

Terminological Borrowings in Polish Technolects – What Types of Term are Borrowed and Why?

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Abstract: This paper sets out to systematise the diversity of loanwords in terminology using just a handful of categories. It is based on analyses of medical and IT terminology in Polish. The factors that appear to influence the use of a borrowed term rather than one coined in the recipient language comprise: 1. formal complexity of foreign terms that cannot be reproduced easily using semantically equivalent lexical units of the recipient language, 2. incompatibility between a term's lexical meaning and that provided by its definition, including cases of metaphoric nomination. Both factors may be simultaneously present in a term. Compounding of Graeco-Latin combining forms represents an international term formation pattern. Such Neoclassical composites are distinct from so-called Romance Latinisms, which are derivatives containing Latin stems but formed in modern European languages. Romance Latinisms are apparently borrowed for reasons of prestige.

Keywords: terminology, borrowing, special languages, loanword, reasons for borrowing, condensation

Introduction

Languages for special purposes appear to be particularly prone to what has been described as “the invasion of Anglicisms”. Most publications concerned with English loanwords or, more generally, lexical borrowing into Polish, actually focus on special lexis. Terms also account for a majority of entries in dictionaries of foreign words (see example in Górnicz 2017).

Terminological borrowing has generally been accounted for in terms of extralinguistic factors such as prestige of the donor language. This article sets out to present another explanation, pointing to discrepancy between the lexical meaning of term constituents and the term's definition and to syntactic complexity of terms. It is organised as follows. Section 1 is an overview of borrowing as a technique of term formation and of postulated reasons for borrowing terminology. Section 2 introduces some core concepts that underlie the following analysis. Section 3 presents the four “case studies” that the conclusions are based on. Section 4 summarises key findings from the case studies. It is followed by a discussion and conclusions.

The key claims of this article were originally presented in the author's monograph in Polish (Górnicz 2019). This article aims to familiarize the wider international audience with this issue.

1. Borrowing as a term formation technique

The borrowing of terms from other languages is one of three nomination techniques in terminology, the remaining two comprising the formation of neologisms (new words from morphemes and multiword terms from words) and semantic extension (sometimes called intralingual borrowing).

The techniques of term formation can be placed in a 2x2 matrix:

Provenance of term constituents	Diachronic status		
		Existing lexical unit	New combination
	Domestic	semantic extension	neologism
	Foreign	borrowing	(pseudoborrowing)

Tab. 1 Term origin matrix.

A new combination of constituents previously existing in a language produces a neologism, while the use of an existing lexical unit from the domestic inventory results in semantic extension. When a term is a lexical unit from another language, this is a terminological borrowing. The fourth slot, i.e. "a new combination of constituents from another language", would be classified as a *pseudoborrowing*. It needs to be noted that many such pseudoborrowings are the result of donor-language adaptation of borrowed material, but sometimes the link is difficult to trace, as in the case of the German word *Handy* ('mobile phone'), which may be related to 'handheld' (Onysko 2007), but being handheld is not a feature of mobile phones only.

The literature on borrowings does not distinguish separate sets of determinants underlying the borrowing of terminology vs borrowing of general lexis. The motivation behind linguistic borrowing, also in terminology, is usually accounted for extralinguistically, for example by drawing attention to the emergence in the reality of specialised discourse of new objects whose original names are nowadays coined in English, the lingua franca of today's science, or postulating a "fashion" for using terms from a particular language. For example, Cabré (1999) states that creative activity in science and technology is confined to a few economic powers, resulting in unidirectional transfer of knowledge leading to large-scale borrowing of terminology

by the languages of other countries. Other authors (e.g. Lukszyn/ Zmarzer 2001) emphasise a greater openness of terminological systems to foreign-language elements, including Graeco-Latin combining forms, and repeatedly advise ensuring that terminology in a given language be international. However, such very general recommendations and broad approaches to the issue of technolectal borrowing suffer from insufficient precision.

2. Background concepts for analysis

My further analysis is based on a few background concepts such as endo- and exoderived terms, terminological compression and the primary terminological system.

Endoderived (or, perhaps “internally” or “intrinsically derived”) terms are those that comprise of components possessing established meaning in a given terminology and naming salient components of the underlying concept. In the term *viral pharyngitis*, the individual meaningful elements refer to the type of disease (*-itis* for inflammation), the site (pharynx) and the cause (virus). These three characteristics are important aspects of the concept of viral pharyngitis. In endoderived terms, important characteristics of concepts are named using term constituents that are usually employed to convey these characteristics: *virus* is a doctor’s or medical scientist’s or a biologist’s first choice for referring to this type of infectious agent and *pharynx* is the accepted name for that particular segment of the respiratory system. Endoderived terms also include Neo-Classical (Graeco-Latin) compounds. For example, the medical term *hypercalcaemia* is made up of constituents meaning “too much+calcium+(in the) blood”.

Exoderived (“externally derived”) terms include one or more components derived from general language that do not possess an identical and strictly-defined meaning in different terms. Examples of exoderived terms include *giant cell* – ‘mass formed by the union of several distinct cells’ and (in dentistry) *bulk-fill composites* ‘a type of filling indicated for use in a single layer in deep cavities’ (as opposed to layered composites). In the former term, the adjective *giant* does not have the meaning of ‘composed of several distinct cells’ in other terms where it is found. It does not have the general-language meaning ‘very big’ either. In *bulk-fill composites*, the meaning of the modifier may be interpreted as ‘filled in bulk’, but the meaning of *bulk* is not precisely defined.

Exoderived terms include metaphorical terms, such as *kissing ulcers* ‘a pair of ulcers located on opposite sides of a tubular structure coming into contact (for example, the stomach)’.

Another basic concept is that of terminological compression. Terminological compression is the non-representation in the structure of a term of a salient element found in the definition of the corresponding concept. Out of several types of terminological compression, as listed in the original paper by Leitchik (1981) and in Górnicz (2015), semantic and liaison compression stand out as the most important. Semantic compression occurs when an important characteristic of a concept is missing in the designation, such as *coronary heart disease*, when the element ‘vessel’ (it is a disease of coronary blood vessels) is left out. Liaison compression refers to a situation where

the words indicating the link between certain components of a term are missing, as in *choroba wieńcowa*, the Polish equivalent of coronary heart disease, which literally translates to “coronary disease” and it is clear only to the initiated that it is a disease of the heart muscle. This article aims to demonstrate that terminological compression is an important factor in terminological borrowing.

Finally, a primary terminological system is defined as the terminological system stored in the language where a given domain is the most developed at a given point in time, such as French in diplomacy, Japanese in the Japanese art of tea-making, Italian for classical music and English for computer science and a number of other fields. The primary terminological system of a domain may change over time. For example, German used to be the primary terminological system in the domain of chemistry, but has since given way to English.

These observations serve to draw attention to a definite directionality of interlingual transfer as observed in different technolects and periods of development of various domains of specialised knowledge.

The awareness that the primary terminological system has one carrier language helps us realise that most terms in other languages are formed in response to the emergence of a new concept and its designation in the primary system. This very much resembles Sager’s (1990) antinomy of primary vs secondary term formation. Secondary term formation includes borrowing and calquing. It also extends to terms that are semantically very different from their primary terminological system equivalents providing that they were formed in response to terms in the primary system. With endoderived primary terms, calquing is usually word-for-word. Importantly, such calques are not perceived as borrowings. Unlike many other languages, current medical Polish does not rely on Latin and Greek borrowings to render a number of core concepts, and *viral pharyngitis* is rendered as *wirusowe ‘viral’ zapalenie ‘inflammation’ gardła ‘throat (Gen.)’*. The Polish term would not be regarded as an example of borrowing, but it most probably was not coined before *viral pharyngitis* and it is made up of the same salient elements as the latter term.

Neo-Classical composites are normally reproduced using the same stems: *dystrophy* – *dystrophie* – *dystrofia*. In the Polish linguistic tradition, Neo-Classical terms are actually referred to as “artificial borrowings”. They are conceptualised as actualisations of potential combinations of Graeco-Latin combining forms forming an international inventory of morphemes “owned” by the global academic community. At the same time, it is clear that not all neo-Classical terms are used internationally, as is the case with *glottodydaktyka*, the widely accepted Polish name for foreign language teaching and learning, whose English equivalent glottodidactics has not gained much traction.

The conclusion can now be easily drawn that borrowing in terminology concerns exoderived terms only and thus it is determined intralinguistically. This hypothesis is verified in the analyses in section 4.

3. “Case studies”

My analysis of terminological borrowing comprises of four investigations, referred to as “case studies” to emphasise their selective nature as compared to the virtually endless possibilities for selecting study material in terminology.

- a) analysis of borrowings with the suffix *-ing* listed in a recent dictionary of English borrowings in Polish;
- b) analysis of terminological borrowings in a dictionary of cardiology (compiled by a medical doctor);
- c) analysis of borrowings in the language of information technology discussed by IT specialists and noted by Polish linguists in published papers;
- d) analysis of borrowings excerpted from issues of three Polish medical journals (concerned with diabetology, dentistry and psychiatry).

I chose the language of medicine for a study of technolectal borrowing in view of my experience as a medical translator, thanks to which I could launch more detailed investigations of synonymous terms beyond what could be found in the corpora (dictionary entries and examples from journal articles) investigated. The domain of information technology was chosen for analysis as it is characterised by a clear dominance of a foreign language (English) as the carrier of the primary terminological system in this domain.

Besides thematic diversity, the analyses of borrowing in the language of medicine and information technology were also diversified with regard to the manner of excerption of borrowings. The two case studies of medical borrowing looked separately at loanwords from a Polish-English dictionary of cardiology compiled by a Polish medical doctor and at borrowings in three Polish medical journals. The latter analysis was thus not limited to terminology, embracing non-terminological lexis and grammatical borrowings and, accordingly, offered a fuller insight into the nature of what has been borrowed. The case study of information technology language investigated loanwords discussed in papers written by linguists and information technology specialists.

4. Key findings

The case study of borrowed *-ing* nouns, excerpted from a recent dictionary of Anglicisms in Polish (Mańczak-Wohlfeld 2010), analysed a total of 192 *-ing* entries, of which 187 were classified as terms and only 5 (*shocking*, *shopping*, *sightseeing*, *timing*, *wishful thinking*) were non-terms. Some other lexical units were also excluded from the analysis, such as eponyms (*pershing*), items where *-ing* was not a grammatical suffix (*pudding*), recent neologisms (*insourcing*), modifiers in multiword terms (*visiting professor*), the pseudoanglicism *homing* ‘spending time at home’ and pseudoanglicisms formed by elision of head nouns (e.g. *holding* ‘holding company’). The remaining 124 borrowings were divided according to the relation between the meaning they have in general English and the borrowed specialized meaning in Polish. The following relations were identified:

- Narrowing of non-specialised meaning (33% of the sample): *catering* 'provision of ready-made food'; *feeling* 'unique climate of blues, jazz music';
- Metaphorical extension (25% of the sample): *hoteling* 'placement of client devices on a professional server';
- Metonymic elevation (30%): *carding* 'illegal use of the numbers of other people's credit cards online'; *kraking* 'technological process in petroleum processing – splitting of large hydrocarbon molecules' (from *crack*).

Altogether, borrowings representing these relations constituted as much as 88% of the sample. The remaining 12% showed no difference between their meaning in contemporary English and the specialised meaning in the dictionary (e.g. *auditing*).

The second case study explored borrowings among information technology terms. I analysed terms criticised by IT specialists in trade journals in the 1980's. A few examples are presented below:

- *real time (processing)* – the Polish equivalent *czas rzeczywisty* ('real time') was criticised on account of being a calque. The recommended equivalent *praca w trybie nadążnym* ('work in keep-pace mode') does not contain exoderived elements; particularly, the word *nadążny*, which has the greatest semantic weight in this term, is not used in non-technical contexts;
- *on-line, off-line* – the recommended equivalents of these terms, representing both metaphorical nomination and terminological compression, do not contain metaphorical components: the equivalents of *on-line* (*przetwarzanie bezpośrednie, praca w trybie bezpośrednim/podłączonym*) mean 'direct processing', 'direct/connected mode processing', and of *off-line*, 'indirect, autonomic, disconnected';
- *memory bank* – it was suggested that the head noun *bank* in Polish should be replaced with the word for 'module', which, unlike *bank*, is a technical word;
- *Bit* ('bit'), *байт* ('byte') – those borrowed terms have non-specialised meanings unrelated to their IT definitions, making them metaphorical.

Within this case study, I also investigated IT-related borrowings discussed in publications by Polish linguists. To determine how representative is a corpus of borrowings collected in this manner, which would obviously be fragmentary in view of the large number of papers on technolectal borrowing, I analysed IT borrowings excerpted from two dictionaries of borrowings in Polish. Both queries revealed similar patterns, with many borrowings representing metaphorical nomination or demonstrating terminological compression. A case in point is the names of some Windows® accessories. An article which analysed such names in Polish and Hungarian (Cudak/ Tambor 1995) found that the names of some (*Calendar, Calculator, Clock*) had been calqued, but *Write* and *Paintbrush/Paint* had been borrowed. The apparent reason behind the divergent fates of these names is that the former group comprises words whose non-IT designates have the same function as the operating system accessories, while *Write* and *Paintbrush/Paint* are metonymic designations. The authors of the article also note that words meaning 'writing/painting' or 'writer/painter' had been suggested as names for the two accessories but had not caught on.

Thus, I studied units of language which were a focus of interest of researchers of borrowings, who are concerned with such aspects as formal characteristics of loanwords and the ways they are used in the recipient language, and those loanwords which came to the attention of primary users of such borrowings, whose analytical angle emphasises their utility in specialised communication. As in the first case study, there also appears to be a tendency in Polish IT terminology to borrow rather than calque terms that show a discrepancy between the definition and the structural meaning of the lexical unit (product of the unitary meanings of all meaningful elements such as words or morphemes) in the form of metaphor or metonymy, as indicated by the presence of exoderived elements in their structure. Even calques of such terms are criticized by domain experts and suggested equivalents are best described as endoderived terms.

Case study no. 3 concerned terms from an English-Polish dictionary of cardiological terminology (Szmit 2010). This source was chosen because the dictionary concerned a medical speciality rather than being a general medical dictionary, which made the resources easier to quantify. It was also compiled by a domain expert.

Analysis revealed a considerable contribution of Neo-Classical terms, which, however, were not regarded as “true” borrowings according to what has been stated above about such forms, and only three direct borrowings, namely:

- *stent*, which is an eponym;
- *macro re-entry* (a type of rapid heartbeat disorder, atrial tachycardia), which shows terminological compression and metonymy (*macro* refers to the normal conduction pathway for electrical impulses);
- *orthopnoe*, which is a Neo-Classical compound, composed of *ortho-* ‘+’straight, erect’, *-pnoe* ‘breathing’ (‘shortness of breath that disappears in the sitting position’), but unlike other compounds of this type, it has remained morphologically unassimilated. A comparison of the meanings of the constituent morphemes and the definition reveals liaison compression.

The other terms are generally calques. Analysis of terms containing exoderived elements, including metaphorical terms, revealed more cases of replacement of a metaphorical element in English with a non-metaphorical element in Polish than vice versa.

The fourth case study (analysis of terminological and non-terminological borrowings in original articles published in single issues of three journals, devoted to diabetology, psychiatry and dentistry) analysed the richest corpus, revealing similar trends to those found in the previous three case studies. It is summarized indirectly in the next section, with many examples provided there.

5. Discussion

The four case studies confirm the claims I made earlier: the vast majority of the resources of the domain terminologies analysed in Polish, but perhaps also in all secondary terminological systems, are made up of borrowed terms, including, first and foremost, calques of endoderived terms, Neo-Classical compounds as well as loanwords and calques of terms with exoderived components. As can be seen, the category

of endoderived terms is of fundamental importance for analysing loanwords in terminology. Terminological borrowings or, rather, terms perceived as loanwords comprise a few distinct subgroups:

a) multiword terms whose condensed form is difficult to reproduce faithfully using the means available to native speakers of Polish, or modifiers in such terms (as in *wypełnienia typu bulk-fill* [bulk-fill type fillings]);

b) metaphorical one-word terms derived from general language, e.g. *host*, where the specialised meaning is 'a computer governing other computers in a system' and the non-specialised meaning refers to someone who has invited guests and provides food and drink for them (multiword metaphorical terms are usually reproduced as calques perceived as borrowings);

c) words primarily possessing a non-specialised meaning that have narrowed semantics in terminology, e.g. *listing* 'a printout of the contents of a computer file, especially a piece of software' from *list* 'to write a list'. Their general language meaning has been enriched with new senses; in particular, above all in deverbal nouns, the original predicate has been modified by arguments related to the special domain that the term is part of, e.g. the patient of the predicate *list* in IT terminology is the content of a computer file;

d) abbreviations and acronyms;

e) a separate and distinct group of borrowings comprises derivatives with Latin stems (e.g. *konwersja*, *aplikacja*) formed in modern languages such as English and French and perceived as erudite lexis ("romanolatynizmy", or Romance Latinisms).

What ultimately unites these groups is what may be called "complicated semantics", i.e. lack of a transparent relationship between their structural (lexical) meaning and the definitions of the concepts these terms refer to. "Semantics" here refers to the compound meaning of a term's constituents. Thus, borrowing in terminology appears to be determined by intralingual factors.

The reasons for borrowing differ between the categories. For terms with difficult-to-reproduce internal syntax, the decisive factor is the structure of the borrowed terms, which cannot be reproduced in Polish in a similarly condensed manner. Their structural characteristics can be described along the lines of terminological compression, in particular liaison compression. This appears to be the most important reason for borrowing terminology.

The reason for borrowing one-word metaphorical terms and metaphorical elements of multiword terms is, according to the findings of the analyses, incompatibility between their lexical meaning and that contained in their definitions. In the case of borrowings whose specialised meanings in English are narrower compared to their general language meanings (e.g. *listing*), a probable reason is the "unscientific sound" of their literal Polish equivalents.

Vague semantics, allowing for diverse ways of narrowing the meaning of a given lexeme, appears to be the motivation behind the borrowing of Romance Latinisms, which, unlike the previous group, are mostly non-terms. Until recently, such words usually had narrow meanings in Polish compared to their counterparts in some other languages: *dywizja* only referred to an army unit and *redukcja* meant either a chemical

process or a lay-off (staff reduction). Now they are acquiring broader meanings, replacing established indigenous equivalents: *redukcja cholesterolu* ('cholesterol reduction') and *redukcja masy ciała* ('body weight reduction') (instead of *spadek*, *zmniejszenie*), *Implementacja* ('implementation', instead of *wprowadzenie*, *wdrożenie*), *estymacja* ('estimation', instead of *ocena*), or *okurencja* ('occurrence', instead of *wystąpienie*). While in English and other Romance and Germanic languages, such words are users' first-choice lexical units used to express certain meanings, in Polish they sound more academic than their indigenous equivalents, adding a desired "style" to text. Romance Latinisms are often called undesirable (luxury) borrowings by linguists (Dunaj/ Mycałka 2017, for example, use such epithets in their description of the words *implementacja*, *estymacja* and *importacja*), but they are not usually analysed separately as a class the way they are singled out in the present analysis.

Multiword metaphorical terms are usually reproduced as calques and often perceived as borrowings, as evidenced by the practice of using them in a text in quotation marks, or preceded by other indications of their "alien nature", such as the modal marker *tzw.* ('so called'), sometimes with the English term added in brackets, as in *tzw. przeżycie protezy (implant survival)*. This is unlike multiword endoderived terms, which are also reproduced as calques in secondary terminological systems but are not perceived as borrowings, except for terminologies where endoderived terms are not a preferred model of term formation.

It is, however, abbreviated forms that are the most abundant type of borrowing in terminology. Their popularity may be accounted for by the tendency towards condensing information and saving space, which is characteristic of specialised communication, but also by the possibility of using an abbreviated form instead of a full form that would otherwise have been borrowed as a loanword for the reasons discussed above, as with *leki OTC* (*OTC*, or *over-the-counter drugs*).

The observed similarity of the findings regarding tendencies in borrowing lexis despite the diversified analytical approaches improves their reliability and will hopefully contribute to a more coherent picture of the influence of foreign languages (and particularly English) on contemporary Polish.

Grammatical borrowings were also identified in the corpus of medical texts. Grammatical borrowing often takes advantage of the flexibility of Polish syntax in order to reproduce the linear ordering of the English sentence. These contact-induced changes, even when they concern the colligability of individual lexemes, lead to the loss of resources indicating intrasentential relations that the inflectional Polish language has traditionally had at its disposal (e.g. marked vs unmarked word order) while new means are introduced less often. The first example provided below involves a known (referenced in a previous sentence) verb complement in a sentence-final position, and the second uses a gerundive complement instead of a clausal one following *zaprzeczać* ('deny'):

- zgodni, że wiele czynników wpływa na powstanie RAS
- Pacjent zwykle zaprzecza przymusowemu powtarzaniu wypowiedzi innych

6. Conclusions

Summing up, the most common types of terminological loanwords identified in the four case studies are terms exhibiting terminological compression and terms containing general language words whose meanings have been narrowed, as evidenced by definitions of such terms. More calquing is seen among metaphorical terms, especially multiword units, but such terms are also sometimes borrowed rather than reproduced as calques. These tendencies were confirmed in an analysis of calques containing exoderived components which showed that most of those calques were not metaphorical. Calques comprising only endoderived components were not analysed as such terms had been assumed to represent presumed internationalisms whose equivalents in other languages are not perceived as borrowings.

The unwillingness in accepting metaphorical terms probably stems from a need to comply with the principles of term transparency and logicity, by choosing to use terms whose structural meanings match their definitions.

The observation that calques of endoderived terms are not perceived as borrowings demonstrates that international models of term formation actually exist and that the recommended principles of term formation are indeed reflected in terminology work. Once it has been realised that endoderived terms are commonly reproduced as calques, it is all the more surprising to find that terms including exoderived components do not lend themselves to calquing so easily, and especially so when ready-made equivalents of such components are available in the lexica of the recipient languages. This unwillingness, mentioned by Tabakowska (2015), is mostly directed towards one-word metaphorical terms and does not extend to exoderived modifiers in multiword terms with an endoderived head. The latter include a number of adjectives whose meanings are narrowed rather than metaphorically transformed, e.g. *wielki* 'great' or *późny* 'late'. Actually, metaphorical components do not elicit such great "resistance" as do components exhibiting terminological compression, mostly liaison compression. The word "resistance" has been placed in quotation marks as the borrowing of terms exhibiting compression occurs most probably for structural reasons, namely the inability of the recipient language to reproduce the structure of a term in a similarly condensed manner.

With regard to non-terminological lexis and grammar as potential areas of borrowing in specialised discourse, analysis of the text corpus revealed a large abundance of lexemes classified here as erudite Romance Latinisms. They were more often encountered in texts based on foreign literature (as given in the References sections of the respective articles from the corpus), which is a feature that makes these borrowings different from borrowed terms. As has been indicated before, a common denominator for grammatical borrowings in the corpus is the desire to imitate the English word order and noun phrase structure. Grammatical calques found in the corpus are notably different than those described for general language, which is due to the different purposes of text authors. The unwillingness to accept calques of metaphorical terms, especially one-word semantic extensions which lack any structural peculiarities that would make it difficult for them to be reproduced in the recipient language, is all the more visible here.

The present analysis concerns only Polish. However, taking a wider perspective on the suggested reasons for borrowing in terminology, the following examples may be quoted to indicate that metaphorical and metonymic terms have not been welcomed by many languages for many centuries:

- The word *text*, borrowed into many languages, represents a metaphorical transformation of its Latin predecessor *textum* ('fabric');
- *Budget* is an example of metonymy, as the French original *bougette* means 'small leather bag (for keeping money or tax plans)';
- Similarly, *bank* is metonymic, the Italian *banco* referring originally to 'desk, bench' where financial transactions were clinched.

The divergent attitudes towards metaphorical terms may also be grounded in differences between the so-called Teutonic and Anglo-Saxon styles of communication in science (Galtung 1981, Duszak 1994). An Anglo-Saxon style emphasises clarity and logic of the argument while the Teutonic style, which is supposed to be present also in Polish scientific publications, is driven by formal complexity and forefronts the author's erudition. When applied to term formation, this translates into accessible presentation of conceptual content in the Anglo-Saxon style and a tendency to display concepts in their full academic ornamentation in the Teutonic style.

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