

Terminology Practice in a Non-standardized Environment: A Case Study

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Terminology as independent discipline, as well as its practical applications is not yet well established for the South African Bantu languages. The aim of this paper is to illustrate some strategies that are currently employed to ensure sound terminology practice in a non-standardized environment, and at the same time contribute to terminology and language standardization of Northern Sotho, a language of lesser diffusion spoken by approximately 4 million people in the Republic of South Africa. Within the South African context, standardization of terminology needs to contribute to the elevation of the status of a previously disadvantaged language to that of fully-fledged official language. In the case of Northern Sotho, apart from its direct impact on terminological development, any form of terminological activity therefore must contribute to terminological standardization, and within the broader sociolinguistic context, to language standardization, since Northern Sotho has not yet been fully standardized. This paper presents the results of a case study based on the compilation of a quadrilingual explanatory LSP dictionary for chemistry in order to illustrate that sound terminology practice is indeed possible in an environment where the terminological infrastructure is not ideal, and that it can contribute not only to terminology development and standardization as such, but also over a wider spectrum to standardization of an as yet only partially standardized language.

1. Introduction

Terminology as independent discipline, as well as its practical applications is not yet well established for the South African Bantu languages. The aim of this paper is to illustrate some strategies that are currently employed to ensure sound terminology practice in a non-standardized environment, and at the same time contribute to terminology and language standardization of Northern Sotho, a language of lesser diffusion spoken by approximately 4 million people in the Republic of South Africa.

2. Contextualization

The Republic of South Africa is a multilingual country, boasting no less than eleven official languages. These languages are traditionally categorized into two groups, the one group being the two pre-1994 official languages, i.e. English and Afrikaans; the other group being the South African Bantu languages. Prior to 1994, the nine Bantu languages enjoyed only a limited measure of recognition as official languages on a regional level. After 1994, the status of these languages was elevated to that of official languages on national level. One of the many implications of language democratization in South Africa is the empowerment of the previously marginalized languages to become languages of higher functions, i.e. languages of learning and teaching, and also of scientific discourse. This in turn implies the development, consolidation and especially standardization of terminology for each of these languages and the compilation of LSP dictionaries. Following Cabre (1999), within this context the term standardization refers to both the correction of a sociolinguistic situation and the choosing of a specific term as a reference form, or as Guespin and Laroussi (1989) put it, to reduce the terminological mess to a minimum. Within the South African context, standardization of terminology needs to contribute to the elevation of the status of a previously disadvantaged language to that of fully-fledged official language. In the case of Northern Sotho, apart from its direct impact on terminological development, any form of terminological activity therefore

must contribute to terminological standardization, and within the broader sociolinguistic context, to language standardization, since Northern Sotho has not yet been fully standardized. In selecting a standard form from amongst multiple term candidates, the terminologist therefore needs to make sure that his choice is linguistically and terminologically well-informed, so as to contribute on a general level to the standardization of the Northern Sotho language.

In first world countries, terminology standardization is usually an institutionalized process, where a designated language body is tasked with this function. In South Africa, under the auspices of the Pan South African Language Board, National Language Bodies (NLBs) have been set up to fulfil this function. Unfortunately, as far as the nine Bantu languages are concerned, these structures do not yet seem to be functioning properly, due to a variety of reasons, of which three will be mentioned. In the first instance, being an NLB member is not a fulltime occupation; members usually have permanent employment elsewhere. As a result, work that has to be done for the NLB is voluntary, and is therefore often relegated to whatever spare time members have. Furthermore, until recently, no budget was available to remunerate members for their time and expertise. This, however, has in the meantime been rectified. Secondly, taking into account that dedicated terminology training is still in its infancy in South Africa, members serving on these bodies often lack formal terminological training and consequently have to rely on their mother-tongue intuition and whatever linguistic training they have had. Decisions taken with regard to especially the orthographic representation of terms is therefore often a haphazard and idiosyncratic affair, which does not contribute to the linguistically well-informed standardization of terminology. PanSALB has recently started to provide basic terminology training to ensure that the NLB members are at least aware of basic terminology principles and practice. Lastly, after having been approved by the NLB, final dissemination of standardized terminology is the function of the Terminology Coordination Section of the National Language Services, a state department which falls under the auspices of the Department of Arts and Culture. However, the electronic terminology management system that is currently being used by the Terminology Coordination Section is an old version of MultiTerm, which apparently is not only unstable, but also inaccessible to people outside the National Language Services. The absence of a fully functional electronic term management system therefore severely hampers the effective and speedy dissemination of standardized terminology. As a result of the inadequacies of the current process, terminological standardization in the South African Bantu languages and in Northern Sotho in particular, has reverted to a non-interventionist process, whereby the terminological system monitors itself by mutual accord of its end-users.

Apart from being oriented towards language planning, terminology in South Africa is also to a large extent translation oriented. This is a direct result of the multilingual nature of the South African society and the pressing need for translation into the various South African Bantu languages. Terminology is therefore not regarded as an autonomous discipline, but rather as an aid to translation. Consequently, a distinction is hardly ever made between translation and terminology work, and it is often the translator who has to fulfil the dual role of both translator and terminologist. From a terminological point of view, this is not an ideal situation, since time pressure rarely allows the translator to consult with subject field specialists to ensure proper treatment of terms in the translation of the source text.

This paper presents a case study of such translation-oriented terminological activity, feeding back into terminological standardization by general consent of the linguistic community. The subject field selected for this investigation is that of chemistry.

3. Case study

The source text upon which this case study is based, consists of 50 chemistry terms, together with their full lexicographic treatment in English, i.e. comment on form and comment on semantics that need to be translated into Northern Sotho. This translation

venture forms part of the compilation of an LSP dictionary, called a *Quadrilingual Explanatory Dictionary of Chemistry*, which contains 500 high frequency chemistry terms as headwords. The target users of the dictionary are learners in their senior high school years and undergraduate students of chemistry. The language of lemmatization in the said LSP dictionary is English, with every article being translated into Afrikaans, Northern Sotho and Zulu. Compare the following example of the treatment of the term “effervescence” in the first three languages:

English

effervescence (n) The bubbling of a solution of an element or chemical compound as the result of the emission of gas, without the application of heat, e.g. the escape of carbon dioxide from carbonated water. ♣ *effervesce* (v); *effervescent* (a).

Afrikaans

opbruising (n) Die borreling van ‘n oplossing van ‘n element of ‘n chemiese verbinding, wat veroorsaak word deur die vrystelling van ‘n gas sonder die aanwending van hitte, bv. die ontsnapping van koolstofdioksied uit gekarbonateerde water. ♣ *opbruus* (w); *opbruierend* (a).

Northern Sotho

go biloga (*leina*) Ge motswako wa elemente goba khomphaonte ya khemikhale e etšwa dipuwe e le go ntšha kese ntle le tšhomišo ya phišo, mohl. ge khaponetaoksaete e etšwa meetseng a nago le khapone. ♣ *biloga* (*lediri*); [DEM + SC] + *bilogago* (*ledirikamanyi*).

In this paper it is argued that proper terminological processing of the technical source text is a prerequisite for the eventual translation thereof. This might seem a rather superfluous statement, but within the South African context, proper terminological processing of texts *prior to* translation is not (yet) a given. Terminological sources at the disposal of terminologists / translators are also very limited, and this calls for rather more input from the terminologist / translator than is usual in contexts where ample standardized terminological sources are available.

The paper explains and motivates the different procedural steps that are taken not only to ensure terminological consistency in the translation of the technical source text, but also to contribute on a larger front to the development and standardization of terminology and eventual language standardization of Northern Sotho.

The first step in the terminological processing of the source text is the compilation of a bilingual English – Northern Sotho glossary. This is necessitated by the fact that very little standardized chemistry terminology is available for Northern Sotho—what is available is mostly restricted to a rather outdated Terminology and Orthography List published in 1988, non-standardized term lists and glossaries compiled by individuals working in the specific subject field, and a few LGP dictionaries, in which a small number of chemistry terms are treated. With regard to LGP dictionaries as sources of technical terms, special mention needs to be made of the recently published *Oxford Bilingual School Dictionary Northern Sotho and English* (De Schryver et al, 2007). In this dictionary, 298 subject specific terms have been included, of which 42 are general science terms. These terms receive a much more detailed treatment than the LGP headwords contained in the dictionary. Terms have been labelled to indicate the subject field to which they belong and have been provided with a terminological definition in both source and target languages, followed by usage examples.

carbon *noun* [no plural] Science ► khapone {a chemical element found in all living things • elemente ya khemikhale yeo e hwetšwago go diphedi ka moka} Diamonds are naturally occurring forms of carbon. • Ditaamane ka tlhago di tšwa go khapone.

Not only can the headwords be utilized as sources of terminology, but the definitions also contain a substantial number of terms that can be harvested.

The bilingual glossary forms the basis of an internally standardized term list to be made available to all translators who participate in the project. Having a standardized list ensures terminological consistency in the translations of the different translators. It will furthermore be submitted to the NLB as standardizing body for official standardization, thus contributing to general language standardization. Ideally, the glossary should be submitted to the NLB for

validation and standardization prior to being utilized in the translation project, but due to time constraints this is not always possible.

For the compilation of the glossary, both semi-automatic and manual term extraction procedures are followed in order to isolate all single and multiword terms (multiword terms going up to three-word terms) from the English source text. In order to semi-automatically extract the terms from the English source text, a small special purpose corpus is compiled, consisting of the texts of the 50 dictionary articles comprising the source text. By making use of WordSmith's Keyword function, one, two and three word term candidates are extracted. Non-terms are eliminated manually from the proffered lists. A total of 94 terms is thus extracted from the source text. Semi-automatic term extraction is supplemented by manual perusal of the texts, resulting in 35 additional terms being identified, bringing the total number of terms extracted from the source text to 129. After having isolated all possible terms, Northern Sotho term equivalents need to be provided. Strategies that are employed for the provision of term equivalents include mining of all existing terminological resources, irrespective of whether these resources are standardized or non-standardized; consultation with subject field experts who are preferably also mother tongue speakers of Northern Sotho, and as a last option, coinage of new terms by the translator / terminologist in conjunction with both special field experts and linguists.

The result of the initial process of term mining is a bilingual term list where a large percentage of source terms have multiple equivalents in Northern Sotho, due to the uncoordinated divergence of current terminological practice, leading to an almost unchecked proliferation of terms. This multiplicity is to be found on the lexical level, as well as on the orthographical level i.e. variation in spelling. Compare the following sample, extracted from the glossary:

Source term	TE1	TE2	TE3	TE4	TE5
acid	sedilana	esiti	asiti		
density	pitlagano	kitlano	teteano	pitlagantšho	kitlagano
electron	eleketerone	elektrone	elekterone	eleketrone	
energy	mafolofolo	mooko	maatla	enetši	
force	kgapeletšo	maatla			
iron	tšhipi	fero			
mercury	mekhuri	tšhipi-meetse			
negative	nekethibi	nekethifi	neketifi	latolago	ganetšago
proton	porotone	protone			
dehydration	komo	meetsefatšola	go šwaba		
particle	seripana	lerathana	sekgwana	karolonyana	tsekana
periodic table	lenaneo la periotiki	tafola ya periotiki	papetla ya periotiki		
volume	volume	bolume			
bond	tlemagano	kamanyo	setlamo	pofo	
diatomic	diathomopedi	taethomiki			

Table 1. Multiple term equivalents

When choosing a standard form from amongst different lexical variants (e.g. *pitlagano* vs *kitlano* vs *teteano* vs *pitlagantšho* vs *kitlagano* “density”), frequency of use would normally be the first criterion, the underlying assumption being that the variant with the highest frequency of use would also be the generally accepted one. However, in order to make a frequency query, a sizable special corpus containing chemistry texts in Northern Sotho is needed in order to make the results statistically significant. The scarcity of chemistry texts in

Northern Sotho makes this option rather unfeasible; consequently the terminologist has little choice but to liaise with subject field experts and abide by their recommendations. Secondly, in the case of orthographical variation, which is especially prevalent in the case of transliterations (e.g. *eleketerone* vs *elektrone* vs *elekterone* vs *eleketrone* “electron”), the obvious strategy would be to choose the candidate which conforms to the accepted spelling rules of Northern Sotho. The current spelling rules are however rather superficial, and do not have a sound linguistic basis; consequently they have very little prediction value for the spelling of new terms, especially with regard to transliterations, where the adaptation of syllable structure becomes an issue.

Being a Bantu language, the preferred syllable structure for Northern Sotho is a CV structure, which implies that consonant clusters appearing in the English (or Afrikaans) source term should be separated by inserting a vowel between adjacent consonants. There are two spelling rules provided in the current Terminology and Orthography, supposedly providing guidance on the spelling of transliterations in Northern Sotho. The first rule provides a seemingly random list of 26 words, amongst which are *silibera* “silver” and *barometara* “barometer”. The rule states that the syllable structure of these words could be adapted to the Northern Sotho syllable structure. The inadequacy of a rule that is formulated in the form of an option is obvious. The second rule states that the spelling of ‘international terms’ are not adapted to the Northern Sotho syllable structure. It is however not clear what is to be understood under “international terms”, since the only two words that are provided by way of illustration are *kredit* “credit” and *moprofeta* “prophet”. It is not clear why the equivalents of “credit” and “prophet” are to be regarded as “international terms” but not those of “silver” and “barometer”. These rules leave the terminologist none the wiser as to the correct spelling of for example, the translation equivalent (TE) of “electron”. The terminologist therefore has to make a principled decision and consistently apply whichever principle is chosen. Should the term list thus compiled eventually be approved by a standardizing body, this will contribute to the improvement of the current spelling rules, provided that the decision that the terminologist has taken with regard to the possible adaptation of the syllable structure is clear, consistently applied and linguistically well-motivated.

In this particular instance the stance taken by the terminologist is to take users’ preference as a starting point. A preliminary investigation regarding users’ preferences seems to indicate that mother-tongue speakers prefer to adapt the syllable structure of transliterations in cases where consonant clusters appear at the beginning of words, whereas these clusters are retained whenever they occur within words. Using users’ preference as a guiding principle, the spelling of transliterations where syllable adaptation is an issue is thus internally standardized. The general rule(s) pertaining to the spelling of transliterations are inductively and retrospectively formulated, based on the standardized spelling of individual transliterated terms.

A third issue that confronts the translator *cum* terminologist is the choice between so-called indigenous Northern Sotho terms and terms formed by means of a process of transliteration, e.g. *mafolofolo*, *mooko*, *maatla* vs *enetši* “energy”. Both term formation strategies have specific advantages and disadvantages, some of which generally apply and some of which are specific to the South African context. Subject field specialists are often of the opinion that the indigenous Northern Sotho term lacks the highly specific meaning which is required of a technical term. The validity of such an argument is questionable, since the secondary technical meaning acquired by a lexical item through a process of semantic specialization is something that can and should be learnt by anyone working in that particular subject field. Nevertheless, subject specialists often opt for the transliterated term, arguing that the highly specific meaning of the source term is transferred to the target language via the visual link between source and target terms. On the other hand, a measure of resistance against the use of transliterations exists in the Northern Sotho linguistic community, especially amongst academics, who regard transliterations as “language spoilers”. They argue that the overuse of transliteration as term formation strategy can cause the language to lose its unique character.

In this particular instance, the recommendation of the subject specialist is taken to be the deciding factor when selecting a TE from amongst indigenous words and transliterations. It is argued that it does not fall within the ambit of the terminologist's function to make a judgemental decision as to the principled inclusion or exclusion of transliterations as TEs of technical terms. It is surmised that this lenient approach towards transliterations would feed back into the formulation of the general policy regarding the use of these forms.

In order to illustrate the process explained above, the terminological processing of the entry *effervescence* is briefly discussed. The different options are given and motivation for some of the choices made with regard to terminological issues is provided. Table 2 below presents the terms isolated from the main glossary which are relevant for this particular entry. The terminological equivalents for every term as gleaned from different terminological sources are listed in no particular order. In the case of multiple equivalents the preferred choice of the subject field expert is printed in italics.

Source term	TE1	TE2	TE3
application	<i>tšhomišo</i>	kgopelo	
bubbling	pubulo	<i>go tšwa dipuwe</i>	
carbon dioxide	<i>khapone-taoksaete</i>	khaponetaoksaete	
carbonated water	meetse a nago le khapone		
chemical compound	tlhakantšhetšo ya khemikhale	<i>khomphaonte ya khemikhale</i>	tlhakanyo ya khemikhale
effervesce	phophoma	fufula	<i>biloga</i>
effervescence	<i>go biloga</i>	pilogo	phufulo
effervescent	<i>bilogago</i>	phophomago	
element	<i>elemente</i>	setho	
emission	go tšwa		
gas	kese	<i>gase</i>	moya
heat	<i>phišo</i>	borutho	
solution	<i>motswako</i>	solušene	tharollo

Table 2. Terms extracted from the entry *effervescence*

From the table above, no clear preference can be detected with regard to the choice between indigenous terms and transliterations. It would seem that the primary consideration in selecting an appropriate term from amongst different options is simply finding the closest conceptual match between the proffered terms and the concept that must be represented by the term. In relying on the recommendation of the subject field expert, a pervasive problem in SA terminology practice is avoided: there is often a mismatch between the term and the concept it is supposed to represent, simply because terminologist *cum* translator is not familiar with the concept that underpins the term. This is not through any fault of the terminologist - it can hardly be expected of a terminologist to be an expert in any number of subject fields, but it can be expected of a terminologist to consult with experts on terminology in any subject field. On the other hand, subject experts are usually not linguistic experts, and any decision regarding the linguistic aspects of terminology is best left to the terminologist.

In the case of the TEs selected for “chemical compound”, “element” and “gas”, transliterations were opted for, whereas the indigenous term for “solution” was deemed to represent the closest conceptual match between term and concept. In the case of “gas” specifically, the meaning of the indigenous LGP item *moya* “air” that was given as an option is too general to represent the conceptual content of the term “gas”. The indigenous terms listed as possible TEs for “chemical compound” are conceptually closer to “chemical

mixture” than to “chemical compound”, whereas the TE for “element” refers to a “member” rather than to “element”.

In the case of the terms “effervesce” and “effervescent”, an interesting semantic restriction decided the choice of the Northern Sotho TE. The item *phophoma(go)* that was listed as a possible TE is semantically restricted, in that it is mostly used to refer to the fermentation process found in traditional beer and is seldom used with reference to other liquids. It therefore had to be eliminated as a possible TE for these terms. The candidates *fufula* and *phufulo* as TEs for “effervesce” and “effervescence” respectively were discarded by the subject expert because they represent what is deemed to be dialectal forms. No confirmation for this point of view could however be found in existing literature on Northern Sotho dialects. In the *Groot Noord-Sotho Woordeboek*, (Ziervogel and Mokgokong 1975) one of the most authoritative Northern Sotho dictionaries, dialectal forms are labelled, and no label appears in the entry for the lemma *fufula*.

Although the preference of the subject expert is accepted as the norm with regard to the selection of TEs from amongst different candidates, in one particular instance, the recommendation of the expert was overridden by the terminologist. The preferred TE for carbon dioxide is indicated as being the form containing a hyphen. However, according to the spelling rules of Northern Sotho, the use of hyphens should be avoided; therefore the terminologist in this case opted for the TE without the hyphen, in order to comply with the spelling rules.

In two cases the term candidates offered as TEs represent the wrong sense of the English source terms. In the case of “application”, the TE *kgopelo* refers to an application in the sense of a request for something; the TE *tharollo* for “solution” refers to the solution of a problem. This seems to have been an oversight on the part of the terminologist who compiled the glossary, or an unfamiliarity with the concepts “application” and “solution” within the field of chemistry.

4. Conclusion

It would seem then, that the choices made from amongst a multiplicity of terms can at least for this particular case, be regarded as conceptually and linguistically sound. These terms are the result of terminology standardization by means of consent by both subject field experts and terminologists. By following the same procedure in selecting TEs for all terms on the bilingual glossary, a list that has already been internally standardized through consent by all interested parties can be submitted to the standardization body for final validation and standardization. Value can be added by formalizing the linguistic and terminological principles that were followed in the compilation of the glossary, e.g. the spelling of transliterations, for further use by terminologists and translators.

We conclude that sound terminology practice is indeed possible in an environment where the terminological infrastructure is not ideal, and that it can contribute not only to terminology development and standardization as such, but also over a wider spectrum to standardization of an as yet only partially standardized language.

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