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Traumatological symptoms in *Evidence Based Medicine Guidelines* and *Lääkärin käsikirja*

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TIIVISTELMÄ:

Teknisissä ja lääketieteellisissä teksteissä tekstin tietosisältö on ensiarvoisen tärkeää, ja käännösten oletetaan yleensä olevan tarkkoja ilman muutoksia tietosisällössä. Siitä huolimatta myös tieteelliset tekstit muuttuvat usein merkittävästi käännösvaiheessa, ja voidaan jopa väittää, että käännökset saavat aikaan muutoksia itse tieteessä.

Tämän tutkimuksen tavoitteena oli verrata oireiden kuvauksia *Lääkärin käsikirjan* and *EBMG*:n (*Evidence Based Medicine Guidelines*) Traumatologia-kappaleessa. *Lääkärin käsikirjan* käännös *EBMG*:ksi on poikkeuksellinen siinä suhteessa että käännöksiä on tehty molempiin suuntiin. Alun perin käännös tehtiin suomesta englantiin, mutta myöhemmin tietokantoja on päivitetty ensin joko suomeksi tai englanniksi. Päivitetty osa on sitten käännetty toiselle kielelle, joka on päivitetty tältä osin myöhemmin.

Tässä tutkimuksessa keskityttiin kuvausten lääketieteellisiin yksityiskohtiin, ja kieliopilliset eroavaisuudet jätettiin pois vertailusta. Vertailussa löytyi huomattava määrä eroja oireiden kuvauksissa. Vain kolmasosa kuvauksista voitiin luokitella luokkaan "sama." Yleisin eroavaisuus oli kuvausten tarkkuudessa. Tällaisia eroja löytyi 30 prosentista oireiden kuvauksia. Toinen yleinen eroavaisuus oli siinä, miten eksplisiittisesti tai implisiittisesti jokin asia oli ilmaistu. Toinen kieliversio ilmaisi sanoin sen, minkä toisesta voi lukea "rivien välistä." Muita löytyneitä eroavaisuuksia oli miten varmaksi tai tärkeäksi jokin oire oli määritelty tai miten usein sen sanottiin esiintyvän. Myös eroja kuvausten henkilökeskeisyydessä ja lukijan puhuttelussa löytyi. Vain muutamassa kuvauksessa toisesta kieliversiosta löytyi enemmän tietoa, tai tieto oli ilmaistu hieman eri näkökannalta.

Voidaan todeta, että tämän tutkimuksen tulos tukee olettamusta, että myös lääketieteelliset tekstit muuttuvat monelta osin käännösprosessissa huolimatta yleisestä olettamuksesta, että näin ei käy.

AVAINSANAT: medical translation, accuracy, implicit, explicit, particularization, generalization, Lääkärin käsikirja, Evidence Based Medicine Guidelines

1 INTRODUCTION

Medical translations require highly specialized knowledge. The vocabulary is specific and the expressions often differ from those of everyday language. Information about how to do medical translations and how to become a medical translator can be found more easily (Fischbach 1961; Lee-Jahnke 1998; O'Neill 1998; Resurrecció and Davies 2007), but research articles on medical translation are sparse and scattered. Some translation journals have published special numbers on medical translations, and at least one regularly published journal specialized on medical translations can be found: American Translators Association has a medical division that publishes a journal called *Caduceus* four times a year. The articles are either on medicine or the terminology of medicine, or something directly related to a translator's or an interpreter's work. However, scientific papers on medical translations can not be found in the journal. *The Translator* magazine has published articles about medical *interpreting* in a special number in 1999 (Number 2). American Translators Association's publication *Translation and Medicine* (1998) concentrates on the history of medical translation, the language of medicine, on the training of medical translators and on instructing the medical translators in their work, but very little is written about contemporary study of medical translations.

The translation magazine *Meta* published a special issue on medical translations in the year 2001, but even this special issue does not include many articles about the contemporary research into medical translation. The articles cover a wide range of viewpoints: changes in medical language over the years in the hands of its users (including translators), teaching medical translators, of the usage of the word "pattern" in French medical texts, and about the medical bibliographic databases. Only few articles can be categorized as studies of text translations. One of them is about the usage of adjectival nouns in medical English and what strategies the translators had used to translate them (Maniez 2001) and another one about the translation of medical eponyms from French to English (van Hoof 2001). Even the latter article concentrates more on giving examples and translation advice than comparing different texts in the

two languages. No articles about textbook translation can be found in this issue of *Meta*.

The lack of research into medical translations is remarkable since medical care and research rely extensively on it. Medical translators are needed to translate "biomedical papers, clinical reports of New Drug Applications (sic!), case reports, patient consent forms, expert opinions, official regulations governing drug manufacturing and clinical research, package inserts, and patient education brochures" (Reeves-Ellington 1998: 108). Patents, instructions for medical instruments and equipment, and patient journals could be added to the list. Translating such documents requires specialized knowledge, for example, knowledge of new terminology. Like language in general, the scientific language is changing all the time, also in the hands of the translators who sometimes may have to create new words that do not exist in their own language yet.

Finnish is a language that is spoken by very few people in the world, and a great majority of them live in Finland or Sweden. Any Finnish text, including medical texts, would not have a wide audience outside these countries, and a Finnish text that is targeted to an audience outside Finland would have to be translated. The same can not be said about translating medical textbooks from other languages into Finnish. In the past years most textbooks used in medical training have been in English or German as can be concluded from any medical faculty study guide from the 1980's or before (*Lääketieteen opinto-opas 1985–1986*). Doctors and students were expected to be able to read and use the books in a foreign language, and no translations have been regarded necessary. During the past decade or two quite a number of textbooks have, however, been published in Finnish written by Finnish authors in all of the most important areas of medicine. Consequently, there has not been space or need for medical textbook translations into Finnish from other languages.

English has become the language of medicine throughout the world. Scientific articles are often written in English even by those whose mother tongue is not English. This is one factor that limits the number of translations made from other languages *into*

English. Translational activity in general is considerably less frequent from other languages into English than vice versa (Cronin 2003: 45). Also Venuti (1998: 160) points out that even if English has become the most translated language worldwide since World War II, it is one of the least translated languages into. In 1991, for example, 51,863 books were published in the United States, and only 1,418 (2.74 per cent) of these were translations. Translating medical journals is very rare, at least in Finland, and textbooks have not been translated from Finnish into English, either. This could partly be due to the fact that not many medical textbooks have existed in Finnish until about 20 years ago. Thus, translations of medical scientific articles or textbooks have not been made from Finnish into English or vice versa with the exception of some medical scientific articles that the writers want to have translated in order to publish them in English.

Lääkärin käsikirja [doctor's handbook[1]] breaks this tradition. It is a book written as a handbook for Finnish doctors by Finnish doctors, about 300 of them, but it has also been translated into English and made available as an electronic version in English as *Evidence Based Medicine Guidelines*[2] since the year 2000. It has become popular internationally, and it was published in January 2005 as a printed book with the same title *Evidence Based Medicine Guidelines* that is marketed to other countries, especially to general practitioners in the United Kingdom. It has even been translated to German, Russian, Hungarian, and Estonian and arrangements have been made to translate it into French and Dutch. (EBM Guidelines 2008b.)

Lääkärin käsikirja and *EBMG* differ significantly from a book and its translation, or a text and its translation, in that after the original translation from Finnish to English was completed in the year 2000, the database has been regularly updated. New updates have been added first *either* in Finnish *or* English, and then translated to the other language, which has been updated at a later stage on that part. The result is that nobody knows

[1] The back translation (by the author of this paper) of the Finnish text will be given from now on in square brackets. The back translation is made as literal as possible, which means that it is not always grammatically correct.
[2] The acronym EBMG will be used from now on.

exactly what parts have first been written in Finnish, and what parts in English, and thus it is impossible to say what the source language is, and what the target language. (Ketola 2005a.) Also, at a given point of time the two versions always differ somewhat from each other because of the update process. Considering that the first version was written completely in Finnish, and then translated, it can be assumed that Finnish in the source language in more than half of the texts, but the exact proportion is not known.

This study focuses on the differences between descriptions of symptoms in the "[t]raumatology[3]" chapter of *EBMG,* and its Finnish counterpart, *Lääkärin käsikirja*. Although it has traditionally been assumed that translations of scientific texts are accurate and the translation does not produce any shifts in meanings (Hervey and Higgins 1992: 169; Ingo 1990: 42-43; Montgomery 2000: 253) this has shown to be a fallacy (Montgomery 2000: 269). I have wanted to study what differences, if any, there would be in the descriptions of symptoms in *EBMG* and *Lääkärin käsikirja*. I have focused on semantic shifts, or differences, and their implications on the information content of the descriptions. I have also been interested in the processes of explicitation and implicitation in the texts. The purpose of this study is to compare the descriptions of symptoms in the two language versions to see to what extent this claim for accuracy is valid in the two texts of the research material. In particular it is interesting to explore if *EBMG* and *Lääkärin käsikirja* could support the claim that translated texts are usually more explicit than those that are not translated (Chesterman 1997: 71; Englund 2005: 236; Klaudy and Károly 2005; Pym 2005). If this is the case, then, the English version is more explicit than the Finnish one, because it can be assumed that the majority of the texts have first been written in Finnish.

Descriptions that are least likely to change throughout the update process were chosen for the analysis. In my seminar paper "[a]dditions, omissions, and replacements in the translation of titles between *Lääkärin käsikirja* and *Evidence Based Medicine Guidelines"* (unpublished), I compared the headings, which seemed to be fairly

[3] All the headings and most of the items studied here begin with a capital letter. For clarity, from now on the first capital letters are not separately indicated in square brackets, but written in lower case letters, i.e. not "[t]raumatology," but "traumatology."

constant, and unlikely to be updated unless a new chapter was added. One possibility for this paper would have been to expand the subject of headings, and include all the subheadings here. Nevertheless, quite a number of the subheadings are repetitive, such as symptoms, diagnosis, treatment, and prevention, and consequently would not be a very interesting subject of study. Treatment instructions differ somewhat in the two language versions because of, for example, the availability and use of different medications in different countries. *Lääkärin käsikirja* is almost solely used by Finnish doctors in Finland, whereas instructions in *EBMG* are given to a wider spectrum of doctors working in different countries. None of these differences are related to the translation process itself, and that is why it was considered important to study descriptions or instructions that reflect best the translation process and not the edition process. The assumption is that even if descriptions that are least likely to change in the translation process were chosen for analysis, a significant number of differences and shifts will still be found.

Lääkärin käsikirja and *EBMG* will be introduced in more detail in the next section of this paper. The method of the study will be introduced, and some general information about technical writing and translation will be given before the analysis of the results.

1.1 Material

The internet versions of *Lääkärin käsikirja* and *EBMG* were compared in this study. Information about different versions of both will be given in the next sections.

1.1.1 *Lääkärin käsikirja* and *EBMG*

Lääkärin käsikirja is a large handbook, about 1500 pages long, widely used by Finnish doctors in clinical practice. It gives guidelines to the treatment of the most common, and some rarer, diseases and information about legal issues that general practitioners are most likely to encounter in their daily work. It was first published in 1992 by

Duodecim, which is the most important publisher of medical literature for professionals in Finland and in Finnish. (Lääkärin käsikirja 2004.) The newest edition of *Lääkärin käsikirja* was published in 2008, and it is already the ninth edition (Lääkärin tietokannat 2008b). *Lääkärin käsikirja* is part of the doctors' database that is also available on CD, on the Internet, and as a mobile handbook for palm computers (Ketola 2005b: 8). The Internet database has been very popular even internationally (Ketola 2005b: 9).

The translation of *Lääkärin käsikirja* into English was completed in the year 2000 (Ketola 2005b: 8). In the beginning, the English version *EBMG* was available on the Internet and on CD; now it is available as a printed book or on the Internet. The book, *Evidence Based Medicine Guidelines,* was published in January 2005 (Lääkärin tietokannat 2008b).

The electronic versions in both languages contain an abundance of other material apart from that of *Lääkärin käsikirja*. The English version contains evidence summaries that are concise summaries based, for example, on Cochrane[4] and other systematic reviews. The summaries include a short statement of the level of evidence, graded from A to D, where A refers to strong scientific evidence and D to no scientific evidence. (EBM Guidelines 2008b). This is where the name *Evidence Based Medicine* comes from. Today it is generally accepted that medical treatment should be based on scientific evidence. This part is also included in the Finnish version, which in addition contains, for example, all articles published since 1992 in two of the biggest medical journals in Finnish: *Suomen Lääkärilehti* [Finnish medical journal] and *Duodecim.* It also includes articles produced by FinOHTA, the Finnish Office for Health Technology Assessment, and treatment guidelines of the different health care districts in Finland.

Some information about the translation process and how the information is arranged in *Lääkärin käsikirja* will be given in the next sections.

[4] "Cochrane Reviews are based on the best available information about healthcare interventions. They explore the evidence for and against the effectiveness and appropriateness of treatments (medications, surgery, education, etc) in specific circumstances." (http://www.cochrane.org/reviews/clibintro.htm).

1.1.2 Translation of *Lääkärin käsikirja*

The translation of *Lääkärin käsikirja* has been done by several translators. The writers themselves have translated some parts, the editors others, and, in addition, two professional translators have been involved in the translation process. All the translators are native Finnish speakers, so the translated parts of *EBMG* are all done by non-native translators. (Ketola, 2005a, interview). This is a subject often discussed and disputed in connection with translations. It is mostly agreed that translators should translate only into their mother tongue (Korpio 2007: 1, 8–11). With the Finnish language, this is not always possible. There are not enough native English speakers who know Finnish well enough to perform all the translations from Finnish into English that are needed. (Liisa Laakso-Tammisto, oral presentation). This can be applied to medical translations, too. The number of medical translators that translate between Finnish and English is limited, and finding enough medical translators who have English as their mother tongue and good enough knowledge of Finnish to translate texts in *Lääkärin käsikirja* would not be possible. The lack of native English speakers (or native speakers of some other language) who know Finnish well is the reason why a high number of Finnish translators translate from their own mother tongue, Finnish, into English and other languages (Korpio 2007) and evidently also the reason why the translators of *Lääkärin käsikirja* are native Finnish speakers.

The translation process of *Lääkärin käsikirja* is exceptional in that it has been done both ways after the first translation was completed from Finnish into English. The database is updated three times a year either in Finnish or English (Kunnamo 2003). The updated parts are translated into the other language, and the other language version will be updated on that part somewhat later. The result is that nobody knows exactly which parts have been originally written in Finnish and which ones in English, and thus it is impossible to say which parts are translations, and who the translator is. (Ketola 2005a, interview). This means that the analysis and interpretation of the results of this study will be somewhat different from comparing a text and its translation, and the

usual source language (the language of the original text) and target language (the language of the translated text) definitions do not apply. However, it is possible to compare the two texts the same way as when comparing a text and its translation even if it is impossible to say which way a specific difference has occurred.

The next section introduces *Lääkärin käsikirja* and *EB*MG in more detail explaining how information is arranged and how it can be found.

1.1.3 Arrangement of information

The internet versions that were available in January 2008 of *Lääkärin käsikirja* (Lääkärin tietokannat 2008a) and *Evidence Based Medicine Guidelines* (EBM Guidelines 2008a) were compared in this study. Users can find the information they are looking for by typing a search word, or they may browse through different subject areas, i.e. the main headings. In *EBMG* there were 59 such different subject areas, or headings, in *Lääkärin käsikirja* there were 50 at the time of the study. Some examples of the English subject areas were administration, alcohol-related diseases, bacteriology, dermatology, gastroenterology, internal medicine, neurosurgery, paediatrics, school health service, and traumatology. However, the information is arranged somewhat differently in the two versions. For example, in the Finnish version some English subject areas have been combined. Even the traumatology chapter that is the subject of this study differs in its layout to some extent in the two versions.

The two main headings compared in this study were not the same. The English one was "traumatology," and the Finnish one "traumatologia ja plastiikkakirurgia" [traumatology and plastic surgery]. In *EBMG* there was a separate main heading "plastic surgery" that included some of the same subjects that were included in the Finnish version under the subheading of "plastiikkakirurgia" [plastic surgery] in "traumatologia ja plastiikkakirurgia" [traumatology and plastic surgery]. Some subjects could be found under the English "plastic surgery" heading that could not be located under the Finnish plastic surgery subheading, for example "acne" and "cleft palate".

Some of the texts could even be found under two different headings, one example in *EBMG* being "frostbite injuries" that could be found under both "traumatology" and "plastic surgery" headings.

In the English version all the subject headings were arranger directly under the main heading, "traumatology," but in the Finnish version there were first eight subheadings: "alaraajan vammat" [injuries of the lower extremities], "murtumat" [fractures], "muut" [others], "palo- ja paleltumavammat" [burn and frostbite injuries], "plastiikkakirurgia" [plastic surgery], "pään vammat" [injuries of the head], "selkärangan ja vartalon vammat" [injuries of the vertebral column and trunk], and "yläraajan vammat" [injuries of the upper extremity]. The subject headings that were directly under the main heading of "traumatology" in *EBMG* could be found under the subheadings listed in *Lääkärin käsikirja*. For example, "knee injuries" could be found directly under the main heading of "traumatology" in *EBMG*. In *Lääkärin käsikirja* "polven vammat" [knee injuries] was found under the heading of "alaraajan vammat" [injuries of the lower extremity], which was a subheading of the main heading "traumatologia ja plastiikkakirurgia" [traumatology and plastic surgery]. Some headings that were under the main heading of "traumatology" in *EBMG* could be found in *Lääkärin käsikirja* under the main heading of "lastentaudit" [pediatrics] under the subheading of "lasten traumatologia" [pediatric traumatology].

The descriptions of symptoms were found in the text under such headings as "a foreign body on the cornea", "blow-out fractures", "brain contusion", "stress fracture", and "wrist and hand injuries." Even these headings had subheadings such as "aims", "symptoms", "diagnosis", "investigations and differential diagnosis", and "treatment." The text was arranged in items under these "final" subheadings describing symptoms, diagnostic procedures, treatment, etc. Items where the information could be found varied in length from one word to several sentences, and some items reflected several differences in the two language version. An example of complete sentences forming the items under the subheading of symptoms could be found under the heading of "a foreign body on the cornea," which could be found in *EBMG* as follows:

Traumatology
A foreign body on the cornea
Symptoms

- A foreign body on the cornea is felt as if it were under the upper lid.
- A metal foreign body rapidly corrodes. All the rust must be removed because it causes irritation.
- After the foreign body has been removed, the feeling of a foreign body continues for 1–2 days until the epithelium of the cornea has regenerated.
- If the foreign body was situated in the central part of the cornea, the restoration of normal visual acuity takes longer than epithelization because the new epithelium is not as transparent as mature epithelium.

In *Lääkärin käsikirja* the same information could be found the following way:

Silmätaudit [ophthalmology]
Silmän etuosan sairaudet [diseases of the anterior part of the eye]
Vierasesine sarveiskalvolla (corpus alienum cornae) [a foreign body on the cornea [corpus alienum cornae)]

Oireet [symptoms]

- Vierasesine sarveiskalvolla aiheuttaa roskan tunteen yläluomen alle. [A foreign body on the cornea causes a sensation of trash under the upper lid.]
- Metallinen vierasesine sarveiskalvolla ruostuu nopeasti, ja myös ruoste on poistettava, koska se ärsyttää silmää. [A metallic foreign body on the cornea rusts quickly, and also the rust has to be removed, because it irritates the eye.]
- Vierasesineen poiston jälkeen silmässä on roskantunne, kunnes pinta on epitelisoitunut eli 1–2 vrk. [After removal of the foreign body there is a sensation of trash in the eye until the surface has epithelizised, in other words 1–2 days.]
- Jos vierasesine on sijainnut sarveiskalvon keskiosassa, näön terävöityminen vie enemmän aikaa kuin epitelisoituminen, koska uusi epiteeli ei ole läpäisykyvyltään heti entisen kaltainen. [If the foreign body was situated in the centre of the cornea, the sharpening of the eyesight will take more time than the epithelization, because the permeability of the new epithelium is not immediately equal to the old one.]

As can be seen, the information could be found under different headings and different number of subheadings. Often the easiest way to find the information was to type a search word, for example "vierasesine" [foreign body]. It would give several different headings about foreign bodies in the body, for example "vierasesine korvakäytävässä" [a foreign body in auditory canal] "vierasesine nenässä" [a foreign body in the nose], and "vierasesine sarveiskalvolla (corpus alienum cornae)" [a foreign body on the cornea (corpus alienum cornae)]. Typing the search word "sarveiskalvo" gave five different headings, one of which is "vierasesine sarveiskalvolla (corpus alienum cornae)" [a foreign body on the cornea (corpus alienum cornae)].

In the examples above the sentences contain more information than merely the symptoms. For example "all the rust must be removed because it causes irritation" gives one symptom, irritation, but it also gives instructions about the treatment. Under the heading of "frostbite injuries" the items describing symptoms are much shorter and in the following example do not include other information than the symptom except the last item, which is not a description of a symptom at all. Not all of the items here form complete sentences:

Clinical features

Frostbite injuries

- Stinging pain
- Numbness
- White blotch on the skin is the first sign of frostbite injury of the face
- Pale, bluish or marble-like skin colour
- Severity cannot be estimated before thawing

The headings in the example above are somewhat confusing the same *frostbite injuries* being both a main heading and a subheading. It can be explained with the fact that also "immersion injuries" was included as a subheading (in addition to "frostbite injuries") under the main heading of "frostbite injuries."

From the examples above it can be concluded that the symptoms, and even other information, are given in short items that range form one word to several full sentences. Not all the items under the heading of "symptoms" could be included in this study, and

on the other hand, symptoms could be found under several different types of subheadings, "clinical features" in the example above being one of them. Also, sometimes one item included more information than merely a description of a symptom. The next section discusses how the differences in the two language versions were found and studied.

1.2 Method

The fact that the two language versions are constantly updated in either Finnish or English and the lack of knowledge about which language version of each item was written first makes comparing *EBMG* and *Lääkärin käsikirja* different from comparing a text and its translation. All the descriptions that were included in the analysis of this study were written by Finnish authors. *Lääkärin käsikirja* was first written in Finnish and then translated into English, and even though almost all the texts that were included in the study had been updated since the year 2000 (when the translation of *Lääkärin käsikirja* was completed), many of the updates are additions or omissions of a few words, or sometimes a rearrangement of the text. It can thus be concluded that probably most of the existing texts have first been written in Finnish, and then translated into English. Considering all the authors of the texts compared in this study are Finnish, it could also be assumed that most texts have probably first been written in Finnish even though an update would have first been published in English.

Traumatology chapter was regarded as a suitable study subject, because it is a subject that general practitioners are likely to encounter all the time during their working day. A Finnish book *Traumatologia* [traumatology] exists that is used extensively by Finnish doctors, but it can nevertheless be assumed that the "traumatology" chapters of *Lääkärin käsikirja* and *EBMG* are in constant and everyday use, too, and it was considered more interesting to study texts that are in everyday use as compared to those that are not used so frequently.

Descriptions that are least likely to change throughout the update process were chosen for the analysis. Treatment instructions differ somewhat in the two language versions because of, for example, the availability and use of different medications in different countries. *Lääkärin käsikirja* is used by Finnish doctors in Finland, whereas instructions in *EBMG* are given to a wider spectrum of doctors working in different countries. None of these differences are related to the translation process itself. Translations of scientific texts are, in general, considered to be accurate, but this assumption has been proven to be wrong as stated earlier. All the effort was made to choose parts of the text that are the least likely to change in the update and translation process, but the assumption remains that, nevertheless, a significant number of differences between the two language versions will be found.

There are chapters, and parts of chapters, in *Lääkärin käsikirja* that were clearly not meant to be translated into English. Items and chapters that describe the Finnish legislation were not included in the English version. For example, the main heading of "lääkärintodistukset ja terveystarkastukset" [health certificates and health check-ups] was not included in the English version. It included such headings as "liikenneluvat" [traffic permits], "lääkärintodistukset kelan etuuksia varten" [health certificates for claiming benefits from the Social Insurance Institution of Finland], and "sotainvalidit ja sotaveteraanit" [disabled veterans and veterans]. All these subjects are specific to Finland, and specific to the legislation in Finland, and would thus not apply in the countries *EBMG* is targeted for.

However, not many examples of such differences could be found in the symptoms description of the "traumatology" chapter. One example can be found in chapter "blood transfusion: indications and administration." Under the subheading of "choosing a blood product in special cases," the following text can be found:

> Jos potilas saa punasolujen tai trombosyyttien siirrosta toistuvia vaikeita allergistyyppisiä haittavaikutuksia, kuten esim. kuumetta, yleistynyttä urtikariaa ja/tai hengenahdistusta, suositellaan verensiirtoon käytettäväksi pestyjä soluvalmisteita. Ongelmatilanteissa voi konsultoida Veripalvelun lääkäriä.

> [If the patient gets of red blood cell or platelet transfusions recurrent difficult allergic-type adverse effects, such as fever, generalized urticaria and/or shortness of breath, washed cell products are recommended for blood transfusions. In problematic cases a doctor in Blood Service can be consulted.]

The first sentence describes symptoms, the second one does not, so it would not be included in this study in any case, but it serves as an example of a text that was not meant to be included in the English version. Veripalvelu (Blood Service) is a specific Finnish institution, and even if similar institutions *can* be found in other countries, the arrangements vary greatly in different countries, and not all the countries have doctors that can specifically be consulted on blood transfusion matters. No examples of texts referring specifically to a certain country could be found in the description of *symptoms* in the "traumatology" chapter, and that is one reason why it was considered a good study subject from the translational point of view.

Another "problem" in this study was the constant update process and uncertainty about whether the compared texts are at the same "stage" of the update process. However, the internet versions indicate which parts are new, and also the date when the version was last updated. The parts that were indicated as updates in either version were excluded from this study, unless the dates were the same in both language versions. For example, "central nervous system injuries in children" was excluded from the study, because the two language versions were to some extent different and the text under this heading was updated in Finnish in March 2007, whereas the English version was from March 2003. Thus it can be concluded that the update has more likely caused the difference in the two language versions than the translation process. The same applies to "sprain of the ankle" that was updated in Finnish in June 2007 and in English in May 2004. "Excoriations and bite injuries in children" was also excluded because of two significantly different update dates: the Finnish version was last updated in June 2001, the English one in May 2007. "Ankle fractures" indicated a recent update in Finnish (June 2007), and the arrangement of the texts was so different from the English version that the differences between the texts were most likely caused by the update. This chapter was also excluded from the study. The chapter "gas gangrene" was last updated in English in January 2000 and in Finnish in April 2007, and it was also excluded. The

name of the Finnish chapter is "vaikeat iho- ja pehmytkudosinfektiot" [difficult skin and soft tissue infections], and it included more information compared to the English version even before the last update. "Fractures in children" was also excluded, because the Finnish version was updated in March 2007, and the English version in February 2000.

There were, however, headings that had significantly different update dates, but where the descriptions of symptoms (that were compared here) were similar, and these chapters were included. One such chapter included in the study is "brain contusion", which was updated in Finnish in May 2007 and in English in April 2005. Neither version included any additions compared to the other one in the descriptions that were studied, and the differences found between the two texts were similar to those that were found in texts that had similar update dates.

Most headings had, however, similar update dates or dates that were very close to each other, and it can be stated with considerable certainty that differences in the texts compared in this study are the result of the translation process and not the update process. Very few headings did not have any descriptions of symptoms under them. Examples of such headings are "dental traumas" and "indications for plastic surgery," and naturally these chapters were excluded.

Descriptions of symptoms were compared in this study, and the word *symptom* is discussed in the next section. A thorough description of how the descriptions of symptoms were found for the analysis will follow.

1.2.1 Symptom

The word symptom can be defined in many different ways. It is, for example, "a sign of disease", "indication of disease by reaction of the host", [a] noticeable change in the body or its function, indicating possible disease process", "[a]n indication or sign of disease. Pain and fever are examples of symptoms.","[a] personal mental or physical

event or feeling that the person considers abnormal and indicative of underlying disease", "any evidence of sickness perceived by patient, which cannot be seen or felt by the doctor", or "subjective evidence of disease as perecived (sic!) and reported by a patient." (Définitions de symptom en Anglais sur le Web 2008). All these definitions resemble each other to some extent, but there are, nevertheless, substantial differences between them.

The most easily perceived difference between the definitions is that some of them include more symptoms than others. For example, "a sign of disease", and "[a] noticeable change in the body or its function, indicating possible disease process" are fairly large contexts, and they include symptoms and sign that can be felt by the patient or perceived by the doctor, but also symptoms that neither of them can see nor feel. Low serum sodium is a *sign* of hypotonic dehydration. It is a sign, but is it something that neither the patient nor the doctor can feel or see. The patient may have a headache, nausea, and weakness that are connected to low serum sodium, and that are symptoms that can be felt, but patients can not *feel* that they have low serum sodium. A doctor can also suspect the condition on the basis of patient history and other symptoms, but a doctor cannot, either, see or feel that a patient has low serum sodium. It is something that has to be confirmed by a laboratory test. Another example is hypotension. It can be a *sign* of an abundance of different diseases, but it is something neither the patient nor the doctor can see or feel without measuring it first. The patient may feel dizzy, and hypotension can be suspected because of the symptoms related to it, but patients do not give their doctor hypotension as a symptom unless they have had it before and they have the same specific symptoms related to it as before.

On the other hand, the definition "any evidence of sickness perceived by patient, which cannot be seen or felt by the doctor," restricts symptoms to what the patient can feel or see, but the doctor cannot. This definition is too restrictive. There are an abundant of signs that are commonly included in medical symptoms that can be felt and/or seen by both the patient and the doctor. Fever, swelling, and vomiting are typical examples. Patients can feel their fever, but so can a doctor, even though a thermometer is needed

to measure the exact temperature. Both the patient and a doctor are clearly able to see a swelling, which is a typical sign of, for example, a wrist fracture. Patients can experience ("feel") vomiting, and doctors are able to see it happening.

A definition that is between these two defines best what is commonly regarded as a symptom: "subjective evidence of disease as perecived (sic!) and reported by a patient." In other words, a symptom is something that the patient can feel or see and can tell to the doctor if asked. Irrespective whether the doctor can see or feel it. This is the definition used in this study to locate the descriptions of symptoms in the texts.

The next section introduces in greater detail what kind of symptoms, and to what extent, were included in and excluded from the study.

1.2.2 Symptoms compared in the study

For the purpose of this study a symptom is regarded as "a subjective evidence of disease," and something that the patient can see, feel, hear, smell, or taste, and that the patient can report to the doctor either spontaneously or when asked. Signs that need sophisticated instrumentation (other than the five senses) to be confirmed are excluded from this study. Examples of such signs are laboratory results, like low hemoglobin or blood cells in the urine. On the same basis all the radiographic, computerized tomography, magnetic resonance imaging, and similar examination results are excluded. These results can normally be categorized as "findings" in medicine. Those examinations are made on the basis of the symptoms the patient gives and they help in making the diagnosis. Signs of altered consciousness *are* included even if they can not be reported by the patients. The condition does not need any laboratory or radiological tests to confirm, and it is something the doctor can see, and so would the patients if they were able to see and think clearly at that point of time. This could be paralleled to a blind patient: bruising is something that a blind patient can not see, but it can not be excluded as a symptom merely on the basis of the patient's other condition. It is clearly a symptom that a seeing patient could see and report to a doctor. To conclude, a

symptom in this study is "a subjective evidence of disease" that the patient can see, feel, hear, smell, or taste, and that the patient can report spontaneously or when asked. Altered levels of consciousness are also included.

This definition excludes some of the descriptions under the "symptoms" headings in *EBMG* and *Lääkärin käsikirja*. For example, in "electrical injuries" almost all the "symptoms" need confirming by some laboratory test or other measurement, and are signs that the patient would not be able to tell the doctor. Examples are: "infarctions", "general vasoconstriction", "rupture of both tympanic membranes", "internal organ perforation", "necrosis", and "vertebral compression fractures." All of these conditions would give patients specific kinds of *other* symptoms they *would* be able to verbalize, but patients can not tell their doctors that they feel or see "internal organ perforation" or "necrosis" or "vertebral compression fractures." If they did, doctors' work would be much easier. The symptoms the patients are able to give are pain in their stomach and back, swelling, etc. Also, necrosis on the skin can be seen and reported as a symptom by a patient, but not necrosis in the internal organs.

Even with this definition some descriptions of symptoms were difficult to include or exclude from the study. One such symptom is "arrhythmia," which means that the heart is not beating regularly. There are a number of different kinds of arrhythmias ranging from a few benign "extra" heartbeats to ventricular fibrillation, which is a life threatening situation. To diagnose the arrhythmia exactly, an electrocardiogram (ECG) is needed. However, patients are capable of telling their doctors that they feel their heart does not beat regularly, which in other words is arrhythmia. The word arrhythmia could be somewhat paralleled, for example, to the word *deformed* when describing a symptom of a fracture. Most patients would not tell their doctor that their arm is deformed. They would more likely say that it looks different or the shape has changed. Nevertheless, deformed is included as a symptom in this study. The patients can see or feel it, even if they might not use the same word. The same applies for arrhythmia.

An example of a word that could be regarded as a symptom, but was *not* included in this study is the word *hemarthrosis* (in "dislocation of the patella" – "symptoms and findings"), which means blood collection inside a joint. A patient or a doctor can see that the joint is swollen, and if a trauma has caused the swelling it is most likely that there is blood inside the joint. However, neither the patient nor the doctor can see or feel that it is *blood* that is inside the joint unless it is drained. *Hydrops*, however, is a word that was included in this study. It simply means swelling of a joint, and it is something that can be seen or felt without any further examinations.

Another example of a similar word that was not included in the study can be found in "le Fort fractures (I – III)" under the heading of "classification:" "CSF may leak from the nose." (CSF stands for cerebrospinal fluid.) This could be included as a symptom, but it is impossible for the patient or the doctor to say that it is *cerebrospinal fluid* only by looking or smelling at it. Both the doctor and the patient can see that some clear fluid is coming from the nose, but some tests need to be performed before its characteristics can be confirmed exactly. If the symptom was described as "clear fluid coming from the nose", it would be included in the study, because it is something the patient can see and report to a doctor.

All descriptions of "no symptoms" were also excluded from this study even though clinically it may be very significant that a patient does not have a certain symptom. However, according to the definition of "symptom" for the purpose of this study, a symptom is "evidence of sickness." If there are no symptoms, then there is no evidence of sickness.

Some descriptions gave indirect evidence of certain symptoms, but all such descriptions were excluded. For example, in "knee injuries" ("physical examination" – "clinical investigations") there was a sentence "when lying down is the patient able to lift the leg up straight?" This gives indirect evidence that the patient might not be able to lift the leg up straight. The description does not state so directly, so it was excluded. Another similar example is in "lateral fractures of the face" (treatment): "To restore

sensation in the cheekbone area it is worth considering operating on the impingement of the infraorbital nerve, even after 6 months." This sentence gives indirect evidence that the sensation in the check bone area is not normal, but as in the example above, it does not state so directly.

Also, some vague and very unspecific information about symptoms were excluded from the study. One example can be found under the heading of "mild traumatic brain injury (concussion)" under the subheading of "aims:" "Recognize any signs of intracranial haematoma and in such a case refer the patient immediately." In this example "any signs of intracranial haematoma" could, in a broad sense, be included in symptoms. However, there are no specific symptoms listed, and there are a number of symptoms that an intracranial hematoma might give. The reader is supposed to know what kind of symptoms are to be expected, and in this sense there is no information for the reader about the symptoms.

All descriptions of symptoms that require some manipulation other than simple touch were also excluded. An example is a so called Apley's test that is performed when examining a knee after an injury ("knee injuries" – "physical examination" – "examining a torn meniscus"):

> The patient in prone position with the thigh pressed against the surface and the knee in 90º flexion. Rotate the leg whilst applying traction to the leg and foot (pain indicates a ligament injury). Then compress the leg onto the knee joint while being rotated (pain and clicking in the joint space indicate meniscal injury).

Pain and *clicking in the joint space* could be included as symptoms, but the patient could not spontaneously report these symptoms to the doctor before this specific maneuver was performed.

As a conclusion, all the symptoms that the patient can sense and report to a doctor without any manipulation or sophisticated examinations other than the five senses were included in the study, altered levels of consciousness included.

The next section describes how the descriptions of symptoms were located in *EBMG* and *Lääkärin käsikirja*.

1.2.3 Search strategy

In the *EBMG* the main title of the studied chapter is "traumatology", in *Lääkärin käsikirja* "traumatologia ja plastiikkakirurgia" [traumatology and plastic surgery]. All the subheadings in the English version were first browsed through, and all the descriptions of symptoms (according to what was described in the previous section) that could be found in the "traumatology" chapter were picked for analysis. Sometimes a heading in itself described a symptom, for example the main heading "groin pain" or the subheading "evaluation of swelling" under "knee injuries," but all the headings were excluded from the analysis. However, the same symptoms were included if they were mentioned in the text.

After the descriptions of symptoms were located in the English version, the corresponding Finnish items were searched. These did not always appear under the same main headings, or the name of the main heading was somewhat different (as described in the beginning of this method section), but the items were easily identifiable by keywords, e.g. a literal translation of a word or words in the heading or subheading. For example, the title "fractures of the ribs and pelvis" in *EBMG* is "vartalon alueen murtumat" [fractures of the body/torso area] in *Lääkärin käsikirja*. The heading "fractures of the ribs and pelvis" was first located in the English version. Typing "kylkiluun murtuma" [rib fracture] in the search field in the Finnish version gave as a search result "vartalon alueen murtumat" [fractures of the body/torso area]. Most titles were literal translations, though, such as "skull and brain injury" ("kallo- ja aivovammat"), "rhabdomyolysis" ("rabdomyolyysi"), "ocular injuries" ("silmävammat"), and "muscle injuries" ("lihasvammat") and were easy to identify in the Finnish version.

Descriptions of symptoms under those few headings of "traumatologia ja plastiikkakirurgia" [traumatology and plastic surgery] in *Lääkärin käsikirja* that could not be found under the heading of "traumatology" in *EBMG* were not included in this study. The starting point of the study was the English version, *EBMG*, and what could be found under the heading of "traumatology" there.

While looking for the corresponding Finnish equivalents for the English descriptions of symptoms, the Finnish version was double checked for any additional information that might have been missed while going through the English one, or that would be completely missing from the English version. In some circumstances a symptom was mentioned in one language version, but was missing in the other. As an example, in *EBMG* "fractures of the rib and pelvis" under the subheading of "fracture of the pelvis in an elderly patient" there is a sentence: "an x-ray examination of the pelvis should include both an AP projection and a lateral view of the affected side." In *Lääkärin käsikirja* this is "tutkitaan lantion a-p-projektio sekä kipeän puolen sivukuva" [AP projection of the pelvis and a lateral view of the painful side are examined]. In the Finnish version the symptom "pain" is mentioned, but in the English version it is "affected side," and no symptoms are mentioned.

This description serves also as an example of *where* the descriptions were looked for. No distinction was made whether the symptom was found under the heading of symptoms or whether it was mentioned in connection with the examination or treatment instructions. All descriptions of symptoms, as described in the previous section, were included irrespective in what kind of context they could be found.

The next section explains the extent of text that was included in the descriptions of symptoms and introduces the unit of translation.

1.2.4 Extent of description included and unit of translation

To what extent the text should be included in the analysis was not always easy to define. Chunshen discusses the translation units, or units of translation, which can also form the basis for analyzing translations. The opinions of different translation theorists are all somewhat different, and the translation unit has been defined as anything ranging from a punctuation mark to a morpheme, word, clause, sentence, paragraph, and the whole text (Chunshen 1999: 430). In some respects all of these can be defined as translation units. Chesterman (1997: 20) points out that historically, word was the first translation unit. Chunsen quotes Newmark's definition of a translation unit as the smallest unit of the source text that can be wholly translated even when isolated from the other units (1999: 432). This is the definition that was applied to this study.

Chunshen comes to the conclusion that a sentence is the "*key* functional UT, although not necessarily the *only* functional UT" (1999: 440) (original italics, UT stands for unit of translation). In this study a translation unit was regarded as a part of text that forms a full sentence and describes a symptom or a whole item describing a symptom, but not forming a full sentence. All items that did not form a full sentence, but described a symptom, were included in whole. Examples of such items are "general vasoconstriction" and "local tenderness and oedema around the acromioclavicular (AC) joint." If one item included several sentences, only those parts were included that described symptoms. For example, there are two sentences in the following item (in "femoral fractures" – "fracture of the proximal femur" – "findings"):

> A non-dislocated fracture of the femoral neck is relatively painless and may not be clearly visible in an x-ray. The x-ray imaging should always be performed from two directions and, if needed, should be repeated after about one week to confirm the diagnosis.

The latter sentence was excluded in whole, because it does not describe any symptoms, and from the first sentence only the part that describes symptoms and that could form a full sentence on its own was included, i.e. "a non-dislocated fracture of the femoral neck is relatively painless."

Another example where only a part of a sentence (that could form a full sentence on its own) was included was found in "blow-out fractures." Under the subheading of "clinical diagnosis", the following sentence could be found: "the nervus infraorbitalis passes through the orbit and loss of sensation in the cheek, wing of the nose and upper lip are symptoms of fracture." In this sentence the first part, "the nervus infraorbitalis passes through the orbit and" was excluded from the analysis, because it does not include any descriptions of symptoms. Only the latter part "loss of sensation in the cheek, wing of the nose and upper lip are symptoms of fracture" was compared in the analysis.

The symptoms were mostly integrated in sentences, and some sentences, or items, described both symptoms that should be included in the study, and symptoms that should not be included. For example, in "electrical injuries" there is a subheading "treatment." One item gives instructions as how to treat "tachycardia, high blood pressure." According to the definition, tachycardia would be included as a symptom. It means heart beating fast, and it is something a patient is able to give as a symptom to a doctor without any measurements. "High blood pressure," on the other hand, is something that a patient can not tell spontaneously before the blood pressure is measured, and would not be included in this study. However, in descriptions like this, where the symptoms were given as a list, the whole list was included.

In some other descriptions the list was part of a sentence. In "spinal cord injuries" under the heading of "sequelae of spinal cord injury" under the subheading of "post-traumatic syringomyelia (PTS)" there is a sentence describing symptoms:

> Other symptoms include a rise in the level of the sensory injury, increased spasticity, progressive muscle weakness and symptoms suggesting autonomic nervous system involvement.

In this example "symptoms suggesting autonomic nervous system involvement" should be excluded, because this description is very unspecific, can include a number of different symptoms, and does not give any information about symptoms the patient would be able to report. However, sentences like this were rare, and in cases like this,

all the symptoms of a sentence were included in the analysis even if all of them would not comply with the definition of symptom used for this study.

Definitions of place and time were included in descriptions of symptoms, too. For example, in "knee injuries," under the heading of "typical history of the most common knee injuries" and subheading of "torn anterior cruciate ligament (ACL)," the following description can be found: "almost without exception the patient gives a history of immediate severe swelling and restricted range of movement." These types of sentences were included in full in the analysis. There is information about how often (almost without exception) and when (immediate) the symptom can be found.

Often what was within parenthesis was excluded from the analysis. A typical example can be found in "muscle injuries" under the subheading of "diagnosis." The following description can be found there: "Swelling and bruising are seen in the injured area (compare to the unaffected side)." The text within the parenthesis was not included in the analysis, because it does not describe any symptoms. Sometimes the situation was opposite, and only what was within the parenthesis was included. For example, in "burn injuries" under the heading of "first aid in severe burns" there is an item stating: "Check circulation (arrhythmias are common in electrical burns)." Only what is within the parenthesis was included in the analysis of that sentence, because the symptom description could be found there.

To conclude, the analysis was made on the parts of the text that can be understood alone and that grammatically formed a complete sentence in both languages unless the whole description was only a word or a few words that did not form a complete sentence, in which case it was included in whole. Descriptions of symptoms including circumstances, condition, time and place were included.

The next section explains briefly how the differences were defined and what kind of differences were of particular interest at the starting point.

1.3 Differences included in the study

It was anticipated that quite a few descriptions in this study can be categorized as being "the same" without any shifts in the translation process. This can also be called "equivalence" (Molina and Albir 2002: 501). Different classifications have been suggested by different translation scholars, and Molina and Albir (2002) produce an exhaustive list of different types of translation procedures suggested. Two categories that are included in many of these classifications were of special interest at the starting point of this study: explicitation/implicitation and generalization/particularization.

Even though it seems easiest to identify the category where the two language versions are the same, or "equivalent," it is not so. Literal translation, meaning that the two language versions are the same is defined very differently depending on who makes the definition. Leonardi (2000) introduces different theories of equivalence, but in the end comes to the conclusion that equivalence is the most problematic and controversial area of translation studies. Chesterman (1997: 9) also points out that equivalence is the most argued theory in translation studies. Traditionally literal translation means word-for-word translation, and this definition suits some of the one-word or very short items in this study. Hervey and Higgins (1992: 90) use "semantic equivalence" as a "measure of equivalence between the literal meanings of isolated linguistic expressions (words or phrases) figuring in texts." Semantic equivalence, equivalence in the details of the descriptions, was considered the important factor in this study, and grammatical details were ignored in the analysis even if in the discussions of equivalence they have received a great deal of attention. Grammatical differences such as differences in word order, plural in one language version and singular in the other were not regarded as "different" in this study, because the medical details were of main interest. If the items only included grammatical differences, they were still categorized under "same."

Another category that was of interest in this study was "particularization/generalization." A wider literal meaning is called hyperonym and a more restricted one hyponym. As an example "He is opening the window" is a

hyperonym of "[t]he boy is opening the window", because "he" is a much larger context than "the boy." (Hervey and Higgins 1992: 92). Translating by a hyponym is called particularizing translation or particularization for short. Translating by a hyperonym can be called generalizing translation or generalization (Hervey and Higgins 1992: 95). Because we do not know which version is the original, and which one the translation when comparing *Lääkärin käsikirja* and *EB*MG, it is impossible to conclude whether a specific difference in the descriptions of symptoms was caused by particularization or generalization in the translation process, but it will be possible to see if such differences exist in the texts. In this study this category is called "precision and accuracy."

Sometimes both particularization and generalization happen in the same text. For example "la soupe de ma belle-mère" and "my mother-in-law's soup". "Soup" particularizes and "belle-mère" generalizes the French text. The French word "soupe" traditionally refers to a vegetable soup, so it can be regarded as more particular word than the English "soup." On the other hand, the French "belle-mère" may mean both mother-in-law and stepmother, so it is a larger context than the English "mother-in-law." This is called "partially overlapping translation" or "overlapping translation." (Hervey and Higgins 1992: 96). This seems to be fairly common when comparing *Lääkärin käsikirja* and *EBMG*. However, "partially overlapping translation" was not separated as a category in this study, because very often several different types of particularizations and generalizations, and even other types of differences, could be found in the same description, and it was considered more interesting to count all of them separately.

The original assumption was that especially differences in accuracy of the descriptions could be found. Most of these differences could be categorized as particularization/generalization. Accuracy in this study refers especially to medical details, for example a description where pain is exactly located. One language version may generally state that there is pain in the injured area, and the other that the pain is on the lateral side of the knee. For the purpose of this study this kind of differences were considered as differences in accuracy.

Sometimes it is difficult to draw a line between the types of differences found in translations. Chesterman (1997: 93) also acknowledges that in the classification of translation strategies different groups often "co-occur." One category that often partly overlaps particularization/generalization is explicit/implicit information. Something is always lost, and something gained in a translation, and "additions" and "omissions" are a popular subject in translation studies. Sometimes there are no direct equivalences in the source language and target language, and the translator has to make a choice as how to translate a word of this kind. One possibility is "omission." (Baker 1992: 26-42.) This could mean that the target text reader does not receive this information at all, but Nida explains "addition" (which can also be called "gain") as going from implicit to explicit information without adding any information. That means making evident in the target text what can be read between the lines in the source text by e.g. adding an explanation or adding necessary grammatical details. Omissions mean the opposite; going from explicit to implicit information without any loss of information. (Larose 1989: 91–92). So, according to this explanation, information that is "omitted" from the translation is still available to the reader "between the lines."

As explained above, grammatical details were ignored in this study, and the focus is on medical details and semantic meaning. In this study implicit information is mainly regarded as something that can be "read between the lines." Information that the reader knows even if it is not explicitly written was regarded as implicit. As an example could be given "50 per cent have pain" in one language version and "50 per cent of the patients have pain" in the other. In this example "of the patients" is implicit information in the first quote, i.e. it is something that can be read "between the lines," and it is explicitly written in the second quote. It should be borne in mind that a piece of information that is implicit to one person is not necessarily so to another. In this study differences that were clearly implicit/explicit information to any reader, such as the example above, were included in this category. If a more detailed description of a symptom was given in one language it was included in the category of "accuracy." Only such differences in details that were, for example, clear from the title or the

subject were included in implicit–explicit information. As an example could be given the description of a fracture in the elbow area. If one language stated that the "joint" is painful and the other one that the "elbow joint" is painful, "elbow" would be regarded as implicit information in the first language, because it would be very clear from the context which joint it is. On the other hand, if the second language version stated that "the lateral side of the joint" is painful, this would be regarded as more accurate information in this study. It gives more specific information as where *exactly* the pain is located.

These three categories, "no significant difference in information, "precision and accuracy", and "explicitation vs. implicitation of information" were the ones that were most interesting at the starting point of the study, and it was anticipated that an abundance of examples will be found in all. However, differences in translations can be looked at from different viewpoints. In this study a category of differences in person-orientation was also included. As an example, one version might refer to the "patient" experiencing something, and the other one simply stating that this is the symptom. This was regarded as difference in person orientation.

Even a category of differences in addressing the reader was included. This could be also regarded as a subcategory of person orientation. Symptoms as such are not expected to include any orders or recommendations, but because in this study all descriptions of symptoms were included, also those that could be found with the treatment instructions, some orders could be expected to found nevertheless. One separate category in the analysis is comparing how instructions were given, i.e. if they were given as an order or simply as a statement how to proceed.

Before the analysis the publisher of Lääkärin käsikirja, Duodecim, will be introduced in more detail and some general aspects about medical language and translations are given.

1.4 Duodecim's role in Finnish medical language

Duodecim is the publisher of all the versions of the Finnish *Lääkärin käsikirja* (book and electronic versions) and the electronic version of *EBMG*. It is a Finnish medical association that was founded in 1881 by 12 medical students with the purpose of developing and promoting medical Finnish and making it equal with the Swedish language, which was the predominant language at the time[5]. Since 1885 a medical journal, also called *Duodecim*, has been published. (Vainikainen 2001.) It is even today the most trusted and respected Finnish medical journal. Although at the time when Duodecim was founded, the Finnish medical vocabulary was not well developed, after a century, a great deal has happened and the Finnish medical language has both become established and developed into a widely used technical language in Finland.

Apart from developing the medical language, Duodecim is an important medical publisher in Finland, and most of the Finnish medical books published during the last few years have been published by it. Among the books it has published is, for example, *Lääketieteen termit* [medical terms], which is an important medical dictionary for Finnish medical writers and translators alike. The printed book version of *EBMG* was published by another publisher, John Wiley & Sons Ltd., an American publisher of medical and other scientific books and journals (Wiley 2006). It has also the rights to distribute the electronic version of *EBMG* everywhere in the world except Finland (Lääkärin tietokannat 2008b).

Even today Duodecim is regarded as the ultimate authority of the language of medicine in Finnish. It is actively searching for Finnish expressions for new medical discoveries and aiming at using correct terms and language in all of its publications. It opened also in the year 2003 the Metathesaurus Rex database (Lääkärin tietokannat 2008b, Metathesaurus Rex -hakuohjelma) that combines several different Finnish terminology and classification databases, and where correct medical terms in Finnish can be found.

[5] Tsar Alexander II of Russia had given a statute to make the Finnish langue equal with Swedish in Finland which was part of Russia at the time (Vainikainen 2001).

Considering all this, also the parts of *Lääkärin käsikirja* that have been translated from English into Finnish can be expected to be written in correct medical Finnish, and can be expected to be acceptable and established medical Finnish.

Translating medical texts has not been an important part of Duodecim's work. As mentioned earlier in the introduction some of the texts have been translated by the writers themselves, some by the editors, and some by professional translators. All the translators are native Finnish speakers, and also all the translations from Finnish to English have been made by them (Ketola 2005a, interview). Translation is not a full time business for Duodecim, and they have hired independent translators and proofreaders for the production of the English version. *Lääkärin käsikirja* has even been published in Russian in 2001, and Hungarian and German versions were published in the year 2005, and it has also been translated to Estonian. (Lääkärin tietokannat 2008b, Lääkärin käsikirja 2008. Product information.) A contract has been made with a Belgian publisher to translate *Lääkärin käsikirja* even into French and Dutch (Lääkärin tietokannat 2008b). Thus it seems like the English version has paved the way to an even larger international interest and translational activity.

Medical language can be regarded as part of the technical language group, and before proceeding to the analysis the next sections give some more information about medical and technical language and translation activity.

2 MEDICAL AND TECHNICAL LANGUAGE AND TRANSLATION

Medical language used in scientific writing and in medical books that are written for professionals is highly specialized technical language that is notoriously difficult for a layperson to understand. Despite this, it is also one of the technical languages that a layperson is most likely to encounter because some doctors have the tendency to use it with their patients. Also people that are not professionals in the medical field often encounter medical texts with specialized vocabulary.

In this section Finnish and English technical and medical language are introduced and medical translations discussed.

2.1 Characteristics of technical and medical language

Texts can de categorized into different types. Burton Raffel categorizes translations on the basis of the source text into nonliterary prose (that technical translation is included in), literary prose, and poetry (Herman 1993: 11). The classification is based on the source text, so it can equally be regarded as a classification of texts. This is only one example of such classification. However, it shows one common feature of different classifications; they usually distinguish technical texts from other types. However, boundaries between a scientific, or a technical, text and literary genres are changing all the time and there is not a clear-cut line in between. Scientific texts are often 'structurally similar' to prose texts. They have chapters, paragraphs, and sentences, and the discussion starts from simple ideas proceeding to more complicated. (Sarukkai 2001: 652). Sometimes even technical texts are written in literary or poetry style. One example from medicine is a Finnish book called *Louhimon lastenkirurgiaa* (2000) [Louhimo's paediatric surgery] that gives some of the instructions in poetry style.

However, technical texts are usually expected to have a specific style and form that differs from literary texts and poetry. They give information about a specific subject that is often difficult to understand for those who are not specialists in the field:

> Technical writing communicates specific and factual information to a defined audience for a defined purpose. […] The purpose is to inform, instruct, describe, explain or otherwise document scientific or industrial processes and mechanisms. (Shelton 1994: 2.)

According to this definition the information in technical texts is "specific", it is given to a "defined audience", and it describes "scientific or industrial processes and mechanisms." This definition suits many different scientific fields, medicine being one of them.

Characteristics that are expected of technical and medical texts are, for example, "a certain degree of impersonality, avoidance of prolixity, exact description, somewhat fixed methods of reporting and hypothesizing" (McMorrow 1998: 25). Also "clarity, concision and correctness" are aimed at in technical writing, which is something a technical translator should also aim at (Herman 1993: 11). These are all characteristics of medical texts, too; something medical writing and writers are expected to aim at. However, this is aim is not always achieved as Lee-Jahnke (1998: 83) points out when discussing translations between medical English and German. She writes that German medical texts are complex compared to English medical texts, "heavily loaded with Latin and Greek terminology," and even the text structure is complex. Clarity and even concision might be compromised with a complex text structure, but on the other hand, complex text structure is often regarded as one characteristic of technical texts, medical texts included.

Medical language is one part of the "technical language" group, but it has some specific characteristics of its own. The medical language in the western world derives from Latin and Greek (McMorrow 1998: 17, Lee-Jahnke 1998: 85, Zethsen 2004: 131). The Greek medical texts and medical knowledge are older than the Latin ones, and many medical ideas entered the Western world as Latin translations from Greek (Pahta 1994: 2078). Also Hebrew and Arabic have played an important part as international

languages of medicine. English is replacing Latin and Greek today as the main language of medicine, but especially Greek and Latin prefixes and suffixes are still widely used. (Fischbach 1993: 94). Some terms used today are a mixture of Latin and Greek as Querin (2001) indicates in his article. For example, "haemoglobin" and "claustrophobia" are such words (Van Hoof 1998: 49). Haemoglobin comes from the Greek "haema" (Meletis 2002: 140) and Latin "globus" (MedFriendly) and claustrophobia has Latin roots in "claustro" (Encyclopedia of the Unusual and Unexplained) and Greek roots in "phobos" (Wikipedia).

Even today the patients' diagnosis and treatment are written in Latin, or something that is a mixture of Latin, Greek and English, in the patients' journals in Finnish hospitals. Very often the English term greatly resembles the Latin one, and the medical language is very international, like all technical languages. For example, the diagnosis "myocardial infarction" is written in Latin "infarctus cordis" in patients' journals in Finland. A person who has had a myocardial infarction or is in the risk of getting one because of coronary artery disease might have to go through a by-pass operation. It would be indicated in the journal as "CABG", which comes from "coronary artery by-pass grafting." So the name of this operation is written entirely in English. Most operations are still written in Latin, though, even if a shift towards English is evident. For example "appendicectomia" is one common operation written in Latin meaning removal of the appendix.

The next section discusses the importance and characteristics of the translations of technical and medical texts.

2.2 History and expectations of scientific and medical translation

Without translations many scientific inventions would have remained the knowledge of a very limited number of people. It is not surprising then that the importance of translation has been claimed to act a key role in scientific progress (Fischbach 1993:

90), even though it is a historical fact often ignored and forgotten. Many scientists have, and still are, translating their own works and today increasingly even writing their findings originally in a language that is not their mother tongue. New vocabularies are also created when science crosses borders (Montgomery 2000: 269). Sometimes technical and medical translators need to find new words that do not exist in the target language yet, and thus on that part create new knowledge to the target culture.

According to Fischbach medicine, theology/philosophy and astronomy/geography are the three oldest recorded scientific fields. Medicine has always been the most popular of these, and also the most translated field (Fischbach 1993: 92), which can partly be due to the fact that human anatomy and physiology are the same throughout the world (Fischbach 1993: 93). Laws and religions are different, and plants, animals and diets vary from one part of the world and one country to another. Translating such information might not have been, or be, equally important or interesting than translating something that is common and useful to everybody.

Definitions of what translation exactly is differ according to the scholar who has made the definition. Newmark's idea of translation is that it is "[…] a craft consisting in the attempt to replace a written *message* and/or statement in one language by the same message and/or statement in another language" (Larose 1989: 182). In *EBMG* and *Lääkärin käsikirja* the purpose of the descriptions of symptoms in both language versions is to give information, "a message," to the reader about what kind of symptoms refer to the specific disease. Different contemporary theorists seem to share the view that it is important to keep the meaning or the *message* in any translation (Melby 1990: 207).

Herman (1993: 13, 15) also agrees that keeping the meaning is important in a translation

> [a] translation of technical prose, though non-literal, should convey the exact meaning of the original text as directly as possible. […] But this does not mean that the translation is made word for word. On the contrary, the sentences often need to be completely rebuilt to respect the grammatical rules of the target text.

"Exact meaning" is difficult to define, but the basic idea is that the details in a scientific translation should be accurate and not change in the translation process. Herman (1993: 18) goes even further stating that the translator should strive for correctness and produce an accurate target text even if there are mistakes in the source text. The translator should point out errors such as discrepancies between the text and tables and inconsistencies between numbers and the conclusions drawn from them.

Several other scholars are supporting Herman's basic idea of accuracy in technical translations. Montgomery (2000: 253) writes that it is generally believed that the scientific and technical texts do not change, or at least should not change, in the translation process. Ingo (1990: 42-43) states that translating a language for special purposes, such as medical texts, requires high accuracy semantically. This is especially true for medical translation, because, in some cases, somebody's life might depend on it. Hervey and Higgins (1992: 169) point out the difference between literary and technical translation. While all translators are responsible for their work, the consequences of mistranslations in literature are not as serious as in for example medicine, where it could cause "loss of life and limb."

There are guides written for doctors that are especially for emergency situations that can be carried around in pockets. Especially the translation of these guides requires extremely high grade of accuracy in medical details, because at an emergency situations the instructions are followed precisely without the time to think if something seems to be inaccurate. The most likely mistake that could potentially threat a patient's life would be a wrong dosage or a name for a medication. This might equally well happen during the original writing process and would not necessarily be connected to the translation. However, in *Lääkärin käsikirja* and *EBMG* a mistranslation would probably not immediately threat anyone's life. Important mistranslations would probably soon be noticed by quite a number of readers, but potentially they might give misleading information about the appropriate treatment or the symptoms of a disease and thus in the worst case cause "a loss of life or limb".

Even if technical and medical translations are *expected* to be accurate without any shifts, it has been shown that such is not the case. The next section will discuss some characteristics related to translations of medical texts.

3 TRANSLATION OF MEDICAL TEXTS

Lääkärin käsikirja and *EBMG* can be regarded as handbooks or instructions manuals that give specific information about how to diagnose and treat diseases. The target audience of both books is doctors and thus all the readers can be expected to understand medical jargon and neither language version needs to be any simpler than the other. The main purpose of the texts is to inform, not to entertain. The translation can be expected to follow the rules of medical and technical translations, i.e. high semantic accuracy. The purpose of the translation, to accurately convey the information to the readers of the other language, can be regarded as defining how the translation has been made. Skopos theory concentrates on this purpose of the translation and will be discussed next.

3.1 Skopos

In skopos theory the word skopos is used to mean the purpose of the translation (Isham 2004: 235). The text is considered as an "offer of information." The translation is considered as a secondary offer of information providing information that was "originally offered in another language within another culture." (Isham 2004: 236.) The skopos theory concentrates on the target text and its purpose and regards this as more important than that of the source text (Chesterman 1997: 33). This theory that was developed by Hans Vermeer and Katharina Reiss (Isham 2004: 235-237) has received some criticism because of, for example, largely ignoring the linguistic side of the translation, but it can nevertheless be adapted to the translation process of *Lääkärin käsikirja* and *EBMG*, especially because in this study differences in the grammatical structure of the texts were not studied and the linguistic side was thus somewhat ignored. Lee-Jahnke (1998: 82) agrees that skopos theory is well applicable to medicine and also stresses the importance of the target texts by stating that any translation should first of all serve the objective of the original text, but it should be translated in a "*receiver-specific* way." The theory that the information is first offered into the readers

of one of the versions, and then translated and thus offered to the readers of the other language and can be well applied to *Lääkärin käsikirja* and *EBMG*.

Several other scholars have followed the skopos theory in the target-orientedness. Nord puts emphasis on the translation commission ('Linguistic' theories of translation) and target text purpose, which should be derived from the instructions given by the person for whom the translator is working (Pym 1998: 184). As stated earlier, translators of *Lääkärin käsikirja* and *EBMG* have not received any specific translations instructions, but target text purpose must have been clear to all translators even without any specific instructions.

However, even if the *EBMG* is mostly targeted at the United Kingdom, it has potential readers all over the world. The information in it would, therefore, not be offered to a simple "other" culture or society, because the other society includes a variety of different societies, and defining the English target text purpose exactly is thus, after all, not straightforward. Even in Finland there are probably doctors who read only the English version, though their number is likely to be very limited. They are most likely foreign doctors (or students) who do not know Finnish very well and who are only starting their career in Finland. On the other hand "foreign doctors in Finland" could be regarded as a kind of "another society" that is separate from those Finnish doctors who have Finnish as their mother tongue. In the translations *from* English to Finnish the target text purpose and audience is more clear and defined: to inform Finnish doctors in Finland.

As discussed earlier, two translations of the same source text are never exactly the same, and the translators are clearly the persons who are, in the majority of cases, responsible for the differences. Norms are one defining factor in what kind of a target text is produced, and this will be the next topic discussed.

3.2 Translation norms

Translation norms are a defining factor in what kind of a target text is produced and in what kind of circumstances. Toury (1995: 53) explains that translation activities should be regarded as having cultural significance and the translators plays a social role, i.e. fulfill a function given to them. In the case of *Lääkärin* käsikirja and *EBMG* this function was originally to make a handbook available for English readers. Translators perform this function within norms that are applicable to the text and context of the translation. Socio-cultural constraints can be regarded to have two extremes: absolute rules which are expected to be followed and idiosyncrasies on the other hand. Between these two extremes lies a middle-ground that has been named "norms". They vary between these two extremes from almost rule-like to weaker norms. Where a norm is situated in this scale between rule and idiosyncrasy depends on the group of people, time, and activity (e.g. interpreting or legal translation) it is connected to. It is possible not to comply with a norm, but it does not mean the norm does not exist. Normally, there is a price to pay for deviating from a certain norm. (Toury 1995: 54–55.) Translators, like any other people, are expected to follow these norms, and translators are equally expected to follow them in the translation process.

In translation there are always at least two languages and two sets of norms involved (Toury 1995: 56). The translators can subject themselves to the norms of the source text in which case the translator is said to be pursuing and "adequate translation," or the target text, which means that the target culture determines the acceptability of the text. This is the *initial norm* of a translation activity. (Toury 1995: 55–56). As described above, the skopos theory concentrates on the target text, and thus the initial norm in that theory is target-orientation.

Apart from the initial norm Toury presents two different norms related to translations: preliminary norms and operational norms. *Preliminary norms* include translation policy and directness of translation. Translation policy refers to factors that determine what types of texts, or even individual texts, are translated into a specific culture or language

at a given point of time (Toury 1995: 58). In the case of *Lääkärin käsikirja* it was regarded appropriate and beneficial, for the publisher and the readers, to translate the book into English at present time. Directness of translation refers to whether indirect translations are tolerated or not. Indirect translation here means translating from languages other than the ultimate source language. *Operational norms*, on the other hand direct choices made during the translation process itself, such as the verbal formulation and what is likely to remain invariant and what is likely to change in the translation process. These include matricial norms and textual-linguistic norms. (Toury 1995: 58–59). Operational norms are primarily product norms; they regulate the form of a translation as a final product (Chesterman 1997: 63). Chesterman added a few norms in this classification. The first one belongs to product norms: *expectancy norms*. The target readers' expectancies constitute this norm (Chesterman 1997: 64). When following this norm the translator takes into account what kind of a text the target readers are expecting. The target text readers of *Lääkärin käsikirja* most likely expect accurate translation especially in the medical details, and this is certainly one norm that has guided the translators.

Another category of norms that is of interest in this study is *professional norms* that, according to Chesterman (1997: 67–68, original italics), are the same as process norms. Translation professionals are the ones who define this category. The products of their work are what subsequent translations are assessed against. Chesterman (1997: 68–69) further divides professional norms into three categories:

1. The *accountability norm*: A translator should act in such a way that the demands of loyalty are appropriately met with regards to the original writer, the commissioner of the translation, the translator himself or herself, the prospective readership and any other relevant parties.
   […]
2. The *communication norm*: a translator should act in such a way as to optimize communication, as required by the situation, between all the parties involved.
   […]
3. The *relation norm*: a translator should act in such a way that an appropriate relation of relevant similarity is established and maintained between the source text and the target text.

This is quite an exhaustive list and, for example, being loyal to "all the relevant parties" is not possible, or very difficult. The prospective readers might have different expectations from those of the original writer or the commissioner. Translators are the mediators and it is their work to try to be as loyal as possible to all the parties. However, these norms apply well to the translation process of *Lääkärin käsikirja* and *EBMG*. The translation should be faithful to the original writer, and if the original writer was also the translator there is no doubt that this norm was well met. The commissioner, which is the publisher here, did not give any specific orders about how the translation should be made, but the purpose of the translation must have been clear to all the translators, as well as the prospective readers, and this has certainly been one norm guiding the translators. Optimizing communication is also a norm that can be regarded important here. In a handbook that gives information in the style and shape of a manual it is important to "optimize communication" and maintain an "appropriate relation of relevant similarity" between the texts. Following these norms might very well produce even some important differences between the source and the target text. For example, "optimizing communication" may mean that the same idea is expressed somewhat differently in the two languages. As discussed earlier, maintaining an "appropriate relation of relevant similarity" between the texts is one of the most important norms that has guided the translators of *Lääkärin käsikirja* and *EBMG*. Keeping the medical details similar is very important when translating texts of this king.

Equivalence is very rare in translation, and it is therefore the translator who decides what kind of relation is appropriate between the source text and the target text according to the commissioner's wishes, writer's intentions, and the assumed wishes of the prospective readers (Chesterman 1997: 69). Legal contracts, for example, require close formal similarity to the original, a poem or a short story perhaps more a stylistic similarity, and in a scientific or technical article semantic similarity is important. This way every translation has it own "equivalence priorities." (Chesterman 1997: 69). This "equivalence priority" in *Lääkärin käsikirja* and *EBMG* is clearly the information content. Readers of both language versions should be able to have the same information

irrespective which version they are reading, and this can be expected to have been the most important norm directing the translators.

Equivalence between texts can thus be achieved in different ways and looked at from different perspectives. It is a subject often disputed and not agreed among translation scholars, and it will be discussed next.

3.3 Literal translation, equivalence and sameness

Even though it seems like this category would be the easiest to identify and define, it is not so. Literal translation, meaning that the two language versions are the same, is defined very differently depending who makes the definition. Leonardi (2000) introduces different theories of equivalence, but in the end comes to the conclusion that equivalence is the most problematic and controversial area of translation studies. Chesterman (1997: 9) also points out that equivalence is the most argued theory in translation studies. Traditionally literal translation means word-for-word translation, and this definition suits some of the one-word or very short items in this study. Equivalence can be looked at many other different perspectives, and there are also wider definitions for literal translations than word-for-word. Hervey and Higgins (1992: 87–88) (among others) point out that even the literal translation of a single word does not necessarily include all the same meanings of the word in the target text as in the source text.

> "Meanings in a text that are fully supported by ordinary semantic conventions (such as the lexical convention that 'window' refers to a particular kind of aperture in a wall) are normally known as **literal** (or 'cognitive') **meanings**. In the case of words, it is this basic literal meaning that is given in dictionary definitions. […] That is, a dictionary definition imposes, by abstraction and crystallization of a 'core' meaning, a rigidity of meaning that words do not often show in reality. In addition, once words are put into a context, their literal meaning become even more flexible. These two facts make it infinitely difficult to pin down the precise literal meaning of any text of any complexity.

Thus, defining a literal meaning of any text is very difficult, from which it can be concluded that defining if a text is a literal translation of another language version is even more difficult. Even readers of a text in one language do not necessarily understand it the same way as Chesterman also points out (1997: 35). Hervey and Higgins (1992: 90) continue by using "semantic equivalence" as a "measure of equivalence between the literal meanings of isolated linguistic expressions (words or phrases) figuring in texts." Semantic equivalence, equivalence in the details of the descriptions, was considered the important factor in this study.

Melby (1990: 212) writes that if the primary purpose of a text is to provide information, which is the case with *Lääkärin käsikirja* and *EBMG,* there should be equivalence "on an item-by-item basis." He continues that on a report of items that were found on a crime scene, a *red shoe* should be kept as a *red shoe*. However, if it is a translation of a play, it may become a *blue shoe* in specific circumstances. (Melby 1990: 212). As a rule, in *Lääkärin käsikirja* and *EBMG* the descriptions should have been translated without any such shifts in meaning, meaning that equivalence in the details should have been kept, and the result of this study will show to some extent if it is so.

All grammatical details were ignored in the analysis even if in the discussions of equivalence among translation scholars they have received a great deal of attention. Grammatical differences such as differences in word order, plural in one language version and singular in the other were not regarded as "different" in this study, because the medical details were the main interest of this study. Also differences in register were not included in the study. If one version was using a more common word and the other one a more "difficult" medical term describing the same phenomenon, for the purpose of this study they were considered the same.

Hyperonymy-hyponymy could be regarded as the next "level" down from literal translation (Hervey and Higgins 1992: 90). This was another category included in this study, and will be discussed after some more general ideas about accuracy and equivalence in relation to translations are presented.

3.4 Accuracy in scientific and medical translations

While technical translations today are in general expected to be accurate, and "free" translations are not acceptable, Montgomery takes a little bit different perspective to the issue. During history scientific translations have often been full of "mistakes" and changes (Montgomery 2000: 269), and this is still true in our time. Fernando Navarro and Jeffrey Barnes looked at the English translations of Spanish titles in Medicina Clinica.[6] In a study published in 1996 they found that in 292 titles studied there were 458 errors in 225 (77 per cent) of the titles. Differences in meaning were found in 100 (34 per cent) of the titles. In addition, 72 titles out of the 292 studied showed orthographical, lexical, or grammatical mistakes. (Reeves-Ellington 1998: 105). These numbers are surprisingly high compared to the general assumption that scientific translation should be accurate. However, it is not known exactly what was included in "errors" in this study.

Sarukkai, too, takes a somewhat unconventional view to scientific translation. He calls the idea that a translation keeps the essence of a text intact a "naïve" view of translation (Sarukkai 2001: 646). He claims that already the original text is always a translation; it is the scientist's view and translation of nature (Sarukkai 2001: 647). "Science attempts to write the text of the 'original' world" (Sarukkai 2001: 648). Also Chesterman (1997: 13) agrees with this basic idea saying that all writing is translating. When talking about symptoms in *EBMG* and *Lääkärin käsikirja*, a specific description of a symptom could be regarded as the doctor's, or writer's view of what the patient, the "nature", is expressing. In this respect, if the original text can already be considered a translation, both *Lääkärin käsikirja* and *EBMG* can be regarded as translations and as two different interpretations of the "nature", and when comparing the differences in the descriptions it is not necessarily significant which version was written first.

Even equivalence in translation can be achieved in many different ways, and Melby (1990: 211) writes that the translator simply produces one possible translation among

several others that would be acceptable. Thus even two "acceptable" translations of the same text are never exactly the same with maybe the exception of very short texts that are only a few words long. From this can be concluded that translations always differ from the source texts one way or another, and translation scholars are trying to categorize these differences into different categories, each one producing a somewhat different point of view.

One difference between the source text and target text can be a different grade of formality and complexity. According to Melby (1990: 211) a translation should have the same register as the source text, but if the translator has received instructions to, for example, make the target text simpler than the source text, the register will change. This is one of Chesterman's (1997: 69) professional norms: *communication norm*, which states that a translator should optimize communication between all the parties. As an example Melby (1990: 211) gives the translation of an instruction manual where the target audience may need a simpler register. This means that there will be a shift in the translation and the two texts can not be regarded any more as "equivalent." The translators of *Lääkärin käsikirja* and *EBMG* have not received any specific translating instructions or orders (Ketola, interview). The "audiences" of the two versions are mostly doctors that would not need a simpler register in either language, and differences in register were not of special interest in this study.

In translations some information is always added, some omitted, and there are differences in logic and different ways of declaring facts as the ultimate truth or only as suggestions of what might be the truth (Montgomery 2000: 269). One example can be given from children's literature. It is not directly a technical or scientific text, but it could be connected to child psychology. It is from the 1965 translation of Astrid Lindgren's Pippi Longstocking into German. In the original Swedish version Pippi, Tommy and Annika are playing in the attic, and Pippi finds some pistols in a chest, fires them in the air, and gives them to Tommy and Annika who are happy to accept. In the German version she does not give the pistols to her friends, but puts them back in

[6] Medicina Clinica is a weekly Spanish publication founded in 1943 that publishes medical articles.

the chest stating that children should not play with such things. As a reason for such a shift in the translation has been given that it was not regarded suitable to encourage children in the post-war Germany to play with guns (O'Sullivan 2003.)

Montgomery (2000: 279-280) is using the expression "cultural chauvinism" for translations where "unnecessary" details have been left out and the "important" emphasized. Hala has also found that sociocultural norms had affected the translations of some popular medical books from English to Arabic. It is possible that such differences could be found even between *Lääkärin käsikirja* and *EBMG* to a small extent. In *Lääkärin käsikirja* there are some chapters that are not included in the English version, and *EBMG* includes information not available in Finnish. A decision to add or omit such information could be, and have been done by the editors, and a translator simply translating the text would not be responsible for such differences. This is most likely the case in the translation of many other texts, too. Often it is the author or a publishing house that gives specific orders as how a translation should be made (Gerzymisch-Arbogast 1993: 34). As discussed earlier in relation to translation norms, *preliminary norms* include translation policy, which refers to factors that determine what types of texts are translated into a specific culture or language at a given point of time. Translation policy is more likely to be the reason of "cultural chauvinism" more often than the translation process itself, even though it has to be borne in mind that a translator is always bound by the same norms and rules that direct the translation policy itself.

When comparing *EBMG* and *Lääkärin käsikirja* one language version might emphasize and give more information about a specific subject than the other. It would be possible to call these differences cultural chauvinism even though a practical choice might be a better name for it, because the space is limited especially in the printed versions. For example, the chapter "cystic fibrosis" was added to the printed version of *EBMG*, because it was regarded as important information to doctors working in the United Kingdom, but not very important to Finnish doctors (Ketola 2005a). What is called

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(http://db.doyma.es/cgi-bin/wdbcgi.exe/doyma/mrevista_info.sobre?pident_revista=2)

"cultural chauvinism" is not necessarily related to a translation, either, but cultures or societies themselves. Sirkka (2005) found in her pro gradu work that there were differences in how translated health guides and those originally written in Finnish persuaded readers. For example, texts translated into Finnish were emphasizing the positive sides whereas texts originally written in Finnish aimed more at realistic goals. In this example the translated texts most likely reflected the originals, and the difference, or "cultural chauvinism," could be found between translated texts and original Finnish texts. The fact remains that *Lääkärin käsikirja* and *EBMG* do differ to some extent, but a great deal of these differences are the editor's choices and not directly related to the translators' decisions.

Lee-Jahnke also looks at the "cultural chauvinism" from a more neutral perspective. She writes that non-sociocultural information valid for all languages should be differentiated from cultural backgrounds that are valid for only a specific culture or subculture (Lee-Jahnke 1998: 82). If they are distinguished, then the "cultural backgrounds […] valid for only a specific culture or subculture" could be in some circumstances omitted from the translation, especially from a guide book like *Lääkärin käsikirja* and *EBMG*. In *Lääkärin käsikirja* more specific information is given to Finnish readers about conditions and practices in Finland and in *EBMG* more general information to the wider spectrum of English readers. For example, texts related to the Finnish legislation have been omitted from the English version.

Descriptions of symptoms, which are the subject of this paper, are the least unlikely to reflect cultural differences and looking even from the cultural perspective the two language version should be similar. Pain should be pain anywhere around the world, even if the intensity and expression of pain varies to a very large extent between individuals, and to some extent between different cultures. Consequently what is considered as "intense pain" in one culture might only be "moderate" in another, but equally what is "intense pain" for one individual in one country might be only "mild" for another in the same country and culture. In many, or probably most, occasions the difference between individuals is bigger than between two cultures and the same can be

applied to texts. Two individuals reading the same text in one language do not necessarily understand it the same way like the readers of a text and its translation do not necessarily understand them the same way even though the translator thinks that "equivalence" has been achieved in the translation.

Especially in the past it was sometimes the scientists who wrote the original texts that made the translations themselves, and it is likely that during this process they made some amendments to their own texts, which could be one of the reasons why scientific translations are not always "accurate" and science itself was (and still is) "changing" in the hands of the translator. This might also be noticed in *Lääkärin käsikirja* and *EBMG* if it was possible to study it. It is also likely that those who have translated their own texts have taken more freedom while producing the translation than those who were only translating. This assumption cannot, however, be verified as unfortunately the information about the translators of specific parts of the text is unavailable. It has been noted, though, that the medical professional's approach to a translation differs somewhat from that of linguists. Henry Fischbach has said that they "tend to 'cut through' what they consider to be non-essential information" and continues that "I have found their translations to be more of an abstract than a verbatim translation" (O'Neill 1998: 75–76). This does, however, refer more to translations they make of other writer's texts, but also my experience is that doctors in general seem to think that the core idea is more important than the exact linguistic expression. This could be regarded what Montgomery called "cultural chauvinism," but it is likely that if the same medical professionals were given the original texts for editing, they would make the same changes even if the language would not change. So not everything can be regarded as cultural chauvinism that looks like it. The translators may, for example, be following the *communication norm* to make the text more acceptable and easy to read for the target text readers.

It is not only the texts that change in the translation process, but science itself is changing when the information is moving from one language to another and from one group of people to another (Montgomery 2000: 278). Nevertheless, new information

and knowledge has reached a great number of people through translation of scientific texts, and "[t]he phrase 'lost in translation' appears as impoverished cliché beside such historical realities" (Montgomery 2000: 273). Without the knowledge of the language in which some scientific findings have been written and published it would be very difficult to have any information about it at all without a translation. Einstein's papers on relativity theory were mostly written in German and would remain the knowledge of a very limited group of people had they not been translated (Sarukkai 2001: 649). The same would probably be true of many other scientists. Examples from the medical world could include Freud, Pasteur, Calmette, Fleming, and Pavlov (Fischbach 1993: 91). It is very unlikely that there is any knowledge available in *Lääkärin käsikirja* that was not available in English earlier. In the case of *Lääkärin käsikirja*, it is maybe not the translation itself that brings knowledge across different languages, but the way it is collected together and made available.

Because, despite general beliefs, scientific text have and are changing significantly in the hands of the translators, it can be expected that differences will be found between *Lääkärin käsikirja* and *EBMG*, too. The next sections will give some more information about the two translation strategies that were expected to be found in the analysis: particularization/generalization and implicit/explicit information.

3.5 Particularization and generalization

This translation technique was of interest at the starting point of this study, because it was assumed that differences in accuracy could be found in the texts. Different names have been given to this phenomenon in translations, for example hyponym/hyperonym or particularization/generalization. The word "hyperonym" refers to a wider literal meaning and "hyponym" to a more restricted one. As an example "[h]e is opening the window" is a hyperonym of "[t]he boy is opening the window", because "he" is a much larger context than "the boy" (Hervey and Higgins 1992: 92). Translating by a hyponym is called particularizing translation or particularization for short. Translating

by a hyperonym can be called generalizing translation or generalization (Hervey and Higgins 1992: 95). Sometimes both particularization and generalization happen in the same text. For example "la soupe de ma belle-mère" and "my mother-in-law's soup". "Soup" particularizes" and "belle-mère" generalizes the French text. Hervey and Higgins call this "partially overlapping translation" or "overlapping translation." (Hervey and Higgins 1992: 96).

The original assumption was that especially differences in the accuracy of descriptions of symptoms will be found in the analysis. Most of these differences in accuracy could be described as particularization/generalization. With accuracy in this study is meant medical details, for example a description where pain is exactly located. One language version may generally state that there is pain in the injured area, and the other that the pain is on the lateral side of the knee. In this study these differences are categorized under "precision and accuracy."

Sometimes it is difficult to draw a line between particularization/generalization and some other categories translations are often divided. Chesterman (1997: 93) also acknowledges that in the classification of translation strategies different groups often "co-occur." One category that partially overlaps particularization/generalization is explicit/implicit information that will be discussed in the next section.

3.6 Implicit and explicit information

Something is always lost, and something gained in a translation. This may mean additional information in one language version that can not be found in another, and "additions" and "omissions" or the "problem" of loss and gain have been widely discussed in relation to translation studies (Bassnett-McGuire 1991: 30-37). There are different ways of coping with, for example, the translation of a word that does not have a direct equivalence in the target language. One of the translations strategies suggested in that situation is "omission." (Mona Baker 1992: 26-42). This could mean that the

target text reader does not receive this information at all, but Nida explains "addition" (which can also be called "gain") as going from implicit to explicit information without adding any information. That means making evident in the target text what can be read between the lines in the source text by e.g. adding an explanation or adding necessary grammatical details. Omissions mean the opposite; going from explicit to implicit information without any loss of information. Replacements are all kinds of changes, from orthography (e.g. transliteration), and grammatical, to syntactic and semantic changes. (Larose 1989: 91–92). So, according to this explanation, information that is "omitted" is still available "between the lines."

One assumption at the beginning of the study was that the Finnish version is more implicit that the English one, because it can be assumed that the majority of the texts were first written in Finnish, and it has been reported that translations are more explicit than the original text that has not yet been translated (Chesterman 1997: 71; Englund 2005: 236; Klaudy and Károly 2005; Pym 2005). If texts that are translated are more explicit than the original text, then the translated texts should be longer, which is a fact that Durieux (1990) also points out.

As explained above, grammatical details were ignored in this study, and the focus was on medical details and semantic meaning. In this study implicit information is mainly regarded as something that can be "read between the lines." Information that the reader knows even if it is not explicitly written was regarded as "implicit". As an example could be given "50 per cent have pain" in one language version and "50 per cent of the patients have pain" in the other. In this example "of the patients" is implicit information in the first quote, i.e. it is something that can be read "between the lines," and it is explicitly written in the second quote. It should be borne in mind that a piece of information that is implicit to one person is not necessarily so to another, and thus one person might be completely missing information that is "implicit" to another. In this study information that should be clearly implicit to any reader (like in the example above) was included in this category.

Differences in this category may also partly be due to differences in ways of expressing ideas in the two languages. Williams (2004, 2007) found in two corpus-based studies of medical research articles that in texts translated from English to Spanish there was "information overload" in the Spanish texts compared to texts written originally in Spanish. There were, for example, discrepancies in the frequency of some main lexical items such as "patient" and "observe." If the translator is following the *communication norm* and making the translation sound natural in the target language, there may very well be shifts between the frequencies of, for example, words like "patient" and it may be "added" to or "omitted" from the translation with a good reason. When studying explicitation in translations Englund (2005: 236) claims that in certain types of texts explicitation occurred so frequently that it was considered a norm-governed change, meaning that explicitation was often almost obligatory in those instances. Thus differences found in this category partly reflect differences in the languages themselves and the different ways of expressing ideas.

Lääkärin käsikirja and *EBMG* give information to the readers, and thus address the reader in a certain way. This does not necessarily change the information content of the text, but it is another way of looking at how the descriptions of symptoms have changed in the translation process. The idea of how the information is presented to the reader, information packaging, will be discussed next.

3.7 Information packaging

Information in a scientific text can be presented to the reader in different ways. For example, the writers can take an authoritative approach or put themselves closer to the reader and present the information in a more reader-friendly way. Gerzymisch-Arbogast (1993: 24–25) divides the information in a text to "given" and "new." "Given" information is something the writer expects the reader to know, and "new" is something the reader does not know yet. What is "given" and what is "new" varies naturally between individuals, but to some extent also between languages and cultures. Giving

less specific information results in a longer distance between author and reader whereas more specific information puts them closer together (Gerzymisch-Arbogast 1993: 41). A text may be reader-oriented when the author tries to obtain the readers "empathy," or author-oriented where the focus is on author's qualifications and knowledge. When talking about scientific texts *information packaging* in a text describes how the authors "wrap up" information they want to give to the readers. Parameters of information packaging include, for example, frequent use of examples, personalizing the message, redundancies ("coating new messages with information already given in the text itself"), reference, terminological co-reference, and varying degrees of formality. A German text is usually more author-oriented whereas an English text is more reader-oriented. (Gerzymisch-Arbogast 1993: 31–32). Formality of the text was of no special interest when comparing *Lääkärin käsikirja* and EBMG. Both versions are targeted to doctors that are expected to be familiar with the vocabulary and readers of both versions are expected to understand texts of the same complexity. The information is given in manual type, and the main purpose is not to convince the reader that the author is right, but to simply give information as how to diagnose and treat diseases. In this respect it could be expected that both versions are author-oriented.

However, some other types of differences in information packaging can be expected when comparing *Lääkärin käsikirja* and *EBMG*. A statement or an instruction can be made more personal by using "you" or imperatives, for example (Gerzymisch-Arbogast 1993: 39). Differences in imperatives or person-orientation of the texts can be expected to exist in, and were found in the analysis of, *Lääkärin käsikirja* and *EBMG*, and were separated in their own categories. Differences in addressing the reader naturally make the source text and translated text different, but it does not necessarily change the accuracy of the medical details that were of primary interest in this study. Differences in address, however, give a different point of view for comparing the texts, and gave some interesting study results.

The following section of this paper introduces and discusses the results of this study.

4 DIFFERENCES IN TRAUMATOLOGICAL SYMPTOMS IN *LÄÄKÄRIN KÄSIKIRJA* AND *EBMG*

The English *EBMG* was searched under the heading of "[t]raumatology." All in all 415 descriptions of symptoms were found that could be included in the study as described in the methods section of this paper. All these 415 descriptions could be found in the Finnish *Lääkärin käsikirja*, too. However, two descriptions were found that did not include a symptom in *EBMG*, but did include one in *Lääkärin käsikirja*. One description was found that did not include a symptom in the Finnish version, but did so in the English one. These three descriptions were included in the analysis, and were included in the total of 415 descriptions.

After locating the descriptions, the two language versions were compared as described earlier. Differences in the two language versions fell into the following categories:

1. No significant difference in information
2. Precision and accuracy
3. Explicitation vs. implicitation of information
4. Grade or certainty of expression
5. Person orientation
6. Statement vs. order
7. More information in one language version
8. Parallel information

In the following section each of these categories are presented separately and in more detail, and examples are given of each. In each example the Finnish version will be given first, and it is followed by a back translation by the author of this thesis into English in square brackets. For the purpose of this study the translations were made as literal as possible, which means that they are not always grammatical or fluent. The English version comes last in the list.

4.1 No significant difference in information

As explained earlier, defining "equivalence" and "synonymy" between languages is not straightforward, and the differences of texts can be analyzed from several different perspectives. In this study all the grammatical details were ignored, and the study concentrates on medical details and how similarly they are expressed in the two language versions.

Out of the 415 descriptions that were compared, 130 could be included into this category. That is 31 per cent of the descriptions of symptoms included. Many descriptions that fell into this category were very short; only one or a few words long. A typical example could be found in "frostbite injuries," under the heading of "clinical features" – "frostbite injuries." One of the symptoms described was "pistelevä kipu," which is "stinging pain" in English; a literal translation.

Another typical example of a short description that can be regarded to be the same in both languages could be found under the main heading of "groin pain." Under the subheading of "young patients" one symptom of bone tumors is "yösärky" [pain at night] in *Lääkärin käsikirja*. This is "nocturnal pain" in *EBMG*, and there is no significant difference between the two descriptions even though the Finnish version uses more common language than the English one. However, the target readers of the two versions would understand these two descriptions the same way, and the formality of the texts was not of special interest in this study.

In "electrical injuries" quite a few descriptions fell into the category of no significant differences; nine out of the fifteen descriptions compared. Many of them were very short, too. One example was under "symptoms" – "acute injuries." "General vasoconstriction" is "yleinen vasokonstriktio" in Finnish, and it can be considered to be a literal translation of the English text, or vice versa. Another typical example of a short description that was included in this category could be found under "stress fracture" under the subheading of "symptoms."

> Kipu usein paikallista.
>
> [Pain often local.]
>
> Pain is often local.

There were, however, longer descriptions that were included in this category. The following example could be found under the heading of "knee injuries" in "typical history of the most common knee injuries" – "torn medial collateral ligament:"

> Kova paikallinen kipu reisiluun sisemmän nivelnastan (epikondyylin) kohdalla, vähäinenkin valgukseen vääntyminen kivulias.
>
> [A strong/severe local pain at the site of the medial condyle of the femur (epicondyle), any movement into valgus is painful.]
>
> Severe local pain at the site of the medial condyle of the femur (epicondyle), and any movement into valgus causes pain.

These two fairly long descriptions do not have any significant difference in between them, except for some grammatical difference. For example, "painful" is adjective (in the Finnish version) and "pain" is a noun (in the English version), but for the purpose of this study these are considered the same, and could thus be classified under this category.

Another typical example of a longer sentence that was similar in *EBMG* and *Lääkärin käsikirja* was found under the main heading of "skull and brain injury" under the subheading of "pupils":

> Lisääntynyt kallonsisäinen paine voi laajentaa pupillaa vamman puolella.
>
> [Increased intracranial pressure may dilate the pupil on the injury side.]
>
> Increased intracranial pressure may dilate the pupil on the side of the injury.

In conclusion the items that belong to the category of the "same" tend to be short descriptions even if longer ones could be found, too. Despite the fact that every effort was made to include in the study only descriptions that are most likely to be the same, and all grammatical details and differences in formality were ignored when comparing the texts, only about one third of the symptom descriptions that were compared could be included in this category. This means that in two thirds of the descriptions one or

more differences could be found. The most common one of them was the difference in how precise a description was. This category will be discussed next.

4.2 Precision and accuracy

Some descriptions were regarded as more accurate or precise in one language version than in the other. Most examples in this category could be described as "particularization/generalization" that was discussed earlier in the methods section. All in all 147 examples of differences belonging to this category could be found. They could be found in 126 descriptions of symptoms, which is 30 per cent of all the descriptions. Some descriptions included several differences, for example so that a description was partly more accurate in English, partly in Finnish, which is what Hervey and Higgins (1992: 96) called "partially overlapping translation." However, as explained earlier "partially overlapping translation" was not a category used in this study, because quite a number of descriptions would have fallen into this category, and it was considered more interesting to count all the differences separately. The differences in accuracy were equally distributed between the two language versions; 77 examples were found where a description included more accurate information in Finnish, and 70 in English.

A typical example could be found in "injuries in children: lacerations and incisions." Under the heading of "lacerations of the fingertips" there was the following description:

> Sormen kärki saattaa *tummua* ja silti säilyttää tuntonsa.
> [The fingertip may *become darker*, and still keep its sense of touch.]
> The fingertip may *become black or blue* but the sense of touch may remain.

The Finnish sentence states that the fingertip may become darker, which could be any shade darker than the skin, but the English sentence gives a specific color – black or blue – and thus it gives more specific information than the Finnish version. This is also a typical example where the description of more "general" applies to the Finnish version and more "particular" to the English one.

Another typical example of a description where the English version is more specific could be found under the main heading of "skull and brain injury" under the subheading of "fracture of the base of the skull" – "fracture of the middle cranial fossa:"

> Oireena on veren ja myöhemmin likvorin vuoto *korvasta*, kuulon menetys tai heikkeneminen, mahdollisesti huimaus.
>
> [The symptoms are bleeding and later cerebrospinal fluid leakage from the *ear*, loss or impairment of hearing, possibly vertigo.]
>
> The symptoms include bleeding and (later) CSF leakage from the *auditory canal*, and impairment or loss of hearing.

In this description the Finnish description states that there is bleeding from the *ear*, the English version that it is from the *auditory canal*, so the English version gives more specific information in this respect. This could also be categorized as "particularization/generalization." For a doctor that reads the text this could also be considered as implicit information in Finnish, explicit in English. A doctor would know that even the Finnish version refers to the auditory canal, and not some other part of the ear. The Finnish version also includes additional information compared to the English one: "possibly vertigo", but this was indicated as being an update in the Finnish version, and this part of the sentence was excluded from the analysis.

A typical example where the Finnish version is more specific could be found under the heading of "lateral fractures of the face" under the subheading of "radiographs." It serves at the same time as an example of a description where at least three different types of differences could be found:

> Mikäli *silmässä tai silmän toiminnassa on häiriöitä*, tehdään hyvin herkästi TT.
>
> [If there are *disturbances in the eye or the function of the eye,* a CT scan is performed readily.]
>
> If *eyes are involved* a CT scan of the face should be taken readily.

This sentence gives information about the diagnostic procedures, but also symptoms in Finnish. It is, first of all, an example of a description where the Finnish version includes a symptom, but the English one does not. "Disturbances in the eye or its function" can be considered a symptom, but the English equivalent "eyes are involved"

is not a description of a symptom. Also, the Finnish description states that there are "*disturbances* in the eye or its *function*," which is a more specific description that the English version "eyes are involved." On the other hand, the English version gives also more specific information compared to the Finnish one stating that a CT scan of the *face* should be performed. The Finnish version only states that a CT scan should be performed.

Another typical example where the Finnish version is more precise or accurate can be found in "tetanus" under the subheading of "symptoms:"

> Päivien tai viikkojen kuluttua kehittyy yleissairaus eli *poikkijuovaisen lihaksiston kouristelut*, jotka alkavat tyypillisesti puremalihaksista (leukalukko).
>
> [Within days or weeks, a generalized systemic infection develops, i.e. *cramps/spasms of the striated muscles* that typically start at the masticatory muscles (trismus)]
>
> Within days or weeks, a generalized systemic infection with *muscle spasms* most often beginning at the mandibular joint (trismus).

There are basically three types of muscles in the body: striated muscles are the skeletal muscles and that can be contracted at will, for example the biceps and calf muscles. Smooth muscles can be found, for example, in the walls of the bowels and blood vessels, and they work irrespective of our will. The heart muscle is a third type of muscle that also works irrespective if a person wants it to or not. In the example above the Finnish version gives the information that it is the *striated* muscles where the symptoms start. The English version merely states "muscle spasms" as a symptom, so the Finnish version is more precise in this respect.

The lines between the categories were not clear-cut. The information in the previous example could also be counted as implicit information in English, explicit in Finnish. Examples of differences in explicit/implicit information will be given next, as well as examples of how the differences were separated into the categories of accuracy vs. explicitation/implicitation.

4.3 Explicitation vs. implicitation of information

Some information that was explicitly written in one language was often implicit in the other. As stated at the end of the previous section, the line between this category and the one of more or less precise information was not always clear. It should also be borne in mind that information that is implicit to a doctor might not be implicit to a layperson, or what is implicit for one doctor may not be so to another. Quite a few descriptions could have been categorized on both categories. However, the category of implicit-explicit information includes information that can be "read between the lines" by any person reading the text whereas the category of "accuracy" includes such differences as, for example, where exactly a certain symptom is located.

All in all 108 examples were found for this category in 93 descriptions of symptoms, which is 23 per cent of all descriptions. They were fairly equally distributed between the two languages with Finnish dominating in the implicit information. There were 67 examples where an implicit piece of information in Finnish was explicitly written in English, and 41 where implicit information in English was explicit in Finnish. The first example comes from under the heading of "dislocation of the elbow joint" under the subheading of "basic rules:"

> Löydöksiä ovat kipu, deformaatio ja pakkoasento.
> [Findings are pain, deformation and a forced position.]
> The *arm* is deformed and there is pain and loss of movement.

This is a typical example of an additional piece of information given in one language version that is implicit in the other. The English version states that the *arm* is deformed, but the Finnish version does not mention the arm. It is clear from the context where the deformation can be found, and it is thus implicit information in Finnish.

Another example of implicit information in Finnish, explicit in English can be found under the heading of "frostbite injuries", under the subheading of "clinical features" – "frostbite injuries:"

> Vahankalpea, sinertävä tai marmoroitunut väri

[Pale as wax, bluish or marble-like colour]

Pale, bluish or marble-like skin color

In this example "skin" is additional information written in English not present in the Finnish version, but it can be regarded as implicit information in Finnish. In this description there is also another difference: the Finnish version gives somewhat more precise information about the color of the skin. The Finnish version states that it is pale as wax and the English version merely that it is pale. This difference was counted in the "precision and accuracy" category.

A typical example of implicit information in English, explicit in Finnish was found under the main heading of "replantation of an amputated extremity or part of the body" under the subheading of "post-operative treatment and late problems:"

Kylmänarkuutta replantoidussa jäsenessä on kahdella kolmasosalla.
[Two thirds have cold intolerance in the replanted extemity.]
Two thirds *of the patients* have cold intolerance in the replanted part.

In this example the English explicitly written "of the patients" is implicit information in Finnish. It is clear that the description is about patients, and it can be understood even without being explicitly written.

Another example of explicit information in Finnish, implicit in English was found under the heading of "wrist and hand injuries" under the subheading of "dislocations" and "dislocations of the PIP (proximal interphalangeal) joint:"

Sorminivel arka, deformoitunut, liikuttelu ei onnistu.
[*The finger joint* deformed, it is not possible to move it.]
The joint is tender, deformed and it cannot be moved.

In this example the Finnish description explicitly states that it is the joint in the finger that is tender, the English version has "finger" as implicit information. From the heading it is clear which joint is under discussion here.

In conclusion it seems that on the basis of the sample of items studied, the assumption that the English version is more explicit that the Finnish one is somewhat correct. However, the difference was not clear enough so that on the basis of this sample it could be stated that a translated text is more explicit than the original, especially because it was only an assumption that the majority of the texts have first been written in Finnish. On the other had, it is possible that if the information about the source text *was* available the finding might have been that it was the source texts that were most of the time more implicit than the target texts. As this information is not available, on the basis of this analysis no certain conclusions can be drawn about this matter.

The next most common difference found was in the grade or certainty of information provided, which is a category that also somewhat overlaps the particularization/generalization category, and it will be discussed next.

4.4 Grade or certainty of expression

In this category were included, for example, descriptions where the other language version gave the information as more certain than the other one, where the frequency of symptoms were given differently, where the expression of time was somewhat different, or where the importance of a fact was stressed differently. All in all 81 examples of such differences were found, which is 20 per cent of all descriptions.

The examples in this category could often be included in the particularization/generalization category. For example, one language version might give a more “particular” description stating that a specific symptom can *rarely* be found, and the other one more “general” stating that it is one of the symptoms that can be found.

The first example was found under the heading of "complex regional pain syndrome:"

> Aluksi raaja *usein* turpoaa, punoittaa ja hikoilee (1–3 kk).

> [In the beginning the limb/extremity *often* swells, becomes red and sweats (1 – 3 months).]
>
> The extremity will initially swell, become red and show increased sweating (1– 3 months).

The Finnish version states that these symptoms are often found, the English version simply that they are found, but not how often. The reader of the English version might be tempted to think that these symptoms are always found.

Another typical example could be found under the main heading of "burn injuries" and there under the subheading of "first aid in severe burns:"

> Huolehdi verenkierrosta (sähköpalovammassa rytmihäiriöitä).
>
> [Take care of the circulation (arrhythmias in electrical burn injuries).]
>
> Check circulation (arrhythmias are *common* in electrical burns).

Only what is within parenthesis was included in the analysis here. The Finnish text states that arrhythmias are associated with electrical burns, but there is no information about how often. The English version states that arrhythmias are *common*.

Another typical example was found under the main heading of "foreign body in the respiratory passages" under the subheading of "diagnosis:"

> Äkillisesti alkanutta voimakasta yskänkohtausta ja hengitysvaikeutta on lapsella *aina* pidettävä vierasesineaspiraationa, ellei muuta syytä todeta.
>
> [A strong coughing spell that starts suddenly should, in a child, *always* be considered as a foreign body aspiration if no other cause is found.]
>
> A forceful coughing spell and difficulty breathing with a sudden onset in a child should be considered as a foreign body aspiration if no other cause is identified.

The Finnish sentence states that given the particular symptoms, a foreign body aspiration should *always* be considered whereas the English version merely states that it should be considered. "Always" could also be regarded as implicit information in English, but the word explicitly written nevertheless stresses the importance of always thinking about this possibility.

Another typical example was found in "fracture of the nose" under the subheading of "clinical examination:"

> *Syntyneen turvotuksen* saa vähenemään puristamalla nenää hetken ajan.
>
> [*The swelling that was formed* can be reduced by squeezing the nose for a while.]
>
> *Possible oedema* can be reduced by squeezing the nose for a while.

The version in *Lääkärin käsikirja* implies that there is always swelling in relation to a nose fracture whereas the *EBGM* version states that swelling is *possible*, meaning that the nose might be swollen, but not necessarily so.

Another example could be found under the main heading of "knee injuries" and the subheadings of "typical history of the most common knee injuries" and "dislocation of the patella:"

> Useimmiten potilas pystyy kertomaan lumpion käyneen sijoiltaan.
>
> [Most of the time the patient is able to tell that the patella was dislocated.]
>
> Usually the patient is able to recall an *obvious* dislocation of the patella.

The Finnish version states the patient will most likely be able to tell that the patella was dislocated, but there remains a small doubt that maybe it was not so clear for the patient. The English version emphasizes the fact that the patient clearly saw or experienced that it was dislocated using the expression "*obvious* dislocation."

The next most common difference found in the analysis was related to how personal or impersonal the description was, and it will be discussed next.

4.5 Person orientation

A difference where one language version was more person oriented than the other was fairly uncommon in the descriptions of symptoms. Many of the examples included in that category could be regarded as implicit-explicit information, too. However, this

category includes descriptions where a person expresses or does something as opposed to more impersonal information in implicit–explicit category. All in all 42 descriptions were found, which is 10 per cent of all the descriptions included in the study. The Finnish texts seemed to be more impersonal with 29 such examples whereas the English text was more impersonal in 13 descriptions. The first example of the Finnish version being more impersonal was found in "acute heat illnesses" under the subheadings of "typical history of the most common knee injuries" – "torn anterior cruciate ligament (ACL):"

> Vanhassa vammassa ajoittaisia pettämisen tuntemuksia ja sen jälkeen kipua, mutta väliaika saattaa olla oireeton.
>
> [In an old injury feelings of "giving away" from time to time and after that pain, but the time in-between may be symptomless.]
>
> If the injury is old, *the patient will give a history* of intermittent feelings of instability followed by pain with asymptomatic periods in-between.

In the example given *the patient will give a history* is something that is missing from the Finnish version. The Finnish version only states what symptoms there might be, but the English version is more personal saying what the patient might tell. This difference is connected to the common form of expressing symptoms in different language as O'Neill (1998. 70) indicated is her article. She writes that doctors routinely say in English, for example, "the patient complains of such-and such" or "the patient's chief complain is", which might sound like the doctors think the patient is a whiner, but it has no such connotation to physicians, and to them it simply means that the patient came in with such a problem. In Finnish such an expression is not used so often in the patients' journals when describing symptoms, and often the journals are written with no verbal reference to the patient, the same way the symptoms is expressed here.

Another similar example could be found in "stress fracture" under the subheading of "aims:"

> Rasitusmurtumaa tulee kliinisesti epäillä tyypillisen rasituskipuanamneesin perusteella.
>
> [A stress fracture should be clinically suspected on the basis of a typical history of pain during exercise.]

> A stress fracture should be suspected clinically when the patient gives a typical history of pain during exercise.

The *EBMG* version describes what a patient would tell the doctor as a symptom, the Finnish one only states what symptom to be expected, so the English version can be regarded as more person-oriented in this respect.

An example where the Finnish version is more personal can be found under the main heading of "groin pain" under the subheading of "young patients." A symptom described for septic arthritis is "kuumeinen potilas" is Finnish. In English the description is only "fever." Adding the word "potilas" makes the Finnish description more person-oriented than the English one.

Another example where the Finnish description is more person-oriented could be found under the main heading of "intracranial haematomas" under the subheading of "chronic subdural haematoma:"

> Potilaat tulevat kuitenkin päivystykseen nopeasti kehittyvien paineoireiden – päänsäryn, hemipareesin tai usein fluktuoivan tajunnan hämärtymisen takia.
>
> [Patients, however, come to the emergency department because of rapidly developed pressure syndromes – headache, hemiparesis, or often fluctuating blurring of consciousness.]
>
> The diagnosis is often acute because of rapidly developing symptoms (headache, hemiparesis or, in many cases, fluctuating, blurred consciousness).

The Finnish text refers to patients coming to the doctor because of the symptoms, but the English version concentrates on how and when the diagnosis is made. So the Finnish text can be regarded as more person-oriented.

The next category where one language version gives an order whereas the other one merely makes a statement somewhat overlaps the category of person-orientation, and it will be discussed next.

4.6 Statement vs. order

The number of descriptions of symptoms that fell into this category was not very high: only 24 (six per cent), but how they were divided between the two language versions was very interesting. The descriptions compared here were either a statement in one language and a recommendation or an order in the other, or a recommendation in one language and an order in the other. This could have also been counted in the category of personal–impersonal descriptions, but descriptions in this category address the reader in a certain way whereas in the category of "person orientation" were included descriptions of somebody (usually the patient) expressing something.

Interestingly, the English version was the one where a more strict order was given in 23 out of the 24 examples found, and in only one description the Finnish version could be regarded as giving a more strict order. A typical example where the English version gives an order, and the Finnish version is merely a statement could be found in "lower leg fractures" under the subheading of "first aid:"

> Jos raaja on vammasta johtuen luonnottomassa asennossa, se oikaistaan.
>
> [If the limb is, because of the injury, in an unnatural position, it is straightened.]
>
> *Straighten* the limb if it is distorted due to the injury.

The Finnish version is a statement about what is done, even though it does give instructions about what should be done. However, the English version directly asks, or orders the reader to "straighten the limb."

Another example where the Finnish version is a statement, and the English version is an order or a request could be found under the main heading of "muscle injuries" under the subheading of "diagnosis:"

> Vammamekanismi, kivun alku ja lokalisaatio, mahdollinen vamma-alueelta vammautumishetkellä kuulunut napsahdus/paukahdus selvitetään.
>
> [The injury mechanism, onset and localization of pain, possible snap/pop that was heard from the injured area at the time of the injury are requested.]

> *Ask the patient* about the injury mechanism, the start and localization of pain and whether a snap or pop was heard from the injured area at the time of injury.

The English version requests or directs the reader to "ask the patient", but the Finnish version only states that the reader, or the doctor finds out whether these symptoms are associated with the injury.

One more similar example was found in "skull and brain injury" under the subheadings of "diagnosis of brain injury" – "level of consciousness:"

> Kirjataan potilaan tajunnantaso alkutilanteessa ja seurataan muutoksia, aluksi asteikolla tajuissaan, unelias, reagoi liikutteluun, reagoi kipuun, tajuton.
>
> [The patient's level of consciousness is recorded in the initial stage and changes are followed, at first on the scale of: conscious, sleepy, reacts into movement, reacts to pain, unconscious.]
>
> *Record* the patient's initial level of consciousness and monitor any changes, initially on a scale: awake / arousable / responds to movement / responds to pain / unarousable.

In this example the Finnish text again states what is done in this situation, but the English one asks or orders to "record the patient's initial level of consciousness." So in this example, too, a statement in Finnish is a request or order in English.

The only example where the Finnish version gives a more direct order than the English one could be found in "wrist and hand injuries" under the subheadings of "wrist fractures" – "complications of Colles' fracture:"

> Mikäli puutuneisuus ei ala helpottaa n. viikon kuluessa, *konsultoi* ortopedia tai käsikirurgia rannekanavan avaamiseksi.
>
> [If the numbness is not beginning to disappear in about a week, *consult* an orthopedic surgeon or a hand surgeon to open the carpal tunnel.]
>
> Should the numbness persist after about one week, a hand or orthopaedic surgeon *should be consulted* regarding a surgical exploration of the carpal tunnel.

Even in this example there is not a clear difference between the two language versions. The Finnish version does give, however, a direct order to "consult", and the English

version more a suggestion of what should be done: "a hand or orthopaedic surgeon *should be consulted*."

In conclusion, it seems that the *EBMG* gives more direct orders to the reader whereas *Lääkärin käsikirja* only states what is done. The number of differences in this category was not significant, but when comparing descriptions of symptoms it can not be expected to be so. Symptoms can not be ordered or requested, and the examples in this section are not principally descriptions of symptoms, even though symptom descriptions are included. These descriptions give the reader information about how to treat a certain condition or how to find out the symptoms. If treatment descriptions were compared it would be likely that the proportion of instructions included in this category would be much higher. It would be interesting to see if direct orders really are so rare in the Finnish version in general compared to the English one as they are in this small sample found among the descriptions of symptoms.

Another two small categories are left to be discussed. The first one of them is the category where one language version gave more information than the other.

4.7 More information in one language version

Only 11 descriptions of symptoms were found for this category, which is three per cent of the descriptions. Some descriptions included in this category could even have even been categorized in the second category "difference in precision or accuracy" or "implicitation/explicitation." However, descriptions that were included in this category have one common feature that distinguishes them from those two categories: they are descriptions that a translator that was not the original author would be unlikely, or sometimes even unable, to add into the translation even though it would be possible for anyone to omit such information. Additional information was evenly distributed between the two language versions. The Finnish version had more information in five descriptions, and the English one in six.

The first example could be found under the heading of "acute heat illnesses:"

> Matala verenpaine ja tiheä syke
> [Low blood pressure and fast heart rate]
> Hypotension, tachycardia (over 100/minute)

Here the information given within the brackets "over 100/minute" is additional information in English. "Fast heart rate" or "tachycardia" is a somewhat vague expression, and the English version gives a specific number as to what is considered as tachycardia. This difference could have been categorized as more specific information in Finnish, too. Both language versions already give tachycardia as a symptom, but the English version is more specific stating that it means heart rate above 100/min. If the Finnish version here is the original, it is very unlikely that a translator who has only translated the text would add such information. So in this example either the English version is the original (and "over 100/min" has been omitted from the Finnish version), or the writer has translated the text himself, and made the addition to the English version.

The second example could be found in "wrist and hand injuries" under the subheading of "dislocations" and "dislocations of the CMC (carpometacarpal) joint."

> Käsi on voimakkaasti turvoksissa.
>
> [The hand is severely swollen.]
>
> The hand is severely swollen *on presentation*.

The information "on presentation" is additional information here in English. It could be in some cases be regarded as implicit information in the Finnish version, but not very clearly so. Usually any fracture or dislocation causes swelling, but the degree of swelling depends on how difficult the injury is and how good the first aid has been. Swelling may sometimes be almost insignificant even in severe injuries if the first aid (cold, compression, elevation) has been very efficient. The degree of swelling also depends on how soon the patient comes to see the doctor. If the first contact is after a day or two, the swelling is usually much worse than immediately after the injury. In

this example the English version implies that the hand is severely swollen whenever the patient comes to see a doctor. So it implies that swelling is severe immediately, which is information that is missing in the Finnish version.

An example where the Finnish version gives more information than the English one could be found in "injuries of the auricle" under the subheading of "haematoma:"

> Tällöin tuntuu korvalehdessä, useimmiten sen yläosassa, fluktuoiva aristamaton resistenssi.
>
> [In this case in the auricle, *usually at its upper pole*, a fluctuating non-tender lump can be felt.]
>
> A fluctuating, non-tender mass can be felt in the auricle.

In this example "usually at its upper pole" is additional information that can not be found in the English version. It could also be regarded as more precise information in Finnish, but it is, however, a piece of information that a translator would most likely not add or leave out.

In conclusion it can be stated that descriptions where more information was given in one language were rare, and most of them could even have been categorized either under "precision and accuracy" or "explicitation vs. implicitation."

The last section introduces descriptions that were somewhat different in the two language versions.

4.8 Parallel information

Only two examples of descriptions where the information was somewhat different could be found. One is under the heading of "knee fractures" under the subheading of "fracture of the tibial condyle" and "physiotherapy."

> *Potilailta vaaditaan kivunsietoa* ja jatkuvaa omatoimista ja ohjattua kuntoutustoimintaa.

> [*Pain tolerance is expected of the patient*, and also continuous rehabilitation activity done on his/her own and under supervision.]
>
> *The patient should expect some degree of pain* and also be prepared to carry out both self-directed and organised rehabilitation regimes.

Only the first part of the sentence that is in italics was included in the analysis, because it can be understood on its own, and the last part of the sentence does not include any descriptions of symptoms. There is a slight difference in the meaning of the two language versions. The Finnish version says that patients should be able to tolerate pain, but the English version that the patients should expect that the rehabilitation causes some pain, but not directly that that they should be able to tolerate it. Basically the same idea is expressed from a somewhat different point of view. The two language version could be said to give parallel information.

Another example could be found in "knee injuries" under the subheading of "treatment" in both "torn PCL" and "injury to the medial collateral ligament." The following description can be found under the two headings:

> Merkittävässä instabiliteetissa on usein kyse moniligamenttivammasta.
>
> [If there is significant instability it often means there is injury to several ligaments.]
>
> Significant instability may result if the injury involves several ligaments

The two versions could be understood the same way, but what is the cause and what is the result is not necessarily the same. The Finnish version states that if the patient has instability in the knee, it may mean that several ligaments are injured (but not necessarily so). The English version, on the other hand, states that if several ligaments are injured, the knee may become instable (but not necessarily so). So to simplify, the Finnish version implies that the knee may be *instable* even if several ligaments are *not* injured, and the English version implies that the knee may be *stable* even if several ligaments *are* injured. Again, this is expressing the same idea from two somewhat different perspectives.

These two examples are not very significant differences in the two language versions. It could be stated that they look at the same idea from a slightly different point of view and give the information in a somewhat different way.

As a conclusion for the analysis one interesting, and unexpected, finding was that the *EBMG* seems to give more orders to the reader than *Lääkärin käsikirja*, which tends to simply state how things are made. As expected at the starting point of the study, a significant number of differences in the accuracy of descriptions could be found as well as quite a number of descriptions where one language version gave a piece of information explicitly, and the other one implicitly. Very few descriptions of symptoms were found where more information was given in one language or where the information given was different in the two language versions.

5 CONCLUSIONS

Translation of scientific texts is traditionally considered to be accurate and the translation should not produce any shifts in meanings (Montgomery 2000: 253; Ingo 1990: 42-43; Hervey and Higgins 1992: 169). In technical and medical texts the information content is the priority, and consequently medical and technical translation should be accurate without any shifts in the translation process even if this aim is not always reached. However, even scientific texts sometimes undergo significant changes in the translation process, and it can be disputed that science itself changes in the translation process. I have wanted to study what differences, if any there would be in the descriptions of symptoms between *Lääkärin käsikirja* and *EBMG*. I have focused on semantic shifts, or differences, and their implications on the information content of the descriptions. I have also been interested in the processes of explicitation and implicitation in the texts.

The purpose of this study was to compare descriptions of symptoms in the traumatology chapter in the internet versions of *Lääkärin käsikirja* and *EBMG*. The traumatology chapter was chosen, because this chapter is of equal importance to all general practitioners, and so is the actual material of the study, the description of symptoms. Consequently it can be assumed that these items would be the same in both language versions, and there is neither any reason why any of those items would have been excluded from either version.

The translation process of *Lääkärin käsikirja* to *EBMG* is exceptional, because it has been done both ways. Originally the translation was made from Finnish into English, but after the translation was completed, both language versions have been constantly updated. Whatever has been updated is then translated into the other language in order to update that version, too. Several translators have been involved in the translation process: professional translators, the editors, and the writers themselves. It is not, therefore, possible to say exactly which parts are originals and which parts translated,

and who the translator is. All this means that the analysis is somewhat different from just comparing a text and its translation.

The differences in the two language versions may be a result of the translation and the updating and editing process, or some editorial choices. However, as described in the methods section, it was possible to exclude from this study all the updates that were not included in the other language version yet.

The analysis has shown that there were, indeed, a significant number of shifts between *Lääkärin käsikirja* and *EBMG*. All in all 415 descriptions of symptoms were compared in the traumatology chapter. Only about one third of the descriptions could be classified as being the "same".

The most common difference was in the accuracy of the descriptions. For example, one language version referred to a joint, but the other one was more specific referring to, e.g. a finger joint. All in all 147 such examples in were found in 126 descriptions, which is 30 per cent of all the descriptions in the analysis. Both language versions seemed to be equally "accurate" with 77 Finnish descriptions and 70 English descriptions being more accurate than the other version

Another common shift between *EBMG* and *Lääkärin käsikirja* was that explicit information in one version was implicit in the other. There were 108 such differences in 93 descriptions of symptoms, which is 23 per cent of them all. *Lääkärin käsikirja* was somewhat dominant in implicit information; 67 examples were found, whereas 41 were found in *EBMG*. The original assumption was that *Lääkärin käsikirja* would be more implicit than *EBMG*, because it can be assumed that most texts have originally been written in Finnish, and earlier studies have shown that a translated text is often more explicit than the source language text. There was a slight tendency of the *Lääkärin käsikirja* to be more implicit than *EBMG*, but the difference was not so significant that this study could support the hypothesis of a translated text being more explicit. This might naturally be due to the fact that some texts have first been written in English, but

as the neither the proportion nor the parts that were first written in English are known, no certain conclusions can be drawn on this matter on the basis of the findings in this study.

Quite a few examples of descriptions where the other language version gave the information as more certain than the other one, where the frequency of symptoms were given differently, where the expression of time was somewhat different, or where the importance of a fact was stressed differently could be found in this study. Typically one version stated that something always happens, or rarely, or often, and the other merely stated that it happens. All in all 81 examples of such differences were found, which is 20 per cent of all the descriptions of symptoms included in the study.

All in all 42 descriptions were found where one language version was more person-oriented than the other, which is 10 per cent of all descriptions. Typically, one version stated that patient experiences this, and the other merely that this is the symptom. The Finnish texts seemed to be more impersonal with 29 such examples whereas the English text was more impersonal in 13 descriptions.

In 23 occasions the English version gave a stricter order than the Finnish one as opposed to only one Finnish description being a stricter order that the English one. In most descriptions included the Finnish version was a statement and the English one an order, which is an interesting finding, and not anticipated. The number of descriptions in this category is not very high, but the descriptions of symptoms can not be expected to contain orders at all. It would be interesting to see if the same tendency of *EBMG* giving more orders than *Lääkärin käsikirja* could be found in, for example, treatment instructions.

Only 11 descriptions (three per cent of the descriptions of symptoms) were found for the category of "more information in one language version". Some descriptions included in this category could even have even been categorized in "difference in precision or accuracy" or "explicitation vs. implicitation." Additional information was

evenly distributed between the two language versions. The Finnish version gave more information in five descriptions and the English one in six.

Only two descriptions that gave somewhat different information in the two language versions could be found. In both examples the information could be regarded as "parallel" information where the same idea was expressed from somewhat different viewpoints.

In conclusion most of the descriptions studied showed some differences between the two language versions. The most common differences found in the analysis were differences in the accuracy or precision of information or in implicitation/explicitation. In most instances these differences were not significant, and instructions on both language versions could be understood the same way and would probably cause the same course of action irrespective of which version the user is reading. An interesting and unexpected finding was that the English version was found to give more orders whereas the Finnish version merely stated how to proceed.

This study concentrated on the medical details and such grammatical differences as punctuation, singular and plural, and nominalizations were ignored in the analysis. It can be concluded that this study supports the fact that medical translations undergo a significant number of changes in the translation process even above the grammatical level despite the general idea that medical translations are free of such shifts or changes.

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