

LEXICAL RELATIONS IN MEDICAL TEXTS-TRANSLATOR'S VIEW

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Abstract

This paper addresses the issue of lexical cohesion relations in specialised, medical texts. A corpus gathered from internal medicine textbooks published in English and available in Polish translation will be investigated. This paper describes lexical cohesion relations in specialised texts in terms of so called “specialised lexical combinations” (word groups used in specialised language). It gives a brief overview of different strategies and techniques used in translation of such word groups and it underlines the importance of implementing those strategies for achieving cohesive and coherent translation of specialised discourse.

Key words

lexical cohesion, specialised lexical combinations, specialised discourse, medical English, translation, cohesion and coherence relations

1 Introduction

During text analysis, the translator is concerned “with tracing the web of relationships” (Snell-Hornby 1988: 76), thus reproducing cohesive relations within the text being translated is both crucial and challenging for the translator. However, even for the most skillful translator it is impossible to render identical chains of associations and connections as were present in the source text. His/her task consists in adopting such strategies and techniques which would ensure that a sufficient number of cohesive ties is retained and not lost in translation. The translator always has to decide on the extent of target-text manipulation that is necessary for attaining high quality translation.

The following paper addresses the issue of lexical cohesion relations in specialised, medical texts and the strategies adopted by translators to convey those relations, among which we may distinguish equivalence, substitution and omission.

2 Lexical cohesion – an overview

Cohesion can be defined as the network of lexical, grammatical and semantic relations which serve the purpose of a peculiar “glue” for the text, sticking together its elements. The best known landmark publication on cohesion is undoubtedly Halliday and Hasan’s *Cohesion in English* (1976). Cohesion in this work is classified under two main headings – grammatical and lexical.

Grammatical cohesion refers to the structural content and is attained through grammatical connections.

Lexical cohesion, by contrast, is expressed through semantic relations between words which are used in the text. Hoey points out that lexical cohesion is “the dominant mode of creating texture” (Hoey 1991: 10) and this is the only type of cohesion “that regularly forms multiple relationships” (ibid.) creating lexical chains.

Two major subclasses of lexical cohesion have been identified, reiteration and collocation.

Reiteration was subdivided by Halliday and Hasan (1976: 279-280) into four categories, which were illustrated with the following examples:

There's a boy climbing that tree.

- repetition – *The boy is going to fall if he doesn't take care.*
This category is the most straightforward to detect and analyze.
- synonym – *The lad's going to fall if he does't take care.*
This category includes near-synonym and hyponym.
- superordinate – *The child's going to fall if he doesn't take care.*
- general word – *The idiot is going to fall if he doesn't take care.*

According to Tanskanen (2006: 49-60) different lexical devices should be listed under this heading. She distinguishes eight categories of reiteration:

- simple repetition – lexical item is repeated either in exactly the same form or with only slight grammatical variation (present-past, singular-plural),
- complex repetition – may involve change of grammatical function of the lexical item in question or repetition of a lexical morpheme,
- substitution – repetition of a lexical item in the form of pronoun (in Halliday and Hasan's work it was perceived as one of grammatical cohesive devices),
- equivalence – corresponding to synonym category in Halliday and Hasan's typology,
- generalization – relation between a lexical item and a more general term,
- specification – relation between a lexical item and a more specific term,
- co-specification – relation in which two units share a common general unit, e.g. RP speakers - Standard English speakers,
- contrast – relation between two units of opposite meaning.

Collocation is defined by Halliday and Hasan (1976: 284) as the type of lexical cohesion “that is achieved through the association of lexical items that regularly

co-occur". Tanskanen (2006: 61-63) distinguishes three types of collocation-based cohesive ties:

- ordered sets – this category includes sets of lexical items such as **colors**, months, days etc.
- activity-related collocations – includes lexical items associated by means of an activity, e.g. *to administer a drug*
- elaborative collocation – consists of lexical items elaborating or expanding other items on the same topic

3 Specialised lexical combinations

Specialised texts are characterised by lexical density as “in specialised discourse one consequence of frequent nominalization and other premodifying devices is increased lexical density, i.e. a high percentage of content words within a text” (Gotti 2003: 41). Specialised terms, occurring in such texts, may appear as single lexical items (e.g. *dyspepsia*, *hepatitis*) or as clusters (e.g. *acute myocardial infarction*).

This article concentrates only on cohesive ties created by so called “specialised lexical combinations” described, e.g. by Cohen (1986), Heid (1994) or L’Homme (1995), that is “word groups used in special languages” (L’Homme & Bertrand 2000: 497). Such word groups consist of at least two lexemes: the first one, as stated by L’Homme and Bertrand (ibid.), is the keyword which has a “special reference within a specialised subject field”, e.g. drug, medicine, the second is called co-occurent (e.g. *to administer*). It has been underlined that specialised lexical combinations, though they share some features of general lexical combinations or collocations, should be described as a separate category of lexical combinations. Researchers (such as Martin 1992, L’Homme 1995 or Heid 1994) have noticed that the separate category is necessary because of the fact that co-occurents of specialised lexical combinations can be combined with the whole set of terms that share the same semantic environment, e.g. the verb *to administer* may co-occur with the following terms: *drug*, *glucose*, *vaccine*, *analgesic*, *aspirin* etc. Due to this feature, specialised lexical combinations are also referred to as “concept-bound collocations” (Martin 1992) or “conceptual collocations” (Heid 1994). However, only the term “specialised lexical combinations” will be used in this article in order to avoid confusion with collocations (in the cohesive sense).

4 Pilot study

The following pilot study is a part of a larger study concentrating on lexical relations in specialised discourse.

Material for analysis is based on fragments of the internal medicine textbook “The Merck Manual of Diagnosis and Therapy” (originally written and published in English) and its available Polish translation. In order to conduct this pilot study, two fragments of the said textbook were chosen for analysis (see table 1, 2, 3 and 6).

ENGLISH VERSION	Diabetes insipidus- a temporary or chronic disorder of the neurohypophyseal system due to <u>deficiency of vasopressin (ADH)</u> and characterized by excretion of excessive quantities of very dilute (but otherwise normal) urine and by excessive thirst. <u>Central or vasopressin (ADH)-sensitive diabetes insipidus</u>, which is a <u>hypothalamic-pituitary disorder</u>, is referred to in this discussion as <u>diabetes insipidus (DI)</u> to distinguish it from <u>nephrogenic diabetes insipidus (NDI)</u>, in which the kidney is ADH-resistant (see Ch. 229). Polyuria may result from <u>DI</u> (a <u>deficiency of ADH</u>), from <u>NDI</u>, or from compulsive or habitual (psychogenic) water-drinking (<u>physiologic suppression of ADH</u>-also termed primary polydipsia or <u>dipsogenic diabetes insipidus</u>). (The Merck Manual, 1999: 78)
POLISH TRANSLATION	Moczówka prosta (diabetes insipidus- DI)- jest to przejściowa lub przewlekłą chorobą podwzgórz, będącą przyczyną niedoboru <u>wazopresyny (ADH)</u>. Charakterystyczną cechą tej choroby jest wydalenie bardzo dużych ilości rozcieńczonego, lecz poza tym prawidłowego moczu raz nadmierne pragnienie. <u>Ośrodkowa lub wrażliwa na wazopresynę moczówka prosta</u>, będąca następstwem zaburzenia czynności osi podwzgórzowo-przysadkowej, w tym rozdziale jest określana skrótem <u>DI</u> w celu odróżnienia jej od <u>moczówki prostej nerkowopochodnej (nephrogenic diabetes insipidus-NDI)</u>, uwarunkowanej nadwrażliwością cewek nerkowych na działanie ADH (zob. Rozdz. 229). Wielomocz może być następstwem <u>DI (niedobór ADH)</u>, <u>NDI</u> lub przymusowego (psychogenego) wypijania dużych ilości płynów, będącego powodem <u>zahamowania wydzielania ADH</u>. (The Merck Manual, 2001: 89-90)

Table 1: Paragraph One. Reiteration relations (discussion of underlined phrases below)

The core relation depicted in the first fragment (see Table 1) is undoubtedly repetition of lexical combination *diabetes insipidus* (and its variations), which helps to maintain logical consistency of the analyzed paragraph. We can see that the lexical chain of repetitions is long and it involves, e.g. the use of acronyms (NDI, DI). As can be noticed, the combination *diabetes insipidus* is also repeated as a part of multiple-component lexical combinations (e.g. *nephrogenic diabetes insipidus*) and consequently, at the same time it creates other cohesive ties. There is a subordinate – hyponym relation between *diabetes insipidus* and *nephrogenic*

diabetes insipidus (NDI) and a synonym relation between *central or vasopressin (ADH) – sensitive diabetes insipidus* and *diabetes insipidus (DI)*. Almost exactly the same chain of cohesive ties is visible in the Polish translation with only one combination being omitted (*dipsogenic diabetes insipidus*).

The repetition of *deficiency of vasopressin (ADH) – “a deficiency of ADH”* may be noticed – with the same tie in the Polish translation. The synonym relation between *physiologic suppression of ADH – primary polydipsia – dipsogenic diabetes insipidus* disappeared in translation with only one element being left that is *zahamowania wydzielania ADH* (ENG suppression of ADH secretion). There is also the superordinate-hyponym relation between *chronic disorder* and *diabetes insipidus* (the same tie is visible in the Polish translation) and between *hypothalamic-pituitary disorder* and *central or vasopressin (ADH) – sensitive diabetes insipidus*. In the case of the latter tie, in the Polish translation a cause – effect relation is being introduced instead of a simple superordinate-hyponym relation:

Ośrodkowa lub wrażliwa na wazopresynę moczówka prosta, będąca następstwem zaburzenia czynności osi podwzgórzowo-przysadkowej.
(ENG central or vasopressin-sensitive diabetes insipidus, which is a result of a disorder of hypothalamus-pituitary axis functioning).

ENGLISH VERSION	Diabetes insipidus- a temporary or chronic disorder of the neurohypophyseal system due to deficiency of vasopressin (ADH) and characterized by <u>excretion</u> of excessive quantities of very <u>dilute</u> (but otherwise normal) <u>urine</u> and by excessive thirst. Central or vasopressin (ADH)-sensitive diabetes insipidus, which is a hypothalamic-pituitary disorder, is referred to in this discussion as diabetes insipidus (DI) to distinguish it from <u>nephrogenic diabetes insipidus (NDI)</u>, in which the <u>kidney</u> is ADH-resistant (see Ch. 229). <u>Polyuria</u> may result from DI (a deficiency of ADH), from NDI, or from <u>compulsive or habitual (psychogenic) water-drinking</u> (physiologic suppression of ADH-also termed primary polydipsia or dipsogenic diabetes insipidus). (The Merck Manual, 1999: 78)
POLISH TRANSLATION	Moczówka prosta (diabetes insipidus- DI)- jest przejściowa lub przewlekła choroba podwzgórza, będąca przyczyną niedoboru wazopresyny (ADH). Charakterystyczną cechą tej choroby jest <u>wydalanie</u> bardzo dużych ilości <u>rozcieńczonego</u>, lecz poza tym prawidłowego moczu raz nadmierne pragnienie. Ośrodkowa lub wrażliwa na wazopresynę moczówka prosta, będąca następstwem zaburzenia czynności osi podwzgórzowo-przysadkowej, w tym rozdziale jest określana skrótem DI w celu odróżnienia jej od <u>moczówki prostej</u> <u>nerkowopochodnej</u> (<u>nephrogenic diabetes insipidus-NDI</u>), uwarunkowanej nadwrażliwością <u>cewek nerkowych</u> na działanie ADH (zob. Rozdz. 229).

	Wielomocz może być następstwem DI (niedobór ADH), NDI lub przymusowego (psychogennego) <u>wypijania dużych ilości płynów</u> , będącego powodem zahamowania wydzielania ADH. (The Merck Manual, 2001: 89-90)
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Table 2: Paragraph One. Collocation relations

Collocation relations (see Table 2) may be traced in this fragment, e.g. between *excretion* and *dilute urine* (PL *wydalenie – rozcieńczony mocz*). There is also a chain of relations based on association, which is directly linked with the above mentioned tie and evokes the theme of excreting large amounts of urine as one of the main symptoms of diabetes insipidus:

excretion of (excessive quantities of very dilute) urine – polyuria – nephrogenic diabetes insipidus – kidney – compulsive or habitual (psychogenic) water-drinking.

The same chain of association is present in the Polish version (see Table 2) with some modification of its components – the term *kidney* was replaced by a more specialised lexical combination *cewka nerkowa* (no English equivalent available) and the combination *compulsive or habitual (psychogenic) water-drinking* was translated as *przymusowego (psychogennego) wypijania dużych ilości płynów* (ENG *compulsive (psychogenic) drinking of large amounts of liquids*). The modifier *habitual* was omitted, and the term *water-drinking* was replaced by a more general *wypijania dużych ilości płynów* (ENG *drinking of large amounts of liquids*).

ENGLISH VERSION	1) Coughing helps protect the lungs against aspiration. 2) Differences among several sites from which <u>cough stimuli</u> can originate may result in variations in the sound and <u>patterns of coughing</u> . 3) <u>Laryngeal stimulation</u> produces a choking type of cough without a preceding inspiration. 4) Inadequate mucociliary clearance mechanisms (as in bronchiectasis or cystic fibrosis) may produce a <u>pattern of coughing</u> with less violent acceleration of air and a sequence of interrupted expirations without any intervening inspiration. 5) Awareness of cough varies considerably. 6) A cough can be distressing when it appears suddenly, especially if associated with discomfort due to chest pain, dyspnea, or copious secretions. 7) A cough that develops over decades (e.g. in a smoker with mild chronic bronchitis) may be hardly noticeable or may be considered normal by the patient. (The Merck Manual, 511)
POLISH TRANSLATION	1) Kaszel jest odruchem chroniącym przed zachłyśnięciem. 2) Różnice w charakterze i „wzorcu” <u>kaszlu</u> (dźwięku wydawanego podczas kaszlu i jego <u>sekwencji</u>) są związane z różnym umiejscowieniem <u>źródła odruchu kaszlowego</u> . 3) <u>Drażnienie krtani</u> powoduje kaszel suchy, dławiący, nie poprzedzony

	wdechem. 4) Z kolei u chorego, którego układ śluzowo-rzęskowy oskrzeli nie jest wydolny transportować wydzielinę (np. w przypadku rozstrzeni oskrzeli lub mukowiscydozy), występuje kaszel polegający na <u>sekwencji</u> krótkich, przerywanych wydechów o niewielkiej prędkości powietrza wydechowego, a nie poprzedzony głębokim wdechem przed każdym kaszlnięciem. 5) Kaszel budzi niepokój chorego, gdy pojawia się nagle, szczególnie gdy związany jest z bólem w klatce piersiowej lub dusznością, czy też prowadzi do obfitego odkrztuszania płwocin. 6) Kaszel powstający i nasilający się w ciągu dziesiątków lat (jaki występuje u osób palących papierosy i cierpiących na łagodną postać przewlekłego zapalenia oskrzeli) zazwyczaj nie budzi obaw lub wręcz jest uważany za stan prawidłowy. (The Merck Manual, 608)
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Table 3: Paragraph Two. Reiteration relations

The main collocational chain of association interwoven in the second analyzed paragraph (see Table 6) and present both in the Polish and English versions helps to establish and maintain the topic of this passage, that is *cough* (*cough – cough stimuli – choking type of cough – pattern of coughing – laryngeal stimulation – dyspnea – copious secretions – smoker* etc.; PL *kaszel – odruch kaszlowy – kaszel dławiaczy – wzorzec kaszlu – drażnienie krtani – duszność – obfite odkrztuszanie płwociny – osoby palące papierosy*). In the case of two elements of this chain of association, that is *mucociliary clearance* (mechanism of clearing of mucus by ciliary movement in the respiratory tract) and *copious secretions*, in the Polish translation an additional (subordinate-hyponym) tie was added.

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| <p>4) “<i>mucociliary clearance</i>” – 6) “<i>copious secretions</i>”</p> <p>4) <u>układ śluzowo-rzęskowy oskrzeli</u> nie jest wydolny transportować <u>wydzielinę</u>
(ENG mucociliary system fails to transport secretion)</p> <p>5) obfitego odkrztuszania <u>płwociny</u>
(ENG copious expectoration of sputum)</p> |
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Table 4: Example of additional (superordinate-hyponym) relation added in the translation

Apart from this main network of lexical items, reiteration relations (see Table 3), which involve the use of specialised lexical combinations, occur in the presented example. There is a repetition of the term *pattern of coughing* (sentences 1 and 4). Exactly the same tie is not present in the Polish translation. Literal translation probably seemed awkward for the translator and as a result inverted commas were used to denote an unusual usage of the term *wzorzec-* (pattern), which is not exploited in this context in Polish. Moreover, the translator decided to provide a definition of this term (in brackets) and use the word *sekwencja* (sequence), which creates the missing tie in the fourth sentence.

“<i>pattern of coughing</i>” (sentences 1 and 4) 1) “<i>wzorcu</i>” <i>kaszlu</i> (dźwięku wydawanego podczas kaszlu i jego sekwencji) (ENG the sound of cough and its sequence) 4) (...) <i>na sekwencji krótkich, przerywanych wydechów</i> (ENG sequence of short, interrupted expirations)	
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Table 5: Example of a substitution of a lexical relation in translation

A superordinate-hyponym relation may be traced in the case of the terms *cough stimuli* and *laryngeal stimulation* (laryngeal stimulation may be a stimulus which provokes the urge to cough). In the Polish version the same cohesive device was used and the term *cough stimuli* was translated as *źródło odruchu kaszlowego* (ENG the source of cough reflex).

ENGLISH VERSION	1) <u>Coughing</u> helps protect the lungs against aspiration. 2) Differences among several sites from which <u>cough stimuli</u> can originate may result in variations in the sound and <u>patterns of coughing</u>. 3) <u>Laryngeal stimulation</u> produces a <u>choking type of cough</u> without a preceding inspiration. 4) Inadequate <u>mucociliary clearance mechanisms</u> (as in bronchiectasis or cystic fibrosis) may produce a <u>pattern of coughing</u> with less violent acceleration of air and a sequence of interrupted expirations without any intervening inspiration. 5) Awareness of <u>cough</u> varies considerably. 6) <u>A cough</u> can be distressing when it appears suddenly, especially if associated with discomfort due to chest pain, dyspnea, or <u>copious secretions</u>. 7) <u>A cough</u> that develops over decades (e.g. in a <u>smoker</u> with mild chronic bronchitis) may be hardly noticeable or may be considered normal by the patient. (<i>The Merck Manual</i>, 511)
POLISH TRANSLATION	<u>Kaszel</u> jest odruchem chroniącym przed zachłyśnięciem. Różnice w charakterze i “<u>wzorcu</u>” <u>kaszlu</u> (dźwięku wydawanego podczas kaszlu i jego sekwencji) są związane z różnym umiejscowieniem <u>źródła odruchu kaszlowego</u>. <u>Drażnienie kratni</u> powoduje <u>kaszel suchy, dławiący</u>, nie poprzedzony wdechem. Z kolei u chorego, którego <u>układ śluzowo-rzęskowy</u> oskrzeli nie jest wydolny transportować wydzielinę (np. w przypadku rozstrzeni oskrzeli lub mukowiscydozy), występuje <u>kaszel</u> polegający na sekwencji krótkich, przerywanych wydechów o niewielkiej prędkości powietrza wydechowego, a nie poprzedzony głębokim wdechem przed każdym <u>kaszlnięciem</u>. <u>Kaszel</u> budzi niepokój chorego, gdy pojawia się nagle, szczególnie gdy związany jest z bólem w klatce piersiowej lub <u>dusznością</u>, czy też prowadzi do obfitego <u>odkrztuszania płwociny</u>. <u>Kaszel</u> powstający i nasilający się w ciągu dziesiątków lat (jaki występuje u <u>osób palących papierosy</u> i cierpiących na łagodną postać przewlekłego zapalenia oskrzeli) zazwyczaj nie budzi obaw lub wręcz jest uważany za stan prawidłowy. (<i>The Merck Manual</i>, 608)

Table 6: Paragraph Two. Collocation relations

5 Concluding remarks

It may be easily inferred from the examples presented that there are three main strategies adopted by translators when dealing with cohesive relations in specialised texts.

First, identical or almost identical tools are used, e.g.:

ENG. “*excretion*” – “*dilute urine*” activity-related collocation

PL. “*wydalenie*” – “*rozcieńczony moczu*” activity- related collocation

Second, relations are substituted or additional ties added (see Tables 4 and 5).

Third, no lexical relations are rendered at all, e.g.:

ENG. “*physiologic suppression of ADH*” – “*primary polydipsia*” –
“*dipsogenic diabetes insipidus*” – synonym relation

PL. “*zahamowanie wydzielania ADH*” – lack of cohesive tie

Partially the process of decision making connected with the employed strategy is conscious and partially it is superimposed by structural and lexical differences between languages (e.g. lack of equivalence between terms, see Table 5).

The above mentioned examples give the impression that in specialised discourse there are more cohesive ties created by specialised lexical combinations than by single lexical items. However, this presumption has to be confirmed by quantitative analysis of a larger text corpus. What may also be noticed is the fact that specialised lexical combinations form term-oriented relations with other specialised lexical combinations as well as with single lexical items. What is more, mostly nominal relations were traced, which may prove that “very common syntactic phenomenon of specialised discourse [...] is nominalization” (Gotti 2003: 77).

Undoubtedly, specialised discourse is cohesively dense. Blum-Kulka (1986) noticed that there is a general tendency to raise the level of explicitness in translation, e.g. by the use of explicit markers of cohesion. Baker (1992: 212) claims that those “explicit markers of cohesion raise the level of redundancy in the text”. This claim seems to be true for general discourse; in specialised discourse, however, explicit markers of cohesion are indispensable for enhancing general understanding of terminologically-loaded texts rather than for creating increased levels of redundancy.

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