0.94%	1
	Underspecification	4.72%	5
	Omission	9.43%	10
	Abbreviation	1.89%	2
	Term-to-non-term	4.72%	5
Technical science	Official equivalent	3.70%	4
	Loan translation	33.33%	36
	Literal translation	17.59%	19
	Explicitation	5.56%	6
	Generalisation	0.93%	1
	Completion	2.78%	3
	Transposition	13.89%	15
	Underspecification	12.04%	13
	Inadequate equivalent	1.85%	2
	Omission	5.56%	6
	Abbreviation	0.93%	1
	Term-to-non-term	1.85%	2

Table 9: Translation strategies per field of science

The analysis of the frequency of translation strategies per domain of science has revealed some interesting aspects. In accordance with Chart 1 (Section 6.1), it would be correct to assume that in most fields, Loan Translation, Literal Translation and Transposition would be the strategies that are most often resorted to. It was found, however, that in four of the fifteen areas, that was not the case (i.e. Astronomy, Computational Science, Geology and Physics). In those areas, other strategies were featured at a higher rate than those three. It concerns the strategies Official Equivalent, Omission and Inadequate Equivalent. Inadequate Equivalents were found to mostly fluctuate around the 5% level, but in the area of physics, they occurred at a rate of 12.35 %. As for Underspecification, it was found that this strategy was featured around 10%, but in three areas, the level was higher (i.e. Physics: 16.05%, Pharmaceutics: 20% and Geology: 20%). Arguably, results for the latter two areas may have been distorted by the relatively low number of translation strategies found for terms belonging in the respective fields (i.e. five for Pharmaceutics and twenty for Geology).

The Official Equivalents were overwhelmingly featured in the domains of Astronomy and Geology, but could also be found in the field of Technical Science. Furthermore, the levels of Omissions are not the same across the areas. Indeed, 15.38% of Omissions were detected in the field of Computational Science opposed to the lowest figure (i.e. 3.70%) found in the area of Physics.

Despite some strategies being more frequent than Loan Translation, Literal Translation and Transposition, the latter strategies occur often. For instance, the highest level of Loan Translations was found in the domain of Chemistry (54.35%), arguably due to the high number of chemical elements, the nomenclature of which is often similar cross-lingually.

Further, it was found that Term-to-Non-Terms were highly present in the areas ofPpsychology and Biology (respectively 11.43% and 9.38%).

6.4   Sitcom context

In light of the third research question, the present section aims to examine to which extent the format of *TBBT* (i.e. a sitcom intermixed with scientific terminology) imposes different subtitling strategies than that of scientific documentaries. To that end, the study by Bianchi (s.d.) concerning subtitling strategies in documentaries is likened to the results in this paper.

Bianchi (s.d.) evokes two other studies that shared some ground with hers (Massidda, 2010; Mujagic, 2013). In those papers, it was mentioned that the subtitler endeavoured to strive for minimal information loss by omitting other aspects (e.g. quantifiers, adverbs) or by replacing elements with shorter variants (e.g. impersonal subjects instead of personal ones, pronouns instead of noun phrases). Bianchi's (s.d.) article concerned the Italian subtitling of two English documentaries. She asserts that the ST was deemed accessible to a lay audience, with "semi-formal to informal" language (p. 14). To a certain extent, that may be the case for *TBBT*, too, as it features a wide array of types of discourse (see Sub-section 2.4.4). Nevertheless, as the present thesis is concerned with terminology subtitling, it may be the case that the terminological level of *TBBT* is higher than that of the documentaries under study in Bianchi (s.d.). Indeed, the latter study does not necessarily centre on terminology subtitling, but rather on the strategies found in entire subtitles in documentaries. Furthermore, Bianchi (s.d.) employed a taxonomy of five translation strategies, which does not cover the same aspects as the present study. The subtitling strategies were the following:

1. Addition
2. Effacement
3. Substitution
4. Literal Transfer
5. Reformulation

As a consequence of the different focal point in Bianchi (s.d.), the results from her study and those in the present thesis differed as well. She attests, for instance, a high degree of Effacement, but this strategy does not correspond to Omissions, as the former also includes the omitting of discourse markers, quantifiers, etc., while the latter is only centred on terminological omissions. It was already noted in Chapter 3 that the results were likely to differ, as Bianchi (s.d.) employed other strategies.

In spite of the limited taxonomy of translation strategies employed in Bianchi (s.d.), there are reasons to believe that terminology subtitling may not have been an obstacle in the English-Italian subtitling of documentaries. In her paper, Bianchi (s.d.) mentions that the technical terms in the corpus were often translated with a Literal Transfer[30] and added that the subtitler opted "for the shortest Italian term in the rare cases where synonyms exist" (p. 24), which corroborates the statement that strategies are chosen in relation with the characters allowed in a subtitle (Section 6.5). Nonetheless, Bianchi (s.d.) does not make mention of terminology translation being subject to the other strategies as mentioned above. Furthermore, it needs to be stressed that the documentaries under study exhibited "expert-to-layman communication" (Gotti, 1991, as cited in Bianchi, s.d.), meaning that the intended audience of the documentary did not have a high level of prior knowledge on the matter. Indeed, Bianchi (s.d.) asserts that the documentaries were intended for "a wide, lay audience" (Bianchi, s.d., p. 13). Consequently, terminology may possibly not have been highly present as the documentaries were addressed to a mixed audience. This is to some extent also true for *TBBT*, with the exception that *TBBT* depicts inter-expert communication. As noted in 2.4.2, the audience thus sees communication between scientists, which constitutes a considerable difference with "expert-to-layman communication" (Gotti, 1991, as cited in Bianchi, s.d.). In the latter type of communication, the audience is addressed, whereas in *TBBT*, the so-called fourth wall is closed off. To stay true to the nature of the characters in *TBBT*, it is therefore logical that terminology is used. Vice versa, it is also logical that documentaries for a mixed audience contain a lower level of terms, so that the ST material is more accessible.

With regards to the rather limited data available concerning the way in which terminology subtitling is rendered in documentaries, it proves difficult to assert whether the context in which terminology appears, exerts a considerable influence on the subtitling strategies employed. It appears from Bianchi (s.d.) that the technical terminology in her corpus was mostly translated via Literal Transfer, but those results are far from conclusive. Future research could perhaps centre on this aspect.

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[30] Bianchi's Literal Transfer corresponds to some extent with Literal Translation (Section 5.5) but also differs from the latter strategy in that Literal Transfer also applies to those "mismatches due to differences between the two morpho-syntactic systems" (Bianchi, s.d., p. 23). Her strategy operates less on a lexical level and more on a clause and sentence level, which, then, corresponds with Paraphrase and Transposition.

6.5   Character length

This section aims to provide an answer to the fourth research question, i.e. the question whether the constraints in subtitling and terminology produce an effect on the translation choices. For the present thesis, it was decided to survey one possible constraint, i.e. the extent to which the number of characters may have exerted an impact on the translation strategy employed, as it has been established that terminology length (2.1.5.1) and subtitle length (2.3.3.1) may be an impeding factor in the subtitling process.

It was decided to consider those strategies that possibly point to the impeding factor of character length being at work. Thus, the strategies Literal Translation, Loan Translation, Transposition and Official Equivalent are omitted in this list, as these strategies imply that the term was adequately translated.

Furthermore, the strategy Retention was discarded, as it implies that the ST term is used without it existing in the TL, meaning that the number of characters is identical to the TL term. Omission, too, was discarded, as the number of characters in all omissions (i.e. 84 occurrences, see Section 6.1) naturally equals zero. It was found that, on average, those ST terms that were omitted in the translation, were composed of 9.8 characters, with a high of 25 characters (*point-to-point driving time*) and a low of 3 characters (*PVC*). This may prove helpful as it would provide insight as to why a subtitler decided to omit a term in the TT. It may, for instance, be the case that the subtitler omitted the shortest term possible or the one with which the least amount of information would be lost. Future research could potentially point that out.

As discussed in Section 5.6, the list comprises the number of characters of both the ST term and TT term, as well as a percentage indicating the ST/TT term character ratio. A 100% result implies that the number of TT term characters equals that of the ST term, while anything below suggests a shorter TT term. By implication, a result of more than 100% indicates lengthening in the TT term.

The list, which can be consulted in Appendix C, comprises 300 occurrences of a translation strategy other than a Literal Translation, Loan Translation, Transposition, Omission, Retention or Official Equivalent. In Table 8, the translation strategies are grouped with the number of instances where the number of characters was either longer or shorter in the TT term than the ST term, or where the number was equal both times.

		RelFreq	**AbsFreq**
Abbreviation	< 100%	1.67%	5
	= 100%	0%	0
	> 100%	0%	0
Adaptation	< 100%	3.67%	11
	= 100%	0%	0
	> 100%	5.67%	17
Compensation	< 100%	0.67%	2
	= 100%	0.33%	1
	> 100%	0.67%	2
Completion	< 100%	0.67%	2
	= 100%	0%	0
	> 100%	5%	15
Deictics	< 100%	2.33%	7
	= 100%	0%	0
	> 100%	0%	0
Explicitation	< 100%	2.33%	7
	= 100%	0%	0
	> 100%	4.33%	13
Generalisation	< 100%	3%	10
	= 100%	0%	0
	> 100%	1%	3
Inadequate equivalent	< 100%	8.67%	26
	= 100%	1.33%	4
	> 100%	5%	15
Lexical recreation	< 100%	0%	0
	= 100%	1%	3
	> 100%	0.33%	1
Paraphrase	< 100%	0%	0
	= 100%	0%	0
	> 100%	3.67%	11
Term-to-non-term	< 100%	10%	30
	= 100%	0.67%	2
	> 100%	6.33%	19
Underspecification	< 100%	27.66%	83
	= 100%	1%	3
	> 100%	3%	9

Table 10: Number of characters per TT term in relation with the ST term

This table reveals that 57.33% of TT terms were (considerably) shorter than the ST term. In 9.33% of the cases, both terms were equally long and 33.32% of the TT terms were (considerably) longer than the ST term. For some strategies, these results are not surprising. Abbreviation self-evidently implies a shortened TT term, as does the strategy Deictics. Additionally, Completion entails a lengthened TT term in most cases. Furthermore, many Official Equivalents of institutions are transferred in the TL (e.g. *NASA* or *ISS*), explaining the high degree of 100% character similarities.

Analysing the number of characters was interesting for one strategy in particular, i.e. Underspecification, which can be linked to Skopos theory in that the subtitler may try to downplay the scientific terminology, resulting in less specific terms or general words. Underspecification implies some degree of loss of meaning and the present analysis shows that that may be out of consideration for the decrease in the number of characters[31]. Indeed, for Underspecification, the number of shorter TT terms was considerably higher than for longer ones, i.e. 21.87% versus 2.4%. The statement that this strategy entails to a certain extent a decrease in the number of characters would some to be somewhat logical, as Underspecification implies a (partial) loss of information in the TT term.

It should be noted that the number of characters does only provide tentative results for either shortening or lengthening of the ST term in its translation, but this was certainly not the case in all instances. For example, the highest character change for Underspecification was a 200% one, but this is the case for the below example.

(28)   SB   , a **CBC**, baseline glucose, upper GI?
        bloed-, glucose- en slokdarmonderzoek?

The above translation of *CBC* was regarded as both an Underspecification and a Completion in that a CBC entails more than just a blood test. *CBC* stands for *complete blood count*, which is *differentiële telling van bloedcellen* in Dutch. It is a Completion in that the ST abbreviation was completed, and thus resulting in six characters (the hypen in *bloed-* included) being used for the three characters in the ST.

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[31] Naturally, Underspecification implies a shorter TT term to a certain extent. It could very well be the case that this was a conscious move on the part of the subtitler to limit the number of characters in a subtitle, but it could just as well be that the subtitler did not realise he or she underspecified the TT term.

6.6   Skopos theory

The present section aims to identify the implications of the results in terms of translation strategies and character numbers for one Translation Studies (TS) theory in particular, i.e. Skopos theory, according to which the translator is said to centre his or her translation choices around the audience for whom he or she translates.

It has been argued in Chapter 3 that *TBBT* is co-written by people knowledgeable in the fields of science represented so as to provide an accurate reflection of reality, and more specifically of terminology. Bearing that in mind, one may posit that the subtitler of such a series depicting the niche of science may endeavour to give that same reflection in the TT.[32] What this means in terms of translation strategies would arguably be a low frequency of Term-to-Non-Term translations, as well as a small level of Inadequate Equivalents and Underspecifications. Furthermore, it could also be argued that Generalisation would be featured less, as the degree of specificity of the ST term would be lost. In addition, Deictics would be less resorted to and ideally, there would be no Retentions or Omissions. The level of Completions does not really matter for Skopos theory, but the number of Paraphrases does, as terms are generally not explained in specialised communication. Moreover, Adaptations imply a freely translated term that deviates strongly from the ST term, thus the terminological aspect is lost.

In total, the relative frequency with which the aforementioned strategies (i.e. Term-to-Non-Term, Inadequate Equivalent, Underspecification, Deictics, Retention, Omission, Adaptation and Paraphrase) are featured, amounts to 27.28%. For Skopos theory, this would mean that the roughly one in four terms is translated differently than one may expect in a scientific document. It may be the case that these results stem from difficulties in the subtitling process or from a subtitler who was either not acquainted with the ST material or who deemed preserving the comedic effect as more salient[33](Seghers, 2017).

The sheer occurrence of some strategies would arguably point to Skopos theory not being central in the subtitling of *TBBT*. In the following sub-sections, some examples will be highlighted indicating in which respect Skopos theory is not applicable on this corpus.

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[32] This, of course, can only be true if the subtitler knows this information. It may very well be the case that the subtitler is not given such background information on the series that he or she subtitles.
[33] It may be the case that other forces are at work, which may need to be a focal point in future studies.

6.6.1 Translation strategies

The first way in which Skopos theory is to be rejected in the present thesis is the sheer occurrence of the strategies Retention and Inadequate Equivalent. Those two strategies indicate a translation of a ST term that is not faithful and correct. In translated scientific discourse, those strategies would arguably not be present, as terms need to be translated correctly.

As noted above, however, the subtitler may possibly not have been aware of the level of scientific accuracy in the ST or perhaps found that preserving the comedic effect was more salient.

6.6.2 ST term length versus TT term length

In Section 6.5, some translation strategies were found to be subject to differences in the number of characters in the ST and TT. Terms that were translated with an Underspecification, for instance, were found to be featuring less characters than their ST term equivalents. It may thus be argued that Skopos theory is not applicable, for those lengthier terms were mostly underspecified for reasons of TT length.

Nevertheless, this was not found to be the case for all terms. For instance, in the case of Inadequate Equivalents, term length did not seem to exert much of an influence. By way of illustration, the term *kinetics lab* was translated with *kinetisch lab*, which is an inadequate equivalent, as phrasing it like this would mean that the lab is kinetic. Nonetheless, the ST term points to a lab where kinetics are practiced, which would be *kineticalab* in Dutch. Interestingly, the correct translation was shorter in characters than the term found in the subtitles. Another example would be the translation of *reaction time*, which was *reactiesnelheid* (*reaction rate*), where it should have been *reactietijd*, which is considerably shorter.

7   CONCLUSION

The present thesis has endeavoured by means of a qualitative and quantative analysis to shed light on the way in which the scientific terms in *The Big Bang Theory* (*TBBT*) were rendered in the Dutch subtitles. A corpus of the scientific terms employed in the second season of *TBBT* was compiled, along with their translations, an abbreviation indicating their field of science and their respective translation strategy or strategies.

This thesis has shown that the entire season consists of 1103 scientific terms, most of which were actual terms, while others emulated scientific phraseology. The scientific terms mostly belonged to the fields of Medicine (18.26%), Physics (13.17%) or Biology (10.26%). In 171 cases (15.53%), the field was too vague, resulting in the category Unspecified. Furthermore, discrepancies were found in the number of terms per episode, with the lowest scoring episode containing nineteen terms and the highest scoring one comprising seventy-six.

As for the translation strategies, a combination of taxonomies by Tomaszkiewicz (as cited in Vandenberghe, 2013), Díaz Cintas & Remael (2007) and Pedersen (2011) was employed, as well as strategies by Lozano & Matamala (2009) and Badia & Brumme (2014). Two other strategies were added, i.e. Abbreviation for those TT terms that were an abbreviated translation of the ST term, and Term-to-Non-Term to indicate whether the terminological level found in the ST term disappeared in the TT.

Subsequently, the eighteen strategies were assigned to the terms in the corpus. The majority of terms were found to be translated via Loan Translation (30.13%), Literal Translation (19.36%) or Transposition (14.81%). Nevertheless, a relatively elevated level of Underspecifications (8.00%), Omissions (7.07%), Term-To-Non-Terms (4.29%) and Inadequate Equivalents (3.87%) was found. These results tentatively suggest that the level of specialisation in *TBBT* may have impeded the subtitler to a certain extent, thereby confirming the hypothesis to the third research question (i.e. What is the impact of the sitcom context on the accuracy of the terminology translation?). This paper has also revealed that translating a term may not always be the best option for a subtitler, who may have employed non-terminological equivalents or other methods to preserve idiomacy[34].

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[34] This was found on at least one occasion (Sub-section 6.2.19).

In a next step, the results for the fields of science and those for the translation strategies were contrasted, as a comparison may yield interesting results in terms of the way in which scientific terminology is translated differently with regards to the domain of science in which they belong. This may shed light on which fields possibly constitute a hindrance for the translator. It was indeed found that some areas of science produced diverging results. For Physics, for instance, the levels of Underspecification (16.05%) and Inadequate Equivalent (12.35%) were noticeably higher than in other domains. In addition, Computational Science and Research featured a large number of Omissions (respectively 15.38% and 9.43%). The highest percentages for Term-to-Non-Term translations were found in Psychology (11.43%), Mathematics (10%) and Medicine (5.43%). These results tentatively point to the area to which a term belongs possibly exerting an impact on the translation process.

Subsequently, the results for the translation strategies were compared with those found in a study on the subtitling strategies in documentaries. Indeed, it was the idea that the context of *TBBT* (i.e. a sitcom interspersed with scientific terms) may have resulted in other subtitling strategies than that of a scientific documentary. Results were found not to be conclusive, as the study to which the present results were likened (i.e. Bianchi, s.d.) was not solely centred on terminology translation, as was the case in this thesis. Indeed, the focal point of her study was the subtitling strategies as a whole, thereby including non-terminological aspects (e.g. the subtitling shifts for discourse markers, quantifiers, etc.). Furthermore, the taxonomy employed by Bianchi (s.d.) was limited to five strategies. It was, however, mentioned in Bianchi (s.d.) that most terms were translated via a Literal Transfer, which corresponds to some degree with the strategies Literal Translation, Loan Translation and Transposition employed in this paper. This was also true for the present thesis, but, as noted above, some strategies reveal that the amount of terminology in the ST may have constituted a hindrance for the subtitler.

The fourth research question was the following: Are there reasons pointing to the spatio-temporal constraints inherent to subtitling or the characteristics of terminology impeding the translator's work? One possible impeding factor was researched, i.e. the character length. It was the idea that the subtitler may choose TL terms in relation with their length, as terms are most often multi-word units and as subtitling is a form of restricted translation. For the analysis, Literal Translation, Loan Translation, Transposition, Official Equivalent, Retention and Omission were discarded, for the former four strategies imply an adequate translation with no

influence of the character length. The latter two strategies either indicate an identical number of characters in the TT (Retention) or none at all (Omission).

Analysing the number of characters was interesting for one strategy in particular, i.e. Underspecification. For this strategy, the length of the TT term was found to be shorter in 87.67% of the cases, which would explain that the subtitler employed this strategy considering the restrictive form of subtitling. Nevertheless, two problems arise. First, it is not known whether Underspecification is a conscious move on the part of the subtitler. Second, a shorter TT term is inherent to the nature of Underspecification, as this strategy implies a less specific TT term and thus a degree of character loss.

The final research question enquired into the implications of the findings reported on Skopos theory, according to which a subtitler opts for different translation strategies in function of the audience. It was found that *TBBT* is co-written by experts who are knowledgeable in several fields of science, thereby rendering the ST scientifically accurate. It was hypothesised that that aspect would also be found in the TT. Nevertheless, the sheer presence of some strategies (e.g. Underspecification, Term-to-Non-Term, Inadequate Equivalents, Omissions, Generalisation and Retention) points to Skopos theory not being in effect. Indeed, it could be argued that in such a specialised context as *TBBT*, such strategies would normally not occur. It needs to be stressed that that conclusion is subject to a fair share of limitations. First, it may have been the case that the subtitler was not aware of the scientific accuracy of the ST. Second, the subtitler may have found that it was more important to preserve the comedic effect in the TT rather than subtitling with scientific accuracy. Lastly, information (and consequently terminology) is bound to be lost in subtitling, as researchers have noted that between 20 and 50% of the ST material is not rendered in the TT (Gottlieb, 1994). The hypothesis according to which the TT contains the same level of scientific accuracy, is thus to be rejected.

8   DISCUSSION

Subtitling terminology is at times found to be a difficult area for the subtitler of *TBBT*. Although the subtitler managed to produce faithful translations on most occasions (considering the high level of Literal Translation, Loan Translation and Transposition), the results for other strategies (e.g. Underspecification, Inadequate Equivalent and Term-to-Non-Term) suggest that the subtitler may often be met with difficult translation situations.

It should be noted that this paper has uncovered a fair share of limitations. First, little information is at hand about the establishers of the corpus. It is not known who was the subtitler, or as the case may be, who were the subtitlers. This could prove to be vital information, as translation strategies may differ depending on the subtitler. In relation with the aforementioned limitation, it is also not known whether the subtitler(s) was/were informed of the scientific accuracy in the ST or whether there was time to conduct some scientific research. This may have influenced results on Skopos theory not being in effect.

Further, deciding what is a term proved to be a constraint, too. As the corpus was manually extracted, some terms, while checked multiple times, may have been ignored due to oversight or ignorance. In addition, it may have been the case that terms were selected which other studies would not deem field-specific lexicon.

Nevertheless, the present thesis has opened up future research avenues. First, it may be of interest to survey to which extent scientific terms are translated in documentaries, as I could not find a similar paper with the focal point being scientific terminology in documentaries. Second, future research may look into the way in which translation strategies differ for each episode. Indeed, it may be the case that terms are translated differently depending on whether they occur in episodes with a high frequency of terms or not. Furthermore, one may inquire into the possibly diverging translation strategies for terminology between several subtitlers. Moreover, other constraints that are at work (e.g. a character's pace of speech) may need to be subject to research. Another possible research avenue would be to consider terminology translation on a macro-level, as it could be the case that other information was omitted in the subtitles in favour of the terminology, as was noted by Massidda (as cited in Bianchi, s.d.).

9   REFERENCES

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Terms EN
adamantium
aerosol desinfectant
ailments
algorithm
amino acid
ammonia
anisotropy
anthropological
anthropologists
anthropomorphised
arachnid
arachnids
Arctic Circle
arrhythmia
artificial intelligence
astronauts
Astronomy Department
astrophysical probes
asymptote
atoms
attention span
auditory canal
autonomic reflexes
axiomatic
bacteria
bacterial infection
barium
barium enema
baseline glucose
benzene ring
Big Dipper
Big Curry Pot
biochemical reaction
bioorganic cellular computer devices
black body form
black hole
blanket stitch
bowel

bowel movement
bowels
brain scan
brain waves
calcium sulphate
carbon atoms
cardiac stress test
carragenin
carriers
Cartesian coordinate system
CAT scanner
CBC
centre cylinder system
charcoal
chem lab
Chemistry Department
chlorine
cholera
cognitive processing
coitus
collapsible icosidodecahedron
colonoscopy
combustion
concentration
condensate
condensates
condensation
constellations
Cooper-Nowitzki Theorem
Cooper-Smoot
cosmic microwave background radiation
cyanide
cyanoacrylates
dark matter detector
dark matter signal
dead skin cells
deficiencies
dehydrated low-sodium
department of engineering
desiccant
dewlap enlargement
diabetes

diagnostics
diaphragm
digestive distress
digestive system
distended scrotum
diverter valve
DNA
Drake Equation
duodenum
E.V.A
ectoplasmic
EEG
eka-iridium
electrical tape
electricity
electrodes
electromyogram
electrons
emergency ad hoc Icee Slurpee equivalency
endorphic
endorphins
energy-based de novo protein in conformational space
Engineering Department
entropy
equilibrium
estrogen
europium
excrement
exoskeleton
experiment
experimental physics
experimental steroids
exploratory laparoscopy
extraterrestrials
fermions
flash-frozen
formula
fractional values
free-electron laser
friction
frostbite
full body MRI

galactic dark matter
gall bladder
gamma rays
gangrene
gauge bosons
geiger counter
general relativity
genetic
geometric
glandular condition
glutamine
grand unification
gravity
gynaecologist
hallucinogenics
heart transplants
Heisenberg's particles
helium neon laser
hemispheres
heuristic algorithms
high-energy positrons
high-frequency whistle
hindquarters
Hoberman's sphere
hominids
Homo novus
Human Waste Disposal System
hyperventilate
hypothalamus
hypothesis
ice planet
icosahedral
icosidodecahedron
incontinence
incubators
industrial cooling system
infinite regression
inflammation
internal body heat
internal combustion engine
International Space Station
invasive medical test

inverse tangent function
involuntary muscular contraction
IQ
ISS
kid hominids
kinetics wab
Kryptonian
Kuiper Belt
lab
laboratory
labs
lactose
lactose intolerance
lactose intolerant
larvae
larval form
larynx
laser
laser lab
lateral incisors
laws of physics
Leslie Winkle Experimental Methodology
life essences
linear understanding
live acidophilus cultures
living organism
locus of identity
loop counter
loop quantum gravity
lumbar support
luminous
Lyme disease
lysine
M-theory
magnesium
magnetic North Pole
magnitude
Manihot esculenta
Mars Rover
mattress suture
meitnerium
melanoma

mendelevium
menopausal symptoms
menstrual cycle
mercury
micro-porous
mitosis
Mobile Omnidirectional Neutralisation and Termination Eradicator
molecular
molybdenum
Morse code
multi-bit calculations
multi-loop n
Münchhausen's trilemma
NASA
National Science Foundation
necrophilia
neuroscience
neuroscientific
neuroscientific researcher
neutrino
neutrinos
nickel
ninth
non-Newtonian fluid
nonequilibrium Green's function
NORAD
NSF expedition
nuclear reactor
nutritional suppositories
on an ex post facto basis
open science grid computer
opiates
optimum levels
outer space
ovaries
ovulation
ovum
oxytocin
pancreas
parameter
particle physicists
particulate soil on a colloidal suspension

pathogens
pathological fear
penicillin
pernicious anaemia
perturbative amplitudes
pestilence
phallic
Pharmacology Department
pheromones
photoionisation
photomultiplier lab
photomultiplier tubes
physicist
physics
physiology
pinkeye
Pishkin-Wolowitz liquid waste disposal system
placebo
placebo effect
Planck's Constant
planetary body
planetary object
polycarbonate
polypropyleen
premise
primates
propulsion
prostate exam
psychiatrist
psychological
psychosexual
psychotherapist
pwasma wab
pwoton de**c**a**y** expewiment
pyrite
quanti spacetime
quantum mechanics
quantum physics
quartz
radiation
radium
rails

rapid prototyper
rate of speed equals distance over time
re-examination of ultraviolet properties
recombinant DNA technology
reproduction
residual radium
respiration
retinas
RFID tags
right frontal lobe
RPM
Saturn
science
science lab
scientist
scrotum
series of sub-reasons
servo
Sheldonectomy
silicone-RTV
simulated zero-gravity human waste disposal test
single point of consistency
sleep apnoea
sleep-deprived
slow-moving magnetic monopoles
slow-moving monopoles
soder
sodium iodide
space probes
space shuttle
space station
space toilet
spectrum
sphygmomanometer
standardised unit of measure
static friction
steroid-infused
stethoscope
stitches
stomach ache
stress release
string theory

string-net condensate
string-nets
string-network condensates
strings
stringy
structure formation
subatomic / sub-atomic
subatomic particle
subatomic particles
substructure
sulphate
supercollider
supergravity
supernova
supersymmetric
surgical procedures
tapioca
telescope
tensile strength
testicle
theoretical physics
theorist
theory of string-network condensates
thermal underwear
thermodynamics
transient idiopathic arrhythmia
transverse filter assembly
triangulation
tumour
turbine
twistor theory
unbalanced charge
upper GI
valence electrons
valium
Wolowitz coefficient
Wolowitz Zero-Gravity
Wolowitz Zero-Gravity Human Waste Distribution System
Wolowitz Zero-Gravity Waste Disposal System
X-ray diffraction experiment
ytterbium
urinate

APPENDIX B

Episode	Terms EN	Field	Translation NL	Translation strategy 1	(Translation strategy 2)
S2E1	live acidophilus cultures	BIO	acidofiele culturen	loan translation	underspecification
S2E1	carragenin	CHEM	carrageen	loan translation	
S2E1	lactose intolerant	MED	kan geen lactose verdragen	paraphrase	term-to-non-term
S2E1	rate of speed equals distance over time	PHY	snelheid gelijk aan afstand gedeeld door tijd	literal translation	
S2E1	Solve for R	PHY	Is gelijk aan oplossing	literal translation	
S2E1	black box	TECH	zwarte doos	literal translation	
S2E1	hypothesis	RES	hypothese	loan translation	
S2E1	hyperventilate	MED	hyperventileert	loan translation	
S2E1	change in respiration	MED	snellere ademhaling	explicitation	
S2E1	pupils undilated	MED	verwijding van pupillen	transposition	
S2E1	flushing of the chest	MED	borst gaat niet op en neer	inadequate equivalent	transposition
S2E1	jaws are clenched	MED	kaken op elkaar	transposition	
S2E1	tongue access	MED	Toegang tong	literal translation	
S2E1	mating	BIO	voortplantend	inadequate equivalent	generalisation
S2E1	iguana	BIO	leguanen	literal translation	
S2E1	dewlap	MED	halskwab	transposition	
S2E1	digestive regularity	MED	regelmaat van z'n stoelgang	paraphrase	term-to-non-term
S2E1	quantum physics	PHY	kwantumfysica	loan translation	
S2E1	on an ex post facto basis	RES	niet achteraf	adaptation	term-to-non-term
S2E1	facial expressions	PSY	gezichtsuitdrukking	literal translation	
S2E1	autonomic reflexes	PSY	autonome reflexen	loan translation	
S2E1	homonymic relation	LING	homonymiteit	transposition	
S2E1	Lyme disease	MED	ziekte van Lyme	transposition	
S2E1	research facility	RES	onderzoeksinstituut	transposition	
S2E1	arachnid	BIO	spin	inadequate equivalent	term-to-non-term

S2E1	involuntary muscular contraction	MED	onwillekeurige spiercontractie	literal translation	
S2E1	Physiologically	UNSP	fysiologisch	loan translation	
S2E1	research facility	RES	lab	explicitation	
S2E1	energy-based de novo protein	BIO	energierijke novoproteïne	inadequate equivalent	
S2E1	in conformational space	BIO	in 'n samengestelde ruimte	inadequate equivalent	
S2E1	research fellowship	RES	∅	omission	
S2E1	supercollider	PHY	supergeleider	inadequate equivalent	
S2E1	Münchhausen's trilemma	PSY	Münchhausens trilemma	loan translation	
S2E1	infinite regression	PSY	regressie	underspecification	
S2E1	axiomatic	UNSP	axiomatische	loan translation	
S2E1	circular	PSY	vicieus	transposition	
S2E1	human cadaver	BIO	lijken	underspecification	
S2E1	necrophilia	UNSP	necrofilie	loan translation	
S2E1	thermostat	TECH	thermostaat	loan translation	
S2E1	residual radium	CHEM	achtergebleven radium	transposition	
S2E1	luminous	CHEM	verlicht	inadequate equivalent	
S2E1	geiger counter	PHY	geigerteller	literal translation	
S2E1	leprous	MED	aan lepra lijdende	paraphrase	
S2E1	lumbar support	MED	steun in de lendenen	paraphrase	
S2E1	valium	MED	Valium	loan translation	
S2E2	rife	RES	legio	compensation	
S2E2	polypropylene	CHEM	polypropyleen	loan translation	
S2E2	loop quantum gravity	PHY	kwantummechanica	inadequate equivalent	underspecification
S2E2	particulate soil	BIO	corpusculaire grond	transposition	inadequate equivalent
S2E2	colloidal suspension	CHEM	colloïde toestand	transposition	inadequate equivalent
S2E2	stress release	MED	tegen stress	transposition	term-to-non-term
S2E2	physical	BIO	∅	omission	
S2E2	burn unit	MED	daar heb ik niet van terug	adaptation	
S2E2	blue ice	CHEM	blauw ijs	literal translation	
S2E2	stress release	MED	stress af	adaptation	term-to-non-term

S2E2	paradigm	RES	paradigma	loan translation	
S2E2	coitus	BIO	coïtus	loan translation	
S2E2	pernicious anaemia	MED	pernicieuze anemie	loan translation	
S2E2	theoretical physicist	PHY	fysicus	underspecification	
S2E2	IQ	PSY	IQ	loan translation	
S2E2	science	UNSP	∅	omission	
S2E2	species	BIO	soort	literal translation	
S2E2	coded	COMP	∅	omission	
S2E2	emulator	COMP	emulator	loan translation	
S2E2	Heimlich manoeuvre	MED	Heimlich-handgreep	transposition	
S2E2	physicists	PHY	fysici	loan translation	
S2E2	labs	UNSP	labs	loan translation	
S2E2	scientists	UNSP	wetenschapper	literal translation	
S2E2	science	UNSP	wetenschap	literal translation	
S2E2	reproduction	BIO	voortplanten	literal translation	
S2E2	genetic	BIO	genetisch	loan translation	
S2E2	lactose intolerance	MED	allergisch voor zuivel	paraphrase	inadequate equivalent
S2E2	male pattern baldness	BIO	kaalheid	underspecification	
S2E2	intercourse	BIO	gemeenschap	transposition	
S2E2	viability test	UNSP	levensvatbaar	underspecification	
S2E2	intercourse	BIO	gemeenschap	transposition	
S2E2	protocol	UNSP	protocol	loan translation	
S2E2	experiment	RES	experiment	loan translation	
S2E2	scientist	UNSP	wetenschapper	literal translation	
S2E2	scientists	UNSP	wetenschapper	literal translation	
S2E2	Experimental Methodology	UNSP	Experimentele Methodologie	loan translation	
S2E2	scientist	UNSP	wetenschapper	literal translation	
S2E2	research	RES	onderzoek	literal translation	
S2E2	IQ points	PSY	IQ-punten	loan translation	
S2E2	scientist	UNSP	wetenschapper	literal translation	
S2E2	loop quantum gravity	PHY	luszwaartekracht	underspecification	inadequate equivalent

S2E2	quantum mechanics	PHY	kwantummechanica	loan translation	
S2E2	general relativity	PHY	relativiteitstheorie	underspecification	transposition
S2E2	string theory	PHY	snaartheorie	transposition	
S2E2	Loop quantum gravity	PHY	Luszwaartekracht	underspecification	inadequate equivalent
S2E2	string theory	PHY	snaartheorie	transposition	
S2E2	quantized space-time	PHY	gekwantiseerde ruimte-tijd	literal translation	
S2E2	speed of light	PHY	lichtsnelheid	literal translation	
S2E2	matter	PHY	massa	transposition	
S2E2	strings	PHY	snaren	literal translation	
S2E2	loop quantum gravity	PHY	luszwaartekracht	underspecification	inadequate equivalent
S2E2	entropy	PHY	entropie	loan translation	
S2E2	black holes	PHY	zwarte gaten	literal translation	
S2E2	Loop quantum gravity	PHY	Luszwaartekracht	underspecification	inadequate equivalent
S2E2	physics	PHY	natuurkunde	literal translation	
S2E2	stringy	PHY	snaar	transposition	
S2E2	loopy	PHY	lus	inadequate equivalent	
S2E2	untested hypotheses	RES	hypotheses	underspecification	
S2E2	theory	RES	theorie	loan translation	
S2E2	genetically	BIO	∅	omission	
S2E2	reading	UNSP	metingen	transposition	
S2E3	bladder check	MED	plassen	transposition	
S2E3	Baldwin lock	TECH	deurslot	underspecification	
S2E3	edge-mounted cylinders	TECH	profielcilinderslot	completion	
S2E3	centre cylinder system	TECH	centraal cilindersysteem	literal translation	term-to-non-term
S2E3	facial bone structure	BIO	gelaats...	underspecification	
S2E3	dietary	BIO	menu	adaptation	term-to-non-term
S2E3	protein	BIO	proteïne	loan translation	
S2E3	condensation	PHY	condens	loan translation	
S2E3	structural integrity	PHY	draagvermogen	transposition	
S2E3	wildlife	BIO	wilde dieren	transposition	
S2E3	non-Newtonian fluid	PHY	niet-newtoniaanse vloeistof	literal translation	

S2E3	mainframe	COMP	systeemcomputer	explicitation	
S2E3	subatomic	PHY	subatomair	loan translation	
S2E3	multi-bit	COMP	multiloop	transposition	
S2E3	calculations	COMP	berekeningen	literal translation	
S2E3	simulations	COMP	simulaties	loan translation	
S2E3	data	RES	data	loan translation	
S2E3	virtual	UNSP	∅	omission	
S2E3	scientist	UNSP	wetenschapper	literal translation	
S2E3	expertise	UNSP	ervaren	generalisation	term-to-non-term
S2E3	sexual intercourse	BIO	seksuele ervaring	transposition	generalisation
S2E3	sexual encounters	BIO	seksuele relaties	explicitation	
S2E3	science	UNSP	wetenschappelijk	literal translation	
S2E3	mate	BIO	partner	transposition	
S2E3	science	UNSP	wetenschappelijk	literal translation	
S2E3	science	UNSP	wetenschappelijk	literal translation	
S2E3	heuristic algorithms	MATH	heuristische algoritmes	loan translation	
S2E3	paramedic	MED	verpleger	inadequate equivalent	underspecification
S2E3	fire department	MED	brandweer	transposition	
S2E3	med school	MED	medicijnen	transposition	
S2E4	sanitise	MED	ontsmetten	transposition	
S2E4	sanitary	MED	hygiënischer	literal translation	
S2E4	incubators	MED	broedplaatsen	transposition	
S2E4	bacteria	MED	bacteriën	loan translation	
S2E4	pestilence	MED	ziektekiemen	transposition	
S2E4	plague infested	MED	met pest besmette	paraphrase	
S2E4	hygienic	MED	hygiënischer	loan translation	
S2E4	planetary object	ASTR	object	underspecification	term-to-non-term
S2E4	Kuiper Belt	ASTR	Kuipergordel	official equivalent	
S2E4	2008-NQ sub-17	ASTR	2008-NQ sub-17	loan translation	
S2E4	discovery	RES	ontdekking	literal translation	
S2E4	psychotherapist	PSY	iemand	generalisation	term-to-non-term

S2E4	mounted telescope camera bracket	TECH	het statief voor de telescoop	underspecification	
S2E4	gynaecologist	MED	gynaecoloog	loan translation	
S2E4	peer review committee	RES	comité van vakgenoten	transposition	
S2E4	scientists	UNSP	wetenschappers	literal translation	
S2E4	Peer review	RES	Comité van vakgenoten	completion	
S2E4	credentials	RES	referenties	transposition	
S2E4	solar system	ASTR	zonnestelsel	transposition	
S2E4	scientific	UNSP	∅	omission	
S2E4	neutrino	PHY	neutrino	loan translation	
S2E4	unbalanced charge	PHY	gewichtloze lading	inadequate equivalent	term-to-non-term
S2E4	subatomic	PHY	subatomisch	loan translation	
S2E4	neutrino	PHY	neutrino	loan translation	
S2E4	stabilising telescope mount	TECH	stabiliserend statief	underspecification	
S2E4	cosmic	ASTR	kosmische	loan translation	
S2E4	star	ASTR	ster	loan translation	
S2E4	2008-NQ sub-17	ASTR	2008-NQ sub-17	loan translation	
S2E4	planetary body	ASTR	planetair lichaam	literal translation	
S2E4	2008-NQ sub-17	ASTR	2008-NQ sub-17	loan translation	
S2E4	science	UNSP	wetenschap	literal translation	
S2E4	starry	ASTR	sterren	loan translation	
S2E4	supernova	ASTR	supernova	loan translation	
S2E4	gas	PHY	gas	loan translation	
S2E4	planetary body	ASTR	planeet	underspecification	
S2E4	sleep apnoea	MED	slaapapneu	loan translation	
S2E4	low sodium	CHEM	met laag zoutgehalte	paraphrase	
S2E4	having intercourse	BIO	vrijt	term-to-non-term	transposition
S2E4	having intercourse	BIO	vrijen	term-to-non-term	transposition
S2E4	telepathic	PSY	telepathisch	loan translation	
S2E4	mythological	UNSP	mythologisch	loan translation	
S2E4	recombinant DNA technology	BIO	recombinant-DNA-techniek	transposition	
S2E4	semen	BIO	sperma	literal translation	
S2E4	semen	BIO	sperma	literal translation	
S2E4	artificial intelligence	UNSP	kunstmatige intelligentie	literal translation	

S2E4	animatronics	UNSP	animatronics	loan translation	
S2E4	pathogens	BIO	ziektekiemen	literal translation	term-to-non-term
S2E5	free-electron laser	PHY	vrije-elektronlaser	literal translation	inadequate equivalent
S2E5	X-ray diffraction	PHY	röntgendiffractie	transposition	
S2E5	experiment	RES	experiment	loan translation	
S2E5	laser	UNSP	laser	loan translation	
S2E5	retinas	BIO	netvlies	literal translation	
S2E5	indicator	UNSP	moet je dan	adaptation	term-to-non-term
S2E5	reaction time	PHY	reactiesnelheid	inadequate equivalent	
S2E5	factor	RES	factor	loan translation	
S2E5	point-to-point drive time	UNSP	∅	omission	
S2E5	element	CHEM	element	loan translation	
S2E5	element	CHEM	element	loan translation	
S2E5	helium	CHEM	helium	loan translation	
S2E5	mercury	CHEM	'mercury', kwik	lexical recreation	literal translation
S2E5	ytterbium	CHEM	ytterbium	loan translation	
S2E5	molybdenum	CHEM	molybdeen	loan translation	
S2E5	magnesium	CHEM	magnesium	loan translation	
S2E5	manganese	CHEM	mangaan	loan translation	
S2E5	europium	CHEM	europium	loan translation	
S2E5	mendelevium	CHEM	mendelevium	loan translation	
S2E5	meitnerium	CHEM	meitnerium	loan translation	
S2E5	eka-iridium	CHEM	eka-iridium	loan translation	
S2E5	theoretical	RES	theorie	literal translation	
S2E5	internal combustion engine	TECH	verbrandingsmotor	transposition	
S2E5	diagnostics	MED	diagnose	loan translation	
S2E5	free-electron laser	PHY	elektronlaser	underspecification	inadequate equivalent
S2E5	laser lab	PHY	laserlab	loan translation	
S2E5	examining	RES	onderzoek	literal translation	

S2E5	perturbative amplitudes	PHY	afwijkende trillingen	transposition	inadequate equivalent
S2E5	n = 4 supersymmetric theories	PHY	N = 4 supersymmetrie	underspecification	loan translation
S2E5	re-examination	PHY	onderzoek	underspecification	
S2E5	ultraviolet properties	PHY	ultraviolette eigenschappen	literal translation	
S2E5	multi-loop	PHY	meerlussige	transposition	inadequate equivalent
S2E5	n = 8 supergravity	PHY	N = 8 zwaartekracht	underspecification	
S2E5	twistor theory	PHY	twistor-theorie	loan translation	
S2E5	theorist	PHY	theoreticus	loan translation	
S2E5	standardised	UNSP	standaard	loan translation	
S2E5	unit of measure	UNSP	maat	transposition	
S2E5	film of liquid	UNSP	vloeistof	underspecification	
S2E5	coefficient	PHY	coëfficiënt	loan translation	
S2E5	static friction	PHY	wrijving	underspecification	
S2E5	source of friction	PHY	wrijving	underspecification	
S2E5	boot up	COMP	start op	literal translation	
S2E5	booting	COMP	opstarten	literal translation	
S2E5	simulator	UNSP	simulator	loan translation	
S2E5	up-armoured	UNSP	gepantserd	literal translation	
S2E5	configured	COMP	ingesteld	literal translation	
S2E5	simulated	COMP	gesimuleerde	loan translation	
S2E5	evolved	BIO	ontwikkeld	transposition	
S2E5	lateral incisors	BIO	hoektanden	inadequate equivalent	
S2E5	average	UNSP	gemiddelde	literal translation	
S2E5	indicators	RES	aanwijzingen	literal translation	
S2E5	evolutionary scale	BIO	evolutionaire ladder	transposition	
S2E5	average	UNSP	gemiddelde	literal translation	
S2E5	stage	BIO	fase	literal translation	
S2E5	humankind	BIO	mensheid	literal translation	
S2E5	Homo novus	BIO	*Homo novus*	lexical recreation	

S2E5	anthropologists	BIO	antropologen	loan translation	
S2E5	universe	UNSP	universum	loan translation	
S2E5	biologically superior	BIO	biologisch superieure	loan translation	
S2E5	Homo novus	BIO	*Homo novus*	lexical recreation	
S2E5	Homo novus	BIO	*Homo novus*	lexical recreation	
S2E5	evolve	BIO	evolueer	loan translation	
S2E5	evolved	BIO	geëvolueerd	loan translation	
S2E5	radiation lab	PHY	radiatielab	loan translation	
S2E5	experiment	RES	experiment	loan translation	
S2E5	experiment	RES	∅	omission	
S2E6	experimental physics	PHY	experimentele fysica	loan translation	
S2E6	demonstration	PHY	demonstratie	loan translation	
S2E6	helium neon laser	PHY	heliumneon-laser	loan translation	
S2E6	theoretical physics	PHY	Theoretische Fysica	loan translation	
S2E6	the laws of thermodynamics	PHY	thermodynamica	underspecification	
S2E6	laser	PHY	laser	loan translation	
S2E6	theoretical physics	PHY	theoretische fysica	loan translation	
S2E6	scientific	UNSP	∅	omission	
S2E6	physics	PHY	fysica	loan translation	
S2E6	science	UNSP	wetenschap	literal translation	
S2E6	Laser demonstration's	PHY	laserdemonstratie	loan translation	
S2E6	engineering	RES	Technische Wetenschappen	explicitation	
S2E6	International Space Station	ASTR	internationale ruimtestation	literal translation	official equivalent
S2E6	liquid waste disposal system	TECH	afvalverwerking	underspecification	
S2E6	paper	RES	artikel	transposition	
S2E6	grand unification	PHY	∅	omission	
S2E6	string-network condensates	PHY	snaarnetwerk-condensaten	inadequate equivalent	literal translation
S2E6	three-dimensional	PHY	∅	omission	
S2E6	string-nets	PHY	snaarnetwerken	inadequate equivalent	completion
S2E6	fermions	PHY	fermions	retention	
S2E6	gauge bosons	PHY	bosonen	underspecification	
S2E6	neutrinos	PHY	neutrino's	loan translation	

S2E6	a string-net condensate	PHY	snaarnetwerk	inadequate equivalent	
S2E6	physical universe	PHY	fysieke universum	loan translation	
S2E6	Pishkin-Wolowitz liquid waste disposal system	TECH	Pishkin-Wolowitz afvalverwerkingsysteem	underspecification	
S2E6	neutrinos	PHY	neutrino's	loan translation	
S2E6	praying mantis	BIO	bidsprinkhaan	transposition	
S2E6	paper	RES	artikel	transposition	
S2E6	mirror-symmetry	PHY	spiegelsymmetrie	literal translation	
S2E6	gravity	PHY	zwaartekracht	transposition	
S2E6	physically	PHY	fysiek	loan translation	
S2E6	hypotheses	RES	hypotheses	loan translation	
S2E6	theories	RES	theorieën	loan translation	
S2E6	reproduce	BIO	voortplanten	literal translation	
S2E6	mitosis	BIO	kerndeling	transposition	
S2E6	larval	BIO	larve	loan translation	
S2E6	species	BIO	soort	literal translation	
S2E6	cocoon	BIO	cocon	loan translation	
S2E6	exoskeleton	BIO	uitwendig geraamte	transposition	
S2E6	nutritional suppositories	PHA	voedingszetpillen	transposition	
S2E6	physics	PHY	fysica	loan translation	
S2E6	papers	RES	artikelen	transposition	
S2E6	neutrino	PHY	neutrino's	loan translation	
S2E6	subatomic	PHY	subatomische	loan translation	
S2E6	Science	UNSP	Wetenschap	literal translation	
S2E6	Morse code	UNSP	morse	loan translation	
S2E6	Morse code	UNSP	morsealfabet	explicitation	
S2E6	Morse code	UNSP	morse	loan translation	
S2E6	artificial intelligence	UNSP	kunstmatige intelligentie	literal translation	
S2E6	alien pod	ASTR	alien	underspecification	
S2E6	paper	RES	artikel	transposition	
S2E6	black hole	ASTR	zwarte gaten	literal translation	
S2E6	information paradox	PHY	informatieparadox	loan translation	
S2E6	theory	RES	theorie	loan translation	
S2E6	string-network condensates	PHY	snaarnetwerk-condensaten	inadequate equivalent	literal translation
S2E6	paradigm	RES	paradigma	loan translation	

S2E6	masses	PHY	massa's	underspecification	
S2E6	fermions	PHY	fermions	retention	
S2E6	pumice	MED	behandeld	generalisation	
S2E6	hammer toe	MED	hamerteen	literal translation	
S2E6	Cooper-Nowitzki Theorem	RES	Cooper-Nowitzki Stelling	literal translation	
S2E6	black hole	ASTR	∅	omission	
S2E6	information paradox	PHY	informatieparadox	loan translation	
S2E6	theory	RES	theorie	loan translation	
S2E6	string-network condensates	PHY	snaarnetwerken	inadequate equivalent	
S2E7	chlorine	CHEM	chloor	loan translation	
S2E7	transparently manipulative pseudo-reality	UNSP	flauwekul	term-to-non-term	adaptation
S2E7	compromising the integrity	UNSP	besmetten	transposition	
S2E7	triangulation	MATH	driehoeksmeting	transposition	
S2E7	lactose intolerant	MED	die niet tegen lactose kan	paraphrase	
S2E7	allergic	MED	allergische	loan translation	
S2E7	NORAD	UNSP	NORAD	official equivalent	
S2E7	spy drone	TECH	spionagevliegtuig	underspecification	
S2E7	aircraft	TECH	vliegtuig	explicitation	
S2E7	nuclear reactor	PHY	kerncentrale	inadequate equivalent	
S2E7	parasitic	BIO	∅	omission	
S2E7	lab accident	UNSP	geen partij	adaptation	
S2E7	castrate	MED	castreren	loan translation	
S2E7	neuter	MED	∅	omission	
S2E7	the laws of physics	PHY	natuurkunde	underspecification	
S2E7	electrocute	UNSP	geëlektrocuteerd	loan translation	
S2E7	Kryptonite	UNSP	zwakke plek	adaptation	
S2E7	military satellites	TECH	satellieten	underspecification	
S2E7	aircraft	TECH	vliegtuigen	explicitation	
S2E7	satellite	ASTR	satelliet	loan translation	
S2E7	subtraction	MATH	verschil	transposition	

S2E8	evidence	RES	bewijs	literal translation	
S2E8	plumage	BIO	veren	generalisation	
S2E8	rutting	BIO	bronstige	transposition	
S2E8	engorged	MED	gezwollen	literal translation	
S2E8	hindquarters	BIO	achterste	term-to-non-term	underspecification
S2E8	pinkeye	MED	een ontstoken oog	paraphrase	
S2E8	paramedic	MED	ziekenbroeder	underspecification	
S2E8	pinkeye	MED	oog ontstoken	paraphrase	
S2E8	Mars Rover lab	TECH	Marsrover-lab	loan translation	
S2E8	DEFCON 5	UNSP	DEFCON 5	loan translation	
S2E8	magnitude	UNSP	malen	adaptation	term-to-non-term
S2E8	standard	UNSP	standaard	loan translation	
S2E8	measured	UNSP	∅	omission	
S2E8	Mars Rover	TECH	Marsrover	loan translation	
S2E8	Mars Rover control room	TECH	controle kamer	underspecification	
S2E8	doctor	MED	dokter	loan translation	
S2E8	barium enema	MED	klysma	transposition	underspecification
S2E8	Rover	TECH	rover	loan translation	
S2E8	planets	ASTR	planeten	loan translation	
S2E8	Mars Rover	TECH	Marsrover	loan translation	
S2E8	Mars Rover	TECH	Marsrover	loan translation	
S2E8	scientist	UNSP	wetenschapper	literal translation	
S2E8	scientist	UNSP	wetenschapper	literal translation	
S2E8	Mars	ASTR	Mars	official equivalent	
S2E8	Rover	UNSP	rover	loan translation	
S2E8	excrement	BIO	feces	explicitation	
S2E8	propulsion	TECH	aandrijving	literal translation	
S2E8	NASA	UNSP	NASA	official equivalent	
S2E8	hard drives	COMP	harddrives	loan translation	
S2E8	NASA	UNSP	NASA	official equivalent	
S2E8	Mars Rover	TECH	Marsrover	loan translation	

S2E8	Mars Rover	TECH	Marsrover	loan translation	
S2E8	Mars	ASTR	Mars	official equivalent	
S2E8	Mars	ASTR	Mars	official equivalent	
S2E8	appendix	MED	appendix	loan translation	
S2E8	gall bladder	MED	galblaas	literal translation	
S2E8	bowel	MED	darm	literal translation	
S2E8	physicist	PHY	fysicus	loan translation	
S2E8	doctor	MED	dokter	loan translation	
S2E8	doctor	MED	dokter	loan translation	
S2E8	doctor	MED	dokter	loan translation	
S2E8	doctor	MED	dokter	loan translation	
S2E8	surgical resident	MED	chirurg	transposition	
S2E8	paradigm	RES	paradigma	loan translation	
S2E8	ectoplasmic	PSY	ectoplasma	loan translation	
S2E8	disembodied	PSY	onstoffelijke	transposition	
S2E8	life on Mars	UNSP	∅	omission	
S2E8	scientists	UNSP	∅	omission	
S2E8	Mars Rover	TECH	Marsrover	loan translation	
S2E8	indications	RES	indicaties	loan translation	
S2E8	scientific	UNSP	∅	omission	
S2E8	discovery	RES	ontdekking	literal translation	
S2E8	mankind	BIO	mensheid	literal translation	
S2E9	sexual component	BIO	seksueel onderdeel	literal translation	
S2E9	surgical resident	MED	chirurg	transposition	
S2E9	sexual	BIO	seksueel	loan translation	
S2E9	hypothalamus	MED	hypothalamus	loan translation	
S2E9	estrogen	MED	oestrogeen	loan translation	
S2E9	progesterone	MED	progesteron	loan translation	
S2E9	sexual	BIO	seksuele	loan translation	
S2E9	libido	BIO	libido	loan translation	
S2E9	medical	MED	∅	omission	
S2E9	hospital	MED	ziekenhuis	literal translation	
S2E9	radiation burns	MED	Brandwonden van straling	paraphrase	
S2E9	CAT scanner	MED	CAT-scanner	loan translation	
S2E9	CAT scanner	MED	CAT-scanner	loan translation	
S2E9	CAT scanner	MED	CAT-scanner	loan translation	

S2E9	medical officer	MED	medisch officier	loan translation	
S2E9	post-op	MED	postoperatieve	completion	
S2E9	x-ray	MED	röntgenfoto	completion	
S2E9	chest cavity	MED	borstholte	literal translation	
S2E9	ergo	RES	ergo	loan translation	
S2E9	virtual	UNSP	virtueel	loan translation	
S2E9	data	RES	gegevens	literal translation	
S2E9	Speed of Light	PHY	Lichtsnelheid	literal translation	
S2E9	geometric progression	GEOM	geometrie	underspecification	
S2E9	Y equals 27 days over 12 to the 9th	MATH	Y is gelijk aan 27 dagen over 12 tot de negende	literal translation	
S2E9	apocalyptic	UNSP	apocalyptische	loan translation	
S2E9	equilibrium	UNSP	balans	inadequate equivalent	
S2E9	menstrual cycle	BIO	menstruatiecyclus	loan translation	
S2E9	research	RES	onderzoek	literal translation	
S2E9	primates	BIO	primaten	loan translation	
S2E9	mate	BIO	man	term-to-non-term	
S2E9	rival	BIO	andere	generalisation	term-to-non-term
S2E9	secreting	BIO	verspreidt	transposition	
S2E9	pheromones	BIO	feromonen	loan translation	
S2E9	ovulation	BIO	ovulatie	loan translation	
S2E9	yellow fever	MED	gele koorts	literal translation	
S2E9	malaria	MED	malaria	loan translation	
S2E9	cure	MED	genezen	literal translation	
S2E9	lactose intolerance	MED	lactoseallergie	transposition	inadequate equivalent
S2E9	alpha male	BIO	alfamannetje	transposition	
S2E9	physical	UNSP	fysieke	loan translation	
S2E9	domination	BIO	dominantie	loan translation	
S2E9	hormone	MED	∅	omission	
S2E9	oxytocin	MED	oxytocine	loan translation	
S2E9	biochemical reaction	BIO	biochemische reactie	loan translation	
S2E9	intercourse	BIO	coïtus	compensation	
S2E9	beta male	BIO	bètamannetje	loan translation	
S2E9	stitches	MED	gehecht	literal translation	

S2E9	stitches	MED	hechten	literal translation	
S2E9	mattress suture	MED	matrassteek	inadequate equivalent	term-to-non-term
S2E9	blanket stitch	MED	∅	omission	
S2E9	scar	MED	litteken	literal translation	
S2E9	contra-indicated	MED	afgeraden	generalisation	term-to-non-term
S2E9	vomiting	MED	braakt	literal translation	
S2E9	coitus	BIO	coïtus	loan translation	
S2E9	discharge papers	MED	ontslagformulieren	transposition	
S2E9	stitches	MED	hechtingen	literal translation	
S2E9	medical school	MED	opleiding geneeskunde	adaptation	
S2E10	high-frequency	UNSP	hoge	underspecification	
S2E10	inflammation	MED	ontstoken	literal translation	
S2E10	tumour	MED	tumor	loan translation	
S2E10	bacterial infection	MED	∅	omission	
S2E10	cootie shot	MED	geen luisjes	adaptation	
S2E10	cootie shot	MED	luizenbezwering	adaptation	
S2E10	ailments	MED	kwaaltjes	transposition	
S2E10	accommodate	RES	verwijderen	transposition	term-to-non-term
S2E10	accumulation	BIO	extra	transposition	term-to-non-term
S2E10	dead skin cells	BIO	dode huidcellen	literal translation	
S2E10	tumour	MED	tumor	loan translation	
S2E10	auditory nerve	MED	gehoorzenuw	transposition	
S2E10	symptoms	MED	∅	omission	
S2E10	prostate exam	MED	prostaat onderzoeken	literal translation	
S2E10	gall bladder	MED	galblaas	literal translation	
S2E10	prostate exam	MED	prostaat onderzocht	literal translation	
S2E10	stethoscope	MED	stethoscoop	loan translation	
S2E10	blood pressure cuff	MED	bloeddrukmeter	literal translation	
S2E10	theoretical physics	PHY	theoretische fysica	loan translation	
S2E10	blood pressure cuff	MED	bloeddrukmeter	literal translation	
S2E10	sphygmomanometer	MED	sfygmomanometer	loan translation	

S2E10	medical school	MED	∅	omission	
S2E10	tests	MED	onderzoeken	transposition	
S2E10	cardiac stress test	MED	fietstest	transposition	
S2E10	full body MRI	MED	volledig MRI	transposition	
S2E10	electromyogram	MED	EMG	abbreviation	
S2E10	CBC	MED	bloed-	underspecification	completion
S2E10	baseline glucose	MED	glucose-	underspecification	completion
S2E10	upper GI	MED	slokdarmonderzoek	completion	
S2E10	exploratory laparoscopy	MED	laparoscopie	underspecification	
S2E10	diaphragm	MED	middenrif	literal translation	
S2E10	upper GI	MED	slokdarmonderzoek	completion	
S2E10	barium	MED	bariumpapje	completion	
S2E10	larynx	MED	strottenhoofd	literal translation	
S2E10	inflamed	MED	ontstoken	literal translation	
S2E10	Sheldonectomy	MED	Sheldonectomie	loan translation	
S2E10	speed	PHY	tempo	literal translation	
S2E10	cramps	MED	kramp	loan translation	
S2E10	inflamed	MED	ontstoken	literal translation	
S2E10	larynx	MED	strottenhoofd	literal translation	
S2E11	scientific	UNSP	wetenschappelijk	literal translation	
S2E11	argument	RES	∅	omission	
S2E11	established	RES	bewezen	transposition	
S2E11	Earth	ASTR	aarde	loan translation	
S2E11	yelllow sun	ASTR	zonlicht	transposition	
S2E11	contaminate matter	UNSP	verontreinigde stoffen	transposition	
S2E11	Kryptonian	UNSP	Kryptonische	loan translation	
S2E11	Kryptonian	UNSP	Kryptonisch	loan translation	
S2E11	Kryptonian	UNSP	Kryptonische	loan translation	
S2E11	Kryptonian	UNSP	Kryptonische	loan translation	
S2E11	Krypton	UNSP	Krypton	loan translation	
S2E11	Kryptonite	UNSP	Kryptoniet	loan translation	
S2E11	Kryptonian	UNSP	Kryptonische	loan translation	
S2E11	Earth	ASTR	aarde	literal translation	
S2E11	Kryptonian	UNSP	Krypton	loan translation	
S2E11	Kryptonian	UNSP	Kryptonisch	loan translation	

S2E11	Kryptonian	UNSP	Kryptonische	loan translation	
S2E11	Earth	ASTR	aarde	loan translation	
S2E11	Kryptonian	UNSP	∅	omission	
S2E11	Kryptonian	UNSP	Kryptonisch	loan translation	
S2E11	high-energy positrons	PHY	positronen	underspecification	
S2E11	conclusive evidence	RES	bewijs	underspecification	
S2E11	galactic	UNSP	∅	omission	
S2E11	dark matter	ASTR	donkere materie	literal translation	
S2E11	paradigm-shifting	RES	verschuiving	underspecification	
S2E11	reinterpretation	RES	∅	omission	
S2E11	universe	ASTR	heelal	transposition	
S2E11	photomultiplier lab	PHY	lab	underspecification	
S2E11	scientist	UNSP	wetenschapper	literal translation	
S2E11	winter solstice	UNSP	de kortste dag	transposition	
S2E11	life essences	BIO	levenssappen	transposition	
S2E11	physicist	PHY	natuurkundige	literal translation	
S2E11	physicists	PHY	natuurkundigen	literal translation	
S2E11	melanoma	MED	melanoom	loan translation	
S2E11	experiment	RES	experiment	loan translation	
S2E11	radiation levels	PHY	stralingsniveau	literal translation	
S2E11	photomultiplier tubes	PHY	fotomultiplicatoren	transposition	
S2E11	dark matter detector	PHY	meetapparaat	underspecification	
S2E11	science	UNSP	wetenschap	literal translation	
S2E11	subatomic particle	PHY	atoomdeeltjes	underspecification	
S2E11	lab	UNSP	laboratorium	completion	
S2E11	science lab	UNSP	laboratorium	underspecification	completion
S2E11	science	UNSP	wetenschap	literal translation	
S2E11	estrogen	NEU	oestrogeen	loan translation	
S2E11	hypothesis	RES	hypothese	loan translation	
S2E11	conundrum	RES	vraag	transposition	
S2E11	data	RES	∅	omission	
S2E11	infer	RES	volgens	adaptation	
S2E11	hypothetical	RES	veronderstelde	term-to-non-term	transposition

S2E11	lab	RES	lab	loan translation	
S2E11	dark matter	PHY	donkere materie	literal translation	
S2E11	experiment	RES	experimenten	loan translation	
S2E11	experiment	RES	experimenteren	loan translation	
S2E11	explore	RES	meten	explicitation	
S2E11	effects	RES	effect	loan translation	
S2E11	experiment	RES	∅	omission	
S2E11	digestive distress	MED	naar het toilet moet	adaptation	term-to-non-term
S2E11	railroad spike	TECH	spoorspijker	transposition	
S2E11	lactose	MED	lactose	loan translation	
S2E11	digestive distress	MED	darmproblemen	transposition	
S2E11	DNA	BIO	DNA	loan translation	
S2E11	ovum	MED	eicel	literal translation	
S2E11	science experiments	RES	wetenschappelijke experimenten	literal translation	
S2E11	science	UNSP	er	deictics	
S2E12	servo	TECH	motorinstelling	transposition	
S2E12	Mobile Omnidirectional Neutralisation and Termination Eradicator	TECH	Mobiele Omnidirectionele Neutraliseer en Termineer Eliminator	loan translation	
S2E12	MONTE	TECH	Monte	loan translation	
S2E12	articulated saw	TECH	zaagopzet	inadequate equivalent	
S2E12	razor-sharp	UNSP	messcherpe	transposition	
S2E12	polycarbonate	CHEM	policarbonaat	loan translation	
S2E12	grinding wheel	TECH	slijpsteen	transposition	
S2E12	flipping wheel	TECH	∅	omission	
S2E12	steel armour	PHY	gewapend staal	explicitation	underspecification
S2E12	exoskeleton	TECH	buitenskelet	literal translation	
S2E12	horsepower	TECH	pk	abbreviation	
S2E12	mechanised	TECH	gemotoriseerde	explicitation	
S2E12	icosahedral die	GEOM	veelvlakkige structuur	underspecification	
S2E12	goggles	TECH	veiligheidsbrillen	transposition	

S2E12	scientific event	UNSP	wetenschapsmoment	transposition	
S2E12	killer robot	TECH	moordrobot	literal translation	
S2E12	killer robot	TECH	moordrobot	literal translation	
S2E12	robot	TECH	robot	loan translation	
S2E12	killer robot	TECH	moordrobot	literal translation	
S2E12	engineering	TECH	bouwtechniek	transposition	
S2E12	plasma lab	PHY	plasmalab	loan translation	
S2E12	robot	TECH	robot	loan translation	
S2E12	robot	TECH	∅	omission	
S2E12	Kripke Krippler	TECH	Kripke Versnipperaar	transposition	
S2E12	robot	TECH	robot	loan translation	
S2E12	glandular condition	MED	klierafwijking	explicitation	
S2E12	sloth	MED	∅	omission	
S2E12	gluttony	MED	vreetzucht	transposition	
S2E12	kinetics lab	PHY	kinetisch lab	loan translation	inadequate equivalent
S2E12	engineer	TECH	ingenieur	loan translation	
S2E12	robots	TECH	robot	loan translation	
S2E12	robot	TECH	robot	loan translation	
S2E12	robot	TECH	robot	loan translation	
S2E12	overexposed-to-gamma-rays	PHY	te veel aan gammastralen blootgesteld	literal translation	
S2E12	Gamma rays	PHY	Gammastralen	literal translation	
S2E12	traumatised	PSY	schokt me niet	adaptation	term-to-non-term
S2E12	robot	TECH	robot	loan translation	
S2E12	Krippler	TECH	Versnipperaar	transposition	
S2E12	robot	TECH	robot	loan translation	
S2E12	modify	TECH	∅	omission	
S2E12	bladder	MED	blaas	literal translation	
S2E12	modifications	TECH	veranderen	literal translation	

S2E12	engineering	TECH	techniek	generalisation	
S2E12	physics	PHY	natuurkunde	literal translation	
S2E12	overbite	MED	overbeet	loan translation	
S2E12	outer space	ASTR	ruimte	transposition	
S2E12	bot	TECH	robotje	completion	
S2E12	RPM	TECH	toeren per minuut	completion	
S2E12	robot	TECH	∅	omission	
S2E12	robot	TECH	robot	loan translation	
S2E12	psychological	UNSP	psychologische	loan translation	
S2E12	robot	TECH	robot	loan translation	
S2E12	robotic	TECH	robot	loan translation	
S2E12	paradigm	UNSP	∅	omission	
S2E12	robot	TECH	robot	loan translation	
S2E12	robot	TECH	robot	loan translation	
S2E12	electrical tape	TECH	isolotietape	transposition	
S2E12	solder	TECH	solderen	loan translation	
S2E12	space probes	ASTR	ruimteraketten	inadequate equivalent	
S2E12	robot	TECH	robot	loan translation	
S2E12	robot	TECH	robot	loan translation	
S2E13	axiomatically	RES	axiomatisch gezien	transposition	
S2E13	organic structure	BIO	organische structuur	loan translation	
S2E13	root	BIO	wortel	literal translation	
S2E13	Manihot esculenta	BIO	Manihot esculenta	loan translation	
S2E13	high concentration	UNSP	hoeveelheid	underspecification	term-to-non-term
S2E13	cyanide	CHEM	cyanide	loan translation	
S2E13	poisonous	BIO	giftig	literal translation	
S2E13	proton decay experiment	PHY	protonexperiment	underspecification	
S2E13	data runs	RES	datatesten	transposition	
S2E13	open science grid	UNSP	wetenschap	transposition	underspecification
S2E13	simulations	UNSP	simuleren	loan translation	

S2E13	structure formation	ASTR	structuurformaties	loan translation	
S2E13	universe	ASTR	universum	loan translation	
S2E13	particle physicists	PHY	wetenschappers	generalisation	
S2E13	carbon atoms	PHY	koolstofatomen	literal translation	
S2E13	benzene ring	PHY	benzeenring	loan translation	
S2E13	proximity	PHY	verwantschap	literal translation	
S2E13	valence electrons	PHY	valentie-elektronen	loan translation	
S2E13	research	RES	onderzoek	literal translation	
S2E13	social sciences	UNSP	sociale wetenschappen	literal translation	
S2E13	electrodes	UNSP	elektroden	loan translation	
S2E13	hypothesis	RES	hypothese	loan translation	
S2E13	distended	MED	opgezwollen	literal translation	
S2E13	scrotum	MED	scrotum	loan translation	
S2E13	scrotum	MED	scrotum	loan translation	
S2E13	research	RES	onderzoek	literal translation	
S2E13	theories	RES	theorieën	loan translation	
S2E13	void	UNSP	leegte	literal translation	
S2E13	extrapolated	MATH	overgedragen	term-to-non-term	
S2E13	anthropomorphised	UNSP	geantropomorfiseerd	loan translation	
S2E13	amino acid	CHEM	aminozuur	literal translation	
S2E13	lysine	CHEM	lysine	loan translation	
S2E13	lysine	CHEM	lysine	loan translation	
S2E13	lysine	CHEM	dat	deictics	
S2E13	algorithm	MATH	algoritme	loan translation	
S2E13	algorithm	MATH	algoritme	loan translation	
S2E13	infinite loop	COMP	oneindige lus	literal translation	
S2E13	loop counter	COMP	oplossing	adaptation	term-to-non-term
S2E13	monolithic	GEOL	monolithischer	loan translation	
S2E13	hominids	BIO	hominiden	loan translation	
S2E13	fear of heights	PSY	hoogtevrees	transposition	
S2E13	evolutionary	BIO	evolutionair	loan translation	

S2E13	minimum altitude	UNSP	minimale hoogte	literal translation	
S2E13	kid hominids	BIO	kind-hominiden	loan translation	
S2E13	incontinence	MED	incontinentie	loan translation	
S2E13	inverse tangent function	GEOM	omgekeerde tangensfunctie	inadequate equivalent	literal translation
S2E13	asymptote	GEOM	asymptoot	loan translation	
S2E13	inverse tangent function	GEOM	omgekeerde tangensfunctie	inadequate equivalent	literal translation
S2E13	asymptote	GEOM	asymptoot	loan translation	
S2E13	scientist	UNSP	wetenschapper	literal translation	
S2E13	homogenous	UNSP	∅	omission	
S2E13	amino acid	CHEM	aminozuur	literal translation	
S2E13	glutamine	CHEM	glutamine	loan translation	
S2E13	lysine	CHEM	lysine	loan translation	
S2E13	gum pockets	MED	plaats	adaptation	term-to-non-term
S2E13	open science grid	UNSP	wetenschap	transposition	underspecification
S2E13	machine	TECH	computer	explicitation	
S2E14	problem	MATH	probleem	loan translation	
S2E14	unsolvable	UNSP	onoplosbaar	literal translation	
S2E14	computer simulations	COMP	simulaties	underspecification	
S2E14	variables	GEOM	variabelen	loan translation	
S2E14	lumbar support	MED	ondersteuning	underspecification	
S2E14	proximate	UNSP	bij	term-to-non-term	
S2E14	bowel movement	MED	naar het toilet	adaptation	term-to-non-term
S2E14	on a non-precedential basis	RES	zonder er een gewoonte van te maken	adaptation	term-to-non-term
S2E14	ad hoc Icee Slurpee equivalency	UNSP	een Slurpee als Icee-equivalent	underspecification	
S2E14	engine	TECH	motor	literal translation	
S2E14	technology	UNSP	technologie	loan translation	
S2E14	skeleton	BIO	skelet	loan translation	
S2E14	adamantium	UNSP	∅	omission	

S2E14	linear	MATH	lineaire	loan translation	
S2E14	aliens	ASTR	buitenaardse wezens	transposition	
S2E14	interactions	PSY	interacties	loan translation	
S2E14	bladder	MED	blaas	literal translation	
S2E14	idiosyncracies	PSY	eigenaardigheden	transposition	
S2E14	duodenum	MED	twaalfvingerige darm	transposition	
S2E14	simulate	COMP	∅	omission	
S2E14	steroid-infused	MED	steroïdenslikkende	transposition	
S2E15	hemispheres	MED	hersenen	generalisation	
S2E15	analytical	RES	analytische	loan translation	
S2E15	emotional	PSY	∅	omission	
S2E15	invasive medical test	MED	invasief medisch onderzoek	literal translation	
S2E15	colonoscopy	MED	colonoscopie	loan translation	
S2E15	colonoscopy	MED	colonoscopie	loan translation	
S2E15	delusion	PSY	gebrek	transposition	
S2E15	phallic stage	PSY	fallische fase	loan translation	
S2E15	psychosexual development	PSY	∅	omission	
S2E15	theory	RES	∅	omission	
S2E15	penis	MED	penis	loan translation	
S2E15	psychiatrist	PSY	psychiater	loan translation	
S2E15	neuroscience	NEU	neurologie	inadequate equivalent	
S2E15	external locus of identity	PSY	externe identiteitslocus	literal translation	
S2E15	adolescence	PSY	puberteit	transposition	
S2E15	intercourse	MED	coïtus	compensation	
S2E15	theory	RES	theorie	loan translation	
S2E15	over-developed	BIO	overontwikkeld	literal translation	
S2E15	pro forma	UNSP	∅	omission	
S2E15	intercourse	MED	∅	omission	
S2E15	reproduction	MED	voortplanting	literal translation	
S2E15	papers	RES	essays	transposition	
S2E15	neuroscientific	NEU	neurologische	inadequate equivalent	
S2E15	anthropological	UNSP	anthropologisch	loan translation	
S2E15	sex life	MED	geslachtsverkeer	compensation	
S2E15	intercourse	MED	geslachtsverkeer	transposition	
S2E15	frequency	MED	frequentie	loan translation	
S2E15	menopausal symptoms	MED	symptomen van de menopauze	transposition	

S2E15	urinate	MED	urineren	loan translation	
S2E15	electrodes	UNSP	elektroden	loan translation	
S2E15	measure	RES	meten	literal translation	
S2E15	brain waves	NEU	hersengolven	literal translation	
S2E15	EEG	NEU	EEG	loan translation	
S2E15	electrodes	UNSP	elektroden	loan translation	
S2E15	human	BIO	menselijke	literal translation	
S2E15	pancreas	BIO	alvleesklier	literal translation	
S2E15	curing	MED	een middel tegen	adaptation	
S2E15	diabetes	MED	suikerziekte	transposition	
S2E15	urinate	MED	urineren	loan translation	
S2E15	bladder voiding	MED	het legen van de blaas	transposition	
S2E15	selective mutism	PSY	selectieve stomheid	term-to-non-term	
S2E15	sociological	UNSP	sociologisch	loan translation	
S2E15	selective mutism	PSY	selectieve stomheid	term-to-non-term	
S2E15	pathological fear	PSY	angst	generalisation	
S2E15	ersatz	UNSP	pseudo	transposition	
S2E15	laboratory	RES	lab	abbreviation	
S2E15	laboratory	RES	lab	abbreviation	
S2E15	dark matter signal	ASTR	zwarte materie-flitsen	inadequate equivalent	
S2E15	replicate	UNSP	∅	omission	
S2E15	sodium iodide	CHEM	∅	omission	
S2E15	crystals	CHEM	∅	omission	
S2E15	research	RES	onderzoek	literal translation	
S2E15	paper	RES	onderzoek	transposition	
S2E15	ersatz	UNSP	pseudo	transposition	
S2E15	brain scan	NEU	hersenscan	literal translation	
S2E15	brains	NEU	hersenen	literal translation	
S2E15	brain	NEU	∅	omission	
S2E15	scanned	NEU	gescand	loan translation	
S2E15	locus of my identity	PSY	m'n identiteitslocus	literal translation	
S2E15	radio-controlled	UNSP	radiografisch bestuurbaar	transposition	
S2E15	scan data	NEU	scan	underspecification	

S2E15	brain	NEU	hersenen	literal translation	
S2E15	right frontal lobe	NEU	rechterkwab	underspecification	
S2E15	tumour	MED	tumor	loan translation	
S2E15	scan of your brain	NEU	hersenscan	transposition	
S2E15	physiology	UNSP	fysiologisch	loan translation	
S2E15	emperical evidence	RES	empirisch bewijs	literal translation	
S2E15	observed	RES	observaties	loan translation	
S2E15	speculate	RES	hypothese	compensation	
S2E15	observation	RES	observatie	loan translation	
S2E15	release of endorphins	MED	stijging van de endorfinespiegel	transposition	
S2E15	neuroscientific researcher	UNSP	neurologische nieuwsgierigheid	adaptation	term-to-non-term
S2E15	CAT scanner	MED	scan	underspecification	
S2E15	brain scan	NEU	hersenscan	literal translation	
S2E16	Chemistry Department	RES	Scheikunde	transposition	
S2E16	Pharmacology Department	RES	Farmacologie	transposition	
S2E16	experimental steroids	PHA	steroïden	underspecification	
S2E16	Physics Department	RES	∅	omission	
S2E16	spider veins	MED	spataderen	transposition	
S2E16	laser clinic	MED	laserkliniek	loan translation	
S2E16	Astronomy Department	RES	Astronomie	transposition	
S2E16	Venus	ASTR	Venus	official equivalent	
S2E16	veins	MED	spataderen	explicitation	
S2E16	research	RES	onderzoek	literal translation	
S2E16	rapid prototyper	UNSP	Rapid Prototyper	loan translation	
S2E16	rapid prototyper	UNSP	Rapid Prototyper	loan translation	
S2E16	equipment	UNSP	apparaat	literal translation	
S2E16	equipment	UNSP	apparaat	literal translation	
S2E16	point of consistency	GEOM	constante	transposition	
S2E16	function	GEOM	functie	loan translation	
S2E16	four-dimensional	UNSP	∅	omission	
S2E16	Cartesian	UNSP	Cartesiaans	loan translation	

S2E16	coordinate system	UNSP	coördinatenstelsel	transposition	
S2E16	0,0,0,0	GEOM	het punt (0,0,0,0)	completion	
S2E16	transient	MED	∅	omission	
S2E16	idiopathic arrhythmia	MED	idiopathische aritmie	loan translation	
S2E16	prototyper	UNSP	Prototyper	loan translation	
S2E16	Engineering Department	RES	Werktuigbouwkunde	transposition	
S2E16	arrhythmia	MED	aritmie	loan translation	
S2E16	amputated	MED	geamputeerd	loan translation	
S2E16	transplanted	MED	op je lijf zetten	adaptation	
S2E16	heart transplants	MED	operaties	underspecification	
S2E16	penicillin	MED	penicilline	loan translation	
S2E16	research trip	UNSP	mee mag	adaptation	
S2E16	CERN Supercollider	PHY	deeltjesversneller	underspecification	
S2E16	physicist	PHY	natuurkundige	literal translation	
S2E16	equipment	UNSP	apparatuur	literal translation	
S2E16	research trips	UNSP	onderzoeksreisjes	literal translation	
S2E16	equipment	UNSP	∅	omission	
S2E16	research trips	UNSP	∅	omission	
S2E16	time parameter	GEOM	tijdparameter	literal translation	
S2E17	torque screwdriver	TECH	schroevendraaier	underspecification	
S2E17	hard drives	COMP	harde schijf	transposition	
S2E17	internal hardware	COMP	product	generalisation	
S2E17	hard drive	COMP	ervan	deictics	
S2E17	symposium	UNSP	symposium	loan translation	
S2E17	bioorganic	BIO	bioorganische	loan translation	
S2E17	cellular	UNSP	cellulaire	loan translation	
S2E17	computer devices	COMP	computers	transposition	
S2E17	multi-threaded task completion	COMP	multithreading	transposition	
S2E17	nonequilibrium Green's function approach	MATH	NEGF-benadering	abbreviation	inadequate equivalent
S2E17	photoionisation process	BIO	foto-ionisatie	underspecification	
S2E17	atoms	PHY	atomen	loan translation	

S2E17	physicist	PHY	natuurkunde	literal translation	
S2E17	black body form	PHY	zwartelichaamsvorm	literal translation	
S2E17	anisotropy	PHY	anisotropie	loan translation	
S2E17	cosmic microwave background radiation	PHY	kosmische achtergrondstraling	literal translation	
S2E17	origin of the universe	PHY	ontstaan van het heelal	transposition	
S2E17	RFID tags	TECH	RFID-tags	loan translation	
S2E17	read	COMP	∅	omission	
S2E17	identify	COMP	herkennen	transposition	
S2E17	cross-reference	COMP	koppelt	transposition	
S2E17	spectrum	PHY	∅	omission	
S2E17	wheelbase	TECH	wielbasis	literal translation	
S2E17	suspension	TECH	wielophanging	explicitation	
S2E17	endorphic	NEU	∅	omission	
S2E17	mankind	BIO	mensheid	literal translation	
S2E17	Terminators	UNSP	terminators	loan translation	
S2E17	Terminators	UNSP	terminator	loan translation	
S2E17	Terminator	UNSP	terminator	loan translation	
S2E17	Terminators	UNSP	terminators	loan translation	
S2E17	mute	MED	∅	omission	
S2E17	disproportionate	MATH	niet … even	adaptation	term-to-non-term
S2E17	physical stature	BIO	hele lichaam	transposition	term-to-non-term
S2E17	paper	RES	werk	transposition	
S2E17	astrophysical	ASTR	astrofysiche	loan translation	
S2E17	probes	RES	proeven	literal translation	
S2E17	M-theory effects	PHY	M-theorie	underspecification	
S2E17	early universe	ASTR	heelal	underspecification	transposition
S2E17	paper	RES	dat	deictics	
S2E17	paper	RES	werk	transposition	
S2E17	concentration	PSY	concentreren	literal translation	
S2E17	robots	TECH	robots	loan translation	

S2E17	star	ASTR	ster	loan translation	
S2E17	Venus	ASTR	Venus	official equivalent	
S2E17	space	ASTR	ruimte	literal translation	
S2E17	placebo effect	PHA	placebo-effect	loan translation	
S2E17	quartz	GEOL	kwarts	loan translation	
S2E17	pyrite	GEOL	pyriet	loan translation	
S2E17	icosidodecahedron	GEOM	icosidodecaëder	loan translation	
S2E17	constellations	ASTR	hemellichamen	transposition	
S2E17	Big Dipper	ASTR	Grote Beer	official equivalent	
S2E17	Big Curry Pot	ASTR	Big Curry Pot	loan translation	
S2E17	Terminator	UNSP	Ze	deictics	
S2E17	research	RES	onderzoek	literal translation	
S2E17	lasers	PHY	lasers	loan translation	
S2E18	aerosol desinfectant	UNSP	spuitbussen	underspecification	
S2E18	physicist	PHY	fysicus	loan translation	
S2E18	universe	ASTR	universum	loan translation	
S2E18	universe	ASTR	universum	loan translation	
S2E18	premise	RES	idee	term-to-non-term	
S2E18	math	MATH	berekening	transposition	explicitation
S2E18	cyanoacrylates	CHEM	Cyanoacrylaten	loan translation	
S2E18	porous	PHY	poreus	loan translation	
S2E18	silicone-RTV	CHEM	siliconen	underspecification	
S2E18	mounting surface	UNSP	plakt	adaptation	term-to-non-term
S2E18	hosted turnkey e-commerce system	COMP	e-commerce systeem	underspecification	
S2E18	server farm	COMP	een paar servers	adaptation	
S2E18	static IP	COMP	∅	omission	
S2E18	industrial cooling system	UNSP	koeler	underspecification	
S2E18	desiccant	CHEM	∅	omission	
S2E18	calcium sulphate	CHEM	calciumsulfaat	loan translation	
S2E18	calcium sulphate	CHEM	calciumsulfaat	loan translation	

S2E18	molecular sieve	CHEM	moleculaire zeef	literal translation	
S2E18	micro-porous	CHEM	microporeuze	loan translation	
S2E18	chem lab	CHEM	lab	underspecification	
S2E18	Bluetooth	TECH	Bluetooth	official equivalent	
S2E18	Bluetooth	TECH	Bluetooth	official equivalent	
S2E18	Bluetooth	TECH	Bluetooth	official equivalent	
S2E18	Bluetooth	TECH	Bluetooth	official equivalent	
S2E18	gynaecologist	MED	gynaecoloog	loan translation	
S2E18	drugs	PHA	drugs	loan translation	
S2E18	opiates	CHEM	opiaten	loan translation	
S2E18	hallucinogenics	CHEM	hallucinogene middelen	transposition	
S2E18	Planck's Constant	PHY	constante van Planck	loan translation	
S2E18	entropy	PHY	entropie	loan translation	
S2E18	universe	ASTR	universum	loan translation	
S2E18	space	ASTR	ruimte	literal translation	
S2E18	space	ASTR	ruimte	literal translation	
S2E19	universe	ASTR	universum	loan translation	
S2E19	universe	ASTR	universum	loan translation	
S2E19	arachnids	BIO	arachniden	loan translation	
S2E19	ammonia urine smell	CHEM	ammoniakachtige urinegeur	explicitation	
S2E19	protocol	UNSP	protocol	loan translation	
S2E19	mate	BIO	paren	literal translation	
S2E19	feline	BIO	kat	transposition	
S2E19	feline	BIO	kat	transposition	
S2E19	fertile	BIO	vruchtbaar	literal translation	
S2E19	mimicry	BIO	imitaties	transposition	term-to-non-term
S2E19	mimicry	BIO	imitaties	transposition	term-to-non-term
S2E19	axiomatically	RES	axiomatisch	loan translation	
S2E19	behaviour	PSY	gedrag	literal translation	
S2E19	platonic	PSY	platonisch	loan translation	
S2E19	science	UNSP	wetenschap	literal translation	

S2E19	physicist	PHY	fysicus	loan translation	
S2E19	physicist	PHY	fysicus	loan translation	
S2E19	quantum mechanics	PHY	kwantummechanica	loan translation	
S2E19	matter	UNSP	materie	literal translation	
S2E19	physicist	PHY	fysicus	loan translation	
S2E19	physicist	PHY	fysicus	loan translation	
S2E19	low-sodium	CHEM	natriumarme	transposition	
S2E19	PMS	MED	PMS	loan translation	
S2E19	physicists	PHY	fysici	loan translation	
S2E20	digestive system	MED	tere maag	explicitation	term-to-non-term
S2E20	Drake Equation	ASTR	vergelijking van Drake	transposition	
S2E20	extraterrestrials	ASTR	buitenaards leven	transposition	
S2E20	calculating	MATH	∅	omission	
S2E20	series	MATH	serie	inadequate equivalent	
S2E20	fractional values	MATH	waarden	underspecification	
S2E20	stars	ASTR	∅	omission	
S2E20	planets	ASTR	∅	omission	
S2E20	planets	ASTR	planeten	loan translation	
S2E20	N equals R times F(p) times n(e) times F(l) times F(i) times F(c) times L	MATH	N is R maal F(p) maal n(e) maal F(l) maal F(i) maal F(c) maal L	literal translation	
S2E20	calculate	MATH	berekenen	literal translation	
S2E20	formula	MATH	∅	omission	
S2E20	Wolowitz coefficient	MATH	Wolowitz-coëfficiënt	loan translation	
S2E20	Wolowitz coefficient	MATH	Wolowitz-coëfficiënt	loan translation	
S2E20	radius	MATH	straal	literal translation	
S2E20	engineer	TECH	werktuigbouwkundige	transposition	
S2E20	math	MATH	wiskunde	literal translation	
S2E20	fibre	BIO	vezel	literal translation	
S2E20	Multiverse	UNSP	Multiversum	loan translation	
S2E20	Multiverse	UNSP	Multiversum	loan translation	
S2E20	lung cancer	MED	kanker	underspecification	

S2E20	gradation	UNSP	gradaties	loan translation	
S2E20	absolute	RES	absoluut	loan translation	
S2E20	whiplash	MED	∅	omission	
S2E20	blood alcohol level	MED	promille	transposition	underspecification
S2E20	universe	ASTR	Universum	loan translation	
S2E20	mythology	UNSP	∅	omission	
S2E20	rabid	BIO	∅	omission	
S2E20	falcon	BIO	valk	literal translation	
S2E20	falcon	BIO	valk	literal translation	
S2E20	falconry	BIO	valkenjacht	transposition	
S2E21	droid	UNSP	droïd	loan translation	
S2E21	non-emotionol relationship	PSY	geen emoties	transposition	
S2E21	alcoholism	MED	alcoholisme	loan translation	
S2E21	sexually transmitted diseases	MED	geslachtsziekten	transposition	
S2E21	addiction	MED	verslaving	literal translation	
S2E21	prescription	PHA	medicijnen	transposition	
S2E21	blowfly	BIO	vlieg	underspecification	
S2E21	eggs	BIO	eitjes	literal translation	
S2E21	larvae	BIO	∅	omission	
S2E21	auditory canal	MED	gehoorgang	transposition	
S2E21	blister	MED	blaar	literal translation	
S2E21	wheezing	MED	∅	omission	
S2E21	pheromones	BIO	feromonen	loan translation	
S2E21	sexual appetite	MED	seksuele behoeften	transposition	
S2E21	facial expressions	UNSP	∅	omission	
S2E21	body language	UNSP	lichaamstaal	literal translation	
S2E21	dimensions	GEOM	∅	omission	
S2E21	light years	PHY	lichtjaren	literal translation	
S2E21	galaxy	ASTR	melkweg	transposition	
S2E22	sperm	BIO	sperma	loan translation	
S2E22	space shuttle	ASTR	spaceshuttle	loan translation	
S2E22	docking	ASTR	koppelt … aan	transposition	
S2E22	International Space Station	ASTR	ruitmtestation	underspecification	

S2E22	Wolowitz Zero-Gravity Waste Disposal System	ASTR	Wolowitz Gewichtsloos Afvalverwijderingsysteem	transposition	
S2E22	space	ASTR	ruimte	literal translation	
S2E22	astronauts	ASTR	astronauten	loan translation	
S2E22	science and technology	UNSP	wetenschap en technologie	literal translation	
S2E22	bodily functions	BIO	lichaamsfuncties	literal translation	
S2E22	physical	UNSP	op fysiek vlak	transposition	
S2E22	code red	UNSP	code rood	loan translation	
S2E22	code red	MED	∅	omission	
S2E22	code red	COMP	∅	omission	
S2E22	hospital emergency alert	MED	ziekenhuisalarm	transposition	
S2E22	zero-G	PHY	∅	omission	
S2E22	diverter valve	TECH	afvoerventiel	inadequate equivalent	
S2E22	NASA	ASTR	NASA	official equivalent	
S2E22	space station	ASTR	ruimtestation	literal translation	
S2E22	juxtaposition	UNSP	plaatst … tegenover	term-to-non-term	transposition
S2E22	space exploration	ASTR	ruimtereizen	transposition	
S2E22	Wolowitz Zero-Gravity Waste Disposal System	TECH	Wolowitz Gewichtsloze Afvalverwijderingsysteem	literal translation	
S2E22	International Space Station	ASTR	ruimtestation	underspecification	
S2E22	Wolowitz Zero-Gravity Human Waste Distribution System	TECH	Wolowitz Gewichtsloze Afvalverspreidingssysteem	transposition	
S2E22	approximation	MATH	ongeveer	transposition	term-to-non-term
S2E22	spare parts	TECH	reserveonderdelen	literal translation	
S2E22	Space Station	ASTR	er	deictics	
S2E22	reinforce	TECH	verstevigen	literal translation	
S2E22	waste material	BIO	het afval	underspecification	
S2E22	turbine	TECH	turbine	loan translation	
S2E22	space	ASTR	ruimte	literal translation	

S2E22	glacial	BIO	als een gletsjer	transposition	
S2E22	PVC	TECH	pvc-buis	explicitation	
S2E22	reinforce	TECH	∅	omission	
S2E22	centre cross-support	TECH	midden ondersteunen	transposition	
S2E22	diet	MED	dieet	loan translation	
S2E22	Newtonian	PHY	Newtoniaans	loan translation	
S2E22	reinforce	TECH	verstevigen	literal translation	
S2E22	structure	TECH	structuur	loan translation	
S2E22	line	TECH	lijn	loan translation	
S2E22	diameter	MATH	diameter	loan translation	
S2E22	collection tank	TECH	tank	underspecification	
S2E22	mount	TECH	vastzetten	transposition	
S2E22	zero-gravity	PHY	gewichtsloze	transposition	
S2E22	PVC	TECH	pvc	loan translation	
S2E22	support rod	TECH	staaf	underspecification	
S2E22	tensile strength	TECH	kracht	underspecification	
S2E22	substructure	TECH	substructuur	loan translation	
S2E22	space	ASTR	ruimte	literal translation	
S2E22	PVC	TECH	∅	omission	
S2E22	transverse filter assembly	TECH	filterassemblage	underspecification	
S2E22	spare part	TECH	reserveonderdeel	literal translation	
S2E22	space station	ASTR	∅	omission	
S2E22	cholera	MED	cholera	loan translation	
S2E22	space	ASTR	ruimte	literal translation	
S2E22	ovaries	MED	eierstokken	literal translation	
S2E22	simulated	UNSP	∅	omission	
S2E22	Zero-Gravity Human Waste Disposal	TECH	Gewichtsloze Afvalverwijderaar	transposition	
S2E22	space	ASTR	ruimte	literal translation	
S2E22	International Space Station	ASTR	Internationaal Ruimtestation	official equivalent	

S2E22	International Space Station	ASTR	***Internationaal Ruimtestation***	official equivalent	
S2E22	ISS	ASTR	ISS	official equivalent	
S2E22	E.V.A	ASTR	buiten	adaptation	term-to-non-term
S2E22	ISS	ASTR	ISS	official equivalent	
S2E22	Houston	ASTR	***Houston***	official equivalent	
S2E22	Houston	ASTR	***Houston***	official equivalent	
S2E22	Houston	ASTR	***Houston***	official equivalent	
S2E23	science	UNSP	wetenschap	literal translation	
S2E23	move my bowels	MED	stoelgang heb	transposition	
S2E23	Heisenberg's particles	PHY	Heisenberg-deeltje	literal translation	
S2E23	National Science Foundation	UNSP	National Science Foundation	official equivalent	
S2E23	slow-moving monopoles	PHY	trage monopolen	literal translation	
S2E23	magnetic	PHY	∅	omission	
S2E23	North Pole	GEOL	Noordpool	official equivalent	
S2E23	NSF expedition	RES	expeditie van de NSF	literal translation	
S2E23	Arctic circle	GEOL	Poolcirkel	underspecification	
S2E23	North Pole	GEOL	Noordpool	official equivalent	
S2E23	theoretical physicist	PHY	theoretische fysicus	loan translation	
S2E23	slow-moving magnetic monopoles	PHY	trage magnetische monopolen	literal translation	
S2E23	scientist	UNSP	degene	deictics	
S2E23	string theory	PHY	snaartheorie	transposition	
S2E23	North Pole	GEOL	Noordpool	official equivalent	
S2E23	headache	MED	hoofdpijn	literal translation	
S2E23	scientific	UNSP	wetenschappelijke	literal translation	
S2E23	arctic expedition	RES	poolexpeditie	literal translation	underspecification
S2E23	North Pole	GEOL	Noordpool	official equivalent	
S2E23	stomach ache	MED	buikpijn	literal translation	
S2E23	North Pole	GEOL	Noordpool	official equivalent	

S2E23	North Pole	GEOL	Noordpool	official equivalent	
S2E23	National Science Foundation expedition	RES	National Science Foundation	underspecification	
S2E23	NSF expedition	RES	NSF-expeditie	loan translation	
S2E23	Arctic Circle	GEOL	poolcirkel	underspecification	
S2E23	string theory	PHY	snaartheorie	transposition	
S2E23	science	UNSP	wetenschap	literal translation	
S2E23	science	UNSP	heel wat	adaptation	
S2E23	engineer	TECH	ingenieur	loan translation	
S2E23	equipment	TECH	spullen	transposition	term-to-non-term
S2E23	North Pole	GEOL	Noordpool	official equivalent	
S2E23	expedition	RES	∅	omission	
S2E23	protocol	UNSP	protocol	loan translation	
S2E23	expedition	RES	∅	omission	
S2E23	magnetic	PHY	∅	omission	
S2E23	North Pole	GEOL	Noordpool	official equivalent	
S2E23	Arctic Circle	GEOL	poolcirkel	underspecification	
S2E23	North Pole	GEOL	Noordpool	official equivalent	
S2E23	attention span	PSY	concentratievermogen	transposition	
S2E23	physicals	MED	keuren	transposition	
S2E23	thermal	PHY	thermisch	loan translation	
S2E23	North Pole	GEOL	Noordpool	official equivalent	
S2E23	drill	UNSP	oefening	literal translation	
S2E23	extreme temperatures	UNSP	extreme temperaturen	loan translation	
S2E23	Arctic Circle	GEOL	poolcirkel	underspecification	
S2E23	fine motor skills	UNSP	∅	omission	
S2E23	complex mathematical problems	MATH	complexe wiskundige problemen	literal translation	
S2E23	calculator watch	MATH	calculatorhorloge	inadequate equivalent	
S2E23	Earth Science	UNSP	Aardwetenschappen	literal translation	
S2E23	surgical procedures	MED	chirurgische procedures	literal translation	
S2E23	ice planet	ASTR	ijsplaneet	literal translation	

S2E23	equipment	TECH	apparatuur	literal translation	
S2E23	frigid temperatures	BIO	barre koude	transposition	
S2E23	Arctic	GEOL	poolcirkel	completion	
S2E23	calories	MED	calorieën	loan translation	
S2E23	body weight	MED	gewicht	underspecification	
S2E23	lactose intolerant	MED	lactose-intolerantie	loan translation	
S2E23	North Pole	GEOL	Noordpool	official equivalent	
S2E23	frostbite	MED	kou	inadequate equivalent	
S2E23	gangrene	MED	gangreen	loan translation	
S2E23	acute	MED	acute	loan translation	
S2E23	sunburn	MED	zonnebrand	literal translation	
S2E23	science	UNSP	wetenschap	literal translation	
S2E23	expedition	RES	expeditie	loan translation	
S2E23	North Pole	GEOL	Noordpool	official equivalent	
S2E23	emotional state	PSY	emotionele toestand	literal translation	
S2E23	logic	PSY	wetten van de logica	completion	
S2E23	sleep-deprived state	MED	slaap tekort kom	transposition	term-to-non-term
S2E23	assembly	TECH	monteren	literal translation	
S2E23	deployment	TECH	plaatsen	literal translation	
S2E23	testing equipment	TECH	testapparatuur	literal translation	
S2E23	medical help	MED	dokter	transposition	
S2E23	dehydrated	UNSP	∅	omission	
S2E23	low-sodium	CHEM	natriumarme	transposition	
S2E23	freeze-dried	PHY	gevriesdroogde	literal translation	
S2E23	flash-frozen	PHY	bevroren	underspecification	

APPENDIX C

TermEN	TermNL	Translation strategy 1	Translation strategy 2	CL ST	CL TT	ST/TT
Space Station	er	deictics		13	2	15,38
photomultiplier lab	lab	underspecification		19	3	15,79
research facility	lab	explicitation		17	3	17,65
Terminator	Ze	deictics		11	2	18,18
horsepower	pk	abbreviation		10	2	20,00
electromyogram	EMG	abbreviation		14	3	21,43
transparently manipulative pseudo-reality	flauwekul	term-to-non-term	adaptation	41	9	21,95
industrial cooling system	koeler	underspecification		25	6	24,00
collection tank	tank	underspecification		15	4	26,67
having intercourse	vrijt	term-to-non-term		18	5	27,78
science	er	deictics		7	2	28,57
high-frequency	hoge	underspecification		14	4	28,57
pathological fear	angst	generalisation		17	5	29,41
laboratory	lab	abbreviation		10	3	30,00
laboratory	lab	abbreviation		10	3	30,00
mounting surface	plakt	adaptation	term-to-non-term	16	5	31,25
conclusive evidence	bewijs	underspecification		19	6	31,58
frostbite	kou	inadequate equivalent		9	3	33,33
having intercourse	vrijen	term-to-non-term		18	6	33,33
proximate	bij	term-to-non-term		9	3	33,33
facial bone structure	gelaats	underspecification		21	7	33,33
theoretical physicist	fysicus	underspecification		22	8	36,36
CAT scanner	scan	underspecification		11	4	36,36
nonequilibrium Green's function approach	NEGF-benadering	abbreviation	inadequate equivalent	41	15	36,59
psychotherapist	iemand	generalisation	term-to-non-term	16	6	37,50
chem lab	lab	underspecification		8	3	37,50
tensile strength	kracht	underspecification		16	6	37,50
male pattern baldness	kaalheid	underspecification		21	8	38,10
internal hardware	product	generalisation		17	7	41,18
fractional values	waarden	underspecification		17	7	41,18
accumulation	extra	term-to-non-term		12	5	41,67

blood alcohol level	promille	underspecification		19	8	42,11
geometric progression	geometrie	underspecification		21	9	42,86
experimental steroids	steroïden	underspecification		21	9	42,86
early universe	heelal	underspecification		14	6	42,86
planetary object	object	underspecification	term-to-non-term	16	7	43,75
source of friction	wrijving	underspecification		18	8	44,44
scan data	scan	underspecification		9	4	44,44
support rod	staaf	underspecification		11	5	45,45
human cadaver	lijken	underspecification		13	6	46,15
infinite regression	regressie	underspecification		19	9	47,37
high-energy positrons	positronen	underspecification		21	10	47,62
International Space Station	ruimtestation	underspecification		27	13	48,15
dietary	menu	adaptation	term-to-non-term	8	4	50,00
lysine	dat	deictics		6	3	50,00
hard drive	ervan	deictics		10	5	50,00
arachnid	spin	inadequate equivalent	term-to-non-term	8	4	50,00
barium enema	klysma	underspecification		12	6	50,00
planetary body	planeet	underspecification		14	7	50,00
baseline glucose	glucose-	underspecification	completion	16	8	50,00
computer simulations	simulaties	underspecification		20	10	50,00
International Space Station	ruitmtestation	underspecification		27	14	51,85
on an ex post facto basis	niet achteraf	adaptation	term-to-non-term	25	13	52,00
a string-net condensate	snaarnetwerk	inadequate equivalent		23	12	52,17
exploratory laparoscopy	laparoscopie	underspecification		23	12	52,17
untested hypotheses	hypotheses	underspecification		19	10	52,63
heart transplants	operaties	underspecification		17	9	52,94
static friction	wrijving	underspecification		15	8	53,33
liquid waste disposal system	afvalverwerking	underspecification		28	15	53,57
research trip	mee mag	adaptation		13	7	53,85
string-network condensates	snaarnetwerken	inadequate equivalent		26	14	53,85
the laws of thermodynamics	thermodynamica	underspecification		26	14	53,85

gum pockets	plaats	adaptation	term-to-non-term	11	6	54,55
intercourse	coïtus	compensation		11	6	54,55
intercourse	coïtus	compensation		11	6	54,55
equilibrium	balans	inadequate equivalent		11	6	54,55
lung cancer	kanker	underspecification		11	6	54,55
aerosol desinfectant	spuitbussen	underspecification		20	11	55,00
magnitude	malen	adaptation	term-to-non-term	9	5	55,56
excrement	feces	explicitation		9	5	55,56
alien pod	alien	underspecification		9	5	55,56
digestive system	tere maag	explicitation	term-to-non-term	16	9	56,25
contra-indicated	afgeraden	generalisation	term-to-non-term	16	9	56,25
M-theory effects	M-theorie	underspecification		16	9	56,25
hosted turnkey e-commerce system	e-commerce systeem	underspecification		32	18	56,25
premise	idee	term-to-non-term		7	4	57,14
the laws of physics	natuurkunde	underspecification		19	11	57,89
military satellites	satellieten	underspecification		19	11	57,89
gauge bosons	bosonen	underspecification		12	7	58,33
open science grid	wetenschap	underspecification		17	10	58,82
open science grid	wetenschap	underspecification		17	10	58,82
paper	dat	deictics		5	3	60,00
loopy	lus	inadequate equivalent		5	3	60,00
articulated saw	zaagopzet	inadequate equivalent		15	9	60,00
dark matter detector	meetapparaat	underspecification		20	12	60,00
Mars Rover control room	controle kamer	underspecification		23	14	60,87
photoionisation process	foto-ionisatie	underspecification		23	14	60,87
high concentration	hoeveelheid	underspecification	term-to-non-term	18	11	61,11
right frontal lobe	rechterkwab	underspecification		18	11	61,11
approximation	ongeveer	term-to-non-term		13	8	61,54
transverse filter assembly	filterassemblage	underspecification		26	16	61,54
lateral incisors	hoektanden	inadequate equivalent		16	10	62,50
body weight	gewicht	underspecification		11	7	63,64
stress release	stress af	adaptation	term-to-non-term	14	9	64,29
re-examination	onderzoek	underspecification		14	9	64,29

film of liquid	vloeistof	underspecification		14	9	64,29
waste material	het afval	underspecification		14	9	64,29
scientist	degene	deictics		9	6	66,67
Baldwin lock	deurslot	underspecification		12	8	66,67
flash-frozen	bevroren	underspecification		12	8	66,67
free-electron laser	elektronlaser	underspecification	inadequate equivalent	19	13	68,42
disproportionate	niet … even	adaptation	term-to-non-term	16	11	68,75
n = 4 supersymmetric theories	N = 4 supersymmetrie	underspecification		29	20	68,97
proton decay experiment	protonexperiment	underspecification		23	16	69,57
paradigm-shifting	verschuiving	underspecification		17	12	70,59
National Science Foundation expedition	National Science Foundation	underspecification		38	27	71,05
explore	meten	explicitation		7	5	71,43
plumage	veren	generalisation		7	5	71,43
blowfly	vlieg	underspecification		7	5	71,43
subatomic particle	atoomdeeltjes	underspecification		18	13	72,22
engineering	techniek	generalisation		11	8	72,73
hemispheres	hersenen	generalisation		11	8	72,73
mattress suture	matrassteek	inadequate equivalent	term-to-non-term	15	11	73,33
glandular condition	klierafwijking	explicitation		19	14	73,68
particle physicists	wetenschappers	generalisation		19	14	73,68
loop counter	oplossing	adaptation	term-to-non-term	12	9	75,00
hindquarters	achterste	term-to-non-term	underspecification	12	9	75,00
mate	man	term-to-non-term		4	3	75,00
physical stature	hele lichaam	term-to-non-term		16	12	75,00
silicone-RTV	siliconen	underspecification		12	9	75,00
live acidophilus cultures	acidofiele culturen	underspecification		25	19	76,00
Arctic circle	Poolcirkel	underspecification		13	10	76,92
Arctic Circle	poolcirkel	underspecification		13	10	76,92
Arctic Circle	poolcirkel	underspecification		13	10	76,92
Arctic Circle	poolcirkel	underspecification		13	10	76,92
expertise	ervaren	generalisation	term-to-non-term	9	7	77,78
equipment	spullen	term-to-non-term		9	7	77,78
stabilising telescope mount	stabiliserend statief	underspecification		27	21	77,78

loop quantum gravity	kwantummecha nica	inadequate equivalent	underspecific ation	20	16	80,00
nuclear reactor	kerncentrale	inadequate equivalent		15	12	80,00
sleep-deprived state	slaap tekort kom	term-to-non-term		20	16	80,00
loop quantum gravity	luszwaartekrac t	underspecification	inadequate equivalent	20	16	80,00
Loop quantum gravity	Luszwaartekrac ht	underspecification	inadequate equivalent	20	16	80,00
loop quantum gravity	luszwaartekrach t	underspecification	inadequate equivalent	20	16	80,00
Loop quantum gravity	Luszwaartekrac ht	underspecification	inadequate equivalent	20	16	80,00
arctic expedition	poolexpeditie	underspecification		17	14	82,35
neuroscience	neurologie	inadequate equivalent		12	10	83,33
series	serie	inadequate equivalent		6	5	83,33
colloidal suspension	colloïde toestand	inadequate equivalent		20	17	85,00
stress release	tegen stress	term-to-non-term		14	12	85,71
energy-based de novo protein	energierijke novoproteïne	inadequate equivalent		29	25	86,21
edge-mounted cylinders	profielcilindersl ot	completion		22	19	86,36
neuroscientific	neurologische	inadequate equivalent		15	13	86,67
Pishkin-Wolowitz liquid waste disposal system	Pishkin-Wolowitz afvalverwerking systeem	underspecification		45	39	86,67
perturbative amplitudes	afwijkende trillingen	inadequate equivalent		24	21	87,50
torque screwdriver	schroevendraaie r	underspecification		18	16	88,89
change in respiration	snellere ademhaling	explicitation		21	19	90,48
mounted telescope camera bracket	het statief voor de telescoop	underspecification		32	29	90,63
lab accident	geen partij	adaptation		12	11	91,67
string-network condensates	snaarnetwerk-condensaten	inadequate equivalent		26	24	92,31
string-network condensates	snaarnetwerk-condensaten	inadequate equivalent		26	24	92,31
diverter valve	afvoerventiel	inadequate equivalent		14	13	92,86
viability test	levensvatbaar	underspecification		14	13	92,86
lumbar support	ondersteuning	underspecification		14	13	92,86

sexual encounters	seksuele relaties	explicitation		18	17	94,44
sexual intercourse	seksuele ervaring	generalisation		18	17	94,44
speculate	hypothese	compensation		9	9	100,00
supercollider	supergeleider	inadequate equivalent		13	13	100,00
luminous	verlicht	inadequate equivalent		8	8	100,00
paramedic	verpleger	inadequate equivalent	underspecification	9	9	100,00
Homo novus	*Homo novus*	lexical recreation		10	10	100,00
Homo novus	*Homo novus*	lexical recreation		10	10	100,00
Homo novus	*Homo novus*	lexical recreation		10	10	100,00
extrapolated	overgedragen	term-to-non-term		12	12	100,00
multi-loop	meerlussige	inadequate equivalent		11	11	100,00
accommodate	verwijderen	term-to-non-term		11	11	100,00
ad hoc Icee Slurpee equivalency	een Slurpee als Icee-equivalent	underspecification		31	31	100,00
CERN Supercollider	deeltjesversneller	underspecification		18	18	100,00
inverse tangent function	omgekeerde tangensfunctie	inadequate equivalent		24	25	104,17
inverse tangent function	omgekeerde tangensfunctie	inadequate equivalent		24	25	104,17
free-electron laser	vrije-elektronlaser	inadequate equivalent		19	20	105,26
n = 8 supergravity	N = 8 zwaartekracht	underspecification		18	19	105,56
unbalanced charge	gewichtloze lading	inadequate equivalent	term-to-non-term	17	18	105,88
calculator watch	calculatorhorloge	inadequate equivalent		16	17	106,25
plague infested	met pest besmette	paraphrase		16	17	106,25
bowel movement	naar het toilet	adaptation	term-to-non-term	14	15	107,14
kinetics lab	kinetisch lab	inadequate equivalent		12	13	108,33
cootie shot	geen luisjes	adaptation		11	12	109,09
centre cylinder system	centraal cilindersysteem	term-to-non-term		22	24	109,09
science lab	laboratorium	underspecification	completion	11	12	109,09

indicator	moet je dan	adaptation	term-to-non-term	10	11	110,00
Kryptonite	zwakke plek	adaptation		10	11	110,00
digestive distress	naar het toilet moet	adaptation	term-to-non-term	18	20	111,11
aircraft	vliegtuig	explicitation		8	9	112,50
in conformational space	in 'n samengestelde ruimte	inadequate equivalent		23	26	113,04
science	heel wat	adaptation		7	8	114,29
machine	computer	explicitation		7	8	114,29
neuroscientific researcher	neurologische nieuwsgierigheid	adaptation	term-to-non-term	26	30	115,38
reaction time	reactiesnelheid	inadequate equivalent		13	15	115,38
lactose intolerance	allergisch voor zuivel	inadequate equivalent	paraphrase	19	22	115,79
traumatised	schokt me niet	adaptation	term-to-non-term	12	14	116,67
steel armour	gewapend staal	explicitation	underspecification	12	14	116,67
space probes	ruimteraketten	inadequate equivalent		12	14	116,67
hypothetical	veronderstelde	term-to-non-term		12	14	116,67
general relativity	relativiteitstheorie	underspecification		18	21	116,67
masses	massa's	underspecification		6	7	116,67
suspension	wielophanging	explicitation		11	13	118,18
selective mutism	selectieve stomheid	term-to-non-term		16	19	118,75
selective mutism	selectieve stomheid	term-to-non-term		16	19	118,75
particulate soil	corpusculaire grond	inadequate equivalent		16	19	118,75
E.V.A	buiten	adaptation	term-to-non-term	5	6	120,00
Morse code	morsealfabet	explicitation		10	12	120,00
rival	andere	generalisation	term-to-non-term	5	6	120,00
dark matter signal	zwarte materie-flitsen	inadequate equivalent		18	22	122,22
flushing of the chest	borst gaat niet op en neer	inadequate equivalent		21	26	123,81

rife	legio	compensation		4	5	125,00
string-nets	snaarnetwerken	inadequate equivalent	completion	11	14	127,27
mimicry	imitaties	term-to-non-term		7	9	128,57
mimicry	imitaties	term-to-non-term		7	9	128,57
on a non-precedential basis	zonder er een gewoonte van te maken	adaptation	term-to-non-term	27	35	129,63
ammonia urine smell	ammoniakachtige urinegeur	explicitation		19	25	131,58
pathogens	ziektekiemen	term-to-non-term		9	12	133,33
digestive regularity	regelmaat van z'n stoelgang	paraphrase	term-to-non-term	20	27	135,00
cootie shot	luizenbezwering	adaptation		11	15	136,36
aircraft	vliegtuigen	explicitation		8	11	137,50
infer	volgens	adaptation		5	7	140,00
mechanised	gemotoriseerde	explicitation		10	14	140,00
transplanted	op je lijf zetten	adaptation		12	17	141,67
lumbar support	steun in de lendenen	paraphrase		14	20	142,86
lactose intolerant	kan geen lactose verdragen	paraphrase	term-to-non-term	18	26	144,44
lactose intolerant	die niet tegen lactose kan	paraphrase		18	26	144,44
paramedic	ziekenbroeder	underspecification		9	13	144,44
server farm	een paar servers	adaptation		11	16	145,45
icosahedral die	veelvlakkige structuur	underspecification		15	22	146,67
medical school	opleiding geneeskunde	adaptation		14	21	150,00
mainframe	systeemcomputer	explicitation		10	15	150,00
pumice	behandeld	generalisation		6	9	150,00
radiation burns	Brandwonden van straling	paraphrase		15	24	160,00
Arctic	poolcirkel	completion		6	10	166,67

barium	bariumpapje	completion		6	11	183,33
pinkeye	oog ontstoken	paraphrase		7	13	185,71
spy drone	spionagevliegtuig	underspecification		9	17	188,89
Peer review	Comité van vakgenoten	completion		11	21	190,91
sex life	geslachtsverkeer	compensation		8	16	200,00
post-op	postoperatieve	completion		7	14	200,00
veins	spataderen	explicitation		5	10	200,00
low sodium	met laag zoutgehalte	paraphrase		10	20	200,00
CBC	bloed-	underspecification	completion	3	6	200,00
upper GI	slokdarmonderzoek	completion		8	17	212,50
upper GI	slokdarmonderzoek	completion		8	17	212,50
mercury	'mercury', kwik	lexical recreation		7	15	214,29
mating	voortplantend	inadequate equivalent	generalisation	6	13	216,67
engineering	Technische Wetenschappen	explicitation		11	24	218,18
x-ray	röntgenfoto	completion		5	11	220,00
bot	robotje	completion		3	7	233,33
pinkeye	een ontstoken oog	paraphrase		7	17	242,86
math	berekening	explicitation		4	10	250,00
0,0,0,0	het punt (0,0,0,0)	completion		7	18	257,14
leprous	aan lepra lijdende	paraphrase		7	18	257,14
curing	een middel tegen	adaptation		6	16	266,67
PVC	pvc-buis	explicitation		3	8	266,67
burn unit	daar heb ik niet van terug	adaptation		9	26	288,89
lab	laboratorium	completion		3	12	400,00
logic	wetten van de logica	completion		5	20	400,00
RPM	toeren per minuut	completion		3	17	566,67

| lactose intolerance | lactose allergie | inadequate equivalent | | 19 | 16 | 84,21 |

APPENDIX D

Geachte meneer Haegeman

Ik ben een masterstudent vertalen en bekijk voor mijn thesis hoe wetenschappelijke terminologie in de Amerikaanse serie *The Big Bang Theory* ondertiteld wordt.

Ik heb uw naam doorgekregen van mevrouw Baeyens, docente in onze vakgroep. Ik heb namelijk enkele terminologische kwesties en vroeg mij af of u mij zou kunnen helpen, aangezien ikzelf nagenoeg geen kennis heb van kwantummechanica.

Concreet gaat het over een vijftal Engelse begrippen met de respectievelijke Nederlandse ondertiteling, waarvan ik zou moeten kunnen zeggen of de termen 1) juist vertaald zijn; 2) onjuist vertaald zijn, en in dat laatste geval had ik graag de correcte terminologie gehad.

Het betreft de volgende begrippen:

• string-net(work) condensates = snaarnetwerk-condensaten
• string-nets = snaarnetwerken
• perturbative amplitudes = afwijkende trillingen
• multi-loop = meerlussig
• unbalanced charge = gewichtloze lading

Worden deze termen gebruikt in het Nederlands? Of nemen wij gewoon de Engelse begrippen over?

Ik ben u alvast erg dankbaar.

Vriendelijke groeten
Brecht Van Hove

Beste Brecht,

sommige van die termen gebruiken wij bijna dagelijks (misschien wekelijks) in ons onderzoek (specifiek de string nets, wat gewoon de korte term voor string net condensates is). Zelfs al hebben wij momenteel geen buitenlanders in onze onderzoeksgroep, deze termen gebruiken wij exclusief in het Engels (zoals vele andere). Hetzelfde geldt voor zover ik weet voor alle andere termen die u aanhaalt. Ik herinner me de aflevering van de BBT over string nets, maar vermoed dat ik ze in het Engels heb bekeken toen ze net uit was. Ik denk eigenlijk niet dat ik de BBT ooit met Nederlandse ondertitels heb bekeken.

Met vriendelijke groeten,

Jutho

J. Haegeman (personal communication, April 18, 2018)

Komt niet zozeer uit de traditionele snaartheorie of "string theory", maar uit de "string-net theory" van Levin en Wen (een toepassing van de "string theory" in de fysica van gecondenseerde materie). Als ik het goed begrijp, zijn die "strings" daar groter dan die in de gewone "string theory".

(…)

Het lijkt mij niet onlogisch dat je geen hits vindt voor die vertaling. Wellicht wordt daar in het Nederlands gewoon niet over gepubliceerd.

Voor meer info kun je ongetwijfeld terecht bij Prof. Juntho Haegeman (Jutho.Haegeman@UGent.be). Het onderwerp komt namelijk aan bod in zijn lessen en hij publiceert daar ook over.

A. Baeyens (personal communication, 18 April)