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Teaching medical translation to non-medical students – a case study with some theoretical insights

ABSTRACT

This article uses the example of a course in medical translation taught at the Institute of Anthropocentric Linguistics and Culturology, University of Warsaw, to make comments on differences in teaching English to medical students vs. teaching medical translation to non-medical students and to propose ideas for more effective teaching of medical translation. It is argued that reconstructing the ontology of concepts found in a text is sufficient to provide a successful translation even if the translator does not possess specialist competence in the subject matter of the text. At the same time, the importance of developing translation students' thematic competence is underlined throughout the paper, and advice is presented on how to encourage the acquisition of such knowledge. The structure of the course is also presented.

This paper uses as its point of departure the practical example of a course in Medical Translation offered to students of Specialised Translation at the Institute of Anthropocentric Linguistics and Culturology (IKLA), University of Warsaw (website: www.ikla.uw.edu.pl), with the aim of obtaining theoretical insights into how the teaching of medical translation to students of modern languages is different from the teaching of medical English to medical students.

The course in medical translation is one of several elective courses offered to students at the Institute as part of their second-cycle degree programme. Approximate-

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ly 20% of students choose to enrol in this course, which comprises 30 classes (60 contact hours) over one year.

The students usually have no formal medical background and generally know little about medicine. Last year I actually prepared a "primer" – a set of questions with links to reference materials serving to elicit some introductory information about medical terminology and text patterns in English and Polish, so that students could come to their first class adequately prepared. The primer (in Polish) can be found at: http://strony.aster.pl/gornicz/medprimer.html.

This lack of familiarity with the concept system of medicine is one cardinal difference between my students and those attending English classes at medical universities.

Before elaborating on these differences, let us first discuss what makes a good translator in a specialised field. The authors of the European Master's in Translation programme specify six areas, or competences:

- translation service provision competences (e.g. how to market services, negotiate with a client, manage time and budget, handle invoicing),
- language competence (e.g. how to summarise texts),
- intercultural competence (e.g. how to understand presuppositions or allusions),
- data-mining competence (e.g. how to search terminology databases and familiarity with a series of databases),
- technological competence (e.g. how to use a particular translation tool)
- thematic competence (knowledge about a specialist field of knowledge). [EMT 2]

These competences are deliberately listed in a random order to emphasise their equal importance. Translation competence is defined as the totality of these six competences, though it is not uncommon in the translation literature to see this notion construed as an additional skill: "the ability to form in the target language texts that are equivalent to original texts" [Kielar 2007:19], or "the ability to switch from L1 to L2 to convey the same content in the translation and the original text" [Grucza 2004:250].

Knowledge about the subject matter of the text for translation is the last of the six competences. Apart from *thematic competence*, other names exist for it, such as *area knowledge*, *subject knowledge/competence* or *specialised knowledge*. Other authors stress that thematic competence is not only the possession of a static body of knowledge [Paputsevich, Karatkevich 135] and distinguish three sub-skills linked between themselves in a causal manner: analytical and critical skills, the ability to find appro-

priate information, and the ability to develop knowledge in a subject field in a rather short time, the latter two actually corresponding to data-mining competence.

Let us note that, in the case of medical translation, or any type of LSP translation, the following four competences: translation service provision competence, data-mining competence, intercultural competence and technological competence are not likely to be different between domain experts (such as health professionals) who translate and translation students, with the obvious caveat that professionals in a field do not need to mine for much data in order to increase their thematic competence since they are well-versed in the subject they are translating about. The remaining competences important for LSP translators need to be discussed in more detail. These are:

- **thematic competence**, or knowledge of the concept system or systems underlying a technolect
- **language competence**, which needs to be re-conceptualised as follows:
  – **linguistic competence in L1**, or command of the general language (LGP) and language for specific purposes (LSP, technolect) in question in one's native language
  – **linguistic competence in L2**, or command of the foreign LGP and technolect.

Let us note that thematic competence needs to be regarded as distinct from terminological competence [cf. e.g. Šarčević 1997:113]. Thematic competence is the knowledge behind the terms and is usually not linked to a particular language, while terminological competence is an element of technolectal linguistic competence and is specific to each of the languages a translator knows. Let us also note that the notion of linguistic competence covers more than command of vocabulary and grammar. Of great importance for a translator, especially an LSP translator, is familiarity with textual patterns, or genre conventions.

The aim of Medical English courses as taught to medical students is to provide the tools (terminology, collocations) to enable students to communicate using the language of medicine. From a cognitive view point, students in these classes express conceptual content that they generally already know or that they are learning very fast through the medium of L1. Along with learning medical terminology and collocations of L2, they need to revise their grammar, with some emphasis on structures typically associated with languages for specific purposes, such as the passive voice. Ultimately, students are empowered to produce texts relating their own experiences with individual patients, whether in writing up medical records or in oral

communication with other members of their medical team, or expressing professional generalisations, as in scientific articles. They acquire the ability to use the LSP of medicine creatively in L2 as well as in L1. Since one of the defining characteristics of LSPs is that they are not acquired with LGP, but need to be taught [Cabre 1999:65], health care personnel and medical students may be regarded as native speakers of the LSP of medicine. In this metaphor, students learn medical language from their teachers and textbooks.

A course in Medical Translation, on the other hand, serves to enable students to render medical texts written by other people into another language. Students are not supposed to encode their own conceptual content in texts. They will never need to use the LSP of medicine creatively. They may be said to be aiming to achieve the level of near-native proficiency in the LSP of medicine. As regards course content, students need to be presented the conceptual system together with its surface realisations (terminology) in two languages. They also need to distinguish medical from non-medical usage in L1. Medical students may have the same problem initially, but they are exposed to such large amounts of medical usage from Day 1 of their medical studies that it is not much of a concern to them.

Importantly, due to time constraints, courses in medical translation, or, by and large, in any other speciality of LSP translation, do not usually involve overt teaching of the specific background knowledge. Students generally acquire the technical knowledge in a non-systematic manner through the texts that they translate and any mining for information that they do on their own while working on a translation task in order to find the right target language equivalents of words and phrases. That is, they are mostly exposed to term-using texts [Leitchik, Biesiekirska 1998], which contain a selection of terms related to a narrow topic that the text is about. They rarely encounter term-presenting texts [Leitchik, Biesiekirska 1998], such as textbooks or monographs, which present a systematic description of an area of knowledge.

Re-expressing the above in terms of the three components of an LSP translator's skills outlined earlier, the following table can be used to summarise the differences.

Table 1. Acquisition of skills related to medical translation.

Skill	Medical student	Translation student
Thematic competence	acquired at a fast rate in massive amounts in L1 via direct instruction, books and also in practical settings (bedside teaching)	acquired in L2 rather than L1, from term-presenting texts (synopses) and term-using texts (translation samples)
Technolectal linguistic competence in L1	acquired by immersion in subject matter-centred texts presenting the concept system	acquired during classes and by additional reading at home (mostly focused on specific translation tasks)
General linguistic competence in L2	often acquired earlier to an intermediate level, revised during the course	acquired earlier to an upper-intermediate/advanced level
Technolectal linguistic competence in L2	acquired during the course and by self-study efforts intended mostly to increase one's thematic competence	acquired during the course and by self-study efforts intended mostly to help with specific translation tasks
ULTIMATE COURSE OBJECTIVE	enable students to communicate their own content in L2	enable students to render someone else's L1 content in L2 and vice versa

Medical students are thus exposed much more intensively to descriptions of medical knowledge in medical texts. They also use this knowledge in real life situations, "learning by doing", while translation students, with the possible exception of circumstances when they can exercise their first-aid skills, experience medicine vicariously or as patients. Needless to say, the former approach leads to much better consolidation of subject knowledge.

The table also shows that a course in medical translation must necessarily concentrate both on the conceptual and linguistic aspects of medical texts. One tenet of translation theory holds that a translated text must sound natural. With regard to LSP texts, which are more structured and conventionalised than literary texts, naturalness may be interpreted as compliance with the terminological and textual conventions of the genre in the target language text. Metaphorically speaking again, LSP translators are supposed to TALK LIKE THE PROS, with an emphasis on LIKE. In a way, this is similar to the work of actors, who need to behave like the characters they play would, but not necessarily think like them. It is actually quite unrealistic to as-

sume that an actor playing the role of a physician taking a patient's history will actually reason like a physician would. Similarly, a translator translating an employment contract need not busy him- or herself with deciding whether the working conditions offered are fair, etc.

All this prompts the question how much attention ought to be devoted to the conceptual vs. linguistic dimension of LSP translation during a medical translation course.

Let us repeat that medical translators are likely to encounter only snippets of the conceptual system of medicine in texts and, unless they are hired to translate a range of monothematic publications, they are not likely to be exposed to a comprehensive textual representation of the concept (sub)system of medical knowledge and absorb it by doing something about it.

The question of thematic competence has been a controversial point in the LSP translation-related literature. Opinions range from "it is all in the dictionary" to "only a subject specialist can translate a text properly". The former extreme reflects the unity of medical knowledge, or actually the unity of conceptualisation of facts about the human body, health and disease, in all cultures subscribing to the dogmas of so-called Western medicine. It is also pointed out that, as most medical terminology is based on Latin and Greek stems, it is easier than in the case of other LSPs to find target language equivalents of terms. The specialist-only attitude is again reminiscent of the concept of *native vs. non-native proficiency* in a language, according to which only subject specialists are able to use a particular language for specific purposes properly. It is no wonder that this stance is popular among medical professionals, as witnessed in some papers delivered at the conference, who strengthen their argument by stating that, since patients' lives are at stake, translation must not be left to lay people. This may be countered rhetorically by noting that many a legal document decides the fates of people and then pointing out that such documents are, if need be, normally translated by court-appointed translators, not many of whom are graduates in law. However, a more convincing argument would certainly be derived from an informed review of LSP translator competences. To this end, in addition to the discussion above summarised in Table 1, let us divide, after J. Wakabayashi (1995:356), a translator's knowledge into background knowledge (i.e. thematic competence), terminology and phraseology.

How much should translators know about medicine? We have shown above that they are not likely to ever study any medical domain as comprehensively as doctors do, let alone the entire conceptual system. This is because the textual input they are going to be exposed to is not as comprehensive as medical students'. However, this

also paradoxically reduces the gap between what they do know and what they need to know in order to translate a text. The answer is not "either you know as much as a doctor does, or you cannot translate medical texts". It is "you should know enough to reconstruct the conceptual network of the original and render it in a faithful manner in the target text".

Familiarity with the subject matter generally means knowing the concepts behind the terminology since most subject knowledge is contained in established concepts represented by terms.

Decoding the conceptual network of an LSP text does not rely exclusively on the reader's previous knowledge. LSP texts present knowledge in a straightforward way, with no hidden, metaphorical meanings and particular emphasis on explicitly presenting the logical relationships between the concepts/objects that are referred to [Lukszyn 2005:127].

Furthermore, at least some terms are intelligible to the unititiated reader who possesses general knowledge. The following sentence may serve as an illustration: "*The enzyme converts pyruvate to lactate*".

General knowledge tells one that an enzyme is a substance that facilitates chemical reactions in the body. The sentence will be understood as "The enzyme changes one substance into another in a chemical reaction". Similar straightforward sentences abound in LSP texts.

However, clearly enough, not all sentences are so easily understood and contextual cues sometimes fail to be helpful, particularly when the verb does not occur in LGP and is not made up of Graeco-Latin components. In such cases, the translator can use a dictionary, but familiarity with the subject matter helps one translate faster, which has numerous benefits associated with it. Even when a term is readily translated, as in *adrenolytic* (Eng.) – *adrenolityk* (Pl.), awareness of what an adrenolytic is aids the translator in finding appropriate collocations and synonyms: since this is a type of drug, phrases like *adrenolytic activity/effects, to administer an adrenolytic* or, indeed, *adrenolytic drug* are bound to be correct.

The aim of explicitly teaching thematic content in an LSP translation course is twofold: 1) to facilitate comprehension of the conceptual structure of the SL text, and 2) to expedite the retrieval of associated terminology and, by that, to reduce translation time. An additional benefit from being familiar with the concepts behind the expressions used in a text is the ability to detect and correct distortions due to poor spelling, especially of abbreviations and proper names, and poor quality texts (e.g. handwritten).

It is not possible, in my opinion, to quantify how much knowledge and what concepts a medical translator in training ought to internalize to translate efficiently. Instead, I shall offer a few qualitative guidelines based on the course in medical translation taught at IKLA.

I believe that the translation student needs to be exposed to entire subsystems of medical concepts. This will leave him or her with a holistic view of the concept field. In clinical medicine, concept fields are conveniently presented divided by organ system. A systematic presentation of the basics of medical knowledge about a particular organ system may include the following aspects: anatomy & physiology, manifestations of disease, diagnostic work-up, and treatment. The medical translation course at IKLA thus includes fairly comprehensive texts in English about six major organ systems (cardiovascular, digestive, nervous, respiratory, urinary, and musculoskeletal). The texts are several pages' long and useful terms are bolded. A fragment of a text is reproduced below (Fig. 1).

Treatment of H. pylori usually leads to clearing of infection (eradication of the bacterium), relief of symptoms and eventual healing of ulcers.

A **perforated peptic ulcer** [przebicie ściany narządu przez wrzód/performacja wrzodu] is a **surgical emergency** [stan nagłacy w chirurgii] and requires surgical repair of the **perforation** [perforacja-czyli przebicie wrzodu do jamy otrzewnej]. Most bleeding ulcers require endoscopy urgently to stop bleeding with **cautery** [przyżeganie], injection, or **clipping** [klipsowanie]. **Pyloric stenosis** [zwężenie odźwiernika] is another complication from peptic ulcer disease.

Ileus [niedrożność jelit] is a disruption of the normal propulsive gastrointestinal motor activity due to non-mechanical causes. In contrast, motility disorders that result from structural abnormalities are termed **mechanical bowel obstruction** mechaniczna niedrożność jelit]. **Postoperative ileus** [pooperacyjna niedrożność jelit] is a temporary **paralysis** [porażenie] of a portion of the intestines typically after an abdominal surgery. Since the intestinal content of this portion is unable to move forward, food or drink should be avoided until peristaltic sound is heard from auscultation of the area.

Nil per os [nic doustnie] (NPO or "Nothing by Mouth") is mandatory treatment in all cases.

Nasogastric suction [odsysanie nosowo-żołądkowe] and **parenteral** feeds [karmienie pozajelitowe] may be required until passage is restored.

Strangulation [uwięźnięcie] – a surgical emergency in which a **loop of intestine**[pętla jelitowa] or fatty tissue becomes tightly trapped and loses its blood supply, which can result in an obstruction of intestinal flow and/or gangrene.

Fig. 1 Fragment of a text presenting the digestive system with bolded terms and Polish equivalents

The choice of terms and issues to present is based on available texts about a particular organ system, but also on my experience as a translator: I include terms that I have often encountered in texts I have translated. A group of students is assigned the task of providing Polish equivalents for these and, following a review by the teacher, the text-glossaries are distributed among all students in the group and discussed in class. During the discussion, certain terms are highlighted, for example, because of some peculiarities of their Polish equivalents or in order to link the underlying concepts to other concepts when such links are not immediately evident from the text. Additional terminology is sometimes presented that is not tied to a particular organ system. For example, the difference between *hypertrophy* and *hyperplasia* in the context of *benign prostatic hypertrophy/hyperplasia* in the presentation of the urinary system became a starting point for introducing such related terms as *dysplasia*, *neoplasia* or *anaplasia* as well as *proliferation*.

It is my hope that students will keep these texts for future reference, knowing that they can find a concise but quite comprehensive synopsis of the field in question there and thus get a broader context for the text they are translating. However, even more important is that they retain what they have read. There are certainly a large variety of sources available where one can find a solution to a particular terminology problem, from traditional printed books to WWW sites for medical professionals or patients to medically themed video clips, and students should learn to use those, but non-reliance on internalised information is uneconomical: the translator works more slowly. A translation course should therefore contain solutions serving to enhance retention of thematic knowledge. In my opinion, this is best achieved by helping students to understand links between concepts.

Relations between concepts are of three types: generic, partitive, and associative [ISO 704:2009]. A generic relation is represented by the phrase *is a type of*, as in "*Pharyngitis is a type of upper respiratory inflammatory condition*". A partitive relation is represented by the phrases *is part of*, as in "*A pulmonary lobe is part of a lung*", or *is made up of*, as in "*A pulmonary lobe is made up of segments*". Associative relations pertain to all other relations, basically those between objects in the real word, for example, *teacher-student*, or *pen-writing*. The three types of concept relations are illustrated in Figure 2.

It is quite clear to see that, in graphs of partitive and generic relations, the concepts can be linked in one way only: a superordinate term links to a number of subordinate terms representing subcategories (in generic relations) or components (in partitive relations). Links between subordinate terms do not reveal new information about the world: how are apples related to bananas other than being different kinds of fruit (intermediate categories are omitted to simplify the point of this argument,

i.e. that there is no direct relation between apples and bananas). On the other hand, networks of associative relations are more complex. Concepts linked on this basis do not only form unidirectional strings. Visual representations of associative relations look like a tangle of arrows, reflecting the complexity of the world. They are called ontologies. Strings of concepts linked by various associative relations, as in Fig. 3, involve concepts from different ontological categories.

Such examples show that learning associative relations is quite clearly the easiest way to gain a broader understanding of the conceptual system of a field. After all, one does not come to understand medicine by being able to list all varieties of pneumonia or all elements making up an endoscope, but by being aware of what pathogens cause these forms of pneumonia and what examinations and devices are useful in diagnosing them. The course of medical translation at IKLA places some emphasis on the learning of associative relations with a view to helping students acquire a more comprehensive picture of the medical domain they are learning about. This is done by such obvious moves as highlighting associative relations as information is

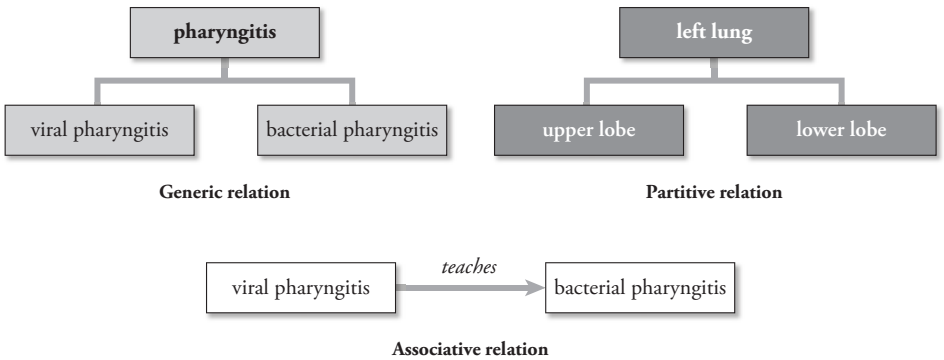


Figure 2. Types of concept relations

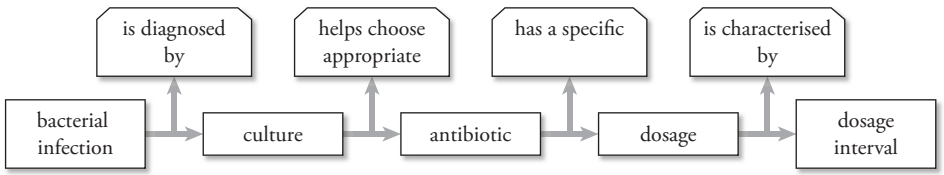
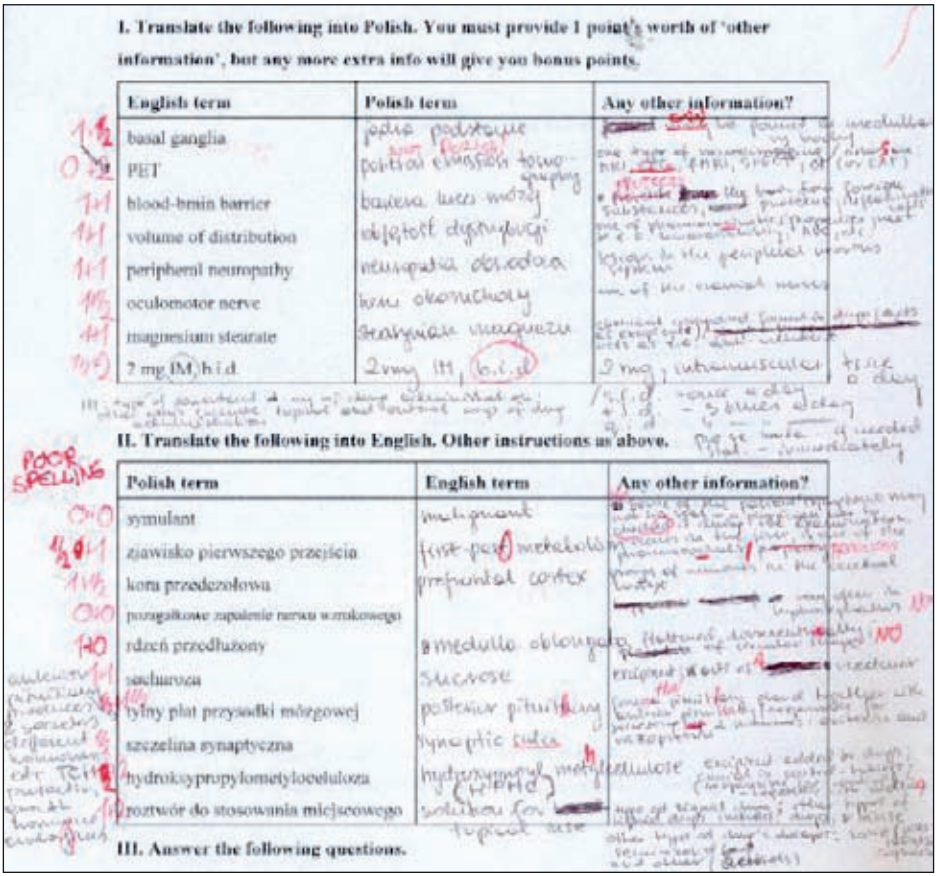


Fig. 3 A string of associative relations. Note the variety of relation types between the concepts.



I. Translate the following into Polish. You must provide 1 point's worth of 'other information', but any more extra info will give you bonus points.

English term	Polish term	Any other information?
basal ganglia		
PET		
blood-brain barrier		
volume of distribution		
peripheral neuropathy		
oculomotor nerve		
magnesium stearate		
2 mg IM b.i.d.		

II. Translate the following into English. Other instructions as above.

Polish term	English term	Any other information?
symulant		
zjawisko pierwszego przejścia		
kora przedczołowa		
rdzeń przedłużony		
sacharoza		
tylny płat przysadki mózgowej		
szczelina synaptyczna		
hydroksypropylometyloceluloza		
roztwór do stosowania miejscowego		

III. Answer the following questions.

Fig. 4 Fragment of a test showing abundant additional information supplied by a student. Marks awarded for translation are shown to the left of the plus signs and marks for additional information to the right

presented or asking revision questions that probe into such relations during work on a translation, but also, and perhaps most importantly, by encouraging the retrieval of such relations during tests. To that end, sections of tests devoted to translation of individual terms and phrases contain space for writing additional information about the terms and bonus points are awarded for this that may help achieve a better overall mark. An example of a completed test with additional information provided and marked is shown in Fig. 4.

However, apart from information that students enthusiastically provide, there are questions that need to be answered obligatorily. Those questions probe issues that I feel students must know about that particular area of medicine. A few sample ques-

tions referring to the nervous system and summaries of medicinal product characteristics are provided below:

What are Brodmann's functional areas? Why are they called functional?
What is the difference between paralysis and paresis?
Name four cranial nerves in English and Polish (no numbers, please).
Name four drug properties investigated in pre-clinical testing, in English and Polish.

It is not uncommon that a student gets a very good mark on account of the additional information he or she has provided, but fails the obligatory questions part and so has to re-sit that part.

Terminology and phraseology training, of necessity, concerns both English and the students' native language. Since medicine is an area of life that practically everyone has been exposed to and medical issues are communicated in LGP using a word stock that may differ from official terminology, it is important that students are taught to realize that texts for patients may not contain appropriate terminology, so that they should not use "medicoid" words and phrases, also called submedical in the literature [Brunt 1987]. In Polish, this primarily – and paradoxically - concerns words of Latin and Greek origin, which look very medical, but are actually not used by doctors, such as *chroniczny* or *epilepsja*. This is paradoxical as it is exactly those Latinate terms that have been pointed to as a factor making medical translation easier than other types of technical translation. While they seem ready-made equivalents of the English *chronic* and *epilepsy*, official Polish terminology in these and many other cases uses indigenous words, viz. *przewlekły* and *padaczka*. Cases of determinologisation or terminological distortion also exist; for example, *pęcherzyk żółciowy* (literally "*gall vesicle*"), the term for the gall bladder, has its non-professional equivalent *woreczek żółciowy* ("*gall sac*"), and *zapalenie zatok* ("*inflammation of the sinuses*"), the non-professional term for sinusitis, should be *zapalenie zatok przynosowych* ("*inflammation of the paranasal sinuses*"). Rooting out such non-professional terms is as important for future translators as learning the conceptual framework. As regards phraseology, an example of a difficulty is the collocability of *wywiad*, the Polish word for *history*. It happens to be homonymous with the noun for *interview* and the phrase *to take a history* is therefore commonly mistranslated as *przeprowadzić wywiad* (lit. *carry out an interview*), while the correct collocation is *zebrać wywiad* (lit. *collect a history*).

Terminology is also taught with a pattern-oriented linguistic approach in mind rather than with the aim of the students acquiring concept-specific knowledge. Students may be interested in finding out about the causes of hypocalcaemia or hyper-

kalaemia, but their translation skills will be served better if they know that names of such laboratory abnormalities are formed according to the pattern *hypo/hyper+name of substance or chemical element*, mostly similar to the name that gave rise to its chemical symbol+*(a)emia*, the latter part referring to the blood, and that there are sometimes minor spelling differences between the English and Polish terms. They should also know that the names of similar abnormalities in blood count are formed with the suffixes *–osis* or *–philia* vs. *–paenia*.

Similarly, instead of teaching they names of particular viruses, they are taught naming patterns (*Morbillivirus, Hantavirus* etc.) and equivalents in the other language.

The notions of concept-specific and pattern-related information will now be presented in greater detail using the term *Lasegue test/sign* as an example. What I feel translation students ought to know about the concept behind that term is that it refers to a diagnostic test in orthopaedics that involves producing pain on raising the lower limb, while the exact indications, procedure and significance of findings are not actually required. Since it is not possible to familiarise students with all, or most, diagnostic tests, examples that do get included in the textual material should be used to present a number of usage patterns, thanks to which students learn how to handle such vocabulary units in target language texts. Such usage patterns include collocations with individual words as well as typical sentential formulae. In the case of *Lasegue test/sign*, pattern-related information includes:

- the collocation '*a positive/negative Lasegue sign*',
- the truncated variant '*a positive/negative Lasegue*', with the stylistic note that the truncated variant belongs to a more colloquial register,
- a reminder that the Polish equivalents of the two adjectives are indigenous, i.e. '*dodatni/ujemny*' rather than '*pozytywny/negatywny*';
- the phrases '*the patient had a positive/negative Lasegue*' and '*his/her Lasegue was positive/negative*'
- the statement that these collocations and formulas are equally applicable to most other tests in orthopaedics and other medical specialities. Some examples should also be provided.

An additional note would point to the frequent misspelling of *Lasegue* as *Lase-q-ue* in Polish texts, which the students should now be able to correct in translation.

Another example of an emphasis on usage patterns is the nomination of scoring systems, used to measure, e.g., disease severity. Their names in English are usually more condensed than in Polish. Let us take the imaginary example of a scale of symptom severity devised by someone called Smith and convey the information that a pa-

tient's symptoms place him in the third class according to this scale. In English such a patient will be referred to as *a Smith Grade 3 patient*, which is a little cryptic unless you know what a Smith grade is. This is terminological compression – when the wording of a term does not reveal its meaning, i.e. the concept behind it. The Polish equivalent will be more transparent and the meaning will be clear even to the lay reader (though it will not, of course, reveal whether Grade 3 is more or less favourable than Grade 2 or whether the patient is in danger). It will read: *pacjent z objawami 3. stopnia w skali Smitha* [*patient with symptoms of the 3rd grade on Smith's scale*]. As the manner in which this condensation is achieved is fairly regular across scoring systems, presenting one (real-life) example and explaining the differences in detail should basically suffice to enable students to translate similar names appropriately in future texts.

The conception of pattern-oriented teaching extends to schemata for presenting information (genre templates). For example, a research paper usually follows the IMRAD format, and a description of a disease in a medical textbook will often include sections on aetiology, pathogenesis, clinical presentation, treatment, and prognosis. Students may use these templates to learn these basic concepts of clinical medicine, but a more important use is to organise their knowledge by helping them to memorise associated terminology. A sample set of terms associated with the infectious disease of measles and also fitting into the above-listed domains would be: *virus, droplet infection, aerosol, upper respiratory mucosa, maculo-papular rash, Koplik spots, supportive treatment, SSPE*. Clearly enough, the relations between these concepts are again associative, or ontological. Exercises where students are asked to name a few terms related to a particular medical concept and describe the relations holding between them are therefore also included in tests.

However, obviously, not all information on medical terminology can be "patternised", the less so when terminology is to be taught in two languages. As indicated earlier, may English Latinate terms have Polish equivalents that are indigenous Slavonic words. Some of these are structurally identical to the English terms, others are not. Multi-word terms may similarly fall into one of four categories: similar in form (e.g. *invasive cardiology – kardiologia inwazyjna*), similar in structure (e.g. *malignant anaemia – niedokrwistość złośliwa*, where *anaemia* and *niedokrwistość* and *malignant* and *złośliwy* respectively correspond to the same concepts also in other terms) or differently formed (e.g. *extraaxial haematoma – krwiak przymózgowy*, where *przymózgowy* literally translates to '*paracerebral*' and the prefix and stem do not have the meanings of *extra-* and *-axial*, respectively). Whether the Polish equivalent transfers or reproduces the English pattern or is an original designation is often unpre-

dictable, varying on a case-by-case basis, so a reasonable guideline would be to alert the students that they should find out on their own which form is prevalent.

The thematic syllabus of the course of medical translation includes the following areas, listed in chronological order: basic concepts of clinical medicine, laboratory work-up, infectious diseases, individual organ systems, and pharmacology.

The example of the teaching of the terms *hyperplasia/hypertrophy* described above shows that some general medical knowledge is presented in texts about particular organ systems. Another example is the concept of cancer staging/grading, which is discussed in association with gastric cancers, while autosomal/X-linked dominant and recessive modes of inheritance are presented in association with muscular dystrophies.

Interwoven with this thematic syllabus is a translation syllabus, concentrating on three main areas which I find to provide most of my medical translation work load: medical records (discharge summaries, etc.), drug-related documents (SPCs, patient leaflets), and research articles (including proof-reading). Early on the focus is on medical documentation, with sample examination reports in Polish and English. These are linked to individual organ systems: presentation of the cardiovascular system is followed by translation of sample ECG and cardiac ultrasound reports, while radiographs and computed tomography imaging are first discussed when the students are working on the respiratory system (it is also at that point that basic radiographic terminology is introduced). The importance of using parallel texts in the target language is emphasised throughout the course. The translation of research articles is undertaken towards the end of the course as such tasks require command of different phraseology than that associated with describing organ systems.

Self-study skills are not neglected either as most translation tasks require the students to find out about unfamiliar concepts, but that is not different from what happens during other LSP translation courses. Students are also supplied with a list of general medical reference works and encouraged to read professional medical texts regularly in their own time. Multimedia use is also promoted as popular video sharing sites such as youtube.com offer a large variety of medicine-related video clips.

This article will probably not bridge the gap between professionals who translate LSP texts in their domains of competence and trained LSP translators with a linguistic background. My goal here was to show how the lack of subject knowledge on the part of LSP translators can be remedied by exposing them to term-presenting texts during their training and encouraging them to them take constant care to develop their medical competence. Let me also invoke and re-interpret the three com-

ponents of thematic competence discussed briefly earlier on: analytical skills (reading comprehension skills serving to reconstruct the author's line of reasoning), the ability to find information (to fill any remaining gaps in the translator's knowledge: data-mining, incl. Internet skills), and the ability to develop appropriate subject knowledge within a short time (which will become progressively easier over time as a translator accumulates knowledge from every text he or she translates). The final reminder, and the final conclusion, is that translating a particular medical text does not require familiarity with the entire conceptual system of medicine and so a career in medical translation should not be closed for those without a license to practise the art of treatment.

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